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The Western Classical Tradition in Linguistics

Second (expanded) edition

Keith Allan
In memoriam
Requiescant in pace
Contents

List of Figures xi
List of Tables xiii
Preface to the first edition xiv
Preface to the second edition xv
Acknowledgments xvi
Symbols and abbreviations used in the text xvii

Chapter 1 Linguistics and the Western Classical Tradition 1
Linguistics, language, and languages 1
Viewpoints on language 5
The Western Classical Tradition in linguistics 9
Why (almost) no women? 14
Summary introduction to the Western Classical Tradition in linguistics 18

Chapter 2 Plato on language 22
Before Plato 22
Plato on meaning and grammar 27
Plato on the relationship between meaning and form in language 28
Particulars, universals, and abstract objects 35
Plato on meaning, form, and understanding 37

Chapter 3 Aristotle’s legacy 39
Aristotle’s footprints in the linguist’s garden 39
Some basic Aristotelian assumptions 41
Aristotle’s parts of speech 43
Aristotle on the phoneme 46
Semantic relations in Aristotle 47
Propositions and their meanings 49
Aristotle and the Gricean maxims 55
A summary of Aristotle’s perambulations in the linguistics garden 57

Chapter 4 The Stoics and Varro 59
The third century BCE through to the third century CE 59
The Stoics 59
Varro 68
The development of a linguistic theory 78
Chapter 5  Quintilian, Dionysius, and Donatus: the start of a pedagogic tradition 80
From philosophy to pedagogy 80
Quintilian 81
The Technē Grammatikē of Dionysius Thrax 84
The Artes Grammaticae of Aelius Donatus 93
The parts of speech in the pedagogical tradition 97

Chapter 6  Apollonius and Priscian, the great grammarians among the ancients 101
Apollonius 101
Priscian 111
Priscian’s Institutiones Grammaticae 112
Priscian’s De Nomine 122
Priscian’s Partitiones 124
A summary of Priscian’s contribution 125

Chapter 7  Prescriptivism from the early middle ages on 128
The prescriptivist tradition 128
The early middle ages 130
Isidore of Seville, encyclopaedist 132
The insular grammarians 136
Ælfric of Eynsham 139
The Anglo-Saxon grammar of Elizabeth Elstob 141
Prescriptivism and standards in English grammar 142
Prescriptive linguistics from the middle ages till modern times 157

Chapter 8  ‘General’ or ‘universal’ grammar: from the modistae to Chomsky 161
The background to general grammar 161
The modistae or speculative grammarians 163
The recognition of vernacular languages 175
The search for a ‘philosophical language’ and a ‘real character’ 177
General or universal and rationalist grammar 183
From the modistae to Chomsky 192

Chapter 9  Phonetics, phonology, and comparative philology 195
The nineteenth century 195
A brief history of phonetics and phonology 195
Nineteenth century comparative philology 207
Linguistics at the end of the nineteenth century 221
Chapter 10  Language and thought: from Epicurus until after Whorf  224
  Speculations on the origin of language and linguistic relativity  224
  Speculations on the origin of language  224
  Humboldt on the mutual influence of language and culture  234
  Boas  238
  Sapir  241
  Whorf  244
  From linguistic relativity to cognitive grammar  248

Chapter 11  Saussurean and functionalist linguistics: the study of
  language as human communication  254
  Saussure and functionalism  254
  Saussurean linguistics  254
  Functionalist linguistics  263
  The study of language as human communication  276

Chapter 12  Paradigms for linguistic analysis: Bloomfieldian linguistics
  and the Chomsky revolution  278
  The problem of classifying and categorizing data  278
  On kinds of inference applicable to linguistic theorizing  280
  Bloomfieldian linguistics  284
  Chomsky’s disillusionment with the inductivist paradigm  293
  The Chomsky revolution  295
  Correlating theoretical constructs with the reality they purport to
  represent  297
  Evaluating linguistic hypotheses: what a theory of language should do
  298
  An eclectic approach  303
  A tale of two paradigms  305

Chapter 13  Linguistic semantics and pragmatics from earliest times  306
  Overview  306
  Names  307
  Signs and symbols, signification, ideas or concepts, and what in the
  world is referred to  309
  From lexicography to lexical semantics  323
  Semantics within syntactic structures: the work of Jerrold J. Katz
  333
  Alternatives to Katzian semantics  337
  The importance of truth conditions  342
  The development of formal semantics  344
  Anaphora  347
  Contextual considerations and the rise of pragmatics  349
  A summary history of semantics and pragmatics  360
# List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>King Narmer defeats his enemies</td>
<td>1</td>
</tr>
<tr>
<td>1.2</td>
<td>The Sumerian logograph <em>sag</em> “head”</td>
<td>2</td>
</tr>
<tr>
<td>1.3</td>
<td>Sumerian c. 3000 BCE</td>
<td>2</td>
</tr>
<tr>
<td>1.4</td>
<td>The complex logograph for Sumerian <em>geme</em> “slave-girl”</td>
<td>2</td>
</tr>
<tr>
<td>1.5</td>
<td>The <em>k</em> vowel syllables of Linear B</td>
<td>3</td>
</tr>
<tr>
<td>1.6</td>
<td>Ptolemy cartouche from the Rosetta Stone</td>
<td>3</td>
</tr>
<tr>
<td>1.7a</td>
<td>Normal right-to-left</td>
<td>3</td>
</tr>
<tr>
<td>1.7b</td>
<td>Left-to-right</td>
<td>3</td>
</tr>
<tr>
<td>1.8</td>
<td>The /l/ graphemes in related scripts</td>
<td>4</td>
</tr>
<tr>
<td>1.9</td>
<td>Semitic <em>ʔālep</em> “ox”. The symbol for <em>ʔ</em> comes to be used for <em>A</em> in Greek</td>
<td>4</td>
</tr>
<tr>
<td>1.10</td>
<td>A visual analysis of spoken <em>Sit down will you?</em></td>
<td>6</td>
</tr>
<tr>
<td>1.11</td>
<td>Smileys</td>
<td>18</td>
</tr>
<tr>
<td>1.12</td>
<td>A map of the ancient world</td>
<td>21</td>
</tr>
<tr>
<td>2.1</td>
<td>The Greek inscription in <em>scripta continua</em> on the Rosetta Stone</td>
<td>22</td>
</tr>
<tr>
<td>2.2</td>
<td>Egyptian demotic papyrus c. 1210 BCE</td>
<td>23</td>
</tr>
<tr>
<td>3.1</td>
<td>Apuleius’ square of opposition</td>
<td>52</td>
</tr>
<tr>
<td>3.2</td>
<td>The square of opposition again</td>
<td>54</td>
</tr>
<tr>
<td>3.3</td>
<td>The modal square of opposition</td>
<td>54</td>
</tr>
<tr>
<td>4.1</td>
<td>The Stoic semiotic triangle and that of Ogden and Richards</td>
<td>61</td>
</tr>
<tr>
<td>4.2</td>
<td>Categories of the <em>lekton</em></td>
<td>61</td>
</tr>
<tr>
<td>4.3</td>
<td>Cases falling from the upright</td>
<td>64</td>
</tr>
<tr>
<td>7.1</td>
<td>Europe in the early middle ages</td>
<td>129</td>
</tr>
<tr>
<td>8.1</td>
<td><em>Compositio</em></td>
<td>171</td>
</tr>
<tr>
<td>8.2</td>
<td>Types of transitives</td>
<td>172</td>
</tr>
<tr>
<td>8.3</td>
<td>Modistic analysis of <em>Socrates percutit Platonem</em></td>
<td>172</td>
</tr>
<tr>
<td>8.4</td>
<td>Modistic analysis of <em>Socrates albus currit bene</em></td>
<td>173</td>
</tr>
<tr>
<td>8.5</td>
<td>Modistic analysis of <em>Video legentem librum</em></td>
<td>173</td>
</tr>
<tr>
<td>8.6</td>
<td>Wilkins’ 40 categories</td>
<td>180</td>
</tr>
<tr>
<td>8.7</td>
<td>Virgil’s book</td>
<td>193</td>
</tr>
<tr>
<td>9.1</td>
<td>A vowel diagram constructed from the <em>First Grammatical Treatise</em></td>
<td>198</td>
</tr>
<tr>
<td>9.2</td>
<td>Hellwag’s Vowel Chart of 1781</td>
<td>201</td>
</tr>
<tr>
<td>9.3</td>
<td>Grimm’s ‘cycle’ (<em>Kreislauf</em>)</td>
<td>212</td>
</tr>
<tr>
<td>10.1</td>
<td>Figure and ground change in an ambiguous figure</td>
<td>243</td>
</tr>
<tr>
<td>11.1</td>
<td>The mood system in an early version of systemic grammar</td>
<td>266</td>
</tr>
</tbody>
</table>
Figure 11.2. A lattice in part of the verbal group complex
Figure 11.3. Components of the layered structure of a clause in RRG
Figure 11.4. An English sentence
Figure 11.5. A Japanese question
Figure 11.6. English translation of the Dyirbal in Figure 11.7
Figure 11.7. Dyirbal translation of the English in Figure 11.6
Figure 11.8. Operator projections
Figure 11.9. Operator projections: tense and illocutionary force marking
Figure 11.10. Operator projection in a Japanese question
Figure 11.11. An English NP compared with its Arrernte translation
Figure 11.12. The syntax, semantics, and pragmatics of *What did Dana give to Pat yesterday?*

Figure 12.1. Hockett’s bottom-up analysis of an English sentence
Figure 13.1. Relations within the lexicon (Pustejovsky)
Figure 13.2. The semantic reading for chase in Katz 1977c: 62
List of Tables

Table 2.1. The three constituents of a letter 24
Table 3.1. The consonant triads 47
Table 3.2. Linguistic correlates for Aristotle’s ten categories 48
Table 4.1. The Stoic tense-aspect system 66
Table 4.2. Derivational irregularity 73
Table 4.3. Varro’s use of inflectional characteristics to distinguish parts of speech 75
Table 4.4. A restoration of Varro’s case–gender matrix 76
Table 4.5. Varro’s tense–aspect paradigm 76
Table 6.1. Apollonius’ four categories among the parts of speech 104
Table 6.2. Priscian’s four categories among the parts of speech 104
Table 6.3. Graphemic simplification 113
Table 6.4. A morphophonemic rule 113
Table 6.5. Formation rule 1 for the past imperfect 118
Table 6.6. Formation rule 2 for the past imperfect 118
Table 7.1. Ælfric’s parts of speech 140
Table 8.1. Modus and esse, matter and form 168
Table 8.2. The case of the suppositum 172
Table 9.1. Letters 197
Table 9.2. Table of equivalences between Greek and Latin 211
Table 9.3. Examples of Grimm’s law 212
Table 9.4. Consonant correspondences under Grimm’s law 213
Table 9.5. Conditions for Verner’s Law 218
Table 9.6. Correspondences between PIE and its daughters 219
Table 9.7. Ablaut series in the stems of Greek verbs 219
Table 9.8. Ablaut series in the stems of lexically related words 219
Table 9.9. The primitive vowel system in PIE 220
Table 9.10. Hittite h as a reflex of the PIE laryngeal 220
Table 11.1. Associative and syntagmatic relations 256
Table 11.2. Scale and category 267
Table 11.3. Word classes and their typical functions in groups 268
Table 11.4. Aspect-based verb classes 273
Table 11.5. The logical structures of verb classes in RRG 273
Table 11.6. Some thematic roles and typical macroroles 275
Table 11.7. Macroroles are defined on argument positions 275
Table 13.1. A componential table 343
Table 13.2. Sources for implicatures 358
Preface to the first edition

When I first read Aristotle in the 1970s I was deeply impressed that many notions in contemporary linguistics were foreshadowed in Aristotle’s works; and by the fact that, by and large, twentieth century linguists did not acknowledge it. My uncharitable suspicion was that most of them were unaware of it. At that time too, and I don’t think there has been much change, undergraduate students were often introduced to linguistics in such a way that they often came to believe that linguistics is a new discipline, at most about a hundred years old. Notable exceptions to the general rule were Francis Dinneen’s Introduction to General Linguistics (Dinneen 1967) and John Lyons’ Introduction to Theoretical Linguistics (Lyons 1968), which did recognize the role of the ancient Greek and Roman grammarians, the medieval schoolmen, and later grammarians and philologists in the development of linguistics. There were historiographers like Robert H. Robins, whose Ancient and Medieval Grammatical Theory in Europe (Robins 1951) was not widely enough known; however, his Short History of Linguistics, first published in 1967, did become a standard reference work for more than 30 years and ran to a fourth edition (1997). When Noam Chomsky sought in Cartesian Linguistics (Chomsky 1966) to establish his intellectual roots in the seventeenth century (which was nowhere near far enough back), it did have a positive effect by extending the history of linguistics for a larger number of linguists and linguistic students. Nevertheless, rather than being a matter of general knowledge among linguists, the history of the discipline remains a specialist interest, well catered for since 1973 by the Amsterdam Studies in the Theory and History of Linguistic Science (John Benjamins) under the general editorship of Konrad Koerner, and since 1974 by the journal Historiographia Linguistica, as well as numerous other publications, many of which are mentioned in the pages of this book.

The Western Classical Tradition in Linguistics identifies a tradition which extends from ancient Greece to twenty-first century linguistics, and which has spread from Europe to the other four inhabited continents. It is a story of the various stages of language study that constitute a tradition as each successive stage builds upon, or reacts against, what precedes it. A full history would occupy several volumes; this short one necessarily selects a few particularly worthy works for critical examination and exposition. I must apologize, though, for the fact that many interesting matters have been dealt with all too briefly, others are barely mentioned, and some not referred to at all.

Translations in this book are deliberately free and sometimes use anachronistic modern terminology intended to gloss the original in terms familiar to today’s students of linguistics. Snippets of text in the original language are included where that may prove helpful to some readers. Limited space prevented me from including copies of the original text of all translated quotations.

KA, November 2006
Preface to the second edition

The principal novelty in this second edition is the addition of Chapter 13 ‘Linguistic semantics and pragmatics from earliest times’. Although the first edition did contain snippets of information on the contributions of particular individuals to the study of what we now call semantics and pragmatics it lacked a thematic chapter offering a comprehensive presentation of these closely related topics. Chapter 13 concentrates on developments in semantics and pragmatics not covered elsewhere in the book.

In addition to correcting typos and infelicities of expression that crept into the first edition I needed to make a substantial revision to the section in Chapter 1 originally called ‘Why no women?’ In it I had wrongly claimed that until just before the twentieth century no women were recorded as having made a contribution to the Western Classical Tradition. I am grateful to Andrew Linn, Cynthia Allen, Karen Green, and Pedro Chamizo for directing me to some pre-twentieth century women who certainly do merit mention. The section is now renamed ‘Why (almost) no women?’ and, among other additions, the work of two eighteenth century women grammarians is briefly introduced there and later afforded more detailed discussion in Chapter 7, ‘Prescriptivism from the early middle ages on’.

All URLs mentioned in the text were accessible on October 9, 2009.

KA, Melbourne. October 2009
Acknowledgments

I am grateful to Monash University for seed funding back in 1993 which led to this project getting started; but then other tasks intervened. Twelve years later, in the second half of 2005, I was granted OSP leave which enabled me to spend time at Clare Hall, Cambridge University, while I made extensive use of the Cambridge University Library. In the Michaelmas term of 2005 I was fortunate to be awarded a Christensen Fellowship by St Catherine’s College, Oxford. I sincerely thank the Master and Fellows, indeed all members and staff of St Catz, for making my visiting fellowship there extremely enjoyable; at the same time I profited greatly from the resources of the Bodleian and other libraries of the University of Oxford, which saved this book from being much poorer than it is. Especial thanks are due to the remarkable JC Smith for convivial companionship and intellectual stimulation at St Catz. I am grateful to Janet Joyce of Equinox, who got me writing, gave much encouragement, and forgave me for delivering 35,000 words over contract for the first edition of this book in 2007. I am even more grateful that she was willing to publish this revised and expanded edition. Thanks are due to Mark Newbrook and especially Peter Mountford for correcting my Greek and Latin; to Anna Margetts for help with German and comments on one of the chapters. Various kinds of valuable advice were offered by Andrew Linn, Anneli Luhtala, Cynthia Allen, David Cram, Eliza Kitis, Jane Griffiths, John Joseph, Jun Yano, Karen Green, Kate Burridge, Mike Balint, Pedro Chamizo Dominguez, Peter Matthews, Pieter Seuren, Richard Ashdowne, Sandra Margolies, and Vit Bubeník, along with snippets from cohorts of fourth year undergraduate students – for which I heartily thank them all. Wendy Allen has my undying gratitude for being a constant genial source of comfort and joy. All faults in the work are, alas, mine alone.

I thank Geoffrey Sampson for allowing me to use some diagrams in Chapter 1 from his *Writing Systems: A Linguistic Introduction*, London: Hutchinson (1985).

I also thank the editor and publisher of *Language Sciences* for permission to incorporate parts of my ‘Aristotle’s footprints in the linguist’s garden’ (*Language Sciences* 26, 2004) in Chapter 3 and ‘Linguistic metatheory’ (*Language Sciences* 25, 2003) in Chapter 12.

Several attempts in various media failed to get a response from British Museum Press with respect to my graphics based on Stephen Quirke’s facsimile of the Rosetta Stone and on a demotic papyrus, both of which are found in Richard Parkinson’s *Cracking Codes: The Rosetta Stone and Decipherment* (1999) in my discussion of *scripta continua* in Chapter 2. I thank the BMP for not refusing permission.
Symbols and abbreviations used in the text

<p>| + date BCE | before CE, the common era |
| + date CE | in the common era |
| BP | before present |
| fl. [+ date] | flourished (used when other dates such as birth date are unknown) |
| c. [+ date] | about (from Latin <em>circa</em>) |
| b. [+ date] | born |
| d. [+ date] | died |
| ibid. (ibidem) | the same reference as the previous one |
| op.cit. (opus citatum) | the work cited/quoted |
| \exists | the existential quantifier |
| \forall | the universal quantifier |
| p \land q | the logical conjunction of p and q |
| \iota \alpha | the intension of \alpha |
| \nu \alpha | the extension of \alpha (at a given world and time) |
| \lambda | lambda, the set abstraction operator |
| \llbracket \alpha \rrbracket^M | the denotation of \alpha in model M |
| X \rightarrow Y | X expands into Y |
| X \Leftarrow Y | X derives from Y |
| F \Rightarrow G | F gives rise to G |
| ABL | ablative case |
| ACC | accusative case |
| ADJ or Adj | adjective |
| ADV or Adv | adverb |
| DAT | dative case |
| DU | dual number |
| F | feminine gender |
| GEN | genitive case |
| IE | Indo-European |
| M | masculine gender |
| N | neuter gender |
| N | noun |
| NOM | nominative case |
| NP | noun phrase |
| PARS (plural PARTES) | part of speech (in speculative grammar) |
| PIE | Proto-Indo-European |
| PL | plural number |
| Pp | past participle |
| REL | relative pronoun |</p>
<table>
<thead>
<tr>
<th>Symbol</th>
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</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>sentence</td>
</tr>
<tr>
<td>SG</td>
<td>singular number</td>
</tr>
<tr>
<td>SVO</td>
<td>SUBJECT<del>VERB</del>OBJECT</td>
</tr>
<tr>
<td>V</td>
<td>verb</td>
</tr>
<tr>
<td>VOC</td>
<td>vocative case</td>
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</tbody>
</table>
Chapter 1  Linguistics and the Western Classical Tradition

Linguistics, language, and languages

Linguistics is the study of natural human language and languages; and perhaps ever since human beings become conscious they were using language, some among them have thought about its structure and composition. The earliest writing systems date back about more than 5,000 years and are positive evidence for early linguistic enterprise because the development of a writing system requires the analysis of speech into segments. It is fair to say, however, that a writing system is created for some practical purpose such as the keeping of records; it does not follow that the creator of the writing system will either undertake or have any interest in further analysis of language.

Writing is a means of recording events, transactions, agreements, and observations in ways that do not rely entirely on oral transmission. Before writing, events were recorded in pictures. Like writing, pictures use conventional symbols to represent experience – even though they are closer likenesses of what they represent than is writing. Notice the symbolism in Figure 1.1: the King is identifiable from his head-dress; the enemies are trampled underfoot.

![Figure 1.1. King Narmer defeats his enemies. Egyptian, 3100 BCE.](image)

The earliest writing systems are logographic. A logographic system uses symbols for words:

♂ is a logograph for “male”

4 is a logograph for “four”.

---

1. ‘The men who invented and perfected writing were great linguists and it was they who created linguistics’ (Antoine Meillet, quoted in Coulmas 2003: 1).
A logograph may start out as a pictograph, then get more abstracted, as in Figure 1.2.

![Figure 1.2. The Sumerian logograph sag “head”.](image)

Sumerian, an agglutinating language\(^2\) not related to any modern languages, was spoken in Mesopotamia (Iraq). Writing was at first inscribed on wet clay with a pointed stylus (as in Figure 1.3), which was later (c. 2500 BCE) replaced by a wedge-shaped stylus, giving rise to the description *cuneiform* script (from the Latin *cuneus* “wedge”).

The 90° turn c.3000 BCE (cf. the left half of Figure 1.2) was systematic and recurs elsewhere, as we shall see; it marks the first stage in abstraction from pictograph to abstract symbol. Combinations of simple graphs are used to create complex logographs as in Figure 1.4 (Sampson 1985: 52): the combination of the symbol for woman and the one for mountain are used for *geme* “slave-girl” (slaves were taken in the mountains). The same four developmental stages are shown in Figure 1.2.

![Figure 1.3. Sumerian c. 3000 BCE. Note the graph for drinking (head and cup), bottom left.](image)

![Figure 1.4. The complex logograph for Sumerian *geme* “slave-girl”.](image)

Logographs may in fact represent morphemes rather than words. They do not have to be narrowly language specific – many Chinese logographs have different pronunciations in different dialects, and some are used in Japanese and Korean. Logographic systems have usually developed so that some logographs extend to homophones of the original word symbolized, as in a “for sale” sign that uses 4 for *for*. It was similar in ancient times. The Sumerian graph used for both *an* “sky” and

\(\text{4 SALE}\)

---

2. Turkish, Finnish, Japanese, and Wishram are agglutinating languages.

3. The graph for “woman” *munus* also means “female pudendum” *sal*, which explains the original pictographic form.
dingir “god” distinguished between them by adding a ‘phonetic complement’, a graph for na or ra, respectively (cf. Sampson 1985: 55).

Once a logographic symbol is associated with phonetic form there is scope for its development into either a syllabary representing the syllables in a language or into an alphabet based on the phonemes of a language. Syllabaries and alphabets exemplify prehistoric phonological analyses of language. An early syllabary is ‘Linear B’, the script of Mycenaean Greek of around 2000 BCE (Figure 1.5)\(^4\); Japanese kana is also a syllabary, e.g. the two symbols よ こ spell yoko (not the name, but “horizontal”).

\[
\begin{array}{cccc}
ka & ke & ki & ko \\
\end{array}
\]

**Figure 1.5.** The k+vowel syllables of Linear B, from Sampson 1985: 65.

Egyptian script mostly reads from right to left, but also from the top down. Thus the cartouche for Πτολεμεύς (Ptolemy V, reigned 204–181 BCE) from the Rosetta Stone (Figure 1.6) reads down and right-to-left in the Egyptian original Figure 1.7a, and down and left-to-right in the Anglicized Figure 1.7b.

\[
\begin{array}{cccc}
le & P & o & le \\
m & e & os \\
\end{array}
\]

**Figure 1.6.** Ptolemy cartouche from the Rosetta Stone.

**Figure 1.7a.** Normal right-to-left.  
**Figure 1.7b.** Left-to-right.

Our own alphabet derives from the same Semitic alphabet that also gave rise to Hebrew and Arabic scripts (although these maintain the right-to-left sequence). Figure 1.8 shows the /l/ graphemes in these related scripts. (The Roman <L> may have come from Etruscan or Marsiliana in the north-west or from the Messapii or Picene peoples of the Adriatic in the east.)

---

4. See Sampson 1985: 65 for 73 of the symbols for Linear B syllables, though there are an additional 16 rare ones.
Perhaps because of the characteristics of Semitic languages, until modern times they used consonantal scripts. The original alphabetic symbols were based on pictographic mnemonics for the initial phoneme of a word, e.g. the initial glottal stop of ʔālep “ox” was symbolized initially as on the left in Figure 1.9; then the letter was rotated almost 90° in Archaic Semitic, and another 90° as it became a vowel symbol in Greek and Latin.

In myth the Greek alphabet was brought to Greece by a Phoenician prince, Cadmus, and therefore it is traditionally called φοινιχὴ γραμματα (phoinichēia grammata) “Phoenician letters”. The Phoenicians were a trading nation who spoke, and still speak, a Semitic language and used a Semitic script. Like other Indo-European languages, the Greek language needed to be able to write vowels as well as consonants because they are very much less predictable than in Semitic languages. Greeks therefore adapted the old Semitic consonantal alphabet by reassigning symbols for phones that did not occur in Greek. On this basis the glottal stop letter was used for the vowel Α; E (epsilon) was based on ḫē; H (eta) on ḥēt (initial voiceless pharyngeal); I (iota) on jod; O (omicron) on ʕajin (initial voiced pharyngeal); Y (upsilon) on wāw (which later gave rise to F in Latin). Italic alphabets were based on the Greek alphabet. In Chapter 2 there is more about writing in ancient Europe, and its influence on the teaching of grammar.

The creators of writing systems were doing linguistics in at least a primitive way, because they had to segment the spoken language in order to give it visual and more permanent representation. The way in which language came to be represented in writing is intrinsically interesting, but only indirectly relevant to the history of linguistics. It is, however, relevant to the metalinguistic process of devising a means of representing the structure of language. Prehistoric thought about the structure and composition of language is the pretheoretical pathway towards linguistics proper. What characterizes a linguist is that

- the linguist studies language and/or languages in a methodical way.

It is the methodical study that justifies claiming linguistics to be a science. So far as this book is concerned, a ‘linguist’ is someone who studies and writes about the structure and composition of language.

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5. E.g. the Arabic consonantal root ƙ-t-b has the meaning “marking, inscribing”; vowels are more or less predictable from additional consonants and from context; cf. kataba “he wrote”, katabat “she wrote”, kitāb “writer”, kitāb “book”, kutub “books”, kutayyib “booklet”, kutub “bookdealer”, maktaba “library”, maktab “office”, miktāb “typewriter”, maktūb “letter”, mukātaba “correspondence”, istiktāb “dictation”.

**Figure 1.8.** The /l/ graphemes in related scripts.

**Figure 1.9.** Semitic ʔālep “ox”. The symbol for ʔ comes to be used for A in Greek.
A philosophy of linguistics (e.g. Katz (ed.) 1985; Botha 1992) inquires into the ontology of linguistic theory, that is, into the fundamental concepts of linguistics. In other words, a philosophy of linguistics examines the belief system of the linguist as s/he studies language. Ideas and procedures should be evaluated in the light of contemporary beliefs, in particular those of the author being investigated (so far as this is possible), before they are assessed from a modern perspective (Koerner 1995). It is important to consider

- what linguists believe that they are doing; and
- why linguists think it is important to do what they are doing.

A philosophy of linguistics properly includes a philosophy of language: one has to have beliefs about what language is and what languages are before one can have beliefs about the proper way to systematically analyse the structure and composition of a language.

Language is the oral communication present in all human groups. Human beings are unique on earth because of their cognitive capacities and the ways they use language. It is likely the cognitive abilities and language developed together, each reinforcing the other. In most human groups, language is signed by a subset of the population, principally by deaf people and others communicating with deaf people. In many groups language is also written. Each and every human group uses one or more languages whose speakers are bound by a sense of belonging to a particular language community; thus, each living language (English, Hebrew, Maasai, Navajo, Thai) is defined on psycho-social and political grounds rather than by objective formal and structural criteria. Different languages are manifestations of the human language faculty; in other words they are manifestations of language. This renders studies of language and studies of languages ultimately inseparable.

Theoretical linguistics seeks to characterize the human language faculty (Chomsky 1975b; Bickerton 1981). To construct and test a theory of human language requires the services of descriptive linguistics which collects, analyses, and then presents data on the structure and use of particular languages. Just as theoretical linguistics needs descriptive linguistics to supply the empirical data to test linguistic theory, so descriptive linguistics needs information from theoretical linguistics about what data to collect and how to classify them. So the two branches of linguistics either advance hand in hand, or not at all.

Viewpoints on language

Human language can be investigated from at least four different points of view: language has physical form; language is an abstract entity; language is a cognitive entity; and language is motivated by its function as a vehicle for social interaction.

Language is manifest as a physical object or physical event. Language as a physical object or physical event is language uttered at a particular time in a particular place – giving it spatio-temporal coordinates. Right now, you can see language (these words) in the print before your eyes. You can observe people signing in ASL (American Sign Language), Auslan (Australian Sign Language) and other languages for the deaf. And, of course, utterance is a physical act requiring the expenditure of mental and physical energy on the speaker’s, writer’s, or signer’s part. Unless you are profoundly deaf, you will hear language
spoken; and even the deaf can feel the air pressure changing if they are close enough to a speaker’s mouth. Language is manifest in speech as perturbations of the air that can be picked up by an instrument such as the microphone, stored in various formats, and reproduced as visual, audio, or tactile stimuli; see Figure 1.10.6 Historically, the physical aspects of language have been marginal to the study of language: oratory has been studied for its rhetorical effect (its effect on the audience); calligraphy is practised for its aesthetic effect. Nevertheless, the vast majority of scholars investigate language through its physical manifestations; every physical manifestation employs mental manifestations that bring language constructions into conscious thought. Bloomfieldian linguistics, which dominated the field in America from about 1925 to 1960, laid emphasis on the study of the physical aspects of language in the belief that physical objects constitute observable data in which certain classes of events can be perceived and verified by any qualified observer; and from these observations, hypotheses about the structure of language can be induced. Bloomfieldians took this point of view from a desire that linguistics should be a ‘science’ on a par with physics, but had they been better aware of contemporary developments in theoretical physics they might have recognized that the task was impossible; the reasons why are catalogued in Chapter 12.

The physical manifestations of language are manifestations of something abstract and intangible. (I use abstract in OED sense 4a: ‘Withdrawn or separated from matter, from material embodiment, from practice, or from particular examples. Opposed to concrete’ Oxford English Dictionary 1989.) English, for instance, is not just all that is written and spoken in English; it is also something abstracted from people and times and places; it is something that speakers of English are able to use in order to say something that has never ever been said before – consequently it must exist (in some sense of that verb) independently of any particular speakers. We must distinguish language from the use of language. A language is created by its speakers; yet it does not cease to exist when its speakers die – provided that some record of the language remains. Consider Hittite, Ancient

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Egyptian, Latin, eighth century Mayan, Old English: these are languages which people can and do learn, even though they have no native speakers left alive. There is a chicken-and-egg paradox because, from another perspective, any language predates nearly all of its speakers. In short, languages such as English, Maasai, Latin, and Hittite exist (some would say *subsist*) independently of all speakers of English, Maasai, Latin, and Hittite.

Ferdinand de Saussure (1857–1913) and Avram Noam Chomsky (b. 1928) investigate language as an idealized independent entity. It is abstracted from individual acts of speech ('parole') in the case of Saussure, and Chomsky's ‘I-language’ is an idealization of the individual’s knowledge of his/her language. Idealization of the object of inquiry is good practice in any kind of science: to establish such a simple thing as the temperature of the boiling point of water it is not enough to scoop water out of a puddle, stick in a thermometer, and heat it till the water begins to evaporate. The thermometer must be accurate, the water must be pure, the air pressure must be at some agreed standard, the experiment must be replicated and the results averaged – because they will certainly vary in each and every experiment. It is idealization all the way. We can be pretty confident we know about the boiling point of water, but language is so complex that after more than six millennia of cogitating on it there is still no theory of language that we can programme into a machine to make it simulate more than a tiny fragment of any human language – despite the fact that virtually every human infant masters (whatever that means) spoken language naturally within three to ten years from birth.

To define language as a characteristic of the human species implies that language is abstract. Language constituents and categories such as ‘sentence’, ‘noun phrase’, ‘phoneme’, ‘modality’, and ‘number’ are abstract, whereas texts and utterances in the language are physical objects. The phoneme /p/ in English is abstract; the initial and final sounds you make in pronouncing *pop* are not; and you can probably imagine that speakers from Baton Rouge, the Bronx, Belfast, Glasgow, London, Accra, Johannesburg, Singapore, and Broken Hill will pronounce that medial vowel phoneme differently too. The English sentence *I am 16* is an abstract entity and has no truth value, but when someone uses an utterance of that sentence to make a statement, the utterance is a physical object with a location in space and time. The sentence subject ‘I’ is endowed with a particular reference, and the proposition as a whole with a truth value (as uttered by this author in the year 2000, it was false; and it still is, of course).

A distinction can be made between language as (a) a totally abstract entity independent of the human mind (a position argued for by Katz 1981a; Katz and Postal 1991); and (b) an idealization (i.e. abstraction) of language as essentially a cognitive product with all the impurities excised (no misstatements of any kind, no nonstandard expressions – however defined).

To use a language, you must have conscious and subconscious knowledge of it. So language is also a cognitive (or psychological) entity. The so-called ‘human language faculty’ enables the infant to acquire one or more languages without formal instruction, and this raises questions about the extent of the innate bioprogramme for language. It is uncontroversial that part of the language faculty is innate, and that the social environment of
the infant determines the particular language(s) learned. There is a critical age for language learning: virtually every child learns to be a native-speaker of at least one language; by contrast, few adult learners sound like native-speakers even though they speak and write fluently. Language users have intuitions about language whose bases cannot be made conscious; we can only speculate about these intuitions. A theory of language should respect these facts by seeking cognitive correlates of language knowledge, language learning, and language use.

Cognitive aspects of language were recognized by the philosophers Plato (428–348 BCE) and Aristotle (384–322 BCE), and the grammarian Apollonius Dyscolus (c. 80–160 CE). They resurfaced in the work of the scholastic grammarians of the later middle ages, and again among the rationalist grammarians of the seventeenth and eighteenth centuries. The rationalist tradition re-emerged in Chomskyan theories from about 1963. Since 1986 Chomsky has distinguished internalized or I-language from externalized E-language, which is the manifestation or output of I-language. I-language is not (the faculty of) language. In the interim, the Romantics of the late eighteenth and early nineteenth centuries took up the relation of language to thought; this was echoed in the first half of the twentieth century in the work of Edward Sapir and Benjamin L. Whorf and was later refashioned by cognitivist linguists.

Cognitive linguistics holds that language is constrained and informed by the relations that human beings

- perceive in nature – particularly in relation to themselves (perception is the categorizing of sensory data according to both biological and cultural criteria);
- have experience of in the world they inhabit;
- conceive of in abstract and metaphysical domains.

Language is a manifestation of social interactive behaviour because language exists as a vehicle for communication between people. Social interaction includes flirting and passing the time of day, but also the exchange of information and the expression of arguments; it involves the use of language for entertainment in factual historical anecdotes as well as in fictional narrative. Social interaction is of primary importance within human communities, and language is the principal means of social interaction (Clark 1996; Allan 2001). Attention to this aspect of language gives rise to pragmatics – the context-dependent assignment of meaning to language expressions used in acts of speaking and writing.

In lectures given between 1906 and 1911, Saussure described language (‘le langage’) as a behavioural characteristic of human beings, and a particular language (‘la langue’) as a sort of social contract among its speakers.

Language is, at one and the same time, a product of the language faculty and necessarily a set of conventions adopted by the social group to permit this faculty to function among individuals. (Saussure 1931: 25)

7. I use an initial majuscule for Romantic to identify the late eighteenth century movement that, in reaction to the rationalism of the Enlightenment, championed intuition, feeling, imagination, Nature, and the ‘noble savage’.
The use of chit-chat and the expression of meaning through language is an essential means of cementing human bonding and of displaying it to others, both at the individual and the community level. This does not conflict with the view that language is a system for the expression of thought (Chomsky 1975b: 57). Some people think in visual images, so language is not a prerequisite for solipsistic thinking; but, beyond the very simplest level, it is absolutely essential for the expression of thought to others. Whether and how one expresses a particular thought to a particular other is determined, more often than not, by a judgment of the desired effect on the hearer or reader. This is obvious in the case of languages with honorific systems (Japanese, Javanese, Thai; but also the use of *tu/vous* in French, and comparable forms in other European languages, including English *thou/you* from the middle ages to the eighteenth century). It is perhaps less obvious but no less present in various politeness strategies in today’s English. Compare the following:

1. I wondered if you would like to have lunch with me?
2. Would you like to have lunch?
3. Come for lunch!
4. Lunch?

**The Western Classical Tradition in linguistics**

Is it possible that Saussure was the father of linguistics? There is a case for him being the ‘father of modern linguistics’, a description found on the web but rarely in print. However, the 1916 and 1922 editions of Saussure 1931 were credited in 1942 as being the source for modern linguistics:

> I think that it is precisely this book, Saussure’s *Course*, which can serve as a point of departure for our discussions of the basic questions of linguistics. It will allow us to see in the bud, *in statu nascendi*, in their simplest form, even sometimes in their most simplistic form, almost all the essential problems of modern linguistic thought. It will make it possible for us to map out the main lines of the evolution that our science has undergone during the quarter century that separates us from the first edition of the lectures that the master gave in Geneva. [...] No other book of our century has exerted such a vast and profound influence on international linguistics. (Jakobson 1990: 84f)

There are three reasons for the view that linguistics is of very recent origin:

- Linguistics is a human science, and along with anthropology, psychology, and sociology, it developed rapidly during the late nineteenth century and mushroomed in the twentieth century.
- Towards the end of the nineteenth century technological developments allowed for the recording and reproduction of spoken language so that linguists could at last not only

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recognize the priority of the spoken over the written medium, but study constant, non-
ephemeral data from the spoken medium.
• Linguistics only became an independent discipline several decades into the twentieth
century – most university programmes in linguistics were established in the second half
of the twentieth century; high school programmes in linguistics only started in the third
millennium and they barely exist today. Consequently, linguistics is perceived to be a
new discipline.

We have already seen that the study of language is more than 5,000 years old because
writing systems date back that long. The fact is that, until the mid-nineteenth century, no
one called the study of language ‘linguistics’. The first university chairs in something like
‘linguistics’ were Franz Bopp’s Chair in *Orientalische Litteratur und Allgemeine
Sprachkunde* “Oriental Literature and General Language-lore” at the University of Berlin in
1825 and Thomas Hewitt Key’s Chair of Comparative Grammar at University College
(London) in 1842. Then in 1861 Georg Curtius took the Chair of *Klassische Philologie und
indogermanische Sprachwissenschaft* “Classical Philology and Indo-European Linguistics”
at Leipzig. The *Proceedings* (since 1854 *Transactions*) of the Philological Society
appeared from 1842, before the term *linguistics* was current in Britain. In America, the *International
Journal of American Linguistics* dates from 1917; the Linguistic Society of America from
1924, and its journal *Language* from 1925.

If we interpret *linguistics* to denote “the study of (the structure and composition of)
language”, then within the history of linguistics there is a tradition that stretches from
ancient Greece directly through to Chomskyan, functional, and cognitive linguistics in the
twenty-first century. For example, a few years either side of 1970 a number of papers were
written by Chomskyan or post-Chomskyan linguists in which negation was discussed in
very much the same way as Aristotle discusses it in *On Interpretation* (Aristotle 1984),
written during the fourth century BCE (see Horn 1989 for discussion). Then there is the fact
that the grammatical categories we use in syntactic analysis are defined using substantially
the same criteria as those set down in the *Technē Grammatikē* attributed to Dionysius Thrax
and almost certainly partly authored by him in the first century BCE (see Chapter 5, below).
The *Technē* was a mainstay of the Western Classical Tradition. It established the ‘parts of
speech’ as something which no grammarian – and until recently no well-educated person –
should ignore. However, we must not conclude that the existence of similar statements
about grammatical structure in Aristotle and Lakoff 1970 constitutes evidence of a tradition!

By way of a caution: it is a fact that around 1135 CE, in Iceland, an anonymous monk made
what amounts to a phonemic description of contemporary Icelandic using minimal pairs as a
tool of description (see Chapter 7 and Hauge 1972). If his work had been taken up and
developed, phonemics would have eight centuries of history and tradition instead of just
one, but the work of this early phonemicist was ignored; it was just an isolated discovery
which happened to use a technique rediscovered in the twentieth century. In the Western
Classical Tradition, the work of the early Greek philosophers and grammarians was built
upon; it was adopted with little alteration for use with Latin, the language that dominated
scholarship in the west until the twentieth century.
The ancient Greek philosophers Plato, Aristotle, and the Stoics (Chapters 2, 3 and 4) studied language not for its own sake, but because language is the medium through which people express knowledge of the world and the nature of things that they experience in it, as well as their conceptions of metaphysical matters. Both Plato and Aristotle seem to have believed that language reflects speakers’ experience of the world and the relationships and structures they find in it. Their interest was aroused because we say such things as \(X\) is the cause of \(Y\), and \(B\) follows from \(A\), and they were concerned about the relation between what is said and what actually holds true in the world. To precisely account for the meaning of statements requires a prior account of their structure; and because statements are expressed through sentences, the ancient Greek philosophers looked into the construction of sentences to establish what constitutes a statement. Thus began a long association between philosophy and language analysis, which once again flowered in the second half of the twentieth century, leading to the development of semantics and pragmatics within the discipline of linguistics (see Chapter 13). Aristotle also left us a critical theory of poetry and of rhetoric: in his *Poetics* and *Rhetoric* he discusses language structures which are relevant to the success of poetic and rhetorical effect. In addition to talking about the functions of various parts of speech, he described some phonological aspects of Greek, because in his day, and for centuries after, literature was rarely read silently, but declaimed by actors or poets from the stage, and by pupils in the schoolroom.

The Alexandrian grammarians, Dionysius Thrax (c. 160–85 BCE) and Apollonius Dyscolus (c. 80–160 CE), were pedagogical grammarians and not philosophers. Their principal motivation was a perceived need to teach the correct meaning, forms, and pronunciation of Homeric and Attic Greek so that classical literature could be properly read, performed, and understood. Perhaps their pedagogical approach to grammar was influenced by living in Egypt, where Greek was a second language. The work of Aelius Donatus (c. 315–85 CE), who lived in Rome shortly before it was sacked by the Goths in 408, is undoubtedly based upon the work attributed to Thrax. Donatus described the parts of speech to be found in classical Latin literature, although Vulgar (i.e. colloquial contemporary) Latin was in daily use about him. Priscian (Priscianus Caesariensis, c. 490–560 CE) adopted the view that language reflects the way the world is, and explained a number of syntactic constructions on these grounds. For example, he said that one cannot imagine an action without presupposing an actor: the actor is prior to the action. Consequently, because grammatical structure reflects patterns found in the world, the subject of a sentence always precedes the verb – i.e. all languages are either S(O)V or SV(O). Many such assumptions are justified by the grammars of Latin and other languages familiar to traditional grammarians, but turn out to be wrong when applied universally; for instance, Maasai is VS(O), Malagasy V(O)S, and Tohono O’odham arguably (O)VS. Priscian’s books on classical Latin syntax, *Institutiones Grammaticae*, were based directly upon the classical Greek grammar of Apollonius Dyscolus, whose grammarian son Aelius Herodianus had travelled to Rome at the time of Marcus Aurelius (between 161 and 180 CE). *Institutiones Grammaticae* remained the principal pedagogical source for Latin grammars until modern
times. Dionysius Thrax, Apollonius Dyscolus, Donatus, and Priscian were not philosophers but precursors to applied linguists within the Western Classical Tradition.

Some 600 years after Priscian, from about 1150 to 1350, grammar became once more wedded to philosophy. But all along, from the early middle ages to the present day, running on a more or less parallel track to philosophical grammar, there continued to be a pedagogic strain manifest in prescriptive grammars for the classroom, as we shall see in Chapter 7. For several hundred years, education in Europe was education in Latin. Access to Latin was through grammars of Latin. Hence grammar as a school subject meant the “grammar of Latin”. Except during the middle ages, when Church Latin, and in particular the fourth century Latin of the Vulgate Bible, displaced the pagan Latin of antiquity, the best authors were said to be the classical authors; it was their language, in particular classical Latin, but to a certain extent classical Greek, that came to be regarded as the ideal model. English and other so-called ‘modern languages’ were (mistakenly, we would now say) regarded as debased and corrupt compared with classical Latin and Greek; and teachers insisted that the best way to write a ‘modern language’ was to follow the rules of Latin grammar so far as possible. In other words, pedagogues believed that the grammar of classical Latin provides appropriate rules for the grammars of European vernaculars. Such a view was properly condemned by linguists, now calling themselves ‘linguists’, in the first sixty years of the twentieth century. Unfortunately, most of these critics rejected not only the excesses of traditional grammar, but its successes too.

For several centuries the works of Aristotle were lost to scholars in Europe. But in the twelfth century they once more became available and there was renewed interest in Aristotelian philosophy. In the twelfth and thirteenth centuries in western Europe, scholars had Priscian’s rules for Latin syntax but, because of their focus on pedagogy, sought no explanation for why the rules operate as they do. Scholastic grammarians adopted the Aristotelian dictum that the world is the same for everyone, believing that language is like a speculum “mirror, image” that reflects the world; so their grammars are described as ‘speculative’. The speculative grammarians also followed Aristotle in believing that everyone has the same experience whatever their language; consequently mental experiences are the same for everyone (On Interpretation 16\(a^4\)). It led them to claim that what is signified is universal, but the means by which it is signified, the ‘modi significandi’, differ from language to language. Because of their interest in modi significandi, these medieval scholastics were also known as ‘modistae’. During the thirteenth century, the speculative grammarians began to establish the notion of a ‘general’ or ‘universal’ grammar common to all languages (God-given, of course – they were all churchmen).

In the late seventeenth and throughout the eighteenth century, language was the province of rationalist grammarians, whom Noam Chomsky – undoubtedly the most prominent theoretician in the second half of the twentieth century – claimed for his intellectual forebears (Chomsky 1966). Like the modistae, the rationalist grammarians were inspired by Aristotle; the essential difference between the two schools is that the modistae viewed human beings as all having similar experiences because of the nature of the world around them, whereas the rationalists believed that people have similar experiences because of the
nature of the human mind. The rationalists were post-renaissance scholars living in an age of exploration which had given rise to grammars of several exotic languages. Scholars in the seventeenth and eighteenth centuries knew that experience of the world differed greatly among different communities of human beings; but that all of us possess minds through which to perceive and categorize and assimilate information about the world. On the rationalist view, the nature of the mind is to think; and because (almost) everyone is capable of being rational, they adapted medieval notions that there must be an underlying ‘general’ or ‘universal grammar’ that exists (or comes to exist) in the human mind. It follows that languages differ from one another only because the common underlying structure of human thought is expressed through different forms.

The eighteenth to nineteenth centuries saw the development of comparative philology arising from the discovery and gradual identification of the Indo-European language family. The early cross-language comparisons used terminology directly derived from ancient Greek statements on phonology. For the most part, however, nineteenth century comparative philology takes the Western Classical Tradition in a new direction by focusing on phonological systems.

The ‘linguistic relativity hypothesis’ can be traced to the Romantic movement that spread from Étienne Bonnot de Condillac (1715–80) and Jean-Jacques Rousseau (1712–78) in France to Johann Gottfried von Herder (1744–1803) and Wilhelm von Humboldt (1767–1835) in Germany, to re-emerge with Franz Boas (1858–1942) in America and be instilled into Edward Sapir (1884–1939) and Benjamin Lee Whorf (1897–1941). Also known as the ‘Sapir-Whorf hypothesis’ or, simply, ‘Whorfian hypothesis’, it reverses the traditional view that the structure of the world informs the structure of language and instead postulates that the structure of language informs the structure of the world as conceived by speakers of a particular language.

Twentieth century developments in phonetics and phonology (terms not properly distinguished from one another until about 1920) and the whole paradigm of Saussurean structuralist and Bloomfieldian mechanistic linguistics were a new direction in, and sometimes in revolt against, the Western Classical Tradition. Nonetheless, linguistics in the nineteenth and early twentieth centuries was a crucial foundation for the post-structuralist linguistics that is the consequence of the so-called Chomsky revolution. Chomsky’s predecessors had rejected traditional grammar along with linguistic universals, rationalist theory, and semantics. All of these are back in vogue (see Chapters 8, 12, and 13). If modern linguistics began with a hiccup in the Western Classical Tradition, it is now back within the comfortable framework of two and a half millennia of linguistic description.

We must assume that such people as Plato, Aristotle, the Stoics, Varro, Thrax, Donatus, Priscian, and their successors had beliefs about the composition and structure of language, and that their studies of language were motivated and purposeful. These will be referred to as their ‘philosophies of linguistics’, even though there was no contemporary discipline of linguistics. Throughout history there has been a philosophical school of grammar which brought forth modern theoretical linguistics, and also a pedagogical school which has given rise to applied linguistics. Modern linguistics developed from the investigations of the neo-
grammarians into the origins and interrelations of Indo-European languages, which eventually merged with a mushrooming interest in the non-Indo-European languages of Native Americans and the peoples of former European colonies in Africa and Asia. This interest was partly motivated by a fascination with exotic cultures and languages, and partly by ideas for literacy and education in indigenous languages. The development of linguistics was spurred on by technological advances in the twentieth century that have facilitated detailed study of the spoken medium and the process of language interaction.

Why (almost) no women?

It will not escape notice that no female name has been mentioned in the preceding overview of the Western Classical Tradition in linguistics. From ancient times the women of well-to-do families and sometimes the daughters of freedmen were educated much like boys. In ancient Greece both sexes were taught athletics (running, archery, javelin throwing, etc.), horsemanship, musicianship, dancing and singing, anthropomorphic astronomy, mathematics, geometry, and literature (referred to as ‘grammar’ for reasons discussed later). Boys were encouraged in oratory whereas girls were encouraged in music-making, poetry and singing. Girls were also coached in aids to beauty, fashion, charm, coquetry, moral poise (sōphrosunê) and domestic science (Marrou 1956: 60–62). A girl was trained to be the healthy ideal wife who could spin, make her own clothes, rule the servants, and yet shine when in the company of others. In antiquity there were some women educators (Suétoneius c. 69–122 CE warns of a risk to girls from male teachers in Of Grammarians and Rhetors 16: 1) and there were several renowned women poets. A few women were physicians and/or gynaecologists and/or pharmacists and wrote on these matters. There were a number of female alchemists; and some prostitutes wrote on pornography, cosmetics, and ‘women’s secrets’. Women described in the literature as ‘philosophers’ mostly wrote on how to dress appropriately, nurture the children, manage the slaves and deal with a husband dallying with prostitutes. Of all such writings, only a few fragments are extant.

The only woman identified by Plant (ed.) 2004 to have written on grammar (as well as history and topography) was the Alexandrian Histiaea c. 200 BCE; but nothing she wrote has survived. Furthermore, no grammarian within the Western Classical Tradition refers to her work. One of the earliest women writers was the innovative lyric poet Sappho (c. 610–580 BCE), who ran a school for girls on Lesbos. She was much admired: Plato called her the tenth Muse; Antipater, Strabo, Catullus, Horace, Ovid, and other poets revered her. In the early Christian era, The Gospel of Mary is attributed to Mary of Magdala, who frequently accompanied Jesus and was present at both his crucifixion and his resurrection. According to The Gospel of Mary, ‘the Saviour’ loved Mary best of all the disciples. This gospel may well have been written by a woman, but in the second century CE and probably by a gentle living in Egypt (see King 2008). Somewhat later, Faltonia Betitia Proba (c. 322–70 CE), a Roman aristocrat with the values typical of a Roman matron (Clark and Hatch 1981: 121), wrote an epic poem (now lost) about a rebellion against the Emperor Constantius II (c. 317–61) before she converted to Christianity. Then, using 694 lines from Virgil, Proba reapplied
them to a biblical narrative, *Cento Vergilianus de laudibus Christi*, spanning the creation of the world to Christ’s ascension into heaven. In this *tour de force*, Proba makes Christ the new epic hero, replacing Aeneas, while using words that would be familiar to any educated Roman (Clark and Hatch 1981: 103). Not long after, around 380 CE, a Christian woman variously called Egeria, Etheria and Aetheria, probably a nun from Galicia in north-west Spain, wrote epistles describing what she saw during a three-year pilgrimage to the eastern empire, visiting Constantinople and what is now Iraq, Jerusalem, Mt Sinai, Palestine, the Jordan, and northern Egypt (see Wilkinson 1999; Plant (ed.) 2004: 189–97). The Athenian Aelia Eudokia (c. 400–60 CE), known by her Latin name of Eudocia, went to Constantinople and married the Emperor Theodosius II (401–50). She left him and moved to Jerusalem in 443. Eudocia wrote a number of poetical religious works, including a life of Christ that uses lines from Homer, the *Homerocentones* (Eudocia 1999; Usher 1998). It is possible that, rather than proselytizing as Proba had, Eudocia was motivated by her Greek heritage to defend Greek classical literature. In more recent times Beatriz Galindo (c. 1465–1534) was an academic who taught rhetoric, philosophy, and medicine in Salamanca and Madrid; Beatriz was nicknamed La Latina for her prowess in Latin and she was possibly a student of Antonio de Nebrija, author of the first grammar of Spanish (see p. 175); but no linguistic works of hers are known. Saint Teresa of Ávila (1515–82) wrote inspirational devotional works and Sor Juana Inés de la Cruz of Mexico (c. 1651–95) was a scholar, social commentator, and poet. But none of these women contributed to the Western Classical Tradition in linguistics.

The earliest extant grammar by a woman is *The Rudiments of Grammar for the English-Saxon Tongue, First Given in English: with an Apology For the Study of Northern Antiquities. Being very useful towards the understanding our ancient English Poets, and other Writers* by English feminist Elizabeth Elstob (1683–1756), a pioneer in studies of Anglo-Saxon and, perhaps, historical linguistics. Her aim in part was to augment the status of Anglo-Saxon to her contemporaries:

*I have given most, if not all the Grammatical Terms in true old Saxon, from Ælfric’s Translation of Priscian, to shew the polite Men of our Age, that the Language of their Forefathers is neither so barren nor barbarous as they affirm.* (Elstob 1715: iii [sic])

She points out that the modern English genitive case derives from Anglo-Saxon, as does much of English vocabulary. She believed Anglo-Saxon to be a key to the ‘Propriety’ of modern English (*ibid.* vii). She noted the relationship among ‘Saxon, Gothick, and Francick, or old Teutonic’ and, despite their using many monosyllables, praises the richness of these ‘Northern Languages’ (p. x) that she claims compares with Greek and Latin. She surveys the writings of ‘our greatest and noblest Poets’ (p. xxviii) from Chaucer to Pope, aiming to show that their use of monosyllables does not diminish the quality of their poetry. She argues that the study of ‘Northern Antiquities’ (such as Anglo-Saxon) is just as beneficial to the development of ‘Fitness and Propriety of Expression’ in contemporary English as the study of the classical languages (pp. xxxi–xxxiii). Elstob’s grammar owed something to the Anglo-Saxon grammar of George Hickes (1642–1715) written in Latin (Hickes 1689) and
she seems to have been taken seriously by her contemporaries. A brief account of Elstob’s grammar is given below (p. 141).

Ann Fisher (1719–78), born to a yeoman in Lorton, Cumbria, opened a school for ‘young ladies’ in Newcastle in or before 1745; it remained open until after 1750, emphasizing the study of grammar, reading, writing and, in earlier days, sewing as well. She ran evening classes, which suggests that her clients must have been in full-time work. The first edition of her grammar was written jointly with but attributed solely to Daniel Fisher (1718–99), possibly a relative, who was a schoolmaster in Cockermouth, Cumbria, and later in Whickham, now a suburb of Newcastle. Daniel had published with Isaac Thompson in whose Newcastle newspaper was advertised on 29 June 1745 A New Grammar and Spelling Book: Being the Most Easy Guide to Speaking and Writing English Properly and Correctly. In the same advert, Daniel’s Easy Lessons for Little Children and Beginners is described as an introduction to his The Child’s Christian Education: or Spelling and Reading Made Easy, first published in 1743. No copy of the 1745 New Grammar exists, but it is thought to have been published by Thompson, as its second edition (1750) was. Rodríguez-Gil 2008 concludes that Daniel Fisher probably contributed principally to the parts on Orthography and Prosody and that his name rather than Ann’s was used because he was not only male but an established author. By the third edition of 1753, the sole author was A. Fisher, for whom the book was published in London, and the title was revised to A New Grammar, with Exercises of Bad English: or, an Easy Guide to Speaking and Writing The English Language Properly and Correctly. Later editions were published by Ann Fisher’s husband Thomas Slack in Newcastle as well as by associates in London. A thirty-first edition was published in 1800. According to Rodríguez-Gil, Ann Fisher’s was the fourth most popular grammar of the period after those of Bishop Lowth (1710–87), Lindley Murray (1745–1826), and John Ash (1724–79) (see Tieken-Boon van Ostade 2008b: 9). Fisher’s grammar is reviewed on pp. 146–7.

In the century after Fisher’s grammar some twenty-one schoolmistresses wrote introductory spelling and grammar books for children (see Cajka 2008; Navest 2008; Michael 1987: 387–604); they ranged from the more serious The Child’s Grammar: Designed to Enable Ladies Who May Not Have Attended to the Subject Themselves to Instruct their Children (Fenn 1799) to Aunt Jane’s Grammar. Question and Answer, for the Use of Schools and Families (Warren 1850).

Thus, until the eighteenth century, there had been a few women of distinguished literary accomplishment but no woman grammarian. Perhaps it was acceptable for a woman to entertain with poetry or a travelogue, to offer advice on womanly conduct and appearance, to offer medical and pharmacological advice, to offer religious instruction via the words of a male classical poet or according to her own experience and firm belief; but women did not publish interpretations of literary texts or engage in dialectic and, by extension, women made no contribution to the development of the Western Classical Tradition in linguistics until Elizabeth Elstob and Ann Fisher.

One reason for the dominance of men in the Tradition devolves from the biological difference of women from men and the resulting cultural practices. Almost universally,
there are or have been taboos that constrain the freedom of menstruating women to enter places of worship and consort with men.\textsuperscript{9} Femaleness was an unacknowledged factor contributing to the exclusion of women from the Christian clergy which, for many hundreds of years, was responsible for developing all branches of scholarship, including the Western Classical Tradition in linguistics. Before the twentieth century there was little or no effective contraception; women conceived frequently and often died in childbirth. When not burdened with pregnancy, they were occupied with child nurturing during that period of their lives when men the same age could develop scholarly pursuits. There was little economic independence available to women: typically, if they owned property it was held in trust for their sons and given as dowries for their daughters (to be transferred to the sons-in-law). So women had little economic power, few property rights, and no political power. A woman’s importance in society was typically defined through her husband; consequently, advising on the proper form of address, Fisher 1753: 153 wrote ‘The Ladies are addressed according to the Rank of their Husbands’.\textsuperscript{10} Education was often limited to the perceived needs of managing a household. With very few exceptions a woman had neither the training nor the time to become a scholar nor was she thought fit to do so by most people. For illustration, take Margaret Cavendish (née Lucas), Duchess of Newcastle (1623–73). Until late in life she was almost completely unschooled; her handwriting was appalling and she was a very erratic speller. Unlike male contemporaries of her class she could not read, let alone write, Latin (the language of international scholarship) or, indeed, any foreign language – despite being exiled to France and the Netherlands from 1644 to 1661 during Cromwell’s Commonwealth. Yet she authored poems, plays, romances, as well as essays on philosophy and on many other topics. In 1667 she became the first woman invited to the Royal Society. She published prolifically, which was very unusual for a woman at the time and only possible because of her supportive husband, her exalted position among the Restoration nobility, and, not least, her own very strong character. Nonetheless, she was probably being honest when she wrote

\begin{quote}
Should I live to Methusalem’s age, my wit would be but a novice, my judgement an ignorant fool, and my opinions, erroneous, for women are neither fit to be judges, tutors, nor disputers.
\end{quote}

(\textit{CCXI Sociable Letters} 1664: 259, quoted Whitaker 2002: 257)

It may be significant that she never had children. Margaret Cavendish had intellectual pretensions and this was so unusual for a woman of her time that, in the nineteenth century, she was nicknamed Mad Madge (Whitaker 2002: 347–59). It is notable that Elizabeth Elstob did not marry and, instead, worked with her brother translating and commenting on Anglo-Saxon manuscripts. She must also have been sustained by her circle of feminist friends that included Mary Astell (1666–1731) and Lady Mary Chudleigh (1656–1710) (see Astell 1694; Chudleigh 1701). On the other hand, Ann Fisher was not only married (at thirty-two) but had nine daughters (four of whom predeceased her) and helped her husband

\begin{flushleft}
\textsuperscript{9} On menstruation taboos see Leviticus 15, 18, 20 for a Judeo-Christian view; Allan and Burridge 2006 for further discussion and references.
\end{flushleft}

\begin{flushleft}
\textsuperscript{10} Hence the translator of Bréal’s \textit{Essai de sémantique} is Mrs Henry Cust instead of Nina Cust (née Welby-Gregory), see Bréal 1900.
\end{flushleft}
run his printing business, newspaper, and library. However, Fisher wrote the first three editions of her grammar before being married in December 1751 (though other works were written subsequently).

Laura Soames (1840–95) also never married. She was a schoolteacher who became interested in spelling reform (Soames 1880) and consequently in phonetics. She was elected to the council of the International Phonetics Association in 1890 and was highly regarded by its founder Paul Passy and many other phoneticians in Europe. Her *Introduction to Phonetics* (Soames 1891) was very influential for a while. For a fuller appreciation of her work see pp. 202–3. A contemporary of Soames was an aristocrat: the Honourable Victoria, Lady Welby-Gregory (1837–1912), Maid of Honour to her godmother, Queen Victoria. Like Margaret Cavendish, Lady Welby-Gregory had little formal education, but she educated herself. She began with the study of Scripture, but was soon writing scholarly papers on meaning published during the 1890s in such journals as *Mind* and *The Monist*. She published several books and corresponded with American semiotician Charles Sanders Peirce, founder of pragmatics, also with philosopher and logician Bertrand Russell and Charles Kay Ogden, author of *The Meaning of Meaning* (Ogden and Richards 1923), who was a fan of her work.

None of the women discussed above caused more than a ripple in the Western Classical Tradition in linguistics. Only in the twentieth century were women able to escape from such constraints as have hampered their sex from the beginning of time, allowing them to participate in and enrich a full range of scholarly pursuits.

**Summary introduction to the Western Classical Tradition in linguistics**

Writing systems usually began with pictographs. They are back in fashion: ♂ is the internationally recognized symbol for “women’s toilet”; ♂ “no smoking” consists of a pictograph ♂ “smoking” and the “forbidden” logograph ⚰. Some people might prefer to call the latter an *ideograph* “graph for a concept”; but all pictographs and logographs are graphs of concepts. The ideograph is distinguished by having no phonological realization, which renders it less linguistically interesting than the logograph.

<table>
<thead>
<tr>
<th>smile</th>
<th>frown</th>
<th>wink</th>
<th>laugh</th>
<th>surprise</th>
<th>foot-in-mouth</th>
</tr>
</thead>
<tbody>
<tr>
<td>:-)</td>
<td>:-(</td>
<td>;-</td>
<td></td>
<td>=-O</td>
<td>:-!</td>
</tr>
</tbody>
</table>

*Figure 1.11. Smiley.*

The emoticons in Figure 1.11 are pictorial, but also conventionalized. When in text format, emoticons are strikingly like the earlier forms of writing, even to the extent of being rotated 90° counter-clockwise. Note the use of
When SMS texting, there are both logographic and syllabic effects in e.g. *c u l8r 2nIt*.

The development of writing systems shows prehistoric analysis of language structure and the ability to segment words. An alphabetic writing system (the earliest appeared about 3,000 years ago) demonstrates a measure of phonemic analysis.\(^{11}\)

We distinguished the human faculty of language from its manifestations in human languages; both are the subject matter of linguistic inquiry. The former is primarily the domain of theoretical linguistics, the latter primarily that of descriptive linguistics.

Four different viewpoints on language were identified. Language can be viewed as a physical, abstract, cognitive, and/or social interactive entity. It is, of course, all of these.

To what extent is the structure of language a reflection of the structure of the world or a reflection of human perception of the structure of the world? The medieval scholastics, the rationalist grammarians and the cognitivists take different positions in response to this question. Or is it that the structure of language influences our perception of the way that the world is structured? These matters are broached in Chapters 3, 8 and 10.

Although linguistics as an academic discipline did not exist until the twentieth century, it rests upon a tradition of language study going back to ancient Greece. There were other linguistic traditions as well in ancient India, in ancient China, and the Middle East,\(^{12}\) but these had no significant effect on modern linguistics; we find in them some of the same discoveries as were made by scholars in the Western Classical Tradition, perhaps at an earlier epoch, but there are no known insights in these other traditions that will open a new chapter in the development of modern linguistics.

The fact that the Western Classical Tradition is totally dominated by males can perhaps be explained by the constraints imposed on women by child-bearing. Not until women had control over this and there was concomitant economic, social and political emancipation in the twentieth century did women have the opportunity to make a proper contribution to the development of linguistics.

The Western Classical Tradition in linguistics extends from ancient Greece to the twenty-first century and has spread from Europe to the other four inhabited continents. It is a story of successive stages of language study, each building upon, or reacting against, the preceding period. There is a theoretical track passing through Plato, Aristotle and the Stoics (Chapters 2, 3, 4) to the scholastics of the later middle ages, and on to the vernacular grammarians of the renaissance, then the rationalists and universal grammarians of the seventeenth, eighteenth, and twentieth centuries (Chapter 8). Joining this, is a tradition relating language to thought handed on from Epicurus and Lucretius to Locke, Condillac, Humboldt, Saussure, Boas, Sapir, Whorf and today’s cognitivists (Chapter 10). There is at

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the same time a pedagogical track deriving from the Greek grammarians Dionysius Thrax and Apollonius Dyscolus via the Latins, Donatus, Priscian, and their commentators; a track that gives rise to prescriptivism and applied linguistics (Chapters 5, 6 and 7). Nineteenth century comparative philology (Chapter 9) and early twentieth century linguistics took a new direction within the Western Classical Tradition; they were in reaction to it rather than being totally independent of it (Chapters 11 and 12). By the 1960s, Chomsky had brought linguistics back to the tradition with his embrace of rationalist grammar. Chapter 12 examines the re-ascendancy of hypothetico-deductive theory over the inductivist theories of the early twentieth century, concluding that both approaches are necessary for the proper modelling of language in the twenty-first century and beyond. Finally, Chapter 13 (added in the second edition of the book) reviews the history of inquiry into semantics and pragmatics from earliest times until the present day. Some of this history appeared in earlier chapters when it was relevant to their themes, but there was much that needed to be added to round out our account of the Western Classical Tradition in linguistics.
Figure 1.12. A map of the ancient world.
Chapter 2   Plato on language

Before Plato

Oral tradition about matters of language is almost solely restricted to myths about the origins of language; for example, the mythical figure Cadmus, son of the king of Phoenicia, supposedly brought the alphabet to Greece (see Chapter 1). It is hard to imagine a body of linguistic work being produced before the creation of writing systems; and with the advent of writing, we are in historical times. Certainly, the Western Classical Tradition is a matter of history, not prehistory; so too are the Indian, Chinese and other traditions (see Lepschy (ed.) 1994, Vol. I; Koerner and Asher (eds) 1995; Auroux et al. (eds) 2000-6, Vol.1).

In the ancient world all texts were handwritten in scripта continua (script without spacing between words, also called scriptio continua), sometimes without punctuation as in the Greek inscription on the British Museum’s Rosetta Stone (Figure 2.1).

Figure 2.1. The Greek inscription in scripta continua on the Rosetta Stone, with a superimposed enlarged fragment from the top left corner.

In early Egyptian papyri, and later in demotic and Greek texts, the first line of a stanza was sometimes indicated by the use of red instead of black ink; and line ends were marked by red dots. In Figure 2.2 the red parts of the original are in outline grey.

1. Based on a facsimile by Stephen Quirke, frontispiece to Parkinson 1999.
2. Based on Parkinson 1999, Plate 8.
Here are examples of scripta continua in English; in the first, line ends are marked by grey dots.

ALLTHEWORLDSASTAGE●ANDALLTHEMENANDWOMENMERELYPLAYERS●THEYHAVETHEIREXITSANDTHEIRENTRANCES●ANDONEMANINHISTIMEPLAYSMANYPARTS●HISACTSBEINGSEVENAGESATFIRSTTHEINFANT●MEWLINGANDPUKI NGINTHENURSESARMS●THENTHEWHININGSCHOOLBOYWITHHISATTACHEL●AN DSHININGMORNINGSFACECREEPINGLIKEASNAIL●UNWILLINGLYTOSCHOOL

eventhoughthechoicebetweenalternativeexpressionswillalwaysdependuponcontextitwouldbe

to say that ordinarypeopledoperceive expressionstobesomehow intrinsically either euphemistic
dysphemisticeuphemistic or dysphemistic for example terms for death such as pass away and sleep are
euphemisticwh ereas croaksniff and peg out are not

There were also boustrophedonic (from bou-strophos “ox-turning”) texts, in which text went left-to-right then right-to-left, e.g. (using an example in English3)

IHAVEADREAMTHATONEDAYTHISNATIONWILLRISEUPANDLIVE

OTSHTURTESEHTDLOHEWDEERCSTIFOGNINAEUMERTEHTTUO

BESELFEVIDENTTHATALLMENARECREATEDEQUAL

In very ancient Greek new paragraphs were sometimes marked by a stroke, ‖, speeches by different personae by a dash, –. By the third century BCE three punctuation marks were in use: the high point (teleia), counterpart to our full stop (period); the mid point (mesē) marked a long pause roughly counterpart to our semicolon; and the low point (hupostigmē) was roughly counterpart to our comma. It was common for majuscules (upper-case letters) only to be used – as on the Rosetta Stone (Figure 2.1). On papyri cursive script was sometimes used and it was this that gave rise to minuscules. Initial capital letters were used for proper names and often to mark the beginning of a paragraph or quotation, but

3. A Greek example would more likely begin right-to-left.
not otherwise sentence initially. Words were not regularly spaced apart until about the fifth century CE. Modern punctuation arose with the development of printing in the fifteenth century.

Because they were handwritten, no two copies of an ancient text are identical; they needed to be cross-checked for differences, especially for scribal omissions, additions, errors, and emendations. The first step towards understanding is identifying the letters; the second is to identify the word and sentence boundaries. In poems especially, the identification of syllables is necessary for metrical purposes; although at a time when reading aloud was the norm, it was almost as necessary for reciting prose works. The alphabet was learned in sequence alpha, beta, ... omega and backwards omega, psi, chi, ... alpha and paired as in alpha-omega, beta-psi, gamma-chi, etc. Familiarity with the alphabet was important because the ancient Greeks used letter symbols for numbers (as did the Romans). The fact that there were seven vowels was correlated with the seven notes on their musical scale and the seven celestial bodies known as ‘planets’, namely the Sun, Moon, Mars, Mercury, Jupiter, Venus, and Saturn. The term letter and its translation equivalents were used from ancient times through to the early twentieth century to refer to one or all of the three properties in Table 2.1.

Table 2.1. The three constituents of a letter.

<table>
<thead>
<tr>
<th>GRAMMA (Gk)</th>
<th>LITTERA (Lat.)</th>
<th>LETTER</th>
<th>example</th>
</tr>
</thead>
<tbody>
<tr>
<td>onoma</td>
<td>nomen</td>
<td>name</td>
<td>alpha</td>
</tr>
<tr>
<td>charaktēr</td>
<td>figura</td>
<td>form</td>
<td>&lt;α&gt;</td>
</tr>
<tr>
<td>ekphōnēsis</td>
<td>potestas</td>
<td>pronunciation</td>
<td>/a/</td>
</tr>
</tbody>
</table>

Likewise, Ælfric, Abbot of Eynsham, c. 1000 CE wrote ‘ælc stæf hæf þrēo ðing: [...] nama and hiw and miht’ (Ælfric 1880: 5). Thus letter denoted the combined orthographic form, name, and pronunciation, all of which needed to be known. Letter was an abstraction; the orthographic form and pronunciation are manifestations of the abstraction in much the same way that a phone is the manifestation of the abstraction we call a phoneme.

In ancient Greece, once the letters were mastered, the child learned to identify syllables, starting with two-letter syllables, next three-letter, and then practice with nonsense syllables. After this came the identification of one-syllable words before moving up to multi-syllable words. Included in the syllabus were exercises on proper names, archaic words in Homer’s Ionic dialect, tongue-twisters, and phrases made up from every letter of the alphabet (an Attic Greek counterpart to the quick brown fox jumps over the lazy dog). From words, students moved on to the recitation and interpretation of texts, often in sing-song chorus.

4. The sequence given here is roughly that which corresponds to days of the week in e.g. English and French (Sunday, Monday, mardi, mercredi, jeudi, vendredi, Saturday).
Papyrus (made from a grass-like aquatic plant) was expensive and fragile; sheets about 150 mm wide were pasted together into rolls up to about three metres long. It was too expensive for use in school, so students copied text onto wooden or waxed boards which could be wiped at the end of the lesson. They practised writing out character-building aphorisms such as *The learning of letters is the beginning of wisdom, Homer was not a man but a god;* and others on topics such as wealth and possessions, family and friends, the gods, fate and fortune, women, education and mental development. Teresa Morgan 1995: 87f describes these moral exercises as follows: ‘Family and friends are always a boon, although in general women are to be avoided: they are compared variously with lions, wild beasts, the sea and fire; they will trap you, marry you and then drive you to your grave.’ One example of such misogyny (from Marrou 1956: 218) is *Seeing one woman giving advice to another, He said* ‘*The asp is buying poison from the viper*.’ One hopes that girls were not also forced to write such demeaning things.

The Western Classical Tradition in linguistics has two parents: one is ancient Greek philosophy; the other is language teaching. The language-teaching progenitor developed several centuries later than its philosophical partner, and will be examined in due course. For the ancient Greek philosophers, language analysis was a tool: it was a means of identifying relationships between things, how to recognize statements that are true from those which are false, and how to draw valid inferences from statements – singly or in combination. The study of language was a means to several ends, including the development and understanding of dialectic (sound reasoning), logic (defining truth and valid rules of inference), rhetoric (persuasive use of language), and poetry. The method was one still familiar today: analyse the subject matter in order to determine its primitive parts and then figure out rules for recombining the parts. The drive to find primitives led the ancients to question the sources of word meanings, the relationships between words, and the connection between meaning and form. Recognizing that language combines form with meaning, the ancients used both semantic and formal criteria for linguistic analysis.

Grammatical analysis developed out of advances in dialectic, which required knowledge of propositional types, propositional structure, the forms of propositions, and valid inferences that may be drawn from propositions. For the ancient Greeks, a proposition (the content of a clause) was expressed as a declarative sentence (one with a potential truth value and therefore also called an assertion, judgment, or statement). In other words, the symbolic form of a declarative proposition is a natural language expression. Consequently, the analysis of the forms and structures of declarative propositions (single or combined) was concomitantly an analysis of language forms and structures.

The first person known to have made any observations that can properly be said to be ancestral to the Western Classical Tradition is Protagoras (481–411 BCE).

I am of the opinion, Socrates, [Protagoras] said, that command of poetry is the principal part of education; by which I mean the ability to understand the words of the poets, to know when

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5. Books, *codices*, only appeared in the first century CE for compact editions of very long works such as the Bible. Paper is said to have been invented in China by Cái Lún (蔡倫) c. 50–121. It reached the Middle East in the tenth century and Europe in the eleventh or twelfth.
a poem is correctly composed and when not, and to know how to analyse a poem and respond
to questions about it. (Plato, Protagoras 339a)\textsuperscript{6}

The importance given to skill in composing, understanding, and reciting poetry in ancient
Greece should not be underestimated (see Chapter 5 for discussion). Attention to such skills,
and the teaching of them, had a large part to play in the development of linguistics, as we
shall see.

Aristotle wrote:

A fourth rule is to observe Protagoras’ classification of nouns into male, female and inanimate
[genders]. (Rhetoric 1407\textsuperscript{b}7, Aristotle 1984)

In Sophistical Refutations 173\textsuperscript{b}19, Aristotle writes that Protagoras spoke against the
mismatch between natural and grammatical gender, suggesting that the feminine nouns
mēnis “wrath” and pēlēx “helmet” ought to be masculine, and that someone who calls mēnis
a “destructress” (oulomenē) commits a conceptual solecism even though it is grammatically
correct in gender agreement; conversely, someone who calls mēnis a “destructor”
(oulomenos) commits a grammatical solecism but not a conceptual one. According to
Diogenes Laertius,

[Protagoras] was the first to distinguish the tenses of verbs [prōtos merē chronou diōrīse].
He was the first to classify utterances into four [moods], namely: optative-subjunctive mood
[euchōlē], interrogative [erōēsis], declarative [apokrisis], imperative [entolē]. (Diogenes

We can now see these observations as precursors to the founding of the Western Classical
Tradition by Plato, Aristotle, and the Stoics.

Plato (429–348 BCE) was an aristocrat. His mentor Socrates, who participates in many of
the dialogues as Plato’s mouthpiece, was condemned to death in 399. Plato immediately left
Athens and travelled in Greece, Egypt and Italy, returning in 387 to found the Academy, a
school dedicated to the Muses\textsuperscript{7} where students were prepared for public service by studying
mathematics, dialectic, rhetoric, and natural science.

After devoting his whole life to the Muses a man could confidently count on their patronage
when he came to die; for they would summon him into their presence and lead him into the

\textsuperscript{6} The complete works of Plato are to be found in Plato 1997, but the translations used this book
are not necessarily taken from it. Works by Plato and Aristotle use a universal referencing
system based on published Greek texts. For Plato the system of pagination is based on page
numbers in the various volumes of a 1578 edition of Plato by Henricus Stephanus (Henri
Estienne) published in Paris. The numbers need to be used in conjunction with a title in order to
make any sense. For Aristotle pagination is based on Immanuel Bekker’s 1831 edition of the
Greek text. All editions and printings of Plato and Aristotle use the same numbers, though there
is some slight variation. For instance, the reference below to Aristotle’s Rhetoric 1407\textsuperscript{7}7
refers to the second (b) column of the original page 1407. The final ‘7’ following the superscript ‘7’
is the line number, and this does vary a bit from publication to publication.

\textsuperscript{7} There were at least nine Muses: Calliope was the Muse of epic poetry; Erato the Muse of lyric
poetry; Polyhymnia the Muse of sacred poetry and mime; Euterpe the Muse of music;
Terpsichore the Muse of dancing and choral song; Melpomene the Muse of tragedy; Thalia the
Muse of comedy; Clio the Muse of history; and Urania the Muse of astronomy.
Plato championed as a liberating force true knowledge based on rigorous demonstration; consequently he was unusual in condemning the myths propagated by poets (Republic X: 607–608a). Plato’s philosophy is largely presented in dialogues with at least two sides of an argument being offered; it is the engagement of (often conflicting) minds from which the truth emerges. A monologue is more likely to offer a biased or prejudiced view.

**Plato on meaning and grammar**

He first considered the meaning of grammar. (Diogenes Laertius 1925, 3: 25)

The ancient Greek scientific method was to analyse the subject matter into its primitive parts in order to facilitate an understanding of it. We see this at work in Plato’s Sophist 218e–221c, where he seeks to define *aspalēutēs* “angler” by such questions as (1) and (2).

1. Is an angler X or not-X?
2. What is X(ing)?

As usual in a Platonic dialogue, the wiser man (Plato’s mouthpiece) quizzes his interlocutor in such a way that enlightenment is reached through dialectic. In the following excerpt, the quizmaster primes the correct answer by establishing the pattern: Question 1 or 2? Answer 2.

- Is angling not a skill or a skill?
  - It is a skill.
- Is the angler a creator or an acquirer?
  - An acquirer.
- Is the acquisition by consent or by capture?
  - By capture.
- Is it open-capture or stealthy-capture?
  - Stealthy capture.
- Is it capture of nonliving or of living things (*zōothērikē*)?
  - Of living things.
- Are the living things land animals or water animals?
  - Water animals.
- Are the water animals caught waterfowl or fish?
  - Fish.
- Are the fish caught by a net or by striking a blow?
  - By striking a blow.
- Is this done by using fire at night or by using barbs in the day-time?
  - Using barbs by day.
- Are the fish struck by a trident from above or struck from below with a hook?
  - From below, with a hook.

The procedure could be represented, if somewhat inadequately, by a series of choices between binary features such as ±skill, ±acquisition, ±capture. In fact the quizmaster uses
something of the sort when summing up the definition of angling:

Of skill as a whole, half was by acquisition; and of the acquisition, half was by capture; and of capture, half was by stealthy capture; [... etc.] (221b)

The definition of aspalieutēs is “a skilled person who, by stealthy capture acquires living water animals, namely fish, by striking them from below with a hook during the day-time”. There was no intention that this be a semantic description of the word aspalieutēs; Plato’s purpose was to fix what a contemporary angler did to merit the title aspalieutēs. The result has a lot in common with defining that part of the semantic content of a lexical item which picks out relevant features of a typical denotatum. However, a semantic description additionally identifies the semantic relationships of the term – which would include comparing its meaning with those of related words.

Plato’s statements on grammar were very basic and perhaps not original (Householder 1995b: 92). In Sophist 261e–263 Plato identified two phonic signs for the essence of things: onoma [pl. onomata] “name”, which is often translated “noun” but is usually understood as the equivalent of “noun phrase”; and rhēma [pl. rhēmata] “attribute, verb, predicate”. The rhēma denotes an action; those who do the actions are signified by onomata (262a,c). Any combination of onoma and rhēma produces a logos “sentence, proposition” also translated ‘speech’, ‘utterance’, ‘statement’ (262c). Every logos is ‘of something’ (tinos = ti+GENITIVE); i.e. a logos has an argument or topic named in the onoma. Moreover it is about something which is, or is becoming, or has become, or will be (262d). This implicitly recognizes tense without assigning it to any particular sentence constituent, as Aristotle later did (it is not known whether Aristotle built upon Plato’s ideas). A logos does not simply name something, it makes an assertion about what is named that is either true or false (263d). The reason that Plato divides up the logos is apparently to show that the name can be correct even though the statement is false (263c, and see Rijk 1986: 206f).

That is the substance of what Plato says about grammar. Of greater interest to the modern linguist is Plato’s Cratylus and his treatment of the problem of universals and abstract entities.

**Plato on the relationship between meaning and form in language**

The power of words derives from the connection between the words and the things they denote. A word combines form with meaning: e.g. the sequence of phones [k], [æ], [t]...
combines with the meaning “feline animal” into the word *cat*. People tend not to separate the form from the meanings of a word, and moreover they tend to associate the meaning of a word with its denotatum. Saussure proclaimed as the first principle of linguistics that the correlation between the form of a language expression and its meaning is arbitrary, and also conventional in the sense that everybody in a language community tacitly concurs in using a certain form with certain meanings, cf. Saussure 1931: 100. The notion is not a recent one; here is Aristotle:

"A word signifies this or that by convention. No sound is by its nature a word, but only by becoming a symbol. Inarticulate noises such as are made by brute beasts may mean something: but no sounds of that kind are words. [...]"

Every sentence has meaning, not as an instrument of nature, but – as we observed – by convention. (*On Interpretation* 16’30; 17’1)

This seems obvious enough: how does one explain (3) if there is supposedly a connection between the meaning “canine animal” and the form of the word bearing that meaning?

(3) A canine animal is called *dog* in English, *chien* in French, *Hund* in German, *pies* in Polish, *ájá* in Yoruba, *kare* in Hausa, *mbwa* in Swahili, and so on and so forth for all languages.

Yet human beings seek to explain many of the things that confront them in terms of causal relations. If the form–meaning correlation in a word is arbitrary, any causal relationship between the form and meaning of a word is denied. It is understandable, therefore, that people have postulated a causal relationship between the two. Over the ages many well-educated scholars, as well as ordinary people, have believed that the original meaning of a word gave rise to its original form: hence the study of word-history was called *etymology*, whose ancient Greek morphological roots mean “the study of true original form and meaning”.10 The belief embodies a hypothesis for the natural connection between meaning and form in which the form somehow derives from the nature of the denotatum so as to communicate its essence: for this reason the hypothesis is known as the ‘naturalist hypothesis’.

The naturalist hypothesis is worth considering since it is only by refuting it that we can demonstrate that word forms are correlated with their meanings on a purely arbitrary basis. The most important discussion of the relative merits of naturalism (*phusis*) versus conventionalism (*nomos* or *sunthēkē*)11 is Plato’s *Cratylus*. Dating from c. 385 BCE this is the oldest extant European work on a linguistic topic. Plato’s purpose was to question whether it is valid to study the natural world through discussion of the language denoting things in the world. Were the naturalist hypothesis correct, then a word would reveal the essence of its denotatum, so that the study of language would be as valid in the quest for

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10. Ετυμολογία is based on ἐτυμον “correct (or true) [form and meaning]” and λόγος “discourse (about), study of”.

11. *Phusis* shifted meanings through “genesis” to “nature” and later “Nature”; *nomos* from “allotment” to “proper customs, law” to “custom”; cf. Joseph 1990a. The usual word for “custom” is *ethos* and for “convention” *sunthēkē*. 
knowledge about the natural world as a study of the world itself; on the other hand, if the conventionalist hypothesis is correct, then talking about the world cannot take the place of studying it directly through the physical sciences. So, Plato had a practical philosophical purpose in comparing the naturalist hypothesis with the conventionalist hypothesis for the correlation of the form and meaning of words; he was not indulging in idle speculation about language.

*Cratylus* is a Socratic dialogue in which Socrates questions the proponent of a thesis about its meaning and consequences, seeking to define the meaning of key terms, reasoning from these and by continued questioning to uncover contradictions or absurdities. In the first part, Plato’s mouthpiece Socrates, who does most of the talking, argues the naturalist hypothesis against the conventionalist Hermogenes (385–427). In the second part (428–40), Socrates refutes naturalism in discussion with Cratylus. We shall not stick rigidly to the text of *Cratylus*, but begin with the question of the origin of words and the diversity of languages; then examine the procedures for naturalist etymologies and the naturalist account of the supposed basis for the natural connection between meaning and form; then, finally, consider the remnants of naturalism today, and its implications.

A problem for conventionalism is to explain how the original correlation between meaning and form – if it is arbitrary – became conventionalized. The naturalist explanation for the spread of words through the community is that people straightforwardly perceive the natural connection between form and meaning. But who coined the original words? According to Socrates in *Cratylus*, it was a wordsmith (*nomothetês* – etymologically “lawgiver”; in 389a Plato instead uses *onomatourgos* “name-maker”), a craftsman comparable with the blacksmith or the carpenter. It had to be a craftsman and not just anybody because

a word is an instrument of teaching, and for separating the natures of things signified, like the shuttle is an instrument for separating the threads in weaving.  (388c)

The wordsmith fashioned words from sounds in accordance with the natures of the things signified, just like the blacksmith forges tools from iron, or the carpenter shapes wood into a shuttle. If you are wondering how far back one has to go to find the original words, Socrates favoured polygenesis, claiming that every language had its own wordsmith and each wordsmith used different syllables and sounds to form the words, just as different pieces of iron are used by different blacksmiths to make the same kind of tool. This neatly accounts for the fact that different languages have different forms with the same meaning, as in our “dog” example, (3) above. But the notion of each language being invented by a wordsmith needs considerable revision in the light of present knowledge of the tangled web of relationships among languages.

Who were the wordsmiths? Under the naturalist hypothesis, in order to ply his craft, a wordsmith would have to know and understand the Platonic Idea (or Form), which in this context means the true essence of a thing. In Plato’s view ordinary people are not capable of

12. There is a useful summary of *Cratylus* in Matthews 1994; see also Joseph 2000b for more extensive analysis.
Plato on language

this (Letter VII 340e–344b), so the wordsmith could be no ordinary man (Plato did not admit the possibility of it being a woman). Nor is he a god, because in Cratylus 439c Socrates shows that the wordsmiths are inconsistent and fallible: they cannot therefore be gods. So Plato leaves us no choice but to conclude that the wordsmith was a purely hypothetical construct, a ‘straw man’ who could not have existed at all: therefore there has to be some other explanation for the origin of words. It is already implicit that the naturalist hypothesis cannot be sustained because the form of words cannot directly reveal the Idea of what they denote, and therefore the nature of a thing cannot be known from its name.

We turn now to the etymological procedures used by naturalists. They sought a ‘natural’ or ‘true’ connection between meaning and form, but they did not go so far as pretending that a word duplicates its denotatum: obviously word and denotatum are completely distinct (cf. 432a–d). Nor was the word form thought to be a matter of sound mimicry: otherwise onomatopoeic words like moo and cock-a-doodle-doo would ‘name that which they imitate’ (423c). What a ‘true’ word form must capture is the essence (ousian) of the denotatum. For instance, according to biblical legend the first man was named Adam because he was created from the earth (Genesis 2:7), which is called in Hebrew adamah. Although this demonstrates a connection between Adam and adama (not widely accepted today), it leaves an important question unanswered: can the Hebrew form adama be connected with the meaning “earth” in any natural way? This sort of question can be asked for each of Socrates’ etymological analyses (at least some of which go back to Anaxagoras, c. 500–428 BCE). They are extremely fanciful, with a cheerful disregard for the transposition of letters, their omission, or insertion. Socrates’ excuse, reused by etymologists for the ensuing 2,100 or more years, was that

the original names have been completely buried by those who wished to dress them up – for they have added and subtracted letters for the sake of euphony, and distorted the words in every way for ornamentation. The passing of time also plays a part in this process. (414c)

Let’s take just a couple of examples from Cratylus. According to Socrates the goddess of wild nature, the hunt, chastity and childbirth,

Artémis appears to get her name from her healthy [artemes] and well-ordered nature, and her love of virginity; or perhaps he who named her meant that she is learned in aretē (“virtue”), or possibly, too, that she arotos misai (“hates sexual intercourse”) between man and woman; or he who gave the goddess her name may have given it for any or all of these reasons. (406b)

It is possible that Artemis and artemes are linked; but there is no plausible formal connection between Artemis and either aretē or arotos misai. The name of the god of Bacchanalia, Dionysos, derives, says Socrates, from didous ton oinon meaning “giving wine” (406c). This would be very appropriate but it is a mystery how the three-word phrase was pared down in the one-word name. Greater imagination still is required to explain in any systematic way the collapse of anathrōn ha ophpe “looks up to see” into anthrōpos “man” (399c). Such proposals were intended seriously; Socrates was not simply poking fun at naturalist etymologies. Consider the naturalist etymologies constructed for two Latin words by Marcus Terentius Varro around 45 BCE.
Cervi [“stags”] because they gerunt [“carry”] big horns derives from *gervi [“?carriers”]; the word has changed G to C as has happened in so many words. [...] Volpes [“fox” is so-called] because it volat [“flies”] with its pedes [“feet”]. (De Lingua Latina V: 101; Varro 1938)

Although Varro was a very learned man (see Chapter 4), both these etymologies are inaccurate in fact. In the first it is claimed that the verb gerere “carry” gave rise to the plural noun gervi, although in fact no such noun existed; nor was there any systematic unvoicing of initial stops in Proto-Latin. The second example seductively claims that volpes is a blend of volare “fly” and pes “foot”; that is, the word for fox derives from the description “flee-foot”. Etymologies of this sort flourished in ancient and medieval times. However, we should note that criticizing these ancient etymologies from a modern standpoint mistakes their intention: modern etymologists seek to map the diachronic development of the meanings and forms of the word whereas the ancients sought to explain the meaning of the word in terms of its perceived component forms (Robins 1997: 27). They assumed that knowledge is embodied in word meanings and can be elucidated by reference to the original meaning; hence the original forms and meanings of words in what would today be called the proto-language were, supposedly, finessed. Although their explanations are often faulty, as we have seen, it is arguable that they had some success in focusing attention on the meaning of the word under consideration.13

Where the etymologist could not come up with any kind of componential analysis of the kinds exemplified above, he would conclude that the word under analysis was of foreign origin, and its etymology could only be given in terms of its language of origin, cf. Cratylus 409d–410a. Thus, the naturalist gave his imagination free rein to etymologize without any kind of restraint. The method of analysis was:
- describe the denotatum of the word under analysis;
- cast around for an appropriate phrase that bears some resemblance to the description, and which has a form bearing some resemblance to the word under analysis;
- if this fails, the word must be of foreign origin and is therefore unanalysable.

Such fanciful procedures brought etymology into disrepute until more rigorous methods were adopted by philologists from the seventeenth century.14

Most of the etymological investigation undertaken by Socrates in Cratylus is analysing words (however fancifully) into a combination of semantic components that he called ‘primary words’ and which we might think of as the precursors of morphemes, cf. the derivation of Adam from adamah, or of volpes from vol[are] + pes. The problem is to show a natural connection between the forms of the primary words and their meanings. But all that naturalism can offer is that primary words are constructed on the basis of sound symbolism: sound symbolism is the foundation on which the whole edifice of the naturalist hypothesis rests. Plato’s degree of confidence in this foundation is indicated by Socrates’ well-justified comment:

13. There is further discussion of etymologia in Chapters 4, 7, and 13.
14. One of the earliest systematic etymologists in the modern sense was Ménage 1650.
I think my notions about the primary words are quite outrageous and ridiculous, though I have no objection to imparting them to you if you like, and I hope that if you can think of anything better, you will tell me. (426b)

Sound symbolism is language specific and conventional, not natural. For instance, onomatopoeic words, which supposedly mimic natural sounds, differ from language to language and obey the phonological conventions of the language in which they occur: cf. English *cock-a-doodle-doo*, French *cocorico*, German *kikeriki*, Japanese *kokokokkō*; and compare English *clang* with Tzeltal\(^\text{15}\) *ćan*, English *chip* with Tzeltal *čehp*, *screching* with *ķie*, and so forth. Languages have phonaesthetic networks which differ from language to language: e.g. the English words *flail*, *flame*, *flap*, *flare*, *flash*, *flay*, *flee*, *flick*, *fling*, *flit*, *flood*, *flop*, *flounce*, *flourish*, *flush*, *fly* have the common consonantal onset ‘fl–’ and all suggest sudden or violent movement; *bash*, *clash*, *crash*, *dash*, *flash*, *gash*, *lash*, *mash*, *slash*, *smash*, *thrash* have the common rhyme ‘–ash’ and all involve violent impact (Allan 2001: 132–40). According to Socrates, naturalism is founded on something like phonaesthesia; consider such postulates as the following: \(^r\) represents motion\(^\text{16}\) (e.g. *rhein*, *rhoē* "flow [verb, noun]", *tromos* "trembling", *trāchus* "rugged"); \(s\) and other fricatives are pronounced with ‘great expenditure of breath [... and] imitate what is windy’ (e.g. *phusōdes* "windy", *seiesthai* “to be shaken”, *seismos* “shock”, *zeon* “seething”, *psuchron* “shivering”); \(l\) has a liquid movement in which the tongue glides and expresses smoothness (e.g. *leion* "smooth", *olisthanein* “glide, slip”, *liparon* "oily, sleek" (426d–427b). But individual phonemes or letters are not consistently used in a particular sense. E.g. the word *smooth* has fricatives at either end, but it does not indicate something ‘windy’; *lollop*, *laugh*, *hall*, and *toll* contain ‘l’ but no sense of ‘smoothness’ or ‘slipperiness’; the ‘r’ in *rust*, *rot*, and *round* has nothing to do with motion; the ‘fl–’ in *flint*, *flock* and *flower* brings no sense of sudden or violent movement to these words: nor do *ash*, *cash*, *sash* involve violent impact. Indeed, when arguing against naturalism in 434e–435c of *Cratylus*, Socrates himself cites counterexamples like these to force the conclusion that the form~meaning correlation in a word must be conventional and arbitrary. For instance, he points out to *Cratylus* ‘that which is called by us *sklērotēs* is by Eretrians [who lived on an island northeast of Athens] called *sklērotēr*’ and these are mutually intelligible and both readily understood to mean “hard”, therefore neither can be judged ‘incorrect’. Also the word in both dialects contains *l* which seems at odds with the meaning “hard”. *Cratylus* is forced to agree. Socrates concludes that it does not matter what the form of a word is if its meaning is ‘sanctioned by custom and convention’.\(^\text{17}\)

Today, controversies over the earlier forms of words are generally left to experts trained in historical and comparative linguistics; but even so, there is a strong body of public

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16. Plato’s word for motion is *kinēsis* which itself contains no \(r\).

17. Joseph 2000b: 75 points out that Plato would prefer naturalism to be the guiding principle because it approaches the Idea, but he recognizes that convention prevails. Plato disapproves of this because he holds the populace in very low esteem (435c2–d1), see *Republic* and *Laws*. 
opinion that the proper meaning of a word is the supposed original meaning. This is revealed in school textbooks and frequent letters to newspaper editors or calls to radio talkback shows asserting that the new meanings for words are ‘misuses’. This is the view expressed in the following remarks about the English word *nice*.

**nice** This word is very much overworked and misused. Its real meaning is *precise, exact, and delicately, fine*, e.g.

- A nice difference in meaning.
- A nice ear for music.

The word is now often used to mean *agreeable, delightful, pleasant*, etc. – because it is easier to say *nice* than to think of a more suitable word. (Wright 1978: 91)

You should ask yourself what Wright means by saying ‘it is easier to say *nice* than to think of’ some other word. He possibly means “lazier”; but *easier* also implies greater communicative efficiency, which is laudable not reprehensible. Regrettably, Wright’s remarks about *nice* demonstrate a woeful ignorance. Today, the ‘real meaning’ of *nice* includes “agreeable”, “delightful”, “pleasant” just as much as (and arguably more than) it includes “precise”, “exact”, and “delicately fine”, which were its seventeenth and eighteenth century meanings and are a shade archaic today. English *nice* derives from Latin *nescius* “ignorant”, and we can trace a path through its earlier senses to its present meaning:

- *nice* from Latin *nescius* \(\triangleleft ne se\ibre^{*} \text{“not know”, “ignorant”}\)
- 14th–16th century “ignorant”, “stupid”, “foolish”, “foppish”
- 16th–18th century “foppish”, “fastidious”, “precise”
- 18th–19th century “precise”, “balanced”, “agreeable”
- 20th–21st century “agreeable”, “pleasant”, “pleasing”

To speak of one or more of the earlier meanings being the ‘real’ meaning of *nice* is absurd. It suggests that the current meaning is in some way degenerate. The degeneracy of contemporary language is, in fact, a recurrent theme in the naturalist tradition. The naturalist hypothesis leads to a belief that the original word bore the proper form and proper meaning; therefore any subsequent change is a degeneration from the perfectly natural original form, a decline that should be halted or preferably reversed. However, we should ask the naturalist for evidence that the original language (or the original form of his or her language) was a better instrument of communication than the language of today, or, indeed, of another time in recorded history. The answer is, of course, that there is none.

Inspired by Plato’s *Cratylus*, we have seen that the naturalist hypothesis will not stand scrutiny: the forms of words do not capture the essence of their denotata; in fact there is no natural connection between the form of a word and its meaning. As Plato wrote in *Letter VII*:

There is nothing to stop things which are at present called *round* being called *straight*, and vice versa; and their stability would be in no way impaired if everyone made this transposition. (343b)
Particulars, universals, and abstract objects

Plato’s interest in abstract objects arises from practical questions for his epoch such as *How do we teach people courage?* This question presupposes that we can recognize courage and bring others to know what courage is. How can anyone know what courage is when the best we can offer as evidence for our knowledge are instances of acts of courage from the past and, on rare occasions, the present? As we shall see, the difficulty extends to the language we use when talking about concrete entities. Consider Plato’s discussion in *Letter VII* 342a–343b of a circle, which we can reasonably take to be an inquiry into the denotatum of the lexeme *circle*. It is important to be clear that what we are talking about here is the lexeme *circle* plucked from the dictionary (as it were) and not being used to refer to some particular object such as the noun phrase *a circle* does, which can be drawn and referred to a second time by the noun phrase *the circle ten words back*. The circle drawn here and, by now, three times referred to is a particular object of our experience. By contrast the denotatum of the lexeme *circle* is not; it cannot be drawn because it is an abstraction. In Plato’s terms it would be an Idea. Plato identifies three ways that we acquire knowledge of circles: through the name, through definition, and through sensory experience. The name *circle* is arbitrary and could have been different (it is *kuklos* in Greek, *da’ira* in Hausa, *yuán* in Mandarin) yet still denote the same thing.

(4) A circle is a plane figure bounded by a line (the circumference) equidistant from a point (the centre) such that if the distance from the centre to the circumference is *r*, then the circumference has a length of $2\pi r$ and describes an area $\pi r^2$.

But a lot of people know what a circle is without knowing the definition in (4). The Idea, which Plato refers to as ‘the circle itself’, is what is named in the lexeme and defined in (4). As we have seen, you can draw a circle, point to one, imagine one; but in each case it is just one instance of a circle. You can draw lots of (instances of) circles and then rub them out (or tear them up and burn them): such acts have no effect on the existence of the denotatum of the lexeme *circle* or the Idea of a circle. No instance of a circle matches the ideal: by definition a circle has no straight edge, yet any representation of a circle will be straight over some extent of its circumference, however small – it is, in other words, as impossible to draw the perfect circle as to draw a line that has length but no breadth. For practical purposes we overlook this fact; but it is interesting, because it does raise the question of what a circle really is. Plato lists ‘knowledge’ of what a circle is together with ‘understanding’ of and ‘true belief’ about what it is. According to Plato, knowledge of something involves understanding it, and cannot be false. True belief about something is based on assessment and interpretation, and may or may not involve an understanding of it; it does not have the permanent status of knowledge and can be an illusion – in which case it is presumably false belief. In *Letter VII* 342c Plato does not need to distinguish among knowledge, understanding, and true belief because he is presenting them as bound to a mortal person (however perspicacious) and necessarily therefore impermanent conceptions quite different in nature from the object of knowledge, understanding, and belief – the Idea, the ‘circle itself’. The Idea exists (or subsists) in another world, or on another plane, a
perfect and immortal world. Plato believed in the immortality of the soul, which in some
pure state comes in contact with the Ideas so that when a soul is attached to someone s/he is
able to use it to recollect the form. This is known as the doctrine of anamnesis.

They say that the human soul is immortal; at times it comes to an end, which people call
dying, at times it is reborn, but it never perishes. [...] So, since the soul is immortal and has
been born again many times, and has seen both the things here on earth and those in the
underworld and all things [including Ideas], there is nothing that it has not learned. So it is in
no way surprising that it can recollect the things it knew before. (Meno 81b,c)

As human beings we can only hope that our souls will recollect Ideas when stimulated by
our knowledge and understanding of the world we experience.

We readily interpret $\bigcirc$ as a circle: our eyes tell us what it is and that it is the same kind
of thing as $\bigcirc$, and we have learned that such things are called circles. These are things
we know from direct experience. It is much more difficult to figure out how we come to
know the meanings of (5) to (7) because we cannot know any of these from direct
experience.

(5) the universal all circles
(6) the description a perfect circle, and
(7) the denotation of the lexeme circle

To say that we extrapolate from our direct experience, or abstract from it, or generalize on
the basis of it, at best describes what we do but nonetheless fails to account for our
understanding of (5) to (7). Plato’s solution was that our knowledge of such things comes
through recollecting the direct experience of our immortal soul. Thus Plato offers an
explanation for how it is that everyone knows more than their direct experience in the world
seems to warrant. It is a question raised by mother-tongue acquisition: somehow every
child learns the grammar of their language(s) despite haphazard and impoverished linguistic
input. To assume that the child’s immortal soul recollects language experienced in some
former life would surely lead it to sometimes use archaic grammatical constructions; instead
there is thought to be some biological cause for language acquisition. A better explanation
for our understanding of universals, abstract entities, and partially perceived objects is that
humans are biologically programmed to abstract and to generate gestalts.

As to the understanding of universals, there has long been a great deal of controversy
between two points of view. One is that things can be classed together because they all have
some common characteristic(s); this is known as the ‘realist’ view because it presupposes
that things are similar in the real world, and we therefore perceive them or conceive of them
as similar. This was the view adopted with the two circles in the paragraph beginning above
(5). The alternative is the ‘nominalist’ view that things are classed together only because
they have the same name – an idea from Democritus (460–390 BCE), Gorgias (483–376
BCE), and the Epicureans (second century BCE) (Carré 1946: 41). Nominalism can smack of

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18. The visually impaired need to replace visual perception with tactile perception; this complicates
matters, but does not destroy the argument being made.

19. Chomsky 1988: 3f describes this as ‘Plato’s problem’; see Chapter 8.
naturalism in that the name captures the Idea of the denotatum; but the usual version (shared with Peter Abelard, 1079–1142, and William of Ockham, 1300–49) has particulars as real world objects external to the human mind, and universals as either logical or conceptual entities. Thus abstract entities can exist (or subsist) in some world other than the real world, but one linked with it through the human mind. Plato’s view, recall, is that abstract entities exist as Ideas in a different world, accessible not to the mortal conscious mind, but through the immortal unconscious soul. The view that abstract entities exist in an immortal world has been advanced by Platonist linguists in the twentieth century (Carré 1946; Katz 1981a; (ed.) 1985; Katz and Postal 1991).

**Plato on meaning, form, and understanding**

Plato has little to say about grammar apart from dividing the sentence into a noun phrase naming the actor and a verb or predicate naming the action. The idea was probably not original with Plato, but we will pretend it was.

The argument in *Cratylus* centres on the extent to which we can know the essence of things through knowing the words that name them. The argument is between the competing *phusis* or naturalist hypothesis and the *thesis* or conventionalist hypothesis. Naturalism claims that the form of a language expression was originally determined by its meaning and therefore change of form is degenerate; conventionalism claims that meaning is arbitrarily related to a form, and assigned to that form by tacit convention within a language community. When this Socratic dialogue is read carefully, there is plenty of evidence that the weight of argument is on the side of conventionalism even though Plato was not decisive or explicit about which side of the fence he was on. He presents the dialogue in a typically equivocal way, giving arguments for both sides, because his purpose was in part to teach through discussion. He firmly believed that the truth is reached through dialectic, discussion, and the exploration of ideas. It is truer of Plato than of many scholars that he argues a point rather than laying down the law. We saw that the naturalist hypothesis is founded upon sound symbolism; and although some vocabulary in every language reflects sound symbolism, this is determined by the phonological conventions of the language and the meaning of sound-symbolic vocabulary items is not regularly recognizable by someone who does not speak the language.

The discussion of circles (roundness) in *Letter VII* shows Plato to be a conventionalist; but a few scholars who believe that *Cratylus* demonstrates Plato was a naturalist dispute the authenticity of this part of *Letter VII*. At the same time, however, Plato discusses the problem of abstract meanings in the context of asking how we know what a circle is. This discussion is relevant to the problem of how children learn the meaning of lexemes like *circle* and universals like *all circles* when they only experience imperfect instances of circles. More generally, it raises the question of how children (and therefore adults) come to

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20. In fact, the Greek term allows for the system to be created by one person and imposed on others, so it might be more correctly translated Inventionalist; cf. Allen 1948: 36. But conventionalist is the standard translation.
know so much more than seems warranted by the haphazard and impoverished sensory data that they encounter by direct experience.
Chapter 3  Aristotle’s legacy

Aristotle’s footprints in the linguist’s garden¹

Plato had pondered the degree to which language is informed by the natural world and questioned whether language reflects the characteristics of the natural world to the extent that talking about something is as revealing as studying the referent itself. He concluded that things in nature cannot be investigated by studying the language used to describe them. He was also concerned with the use of language to frame propositions, and was led to identify three parts of speech: *onoma* “name, noun, noun phrase”, *rhēma* “predicate, verb”, and *logos* “sentence”, corresponding to the subject or topic, what was said about it, and the resulting proposition. *Logos* can mean “phrase” (Whitaker 1996), but it normally means “clause” or “sentence”. In Plato and Aristotle it usually refers to a simple declarative sentence (*apophansis* or *logos apophantikos*) that makes a statement which can be judged either true or false. Because a *logos* consists of two terms, *onoma* and *rhēma*, Aristotle’s logic was a ‘term logic’. Propositional logic was first developed by the Stoics; so, strictly speaking, the word *proposition* is anachronous when discussing Aristotle’s work (Seuren 1998). It is, however, a useful anachronism. The categories *onoma* and *rhēma* (*nomen* and *verbum*, noun and verb, NP and VP) persist throughout the Western Classical Tradition in linguistics as immediate constituents of a clause.

Aristotle (c. 384–322 BCE) wrote on ontology, logic, physics, astronomy, meteorology, the soul, psychology, sleep and dreams, biology, perception, metaphysics, ethics, politics, economics, rhetoric, and poetry (see *The Complete Works*, Aristotle 1984²). He is notable for careful observation and extraordinary common sense.

> [I]t is the mark of an educated man to look for precision in each class of things just so far as the nature of the subject admits: it is evidently equally foolish to accept probable reasoning from a mathematician and to demand from a rhetorician demonstrative proofs. (*Nicomachean Ethics* 1094b24–27)

His quest for understanding was built around four ‘causes’, though today’s preferred term is *qualia* (see Pustejovsky 1995), which identify the characteristics of a denotatum. Aristotle identified a ‘material cause’, the substance(s) of which something consists; a ‘formal cause’, its form, location, orientation and place within a taxonomy; the ‘efficient cause’, what brings it into being (Is it an artefact or natural kind?); and the ‘final cause’, its reason for being, its purpose or function. These causes, under whatever name, have provided a framework for centuries of investigation.

Like his mentor Plato, Aristotle was not primarily interested in the study of language for its own sake but as a means to an end. Aristotle recognized that language is a means of expressing thoughts about the world, and he was more engaged than Plato with the notion

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¹ Much of this chapter was previously published in *Language Sciences* 26 (Allan 2004).
² Aristotle 1984 is not necessarily the source for translations of Aristotle in this book.
that the structure of language reflects the structure of thought. In *Categories* (*Cat.*) he wrote about the use of language in categorizing reality, and much of what he says counts as comment on the semantic relations between the terms used in naming things. In *On Interpretation* (*Int.*), *Prior Analytics* (*Pr. An.*) and *Metaphysics* (*Met.*) he discussed (to use modern terminology) linguistic aspects of forming a proposition, the nature of appropriate inference from one or more premises, and the different effects of negation over terms quantified by universals and particulars. His ideas were later developed to a more sophisticated level by the Stoics.

Aristotle includes a brief discussion of homonymy and polysemy in *Categories* 1a1, 15b18; lengthy discussion of and tests for homonyms in *Topics* 10671; and an examination of what is criterial in constructing a definition in *Topics* (*Top.*). In the literary vein, he looks at the use of language in rhetorical argument in *Rhetoric* (*Rhet.*), where he has interesting things to say about metaphor and about the structure of certain kinds of discourse, and he touches upon matters that re-emerge in Grice 1975 as maxims of the cooperative principle. In *Poetics* (*Poet.*) Aristotle puts the view that knowledge of language structure will help maintain a standard of literary excellence; consequently, to Plato’s *onoma*, *rhēma*, and *logos* Aristotle added inflection, rhetorical conjunction, connective (*arthron*, including articles, prepositions and some conjunctions), and observations on the syllable and the ‘letter’. Discussion of the ‘letter’ includes what is virtually a description of the phoneme.

So, if any single individual can be credited with founding the Western Classical Tradition in linguistics it is Aristotle.

As so often happens [...] we suddenly realize that the path of inquiry we hoped to open is already marked by the footprints of Aristotle.  (Vendler 1967: 194)

Aristotle’s footprints are found in many parts of the linguist’s garden. His view of language would not be greatly out of place within the discipline of linguistics today. This is remarkable, because his primary interest was not grammatical analysis, but the pursuit of a definition for truth through epistemology and logic, or for the arts of rhetoric and literary composition. Aristotle recognized that language is conventional; that the tokens in the mind for things which human beings perceive are symbolized using different forms in different speech communities. For him as for us, speech is prior to writing, and the differences he noticed in the forms of language used in the two media are just the ones talked about in modern linguistics. It was Aristotle who established the importance of explaining the whole from the nature and relationships of its parts; so, of course, he recognized the compositionality of language. He described the pronunciation of the ‘letter’ in terms very similar to Trubetskoy’s 1939 notion of the phoneme. 3 Aristotle’s analysis of propositional structure, negation, and modality set the grammatical foundations for the Western Classical Tradition in linguistics.

3. Nikolaj Sergeyevich Trubetskoy (Николай Сергеевич Трубецкой, Nikolai Trubetzkoy), 1890–1938; see Trubetzkoy 1969. (Unfortunately у gets transliterated both v and υ.)
Some basic Aristotelian assumptions

Aristotle believed that language is conventional:

*Onoma* is an expression [φόνη] which has meaning by convention [κατά συνθῆκην]. (Int. 16\(^{20}\))

And he could see that spoken language is prior to written language and that it is ephemeral by comparison:

Spoken words are the symbols of mental experience and written words are the symbols of spoken words. (Int. 16\(^{3}\))

None of [the] parts [of spoken language] has abiding existence: when once a syllable is pronounced, it is not possible to retain it. (Cat. 5\(^{33}\))

Elsewhere he points to two other differences between speech and writing.

The written style is the more finished: the spoken better admits of dramatic delivery – both the kind of oratory that reflects character and the kind that reflects emotion. (Rhet. 1413\(^{9}\))

Strings of unconnected words and constant repetitions of words and phrases are very properly condemned in written texts: but not in spoken ones. (Rhet. 1413\(^{19}\))

Aristotle had no thoroughgoing theory of language. Insofar as he had any theory of language at all, it is expressed in the following:

Spoken words are the symbols of mental experiences [παθήματα ἐν τῇ ψυχῇ] and written words are the symbols of spoken words. Just as all men do not have the same orthography, so all men do not have the same speech sounds; but the mental experiences, which these directly symbolize, are the same for all, as also are those things of which our experiences are images. (Int. 16\(^{3}\))

While it is not especially insightful to recognize (A) the priority of the spoken over the written medium and (B) the fact that language is a product of the mind, these are nonetheless two characteristics that have been tenets of linguistic inquiry throughout the history of linguistics and they tend to be mentioned in modern introductions to linguistics.

Aristotle’s observation that there is a common semantics for mankind underpins the empiricist grammatical theory of the modistae (c. 1150–1350) and the rationalist grammatical theory of the general grammarians (c. 1660–1770) and subsequent universalist theories until the present day (see Chapter 8). Universal grammar was repudiated during the first half of the twentieth century; and the Sapir-Whorf hypothesis went so far as to claim that people’s experiences of reality are conditioned by the structure of their language—a notion which was almost the inverse of Aristotle’s. However, universal grammar came back into vogue with Chomskyan linguistics; and universal grammar as a characteristic of the human mind and brain has been a major area of linguistic research since Chomsky 1965.

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5. A weak version of the Sapir-Whorf hypothesis is that a language directs its speakers towards certain aspects of perceived phenomena – but, because perception is independent of language, other aspects of phenomena can be commented upon, if desired, by circumlocution, or by the novel use of a language expression. See Chapter 10.
There is some controversy over Aristotle’s use of the term *sumbolon*: C.W.A. Whitaker objects to it being translated *symbol* in the quote above from *Int. 16*3 on the following grounds.

The normal use of the Greek word was for a tally or token. A contract or other agreement might be marked by breaking a knucklebone or other object in two, one portion being taken by each of the parties to the agreement. Each person kept his piece, and could identify the person who presented the other piece by matching it with his own. The word hence comes to denote any token, for instance for admission to the theatre.

We shall see from Aristotle’s account of how words function that this term is aptly chosen for his purpose. In his view, the meaning of a word is fixed by convention (16a19, 17a1f.), just as the importance attached to a tally, token, or ticket depends on agreement between the parties concerned. Any suitable item could be used as a tally, provided people agreed to regard it as such. (Whitaker 1996: 10)

While the Ancient Greek word *sumbolon* may commonly denote a tally or token, for the modern reader, *symbol* is a more appropriate translation in *Int. 16*3 than either *tally* or *token*.

Aristotle was a meticulous thinker and believed that we can better understand the world around us if it is analysed into its component parts. This was a view familiar to twentieth century science, and it has been championed in modern linguistics. It is one small part of our Aristotelian heritage. The opening words of *On Interpretation* are salutary in their embrace of a rigorous scientific approach to linguistic analysis:

> First we must define the terms *onoma* and *rhêma*, then the terms *denial* and *affirmation*, then *statement* [*apophansis*] and *sentence* [*logos*]. (Int. 16*4*)

Such rigour has not always been seen as a requirement on linguistic analysis; and Aristotle’s view of definition is something that many modern linguists could usefully take to heart. In *Topics*, he points out the need ‘to express the essence of what is being defined’ (139*3*) and the framer of a definition should first place the object in its genus [class, kind, category], and then append its differences; for of the elements of the definition the genus seems to be the principal mark of the substance of what is defined. (Top. 139*28*)

He further identifies a problem which is common in linguistic definitions:

> Incorrectness [of definition] falls into two branches. First, the use of obscure language: the language of a definition ought to be the very clearest possible, because the purpose of rendering it is to make something known. Second, when the account is longer than is necessary; because all additional matter in a definition is superfluous. (Top. 139*12*)

In modern linguistics, the first of these – which ought to be the more important – is often sacrificed to the second, usually known as the principle of Ockham’s razor after the fourteenth century scholastic William of Ockham (see p. 315). As Aristotle so pertinently notes:

> a definition is rendered in order to come to know the term stated. [...] So clearly he who defines through terms that are prior and more familiar has framed a better definition. (Top. 141*27*, 32)

Defining the meaning of *dog* as “canine quadruped” violates the Aristotelian maxim, and
reminds us that semantics is a field where obscure metalanguages have flourished. Anna Wierzbicka 1984: 206f (not herself beyond criticism) has objected to the following definition by Labov:

The term *cup* is regularly used to denote round containers with a ratio of width to depth of $1 \pm r$ where $r \leq r_b$, and $r_b = \alpha_1 + \alpha_2 + \ldots + \alpha_v$ and $\alpha_i$ is a positive quantity when the feature $i$ is present and 0 otherwise.

- feature: 1 = with one handle; 2 = made of opaque vitreous material; 3 = used for consumption of food; 4 = used for the consumption of liquid food; 5 = used for the consumption of hot liquid food; 6 = with a saucer; 7 = tapering; 8 = circular in cross section

*Cup* is used variably to denote such containers with ratios of width to depth of $1 \pm r$ where $r_b \leq r_t$ with a probability of $r_t - r_b$. The quantity $1 \pm r_b$ expresses the distance from the modal value of width to height. (Labov 1973: 366f)

It is not the accuracy of such definitions that is questionable – although more often than not there are problems with accuracy resulting from limitations of the metalanguage. The problem is that there is very rarely a justifiable reason for the obscurity of expression. What, for instance, is the payoff for the obscurity of Labov’s definition of *cup*? Who, or what machine, is the definition intended for? Definitions like Labov’s violate the spirit, if not the word, of Grice’s maxims of manner (Grice 1975). Adapted and paraphrased into a single maxim, manner enjoins the writer to present his or her meaning in a concise way that avoids ambiguity on the one hand and, on the other, avoids misleading or confusing the reader through stylistic ineptitude. As we shall see, Aristotle would surely approve.

**Aristotle’s parts of speech**

Aristotle’s epistemological investigations led to the analysis of perceived reality in terms of various categories which he correlates with distinct linguistic classes. In *Categories* Aristotle takes as his subject *onomata*, the names for things that form the arguments of propositions and the content of predicates. The combinations of argument and predicate which constitute (what we now call) propositions (*Cat.* 1ª25) are discussed in *On Interpretation*.

Every affirmation, it seems, is either true or false; but of things said without any combination, such as *man, white, runs, wins* [on their own], none is either true or false. (*Cat. 2ª7*)

Here Aristotle could be building upon what Plato wrote in *Sophist* 261–63 (Plato 1997); see the discussion in Chapter 2. To treat nouns and verbs as having this common characteristic puts in mind the generative semanticists of the later 1960s; the following might have inspired proposals by Bach 1968 or McCawley 1968a; c to include referential indices in ‘deep structure’ and to propose recursive predications.

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6. A metalanguage is the language which a linguist uses to describe and analyse the object-language. The object-language is the language under investigation. See Chapter 13.

Given a predicate on an argument, a predication of the predicate will also hold good of the original argument \([\text{hupokeimenon}]\). Thus \textit{man} is predicated of the individual \textit{man} \[\text{represented in generative semantics by a referential index}\]; but \textit{animal} is predicated of \textit{man}; so it will also be predicated of the individual man, for the individual man is both \textit{man} and \textit{animal}. \((\text{Cat. 1}^8; \text{cf. 2}^419–27)\)

By implication, Plato and Aristotle believed in the priority of substance over attributes, qualities, states, relations, and events because the latter can only be predicated of something. For instance, in a discussion of the notion ‘prior’ in \textit{Cat. 14}^b14 Aristotle identifies substance – the existence of a man – as prior to predicing his existence in a sentence; this implies the priority of \textit{onoma} over \textit{rhēma} in order that they should combine to form the \textit{logos}. In \textit{Topics 142}^a20 we find him saying ‘what is still and definite is prior to what is indefinite and in motion’, which once again implies the priority of \textit{onoma} over \textit{rhēma} on the basis of their typical denotation. Like those before him, Aristotle defined \textit{onoma} before defining \textit{rhēma}, and of the latter he wrote ‘it is a sign of things said about something else’ \((\text{Int. 16}^b7)\), again presupposing the priority of \textit{onoma}. In later times, the Latin grammarian Priscian (writing around 525 CE), the modistae \((\text{c. 1150–1350})\), and the rationalist and general grammarians \((\text{c. 1660–1770})\) went so far as to suggest that the priority of substance \((\text{onoma})\) over action or state \((\text{rhēma})\) is reflected in the naturalness of the clause sequence \(\text{SUBJECT} \overline{\text{VERB}}\). Then, the ‘naturalness’ attribute is justified by the dominant word order of the biblical languages Hebrew, Greek, and Latin (see Chapters 6, 7, and 8).

Belief in the priority of substance led Aristotle to write:

In most, indeed in almost all cases, the names of the qualified things are derived from the names of the qualities. From whiteness, from grammar, from justice, we have white, grammatical, just. And so on. \((\text{Cat. 10}^e29)\)

Aristotle was interested in the denotations of these words and not the direction of morphological derivation. From his point of view, the claim is intuitively correct because you cannot understand \textit{X is white} until you have a concept of whiteness. But the direction of derivation for the linguist can be just the converse; for example, \textit{whiteness} derives morphologically from \textit{white}.

Aristotle defines \textit{onoma} and \textit{rhēma} as follows.

\begin{itemize}
  \item \textit{Onoma} is an expression which has meaning by convention, and is without reference to time. \((\text{Int. 16}^b19)\)
  \item \textit{Rhēma} is that which, in addition to its proper meaning, carries with it the notion of time, no part of it being significant separately; and it is a sign of things said about something else \([\ldots]\) that is, something predicatable of some other thing. \((\text{Int. 16}^b6)\)
\end{itemize}

\textit{Rhēma} is defined as dependent on \textit{onoma} and additionally by its tense inflection. Indeed, where a would-be \textit{rhēma} is on its own, it is just an \textit{onoma}:

Verbs and predicate adjectives in and by themselves are substantival \([\text{ta rhēmata onomata esti}]\). \((\text{Int. 16}^b19)\)

What Aristotle means is that the lexical verb or adjective \((\text{Int. 20}^b1ff)\) merely names an action or state:

\begin{itemize}
  \item \textit{health} \([\text{hugieia}]\) is a noun, but \textit{is healthy} \([\text{hugiainer}]\) is a verb; for besides its proper meaning [lexical content] it indicates the present existence of the state in question. \((\text{Int. 16}^b8)\)
\end{itemize}
Aristotle's legacy

When uttered just by itself a rhēma is a name and signifies something […] but it does not yet signify whether it is or not. (Int. 1619)

What is significant is the combination of rhēma with onoma to form a proposition which expresses a statement that can be assigned a truth value. The dependence of predicates on nominals is echoed in twentieth century type theory where the primitive symbols are e for “entity” and t for “truth value” or sentence, and a (one-place) predicate is symbolized in terms of them as $<e,t>$ “a function from entities to truth values”, sometimes glossed as “something that looks for an entity to form a truth value”.

Aristotle presents the earliest mention within the Western Classical Tradition of inflection. He distinguishes $\pi\theta\iota\varsigma\ o\nu\o\mata$ “nominal inflection” as that inflection of the noun that permits a positive or negative existential predication, namely nominative case, from all oblique case inflections. And $\pi\theta\iota\varsigma\ rh\eta\matos$ “verb inflection” is identified as indicating time. Aristotle did not distinguish all the different case and tense inflections as the Stoics later did.8

Poetics is about poetry, and Aristotle’s inclusion of a description of the parts of speech is surely to clarify the different effects of these within poetic composition. The parts of speech Aristotle names are onoma, rhēma and logos, of which he says nothing more than has already been reported. His only observation on morphology is the $\pi\theta\iota\varsigma$ inflected on each of onoma and rhēma. To these he adds two more parts of speech. Sundesmos was originally an anatomical term meaning “ligature”, and from his examples sundesmos appears to name the class of rhetorical conjunctions – ones used in discourse to gain some special effect. In Rhetoric 1407'22 Aristotle illustrates sundesmos by men … de, meaning “on the one hand … on the other”; and he says ‘One element, then, of an excellent style is the right use of connectives’ (1407'30). Men on its own means “indeed, truly”, expressing the speaker’s certainty. In Poetics he also mentions dē “now, indeed, surely, really, in truth”, used to give greater exactness, explicitness, or positiveness to the word or words which it influences. And, finally, toi “let me tell you, verily; consequently”. Aristotle’s fourth sentence constituent is arthron (originally an anatomical term meaning “joint”) referring to prepositions, articles, and conjunctions that are required to combine simple propositions into complex ones, but have no attitudinal quality. For example, amphi “on both sides, with, for the sake of, concerning”; peri “all around; on account of, in reference to”; alla is adversative, similar to but stronger than men … de “in another way, otherwise; however, but, yet”. Bywater 1909: 271–74 regards sundesmoi as composed of preposition, copulative conjunction, and certain particles; arthra of the conditional and causal conjunctions, disjunctives, and relative pronouns and adverbs. With all respect due to Bywater’s scholarship (and he is among the majority9 in viewing the text of Poetics as garbled), this involves a complete rehash of the – possibly corrupt – text. The interpretation I have

8. There is some question as to whether the Stoics (primarily philosophers) or the Alexandrians (primarily language teachers) first named the various cases. The Latin grammarian Varro in De Lingua Latina (c. 46 BCE; Varro 1938) contrasted the six cases of Latin with the five of Greek; and Varro is believed to have been influenced by the Stoics.

presented here is closer to what has come down to us and furthermore is consistent with Aristotle’s purpose in discussing the parts of speech within Poetics.

Aristotle on the phoneme

In addition to syntactic constituents, in Poetics Aristotle identifies the syllable because of its significance to metre. Of more interest is his discussion of the letter (stoicheion), and more particularly the sound it represents, which is relevant to rhyme and alliteration. The Greek alphabet is phonemically based, so it is hardly surprising that Aristotle’s description of the letter is similar to a modern description of a phoneme. As we saw in Chapter 2 (Table 2.1), the term letter and its translation equivalents were used from ancient times through to the early twentieth century to refer to the name, form, and pronunciation of the letter (e.g. alpha, α, /a/). Writing about the letter, it is the pronunciation that Aristotle is referring to when in effect he defines a phoneme:

an indivisible sound of a particular kind, one that may be a constituent of an intelligible sound [sunetē phōnē]. (Poet. 1456b22)

Compare Trubetskoy’s:

Phonological units that, from the standpoint of a given language, cannot be analysed into still smaller successive distinctive units are phonemes. (Trubetzkoy 1969: 35)

Today, Aristotle’s description might be worded:

- A minimal acoustically significant unit which is acoustically homogeneous is a phoneme.

Aristotle also says letters differ in various ways: as produced by different conformations or in different regions of the mouth; as aspirated, not aspirated, or sometimes one and sometimes the other; as long, short, or of variable quantity, and further as having an acute, grave, or intermediate accent.10 (Poet. 1456b31)

This identifies the consonant triads which remained in the Western Classical Tradition until the early twentieth century; indeed, they were a foundation for the comparative work on Indo-European languages in the eighteenth and nineteenth centuries which was the direct progenitor of modern linguistics. The triads presented in Table 3.1 identify three manners of articulation at three points in the mouth: labial, dental, and velar. The fact that Aristotle says very little about them suggests that the analysis would already be known to his audience.

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10. These Greek accents are explained in Chapter 5 (pp. 86f). In Attic, Ionic, and Aeolic dialects they were originally pitch accents (tones), but stress accents in Doric. Koinē Greek (Kοινὴ Ἑλληνική) developed from Attic in the third century BCE; by the third century CE it had adopted stress accent as vowel length ceased to be phonemic (see Bubeník 1983; 1989). Modern Greek, evolved from Koinē, has stress accents.
Aristotle’s legacy

Table 3.1. The consonant triads.

<table>
<thead>
<tr>
<th>Gk</th>
<th>Eng</th>
<th>Gk</th>
<th>Eng</th>
<th>Gk</th>
<th>Eng</th>
<th>Greek</th>
<th>Latin11</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>π</td>
<td>p</td>
<td>τ</td>
<td>t</td>
<td>κ</td>
<td>k</td>
<td>psilón</td>
<td>tenuis</td>
<td>“smooth” = voiceless stop</td>
</tr>
<tr>
<td>φ</td>
<td>ph</td>
<td>θ</td>
<td>th</td>
<td>χ</td>
<td>ch</td>
<td>dasú</td>
<td>aspirata</td>
<td>“rough” = aspirated, later12, fricative</td>
</tr>
<tr>
<td>β</td>
<td>b</td>
<td>δ</td>
<td>d</td>
<td>γ</td>
<td>g</td>
<td>mesē</td>
<td>media</td>
<td>“middle” = voiced stop</td>
</tr>
</tbody>
</table>

Whether or not Aristotle’s description of the triads was original, they remained a part of the Western Classical Tradition. By contrast, his recognition of the phoneme was lost to the tradition; and if that is indeed what happened, it parallels the fate of a phonemic analysis of Icelandic using minimal pairs by the so-called ‘First Grammarian’, who wrote a treatise on orthography c. 1155 (see Chapter 9).

Semantic relations in Aristotle

Philosophers question whether Aristotle intended the ten categories of human experience he identified in Categories to be the universal set of categories, or simply a representative set. The usual conclusion, however, is that it is intended to identify all the basic categories of reality. The interesting thing for linguists is the correlation of each category with a linguistic class. Unlike later grammarians, Aristotle is not defining the meanings of linguistic categories in terms of the kinds of things they denote; this is because he is not primarily a linguist. His procedure is the converse: he differentiates the categories by reference to the different linguistic classes used in talking about them. Linguistic labels are just one means to identify the categories. Others arise from answers to his research questions:

- Do they have contraries?
- What are their entailments?
- Are they relative?
- Are they defined in terms of something else?

Asking these questions of language expressions rather than their denotata leads to conclusions about the semantic relations that the expressions enter into. Aristotle’s categories of phenomena and their associated linguistic labels are shown in Table 3.2. Aristotle does not name the linguistic classes as they are presented in Table 3.2, but rather exemplifies the categories using the linguistic classes shown there (Cat. 1b26–2a10).

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11. If the Latin were an exact translation of the Greek, psilón would be lenis and dasú would be aspera (Allen 1987: 15).

12. Some of the ancient aspirates /pʰ, tʰ, kʰ/ may have become fricative in the Laconian (Doric) dialect as early as the fifth century BCE; and fricativization is generally agreed to have been underway by 150 BCE but perhaps not completed until the first or second century CE (Bubenik 1983: 105f; Bubenik 1989: 190).
<table>
<thead>
<tr>
<th>Substance (what)</th>
<th>onoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity (how large)</td>
<td>quantifiers, <em>large</em>, <em>small</em></td>
</tr>
<tr>
<td>Quality (what sort of thing)</td>
<td>adjectives</td>
</tr>
<tr>
<td>Relation (related to what)</td>
<td>comparatives, <em>half</em>, superlatives, etc.</td>
</tr>
<tr>
<td>Place (where)</td>
<td>spatial adverbials</td>
</tr>
<tr>
<td>Time (when)</td>
<td>temporal adverbials</td>
</tr>
<tr>
<td>Posture/Position (in what attitude)</td>
<td><em>be lying</em>, <em>be sitting</em></td>
</tr>
<tr>
<td>State/Condition (how circumstanced)</td>
<td>past participles, e.g. <em>shod</em>, <em>armed</em></td>
</tr>
<tr>
<td>Action (how active, what doing)</td>
<td>finite active verbs</td>
</tr>
<tr>
<td>Affection (how passive, what undergoing)</td>
<td>passive voice</td>
</tr>
</tbody>
</table>

Aristotle made many observations that one finds again today in discussions of semantic or lexical relations. For instance, speaking of the relational category, he notes that all relatives have a correlative: by the term *slave* we mean “slave of a master”; by the term *master* “the master of a slave”; by *double* “the double of its half”; by *half* “the half of its double”; by *greater* “greater than that which is less”; by *less* “less than that which is greater”. So it is with all relational terms. (Cat. 6*28*)

He continues with

by knowledge we mean “knowledge of the knowable”. (Cat. 6*35*)

There is another relevant observation later:

knowledge as a genus is explained by reference to something else, for we mean knowledge of something. But particular branches of knowledge are not thus explained. The knowledge of grammar is not relative to anything external, nor is the knowledge of music; if these are relative at all, they are only relative in respect to what they are about; thus grammar is said to be “the knowledge of something”, not “the grammar of something”. (Cat. 11*24*)

These remarks were echoed in Katz’s very proper objections (Katz 1980) to Chomsky’s linguistic theory, which is reviewed in Chapter 12 and will not be discussed here.

Aristotle admits that some objects have a correlative for which no name exists, and thus he recognizes back-formation.

Occasionally, perhaps, it is necessary to coin words, if no word exists by which a correlation can adequately be explained. (Cat. 7*5*)

An English example is the derivation of *couth* by back-formation from *uncouth*. For a few years some modern linguists believed that much of the vocabulary in a language could be derived by grammatical rules from a small set of basic lexicon items. Lakoff 1970: 59 suggested that lexical gaps in basic vocabulary could be filled by coinings such as the verbs *aggress* and *auth*, from which aggressor and author will derive on analogy with the derivation of *creator* from *create*.

Other observations on semantic relations include discussion of the meanings of *have* (*ἔχει*), and recognizing that evaluative predicates such as *short* and *tall* are determined in

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13. On relational scales such as height, see Lakoff 1972a; Rusiecki 1985; Allan 1987.
relation to a contextual norm such that *John is tall* implies “According to the speaker, John’s height exceeds the typical height expected for such men” and *John is short* implies “According to the speaker, John’s height succeeds the typical height expected for such men”; see *Categories* 5.38.

**Propositions and their meanings**

It looks as though Aristotle distinguished sense from reference two millennia before Frege 1892 refined the distinction.

The [meaning of the] sentence [*logos*] *he is sitting* remains unchanged, but according to the context it is on one occasion true and on another false. (Cat. 4.36)

For it is by the facts of the case, by their being or not being so, that a sentence [= statement] is judged true or false. It is not that the sentence itself can admit of such contrary qualities. (Cat. 4.38)

Today, we would say something like: the sense of the sentence *he is sitting* remains unchanged on all occasions of use, but its reference will vary in different utterances, such that in the different contexts the statement can have different truth values, depending on who it is that ‘he’ refers to, and whether or not the referent is in fact sitting at the time spoken of.

In *On Interpretation* Aristotle seeks to ‘determine what pairs of statements are opposed and in what ways’ (Kneale and Kneale 1962: 24). He discusses relationships between positive and negative expressions, including modal propositions, and examines quantifier scope through negation and syllogism. Before doing so he describes the form and structure of statements. The inspiring opening words from this essay have already been quoted: ‘First we must define the terms *onoma* and *rhēma* [... etc.]’. It is not only in his rigorous approach to language analysis that Aristotle is in sympathy with the modern linguist. Aristotle’s interest in sentence structure was limited to identifying the linguistic attributes of the argument and predicate of a proposition in the form of a simple intransitive declarative sentence. Like Plato, he recognized that, taken alone, either *onoma* or *rhēma* is simply an expression (phasis) (17a17); but in combination, *onoma* in the nominative case and *rhēma* with a tense inflection constitute a sentence (*logos*).

Every declarative sentence [*logon apophantikon*] must contain a verb or the inflection of a verb. (Int. 17a9)

If Aristotle had been writing about English, he would have said that *the man walks* contains a verb, and *the man is walking or the man is white* the inflection of a verb in the copula. In Int. 21b9 he claimed that there is propositional equivalence between *the man walks* and *the man is walking* (cf. Met. 1017a28). In consequence the modistae and, following them, the rationalist grammarians, argued that *walks* is composed of *copula + participle*. Although this claim is falsified in modern English (since about 1650) by the aspectual distinction between the simple and periphrastic forms, there was no such distinction made in ancient Greek, Latin, or French (see Lancelot and Arnauld 1660: 91); so Aristotle’s analysis held good for those languages. (A ↔ B symbolizes “A is synonymous with B”.)
The Western Classical Tradition in Linguistics

\[
\text{anthrōpos badizei} \leftrightarrow \text{anthrōpos badizōn estin} \\
\text{homo ambulat} \leftrightarrow \text{homo ambulans est} \\
\text{l’homme marche} \leftrightarrow \text{l’homme est en marchant}
\]

A sentence (logos) is the formal expression of a statement (apophansis), comprising a subject (hupokeimenon) corresponding to onoma in the nominative case and a predicate (rhēma + TENSE) which categorizes or says something about (katēgorein) the subject.

\[\text{[O]f one subject we must either affirm or deny any one predicate. This is clear, in the first place, if we define what true and false are. To say of what is that it is not, or what is not that it is, is false, while to say of what is that it is, and of what is not that it is not, is true.} \quad (\text{Met. 1011\textsuperscript{a}24–27})\]

Because he was interested in truth and falsity, Aristotle was only interested in sentences that make statements. But he did recognize that

Not all sentences are statements [apophantikos]; only such as have in them either truth or falsity. Thus a prayer is a sentence, but neither true nor false [and therefore a prayer is not a statement]. \quad (\text{Int. 17\textsuperscript{a}2})

Aristotle set philosophy on a road that it did not stray from until in the mid-twentieth century the ordinary-language philosophers at Oxford University, and in particular Austin 1962a, began investigating speech acts other than statements. Philosophers have now established conditions for evaluating the felicity and success conditions on a wide variety of speech acts.\(^{14}\)

A large part of On Interpretation is taken up with the effects of negation on universals and particulars examined through pairs of contraries and contradictory statements. Where Stoic (see Sextus Empiricus 1996, 2: 157) and modern logic would say that a proposition \(p\) has a contradictory, \(\neg p\), Aristotle only speaks of negation within a sentence. His counterpart to a negated proposition (\(\neg p\)) is a statement with a negated verb. A contradictory pair of statements for him would be the affirmation \(A\) \(\text{man is just}\) and its denial \(A\) \(\text{man isn’t just}\); he would contrast the latter with the affirmation \(A\) \(\text{man is unjust}\) (its denial being, of course, \(A\) \(\text{man isn’t unjust}\)). Statements have contradictories, but terms and quantifiers have contraries:

\[
\text{contraries are things which differ most within the same genus.} \quad (\text{Int. 23\textsuperscript{b}22})
\]

E.g. every \(\text{man}\) has the contrary no \(\text{man}\); good has the contrary not good (it is often thought that bad is the contrary of good but Aristotle argues that not good is necessarily its contrary, whereas bad is only contingently so; Int. 23\textsuperscript{b}20, 35). In Met. 1005\textsuperscript{b}19 Aristotle establishes the law of \((\text{non})\text{contradiction}\) by claiming it is axiomatic that no proposition can be both true and false at the same time. In Met. 1006\textsuperscript{a}2 he states that if a statement is true then its contradiction is false, and vice versa. Thus every statement is either true or it is false: this is the law of the excluded third, which properly includes the law of the excluded middle, denying that there are degrees of truth that lie between the poles of truth and falsity (see Seuren 1998: 316ff). This simple bivalent antonymy was observed until the late twentieth

\(^{14}\) However, the Stoics and many influenced by them did consider illocutionary forces, largely driven by the need to explain moods and clause-types in grammar. See Chapter 13.
century when multi-valued systems were proposed (see McCawley 1993, Ch.12). Bivalence is threatened by so-called presupposition failure (for detailed discussion see Seuren 2006b) in sentences like *The King of France is bald*, which Strawson 1950 suggested is indeterminate as to truth value if uttered in 1950 when there is no King of France. Aristotle expressly rejects such a judgment when he writes

> The statement that *Socrates is ill* is the contrary of *Socrates is well*. Yet we cannot maintain even here that one statement must be true and the other must always be false. For, if Socrates really exists, one is true and the other is false. But if Socrates does not exist, both the one and the other will be false. To say *he is ill* will be false, and to say *he is well* will be false, if Socrates does not exist at all. (Cat. 13³14)

However, Aristotle does not discuss the fact that natural language speakers can often accept fuzzy truths as appropriate, e.g. *France is hexagonal, Brisbane is 1700 kilometers from Melbourne* (see Austin 1975: 144; Lakoff 1972a; Zadeh 1972).

In *On Interpretation* Aristotle discussed the relationships between simple universal and particular propositions consisting of just two terms. Here are some universals in (1)–(4).

(1) All dogs are animals.
(2) No dogs are animals.
(3) All animals are dogs.
(4) No animals are dogs.

And particulars in (5)–(8):

(5) Some dog is an animal.
(6) Some dog isn’t an animal.
(7) Some animal is a dog.
(8) Some animal isn’t a dog.

Relationships between such propositions are discussed in Aristotle’s syllogistic. *Prior Analytics* establishes the syllogistic as a tool of logical and semantic analysis.

> A syllogism is a discourse in which, certain things being stated, something other than that which is stated follows of necessity from their being so. I mean by the last phrase that they produce the consequence, and by this, that no further term is required from without in order to make the consequence necessary. (Pr.An. 24³18)

An Aristotelian syllogistic (Seuren 1998: 305–20) is a form of argument consisting of three propositions relating three terms as in (9)–(11). Note that there are two premises, in which the term which is subject NP of one is the predicate of the other, and a consequent (or conclusion), which combines them.

(9) If all humans are mortal, and if all Greeks are humans, then all Greeks are mortal.
(10) If no dog crows, and if some animals are dogs, then some animals do not crow.
(11) If some girls are not rich, and if every girl is female, then some females are not rich.

Aristotle represented such sequences by variables, e.g.

(12) a. If all A is B and all C is A, then all C is B.
    b. If no D is E, and if some F is D, then some F is not E.
c. If some X is not Y, and if all X is Z, then some Z is not Y.

In a syllogistic all the premises must be true for the consequent to hold true (Top. 163a36). Thus the following must be rejected: If all women are cats and all cats human, then all women are human.

Aristotle identified the relationships between affirmatives and negatives, universals and particulars in such a way that they can be depicted in the so-called square of opposition (described by Kneale and Kneale 1962: 33 as ‘the main contribution of De Interpretatione to logic’). This was first done by Apuleius of Madaura c. 155 CE (Apuleius 1968: 261ff.; Londey and Johanson 1987).

Now it is time to discuss how those four propositions are related to one another – and it is useful to consider them in a squared figure. So, as is written below [Figure 3.1], let there be positive [dedicativa] and negative [abdicativa] universals on the top line, e.g. Every pleasure is good, Every pleasure is not good. These may be said to be contraries. Likewise on the bottom line, under each of them, let the particulars be written, e.g. Some pleasure is good, Some [pleasure] is not good. These may be said to be nearly equal to one another [subpares, subcontraries]. Then let the oblique angular lines be drawn, one stretching from the positive universal to the negative particular, the other from the positive particular to the negative universal. […] etc. (Apuleius Peri Hermeneias V; Londey and Johanson 1987: 87, slightly adapted)

Here Apuleius gives instructions how to draw the square of opposition (which, as Londey and Johanson claim, suggests that the innovation was indeed his). By tradition the vertices are named from vowels in the Latin AiEvmo “I affirm” and nEgO “I deny”, and Apuleius did not include them. A version of his diagram (based on Londey and Johanson 1987) is given in Figure 3.1.15

![Figure 3.1. Apuleius’ square of opposition.](image)

Aristotle’s affirmations and negations in Chapter 10 of On Interpretation are grouped as follows; note the negation of terms.

(a) A man is just
A not-man is just
Every man is just

(b) A man isn’t just
A not-man isn’t just
Not every man is just [ ↔ Every man isn’t just]

15. A key to symbols: ¬ marks negation, ⟩ marks logical conjunction, → marks entailment, ↔ marks mutual entailment (synonymy).
Aristotle’s legacy

(c) A man is not-just
    A not-man is not-just
    Every man is not-just
(d) A man isn’t not-just
    A not-man isn’t not-just
    Not every man is not-just [ ↔ Every man isn’t not-just]

(a) contradicts (b) and (c) contradicts (d). A negative answer to the question Is every man wise? should use the contradictory proposition Not every man is wise (Int. 20’25). The first and second rows of (a) and (c) and also of (b) and (d) are respective subcontraries; the third rows are contraries. Apuleius’ system is more transparent than Aristotle’s, which is why it has remained in the tradition; moreover, his square of opposition uses negation in the manner familiar today. From the late 1960s these (and additional) properties of negation and quantifiers were rediscovered in linguistics (e.g. Jackendoff 1972; Carden 1973; Lee 1974; Stokes 1974; and especially Horn 1989).

Aristotle wrote,

When we have proved that an attribute applies to all of a kind, we shall have proved that it belongs to some of the kind. (Top. 109a4)

In Aristotle’s scheme it is therefore possible to make the following chain of valid inference:

(a) No horse is a unicorn → (b) No unicorn is a horse → (c) Some unicorn is not a horse.

The first proposition, (a), is true and can be represented in the predicate calculus as (a’) and the final proposition, (c), has the form (c’) which asserts the existence of unicorns.

(a’) ∀x[Hx → ¬Ux] “for every x, if x is a horse then it is not a unicorn”
(c’) ∃x[Ux ∧ ¬Hx] “for some x, x is a unicorn and not a horse”

However, the conditional (d) is false if (c’) is false, i.e. there are no unicorns.

(d) ∀x[Hx → ¬Ux] → ∃x[Ux ∧ ¬Hx]

Aristotle, like the ordinary language user, assumed the existence of referents for the terms in statements; so for him No horse is a unicorn does entail Some horse is not a unicorn. According to Whitaker 1996: 153, ‘Aristotle would not agree with a logician who claimed that ¬¬¬p was equivalent to ¬p: the former is a case of babbling, and not an acceptable form of expression.’ If this hypothesis is correct, it is further evidence of Aristotle’s concern with the ordinary use of language (see Sommers 1982).

Aristotle further discusses what we would call today the scope of the negative in complex predicates. The examples in On Interpretation are difficult to follow in English, but the same point is made with great clarity in Prior Analytics:

the expressions it is a not-white log and it isn’t a white log do not imply one another’s truth.
For if it is a not-white log it must be a log; but that which is not a white log need not be a log at all [though it can be]. (Pr.An. 51a29)

Here we can use the square of opposition in Figure 3.2. Aristotle claims that the two negations in It isn’t a not-white log cancel each other out; but although this is the most likely interpretation, consider It isn’t a not-white log, there is no log there at all, which, in denying the presupposition, is more negative than positive.
It is a white log   A   E   It is a not-white log

It isn’t a not-white log   I   O   It isn’t a white log

Figure 3.2. The square of opposition again.

In Chapter 13 of On Interpretation Aristotle discusses the effect of negation on relationships between the possible, the necessary, and the contingent. These can also be illustrated by the square of opposition in Figure 3.3.

necessarily \( p \)   A   E   impossible that \( p \leftrightarrow \) necessarily not-\( p \)
\( \square p \)   \( \neg \triangle p \leftrightarrow \square \neg p \)

possibly \( p \)   I   O   not-necessarily \( p \leftrightarrow \) possibly not-\( p \)
\( \triangle p \)   \( \neg \square p \leftrightarrow \triangle \neg p \)

Figure 3.3. The modal square of opposition.

Logically, there exist the relations in (13)–(16); see Int. 22\(^b\)11, Pr. An. 32\(^a\)20.

(13) \( A \to I \)
(14) \( \square p \to \triangle p \)
(15) \( E \to O \)
(16) \( \neg \triangle p \to \neg \square p \)

But Int. 21\(^b\)12, 35, 22\(^b\)20 and Pr. An. 32\(^a\)29 claim that ‘possibly \( p \)’ entails ‘possibly not-\( p \)’, formally \( \triangle p \to \triangle \neg p \). This is a problem because it suggests that \( I \to O \), and the resulting inferences by transitivity, see (13), are as follows:

(17) \( A \to I \to O \)
(18) \( \square p \to \triangle p \to \triangle \neg p \)
(19) \( \square p \to \triangle p \to \neg \square p \)

(18) is false because it contradictorily claims that ‘necessarily-\( p \)’ entails ‘possibly not-\( p \)’. (17) and (19) violate the law of (non)contradiction in claiming that \( A \) entails its contradiction \( O \), i.e. ‘necessarily-\( p \)’ entails ‘necessarily not-\( p \)’. Aristotle was aware of these problem inferences, which he correctly described as ‘absurd’ (Int. 22\(^b\)17, 22\(^b\)35). He offers no solution. What is needed is some representation of (20)–(22).

(20) If \( p \) is noncontingently necessary, then \( p \) is noncontingently possible.
(21) If \( p \) is noncontingently necessary and at the same time noncontingently possible, then it is logically \( \neg \triangle \neg p \).
(22) If \( p \) is contingently possible, then \( \triangle \neg p \) and at the same time \( \neg \square p \).

Another way to view the matter is (23)–(24).
Aristotle’s legacy

(23) $\Diamond p \rightarrow \Diamond \neg p \land \neg \Box p$ defines contingency.

(24) $\Box p \rightarrow \neg \Diamond \neg p \rightarrow \Diamond p$ defines noncontingency (or strict necessity).

Not much was made of the relationships between modals which Aristotle identified until the flourishing of modal logic in the late twentieth century (see Hughes and Cresswell 1968; Linsky (ed.) 1971; McCawley 1993).

There is yet another matter of scope dealt with in *On Interpretation*, as Aristotle considers a combination of predications on an argument:

If someone is good and a cobbler it does not follow that he is a good cobbler. (*Int. 20b36*)

The way to explain this in modern terms is that, although ‘someone’ falls within the scope of both predicates, the predicate ‘cobbler’ does not fall within the scope of ‘good’. On the topic of combination, Aristotle notes that when a semantic predicate is necessarily entailed by some other predicate, it is tautologous to mention both of them. Given that man is a two-footed animal

a man is not an animal man or a two-footed man; for two-footed and animal are contained in man. (*Int. 21a18*)

For the same reason, it is tautologous to say *X is necessary and possible or *It is impossible that $p$ and possible that not-$p$; etc.

**Aristotle and the Gricean maxims**

In *Rhetoric* Aristotle discusses ways in which to express a point of view persuasively and how to counter an opposing point of view effectively. In Book III, he identifies three things to consider when speaking: the means of persuasion, the kind of language to use, and the proper construction of sentences (*Rhet. 1403\(^b\)5*). *Rhetoric* lays a foundation for modern studies of rhetoric and discourse, to say nothing of metaphor. It also contains ideas which are quite similar to some of the four categories of conversational maxims identified in Grice 1975. In the spirit of Grice’s cooperative principle is the remark

The right thing in speaking, really, is that we should be satisfied not to annoy our hearers. (*Rhet. 1404\(^a\)3*)

Non-observance of the cooperative principle often leads to annoyance, which is one reaction to a perceived face affront (in the sense of Brown and Levinson 1987); it is suggested in Allan 1991; 2001 that avoidance of face affronts is exactly what motivates the cooperative principle.

Grice’s maxims of quality include ‘Try to make your contribution one that is true’ and ‘Do not say that for which you lack adequate evidence’ (1975: 46). Though the emphasis is different, these are reminiscent of Aristotle’s

we ought in fairness to fight our case with no help beyond the bare facts: nothing should therefore matter except the proof of those facts. (*Rhet. 1404\(^a\)5*)

Aristotle speaks of proving the truth of one’s statements in order to persuade the audience to one’s own viewpoint (*Rhet. 1403\(^b\)13*). Grice speaks simply of being truthful when making a
The Western Classical Tradition in Linguistics

statement – which amounts to advocating that the speaker be sincere. Aristotle’s sympathy for the maxim Grice would later postulate is implicit in:

Words of ambiguous meaning are chiefly used by the sophist to mislead his hearers. (Rhet. 1404\(b\)38)


Aristotle wrote in similar vein.

Style to be good must be clear, as is proved by the fact that speech which fails to convey a plain meaning will fail to do just what speech has to do. (Rhet. 1404\(b\)2)

Naturalness is persuasive, artificiality is the contrary; for our hearers are suspicious and think we have some design against them. (Rhet. 1404\(b\)18)

In other words, artifice may be perceived as a face affront.

Strange words, compound words, and invented words must be used sparingly [... because] they depart from what is suitable. (Rhet. 1404\(b\)29)

Aristotle also recognized that ambiguity can be exploited, for instance in poetry.

Words of ambiguous meaning are chiefly used by the sophist to mislead his hearers. Synonyms are useful to the poet. (Rhet. 1404\(b\)38)

One indication of bad taste in language is the use of long, unreasonable, or frequent epithets. (Rhet. 1406\(a\)11)

[Such language] imports absurdity and tastelessness into speeches, as well as the obscurity that comes from all this verbosity – for when the sense is plain, you only obscure and spoil its clearness by piling up words. (Rhet. 1406\(a\)34)

Something that Grice failed to mention within the maxims of manner is:
a matter of the right management of the voice to express the various emotions: speaking loudly, softly, or between the two; using high, low, or intermediate pitch; and paying attention to the different rhythms that suit different subjects. (Rhet. 1403\(b\)27)

Management of amplitude, pitch, and rhythm are almost as significant in ordinary conversation as in oratory – think of uses for Stop whispering, you two. Don’t shout at me! Don’t use that tone with me!

Grice’s maxims of quantity are ‘Make your contribution as informative as is required (for the current purposes of the exchange)’ and ‘Do not make your contribution more informative than is required’ (1975: 45). There is nothing in Rhetoric that uncontroversially matches these. Writing about using correct style, Aristotle enjoins us to make ‘proper use of connecting words, and the arrangement of them in the natural sequence which some of them require’ (Rhet. 1407\(a\)20), and to call ‘things by their own special names and not by vague general ones’ (Rhet. 1407\(b\)32).

Rhetoric mentions no equivalent of Grice’s maxim of relation: ‘Be relevant’ (1975: 46). This enjoins the speaker to make the content of their utterance relevant to the context in which it is uttered (unless there is some good reason for doing otherwise – a proviso that holds good for all Gricean maxims). Aristotle takes this notion for granted, but does talk about the appropriateness of form to content in remarks such as:
Nobody uses fine language when teaching geometry. (Rhet. 1404*11)
Your language will be appropriate if it expresses emotion and character, and if it corresponds
to its subject. (Rhet. 1408*10)
We can call a crime a mistake or a mistake a crime. (Rhet. 1405*26)
Two different words will represent a thing in two different lights. (Rhet. 1405*15)

So, Aristotle’s Rhetoric advocates, inter alia, something comparable with Grice’s
maxims of manner. We may interpret him to advocate something rather similar to the
maxims of quality and even quantity. But the maxim of relation is simply taken for granted
– which should please relevance theorists such as Sperber and Wilson 1995. Aristotle gives
us an essay on rhetoric, and some of what he says is relevant to ordinary conversation; Grice
gives us an explanation for implicatures resulting from exploitation of the conventions of
the cooperative principle. Aristotle’s speaker is, more often than not, adversarial – someone
who carries dialectic into rhetoric; Grice’s speaker is part of a cooperative dyad, and
therefore someone who is typically not adversarial. It is certain that Grice would have read
Rhetoric but not obvious that it materially influenced his thinking on the cooperative
principle because the two philosophers had such different aims; nonetheless they trod the
same path for part of the way.

A summary of Aristotle’s perambulations in the linguistics garden
Aristotle was the first to baldly say that, within a given speech community, language is
conventional. For him, language is a symbolic system (a system of tokens) that represents
the world of our experience as it is contained within the mind. He believed the world is
external to human beings, who are all capable of perceiving the same things within it. The
things which human beings perceive are symbolized in different speech communities by
different forms. Speech is prior to writing, and the differences Aristotle noticed in the forms
of spoken as against written language are just the ones we talk about in modern linguistics.
Aristotle’s primary interests were the pursuit of a definition for truth through epistemology
and logic, and defining the arts of rhetoric and poetic composition. His rigorous approach to
the definition of terms and the identification of objects of inquiry underpin all modern
science, including modern linguistics; but, regrettably, for many centuries they were poorly
observed in the Western Classical Tradition of linguistic inquiry.
Aristotle’s analysis of propositional structure, negation, and modality set grammatical
and logical foundations for the Western Classical Tradition; and many of his ideas led the
field for millennia. The limitation was that he restricted his study to one kind of speech act,
namely, statements. Aristotle identified what constitutes a declarative proposition, in its
semantic relations, and its form. So he discusses the construction of a sentence from a
subject and predicate whose forms he identified respectively as noun and verb (or predicate
adjective) with tense inflection. A limitation is that every statement he analysed contains a
one-place predicate expressed in an intransitive clause. Also, he was only interested in form
as a corollary of function. Evidence for this is the equating of anthrōpos badizei “a man
walks” with anthrōpos badizōn estin “a man is walking” – the latter being grammatical but
rarely used. The justification for analysing badizei in terms of badizōn estin is to decompose it into the semantic content of the verb (expressed in the onomatic form as a participle) and the tense marking in estin which turns the participle into a sentential predicate.

Aristotle’s studies of rhetoric and poetry led him to define style and metaphor (neglected in this chapter). Examining the choice of language expressions required for good or persuasive style led him to define their constituents. Altogether he identified eight parts of speech (merē tēs lexēōs): the nominal onoma, the verb rhēma, the case or tense inflection πτόσις, the sentence logos, the rhetorical conjunction sundesmos, the connective arthron (preposition, article, or conjunction – though the term was later limited to articles), the letter stoicheion, and the syllable sullabē. Most of these remain basic terms within the grammatical tradition.

For Aristotle, language is (A) a symbolic system that represents (B) the world of our experience as it is contained within the mind. He believed (C) the world is external to human beings, who are all capable of (D) perceiving the same things within it. Finally, (E) Aristotle was only interested in form as a corollary of function. (A–E) have given rise to different developments in linguistics. (A) is a premise for all linguists, but has been developed, perhaps to its limits, in post-Fregean semantics. From the last quarter of the twentieth century, (B) has been pursued by cognitive linguists. (C) was taken up by the speculative grammarians of the late middle ages who looked to the structure of God’s world as informing the structure of universal grammar. The rationalists of the seventeenth and eighteenth centuries took up (D), revising the interpretation of their speculative precursors to seek universal grammar in the God-given rational minds of the human beings perceiving the world around them. Chomsky reinterprets the rationalist doctrine to seek universal grammar in the human mind while eschewing the relevance of human perception of anything other than linguistic input. Functional linguistics has picked up on (E). So, today’s formal linguists, cognitivists, functionalists, and Chomskyites may often be at odds with each other, but all tread in Aristotle’s footprints. Aristotle’s linguistics was applied, yet he is the distant source of theoretical linguistics (applied linguistics developed from the pedagogical tradition of the Alexandrians Dionysius Thrax and Apollonius Dyscolus via the Latin grammarians Donatus and Priscian, as we shall see in Chapters 5, 6, and 7). Aristotle’s view of language is less out of place within the discipline of linguistics since the 1960s than it was in the early twentieth century: his legacy is overwhelming.
Chapter 4   The Stoics and Varro

The third century BCE through to the third century CE

Dialectic, they said, is indispensable and is itself a virtue, embracing other particular virtues under it. [...] Without the study of dialectic, they say, the wise man cannot guard himself in argument so as never to fall; for it enables him to distinguish between truth and falsehood, and to discriminate what is merely plausible and what is ambiguously expressed, and without it he cannot methodically put questions and give answers.  (Diogenes Laertius 1925, 7: 46–47)

Almost all of the original writings of the Stoics have been lost and what is known about them is reconstructed from secondary sources compiled 500 to 600 years later. The school started with Zeno (335–263 BCE), a philosopher of Phoenician origin who taught in the Stoa in Athens – whence the name Stoics. A leading light was Chrysippus (282–206 BCE), perhaps the greatest logician of ancient times and author of 750 books1 (Diogenes Laertius 1925, 7: 189–202). There was also Diogenes of Babylon (240–150 BCE) and Antipater of Tarsos (mid-second century BCE). Much of the information we have about the Stoic contribution to grammar comes from Sextus Empiricus (160–210 CE), a sceptic and critic of Stoicism; there are two relevant works by him: *Adversus Mathematicos* “Against the professors” (hereafter *AM*), Books 8 and 10, and *Purrhōneoi Hupotupōseis* “Outlines of Pyrrhonism”, Book 2 (hereafter *PH*2).2 Most of the rest of our knowledge of Stoicism is to be found in Diogenes Laertius’ (*fl. c. 225–50 CE*) life of Zeno in *Lives and Opinions of Eminent Philosophers* Book 7, Ch.1 (hereafter *Lives 7*). *De Lingua Latina* “On the Latin language”, by the Roman polymath Marcus Terentius Varro (116–27 BCE), can be counted as reflecting Stoic views on grammar, and we still have Books V–X out of the original 25. Because he wrote specifically about language, and Latin at that, his work will be discussed separately.

The Stoics

Posidonius [135–50 BCE] defines dialectic as about truth, falsehood and that which is neither. Chrysippus takes it to be about signs and things signified. Such then is the gist of what the Stoics say in their theory of language.  (*Lives 7*: 62)

The Stoics seem to have established the basis for what became the ‘trivium’ of the scholastic educational system in the middle ages (see Chapters 7 and 8):

- Dialectic – logic, sound reasoning;
- Grammar – correct language use; and

1. Many of these books would be about the length of a modern academic book chapter rather than a modern academic book. A better comparison is with the 39 books in the Old Testament and 27 books in the New Testament of the King James Bible.

Rhetoric – a persuasive way of expressing oneself. As with Plato and Aristotle, linguistic analysis by the Stoics was partly a means to an end, and the revelations about Stoic grammatical insights are presented within the discussion of logic (Lives 7: 43–83). Grammar achieved independence from logic when the Alexandrian grammarians established a pedagogical motivation for its study and linguistic analysis was the means to a different end. However, another very strong motivation for the Stoics and later the Alexandrians was to formulate the canons for ‘correct Greek’, for Hellēnismos. For Sextus’ very sceptical account of Hellēnismos see AM I: 176–240, where there is a commonsensical discussion of what should count as the standard for a language. He favours eclecticism and common usage, citing Aristophanes with approval:

Speaking like middle-class citizens all,
Not with the fop’s effeminate drawl,
Nor with the rustics’ vulgar bawl. (AM 1: 228, Sextus Empiricus 1955, Vol.4, p.131)

The Stoics had a semantically oriented theory of language. They divided language into what can be said, lektos (PL lekta), and the way in which things can be expressed – as phōnē (PL phōnai), literally “sound”, but better interpreted as “utterance”. If this seems to neatly match the distinction in modern linguistics between content and form, it is not quite so. Form was taken to be a function of meaning such that word forms are not arbitrary symbols, but reflect the characteristics of the thing denoted. In other words, the Stoics were naturalists (see Chapter 2 and the upcoming discussion of Varro). Perhaps because of their preference for naturalism and the belief that a true name reveals the essential nature of the referent, the Stoics used the verb dēloun “reveal, indicate” where today we would use denote or refer.

True and false have been variously located in what is signified [to sēmainomenon], in speech [phōnē], and in the motion of thought [kinēsei tēs dianoias]. The Stoics opted for the first of these, claiming that three things are linked together, what is signified, that which signifies [to sēmainon] and the referent [to tunchanon]. That which signifies is speech, e.g. ‘Dion’, what is signified is the specific state of affairs [auto to pragma] indicated by the spoken word and which we grasp as existing dependent on [paruphistamenon] our thought but which the barbarians do not understand although they hear the sound; the referent is the external existent, that is, Dion himself. Of these, two are somatic, speech and the referent. But the state of affairs signified [to sēmainomenon pragma], the lektos, is asomatic, and this is true or false. (AM 8: 11–12 [translation indebted to Long 1996: 76f])

The Stoics established relationships that can be seen as a forerunner to the semiotic triangle found in Ogden and Richards 1923: 11; see Figure 4.1. Sēmainon is literally translated “sign”; given the naturalist beliefs of the Stoics, the English translation “sign” is preferable to “symbol”. The sēmainon is the product of the phōnē; it is corporeal or somatic

3. In the early seventh century St Isidore of Seville quotes Varro saying in the (now lost) Disciplinæ ‘Dialectic and rhetoric are as in man’s hand the closed fist and the open palm, the former drawing words together, the latter scattering them’ (Etymologies II.23.1, Brehaut 1912: 116).

4. See Chapter 13, also Lyons 1977: 96, for alternative terms at the vertices of the semiotic triangle.
The Stoics and Varro

The Stoics had a materialistic metaphysics in which anything that can act upon another thing (i.e. have some effect) or can itself be acted upon, is somatic. The tunchanon "what is there, the referent" is also somatic in the Stoic view. Sēmainomenon "that which is signified" is the general term for what we now call sense or intension. The lekton "that which is sayable" seems to be applied to what we now call illocutionary types. A lekton may be either 'complete' (autoteles “well-formed, expressing a complete thought”) or defective (ellipês “elliptical, partially-formed”); see Figure 4.2. In the Greek sentence Hēmera esti ‘day is’ ‘It is day’, hēmera and esti are both phonetically realized signs and each has a sense; this combination of them makes a statement, the lekton “it is day”, which has a truth value. The ‘defective’ lekta are the meaningful aspect of a ptōsis (named for its nominative case) “subject, thing spoken about” or a katēgorēma “predicate”. These are not parts of speech or sentence constituents but semantic functions: without the other, each of the two

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Figure 4.1. The Stoic semiotic triangle and that of Ogden and Richards.

Figure 4.2. Categories of the lekton (after Mates 1961: 16).

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5. Sense is decontextualized meaning such as is found in a dictionary. The earliest recorded use is in the dictionary of Palsgrave 1530. Sense describes intension, i.e. the characteristic property or set of properties of a typical denotatum. Both are abstract, in Stoic terms ‘asomatic’. On the lekta see Mates 1961; Graeser 1978; Itkonen 1991; Householder 1995a; Long 1996.
components is a defective lekton because a complete articulated thought requires that anything mentioned be predicated (notionally, not necessarily lexically); each of the defective lekta makes a semantic contribution to the statement, Hēmera esti. The name Dion, for instance, only forms a lekton if Dion is being named or called or is predicated as walking, or the like. The predicate writes is defective without the notion that someone or something writes because a predicate is what is said of something; in other words a thing associated with one or more subjects; or, again, it may be defined as a defective expression which has to be joined on to a nominative case in order to create a judgment. (Lives 7: 64)

The ‘complete’ lekton is an illocutionary type. That is, the Stoics recognized the (partial) correlation between mood or clause-type and illocutionary force:6 There is a difference between judgment [axiōma], yes-no question [erōēma], and wh-question [pusma], as also between imperative, adjurative, optative, hypothetical, vocative, whether these terms are applied to a thing or a judgment. For a judgment is that which, when we set it forth in speech, becomes an assertion, and is either false or true; a yes-no question is a thing complete in itself (like a judgment) but demanding an answer, e.g. Is it day? and this is so far neither true nor false. Thus It is day is a judgment, Is it day? a yes-no question. A wh-question is something to which we cannot reply by signs, as you can nod yes to a yes-no question; but you must express the answer in words, He lives in this or that place. An imperative is something which conveys a command. […] Yes-no questions, wh-questions, and the like are neither true nor false, whereas judgments are always either true or false. (Lives 7: 66–67, 68)

Judgments, questions, etc. as discussed here are illocutionary types rather than illocutionary acts. Additional complete lekta are the vocative (prosagoreutikon, klētikon – O King Agamemnon), the exclamatory (thaumastikon – How clever he is!), the rhetorical question (epaporētikon), the wish or prayer (euitikon), the imprecative (aratikon – May he rot in hell), the oath (omotikon – I swear by Zeus), the propositive (ekthetikon – Let n be the number of chairs in the room), and the hypothetical (hupothetikon – Assume that the world is flat).

The Stoics employed the technical term phantasia (often translated “presentation”) for the mental counterpart to things perceived or conceived of; it is their alternative to Plato’s Idea. Whereas the lekton is asomatic (incorporeal, abstract), the phantasia, being a mental affect, is somatic. It is a sort of imprint stamped upon the mind, a cognitive model; and a given perception of the real object is matched with this to determine whether or not it is an illusion (Lives 7: 46, 50). A phantasia varies between people:

a statue is viewed in a totally different way by the trained eye of a sculptor and by an ordinary man. (Lives 7: 51; cf. Plato’s Theaetetus 160a).

When someone sees and recognizes Dion walking, they recognize Dion through a phantasia of him. If they say Dion is walking, this is distinct from the phantasia and from Dion himself. And what is meant by the proposition Dion is walking, the lekton, is an affirmation about Dion. The lekton is something that subsists (huphistamenon) in conformity with a

6. See Allan 2006a for a discussion that focuses on English.
7. Greek axiōn denotes “accept or reject” (Lives 7: 65).
rational *phantasia* (Lives 7: 63; AM 8: 70); furthermore, it is something conveyed in a sentence (*logos*) (AM 8: 70).

There is a difference between *phōnē* [“a sound”] and *lexis* [“a word”], because while *phōnē* may be mere noise, *lexis* is always part of a language system [*de to enarthron monon*]. *Lexis* is different from *logos* [“a sentence”], because the latter always signifies something, whereas *lexis* may be unintelligible as in [the onomatopoeic] *blituri* [the sound of a twanging harp-string, cf. English *boing*], which *logos* never is. And speaking [*to legein*] is to do more than merely utter *phōnai*, because things are meant [lit. ‘spoken’], and these are *lekta*.  (Lives 7: 57)

A problem with translating *phōnē* as “phonetic form”, *lexis* as “lexical item”, *logos* as “sentence”, and *lekton* as “illocutionary type” is that these modern terms carry with them theoretical associations (connotations) that may be inappropriate to Stoic grammar. This problem of the interpretation of terms in a metalanguage is ubiquitous: it applies not only to the terms used by Aristotle and the Stoics, but also when looking at different linguistic theories in the twenty-first century.

Chrysippus identified five parts of speech (Lives 7: 58): ‘Indeed, according to the Stoics his parts of speech were five: proper noun, common noun, verb, pronoun or article, and conjunction’ (Priscian 527 II: 16). A proper name (*onoma*) such as *Diogenes* or *Socrates* signifies a quality peculiar to a particular individual. Qualities are not something that an entity partakes of, as was the case in Aristotle; it is characteristic of Stoic materialism that qualities are present within the entity. A common noun (*prosēgoria*), e.g. *man*, *horse*, is the part of speech signifying a shared quality. Adjectives were included among *prosēgoriai* because they are inflected like nouns; this classification remained part of the Western Classical Tradition until the twentieth century. A proper or common name may function as a *ptōsis* (propositional argument). A verb (*rhēma*) functions as a *katēgorēma* (predicate). An article (*arthron*) is a declinable part of speech distinguishing the genders and numbers of nouns (cf. Greek *ho* “the.M.SG.”, *hai* “the.F.PL.”; Lives 7: 58). Pinborg 1975: 99 suggests that being a formal rather than semantic definition, this one is Alexandrian rather than Stoic; however, formal definition of the verb is regularly attributed to Chrysippus, so perhaps this classification has the same origin. The atomic (*haploun*) judgment may be definite, indefinite, or intermediate. Diogenes Laertius (Lives 7: 70) is unclear on this, and the following account is from Sextus Empiricus AM 8: 96–98. Definite judgments are those paralinguistically marked by pointing and usually include *houtos* “that; he” indicating the existence (*ousia*) of a uniquely identified individual: this is very much like Kaplan’s ‘Dthat’ or ‘Dhe’ (glossed “demonstrative [i.e. kinesically indicated] that” and “[kinesically indicated] he”; Kaplan 1978). An indefinite (*aoriston*) judgment has a subject such as *tis* “someone” or *ekeinos* “the person or thing mentioned”, both of which can be used of any person and are not bound to a uniquely and incontrovertibly identified individual. An intermediate judgment is something like *Socrates is walking*: this is not ‘indefinite’ because it identifies the individual; on the other hand, it is not ‘definite’ because no demonstrative is used. The Stoics recognized that when *Houtos peripatei* “That [man] is walking” is true, so is *Tis peripatei* “Someone is walking”. Clearly the domain of definiteness is indicated by the subject noun phrase, and in particular by the article. A conjunction (*sundesmos*) is defined
as an indeclinable part of speech binding various parts of an utterance together. A sixth part of speech, identified by Antipater of Tarsos, is merely named *mesotēs* “in-between” (*Lives* 7: 57), a term later used for middle voice. It is assumed to mean “adverb”, and perhaps gets the name “in-between” because it was recognized as a kind of adjective (*prosēgoria*) modifying a verb. Another hypothesis (Dionysius 1987: 188) is that the term was applied only to adverbs in –ōs (e.g. *kalōs* “nobly”, *sophōs* “wisely”) which related to a genitive plural form shared by all three genders (e.g. *sophōn* “of the wise”)

Pinborg 1975: 101 links the Stoic parts of speech with the four Stoic categories (Mates 1961: 18; Graeser 1978: 78f): *arthron* to the first category of *hupokeimenen* “subject” (presumably via *houtos*); both proper and common nouns belong to the second category *poion* “quality” (they are defined in terms of qualities); verbs are divided among the third and fourth categories of *pōs echon* “state” and *pros ti pōs echon* “relation” (presumably one- and two-place verbs respectively). The four categories are such that the fourth is dependent on the third, the third on the second, the second on the first. And there was a prior category: *ti* “the indefinite something” (Mates 1961: 18).

Nominals are marked by case; but in the Stoic view (Frede 1978: 32) the cases identify functions of their referents (to use today’s terms). Pinborg 1975: 84 suggests that the *orthos ptōsis* “upright case, nominative” is so-called because the typical subject is an actor who causes an effect and is therefore quintessentially somatic within Stoic metaphysics. This suggestion correlates with Apollonius Dyscolus (see Chapter 6) contrasting the *energeia* “active force” of the *orthos* with the *pathos* of the other cases (*plagiai ptōseis*). The genitive, dative, and accusative (*Lives* 7: 65) indicate other aspects of affecting or being affected. For example, the accusative (*aitiātikē*) is typically the affected or effect object. *Aitiātikē*, which means “that which is caused”, was translated into Latin as *ad + cusativus* “to + having a passive tendency” and so gave rise to the adjective *accusativus*, whence our term *accusative* – which has no connection with the verb *accuse*. Our grammatical term *case* is from Latin *casus* “falling”, which is a direct loan translation from Greek *ptōsis*. The Stoic notion was of cases – or more accurately, case-roles – falling from the upright actor to the acted-upon patient, as shown in Figure 4.3.

![Figure 4.3. Cases falling from the upright.](image-url)

8. In *Joe made a table* ‘a table’ is the *affected object*; in *Ed scratched the table* ‘the table’ is the *affected object*. 
A verb (rhēma) signifies an isolated predicate (note the difference from Aristotle) or, according to some Stoics, a part of a sentence without case (aptōton) signifying something that can be attached to one or more subjects (ptōsis), e.g. Greek leg-ō (RHĒMA-PTŌSIS speak-I) "I speak".

Molecular judgments are judgments combined by sundesmoi “conjunctions, logical connectives”. There are three kinds of molecular judgments: the conditional (sunēmmenon) “if ... then”, the conjunction (sumpeplegmenon) “and”, and the disjunction (diezeugmenon) “or” (Figure 4.2 and Lives 7: 71ff). To these the Stoics added negation, formulaically expressing all negations by placing the word not in front of the negated sentence. Thus Not it is day (ouchi hēmera estin) means “It is not day”.

Of the negative propositions one kind is the double negative. By double negative is meant the negation of a negation, e.g. It is not not-day. This presupposes [tithēsi] It is day. (Lives 7: 69)

So begins the tradition that double negatives cancel each other out. While true in logic, the situation is more complex in normal language usage; e.g. English I cannot not go is synonymous with I must go, which implies, but is not implied by, I can go. Like Aristotle, the Stoics distinguish denials like No one is walking from privatives: This man is unkind (the Stoic system places ‘unkind’ first in sequence). Whereas Aristotle analysed the structure of propositions to develop a deductive logic of terms, the Stoics developed propositional logic, recognizing five basic schemas (PH 2: 157–58):

1. If p then q. P holds, therefore q.
2. If p then q. Not-q, therefore not-p.
3. Not(p and q). P holds, therefore not-q.
4. P or q. P holds, therefore not-q.
5. P or q. Not-p, therefore q.

Notice the conclusion that ‘not(p and q)’ is equivalent to ‘p or q’. And notice that the truth of the molecular proposition ‘If p then q’ is guaranteed under (1) and in (2) but falsified if p holds but not-q; see Lives 7: 73. From these five basic schemas others can be inferred, e.g. (6).

6. If (p and q) then r. Not-r, but p holds, therefore not-q. Therefore not(p and q).

There is controversy over whether or not the Stoics believed that this system is complete (see Mueller 1978 for discussion), but this is a matter of concern to the history of logic rather than of linguistics. Relevant for us is the effect that these philosophical concerns had on linguistic analysis. The development of propositional logic is important in linguistic semantics, though less significant than the development of predicate logic in the nineteenth century. Egli 1983 says that Kripke’s modal logic (Kripke 1963) was directly influenced by that of Diodorus Kronos (died c. 282 BCE):

p is possible now iff p is true now or will be true later (Diodorus)

p is possible in our world iff p is true in a world accessible from ours (Kripke)

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9. Instead of $p$ the Stoics used ‘the first’, instead of $q$ ‘the second’; AM 8: 227.
Kripke replaced points of time by possible worlds and the relation “to be now or later” by the accessibility relation. (Egli 1983: 79)\textsuperscript{10}

The Stoics identified a number of verbal categories: tense, aspect, mood, transitivity, and voice. These secondary grammatical categories were all identified on the basis that they affect the meanings and implications of propositions, and not on morphosyntactic form. For instance, a true assertion in the past tense such as There was a tree standing there has a present tense counterpart that was true in some earlier world: keeping the locality constant, it was once true that There is a tree standing there (AM 10: 91). If I see something or I am looking at something, then I have seen it; but if I am building something, I have not yet built it. If Helen has a husband, then she has had at least one husband; if Helen has had three husbands, it is not the case that she has three husbands (AM 10: 98). If a woman is pregnant today, then she will either abort or give birth in the future. If a woman gives birth today, she was pregnant yesterday. These are the kinds of considerations that underpin the Stoic analysis of language. It led them to distinguish the tense-aspect system shown in Table 4.1 (Pinborg 1975: 94; Robins 1997). There also existed a future perfect in Ancient Greek; but because it was restricted to the Attic dialect and the analysis is semantic rather than morphological, it was ignored even though it could fit into the top right cell in Table 4.1. The Stoic recognition of aspect as a grammatical category distinct from tense was ignored by the Western Classical Tradition until the twentieth century.

Table 4.1. The Stoic tense-aspect system.

<table>
<thead>
<tr>
<th></th>
<th>PAST</th>
<th>PRESENT</th>
<th>FUTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPLETE</td>
<td>Pluperfect egegraphei “had written”</td>
<td>Perfect ge graphe “has written”</td>
<td>Future grap sei “will write”</td>
</tr>
<tr>
<td>NEUTRAL</td>
<td>Aorist egrapse “wrote”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INCOMPLETE</td>
<td>Imperfect egraphe “was writing”</td>
<td>Present graphe “is writing”</td>
<td></td>
</tr>
</tbody>
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We have already seen evidence that the Stoics recognized the correlation between mood or clause-type and illocutionary type. In parallel with the binary division of cases, it is reported that the indicative was classed as orthos and the other moods plagiai. The division is analogous to (but not identical with) our modern distinction between unmarked and marked, respectively.

Voice and transitivity were discussed under the head ‘types of predicate’ (Lives 7: 64). A transitive verb is a two-place predicate (suntassomenon) which takes a nominative subject and also an oblique case. Transitives divide into active (or thon) and passive (pathētikon) – sometimes called huption “back to front, reversed”. A one-place predicate is intransitive

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\textsuperscript{10} On the development of modal logic among the Stoics see PH 2: 110; AM 8: 115; Kneale and Kneale 1962: 128–38. \(p \iff q\) means “\(p\) if and only if \(q\)”, i.e. \(p\) is biconditional.
(oudeteron). Reflexive and reciprocal predicates (antipeponthota) have passive form but active meaning, e.g. *keiretai* “he gets his hair cut”, *sunethento* “they made compacts with each other”. All these were known as *sumbamata* because they co-occur with the nominative. There are also *parasumbamata*, such as impersonal verbs which have no explicit subject or one in an oblique case.

Egli 1987 persuasively argues that an infinite number of *lekta* can be derived by a finite number of ‘combination’ and ‘inclusion’ rules, which are similar to phrase structure rules. For example, a nominal in the oblique case with an incomplete predicate together form a complete predicate (one roughly equivalent to \(<e,<e,t>>\) in categorial grammar). A negation sign and a statement form a statement. There are ‘lexical’ insertion rules, e.g. *Dion* is insertable as an *onomat*; and there are ‘transformations’ such as that a preterite enklisis to a statement results in a statement. Egli claims that enklisis ‘was the historical antecedent of paragôgê, declinatio, “inflection”, etc.’ (ibid. 131).

According to Diogenes Laertius, the part of dialectic that deals with language is concerned with

- written language and the parts of speech, with a discussion of errors in syntax [solecism] and in single words [barbarism], poetical diction, verbal ambiguities, euphony and music, and according to some writers chapters on terms, divisions, and style. (*Lives* 7: 44)

This covers not only the study of language as used in reasoning (dialectic), but also its rhetorical and poetic uses. The Stoic views on rhetoric are very similar to those of Aristotle: what is important is the invention of arguments, their expression, arrangement, and delivery; the delivery requires an introduction, replies to opposing points of view, and summing up (*Lives* 7: 43). This strategy reappears in twentieth century descriptions of the structure of academic texts, such as Swales 1990. The Stoics identify five excellences (*aretai*) of speaking (*Lives* 7: 59).

- Use a faultless grammar of the standard language; this was known as *Hellênismos*.
- Be lucid: ‘present the thought in a way easily understood.’
- Be concise: ‘employ no more words than are necessary for setting forth the subject in hand.’
- Be appropriate: use a style ‘akin to the subject’.
- Avoid colloquialism.

As with Aristotle, there are some similarities with the Gricean maxims, but these are much closer to Aristotle than to Grice. A good speaker also needed to be aware of ambiguity in order to exploit it gainfully or avoid it where there was a possibility of being misinterpreted.

Championing *Hellênismos* required the avoidance of ‘barbarism’ (mistakes with words) and ‘solecism’ (mistakes with morphology and syntax). And it gave importance to good diction, sparking a study of spoken language.

In their theory of dialectic most of them see fit to take as their starting point the topic of sound [*phônê* ...] While the sound an animal makes is just a percussion of air brought about by natural impulse, that of a human being is part of a language system [*anthròpou d’estin enarthros*] and, as Diogenes [of Babylon 240–152 BCE] puts it, is an utterance of reason. (*Lives* 7: 55)
Furthermore, it produces a (perlocutionary) effect ‘as it proceeds from those who utter it to those who hear it’. Sounds (phônai) get written as words (lexeis). An utterance (logos) is a meaningful phônê that is issued from the mind. Diogenes goes on to report that there are 24 letters in the alphabet and each letter consists of a sound as element of speech (stoicheion), e.g. /a/; a symbol (charaktêr) <α>; and a name (onoma), alpha. Seven of the letters are vowels, and six are mutes (stops). This is implicit in Aristotle’s Poetics but is made explicit for the first time here (Lives 7: 57). It recurs in the Technê Grammatikê attributed to Dionysius Thrax (see Chapter 5).

Hellênismos was also the reason for Stoic studies in etymology; Sextus, on the other hand, thought it entirely wrong-headed to seek to establish correct usage on the basis of etymology instead of commonality (AM 241–47). Perhaps the materialistic metaphysics of the Stoics was responsible for their belief in the natural origin of words; but whatever the motivation, given such beliefs it was important to know whether the original form of a word was Greek or not in order to decide whether its continued use was Hellenistic or not. It is ironic, therefore, that our principal source for Stoic etymologies is not Greek but Latin, in the work of Varro.

Varro

[Voluntary affixation is a matter of usage, and natural affixation is a function of a logical system.  (De Lingua Latina 10: 15; Varro 1938)

During the third and second centuries BCE, the Greek world fell progressively under Roman domination. The Roman view was that others could excel in the liberal arts while Rome kept peace in the world (Aeneid 6, 847–53; Virgil 1968); this benefited the Greeks by giving them political stability and freedom of movement within the Roman Empire. There had long been Greek settlements in South Italy disseminating Greek intellectual ideas among the Romans; and in the eastern provinces of the Hellenistic world, Greek was widely spoken by Roman officials, and Greek literature and philosophy were held in high esteem. Romans often had Greek slaves to educate their children. The Roman writing system derived from that of the western Greeks, and this doubtless contributed to the belief (widely held until the nineteenth century) that Greek was mother to the Latin language. From the third century BCE Greek literature was systematically translated into Latin; but if this activity encouraged schools of language study, nothing is known of them. So prestigious was Greek literature, that Latin abandoned its indigenous poetic forms and adopted the metres and stanzas of Greece. Thus it is no surprise that all known Roman grammatical studies were parasitic on Greek forebears. It is said that linguistic study was introduced to Rome by Crates of Mallos around 170 BCE. Crates was head of the library and literary school in Pergamum 11 and an expert on Homer. He went to Rome as ambassador for King Eumenes II of Pergamum and (according to Suetonius in De Grammaticis, Suetonius 1914: 2) broke his leg when sightseeing; while waiting for it to mend, Crates gave lectures on literature and Stoic philosophy. However, in view of the wide dissemination of Greek ideas within the Roman

11.  Modern Bergama in Turkey.
Empire, the fact that Stoic doctrine was directly introduced to Rome would not necessarily have given it undue prominence.

Roman grammarians were not seeking refinements of logic or rational thought but rather how to speak correct Latin and to properly interpret Latin literature. This Latinitas was the counterpart to 

_Hellēnismo_ among the Greeks. The first significant Roman writer on language was Marcus Terentius Varro, a man of diverse interests who wrote 76 books on topics as varied as agriculture, geography, the history of Rome, law, mathematics, philosophy, rhetoric, the history of literature, as well as grammar. _De Lingua Latina_ “On the Latin language” (hereafter DLL), dedicated to Cicero, was composed between 47 and 45 BCE in 25 books of which V–X and a few fragments survive. Following the Introduction, Books II–VII were on etymology: Book II on objections to it, Book III on its validity, Book IV on its nature; Book V is on names of places and things associated with those places; Book VI on ideas connected with time (including the origins of verbs); Book VII on the etymology of rare and poetical words. Books VIII–XIII deal with inflectional and derivational morphology as matters of regularity (analogy) versus irregularity (anomaly) in language. Books XIV–XXV were on syntax, probably along Stoic lines.

In _DLL_ VI: 2 Varro displays the Stoic foundation for his approach to etymology by claiming Chrysippus and Antipater of Tarsos (among others) as his authorities. Varro’s Stoicism appears in his claim that:

>all things in general are divided into four [interconnected] parts and these are eternally present. There is never time without there being motion (for even an intermission of motion is time). There is no motion where there is no place and body; because the latter is what is moved, and the former is where the movement takes place. [Finally,] wherever there is motion, there is action. [Therefore] place and body, time and action are the four-horse team of elements. (DLL V: 12)

His etymologies are said to be presented in the same sequence as the four elements are listed here, though the evidence is unconvincing. The same four elements are used in a similar schematic fashion in other works by Varro (Dahlmann 1963: 121–23); they inform his world view and were not specifically characteristic of language.

Whereas the Greek etymologists were motivated by 

_Hellēnismo_, Varro was not particularly focused on _Latinitas_. He recognized that language changes over time:

>Many words indicate one thing now, but formerly meant something else, as is the case with _hostis_ [“enemy”]; for in olden times by this word they meant a foreigner from a country independent of Roman laws, but now they give the name to him whom they then called _perduellis_. (DLL V: 3)

Investigating the vocabulary of Latin to discover how it grew so large and yet could be used with such ease, Varro did not seek to find the original forms of words for some metaphysical purist purpose, but to explain the history and relationships between words. Thus he distinguished between primitive word forms which have to be learned independently of one another – which he says are ‘imposed’ on language learners – and inflections on these which allow for an infinite number of new words to be created (VIII: 5–6).
He who shows that *equitatus* [“cavalry”] is from *equites* [“cavalrymen”], *equites* from *eques* [“cavalryman”], *eques* from *equus* [“horse”], even though he does not give the source of the word *equus*, still gives several lessons and satisfies an appreciative person. (VII: 4)

Nevertheless, the method Varro chose was that of the naturalists that we critically examined in Chapter 2 when discussing Plato’s *Cratylus*. The naturalist method of analysis was: describe the denotatum of the word under analysis; cast around for an appropriate phrase that bears some resemblance to the description, and which has a form bearing some resemblance to the word under analysis; if this fails, the word must be either primitive or of foreign origin and is therefore unanalyzable. Varro himself writes:

[A]lterations come about by the loss or addition of single letters and on account of the transposition or change of them, and likewise by the lengthening and shortening of syllables, and their addition or loss. (V: 6)

[W]ords are divided into three groups: those which are our own, those which are of foreign origin, and those which are obsolete and of forgotten sources. (V: 10)

He identifies many Latin words as being of Greek origin whereas, in fact, most derive not from Greek but from an Indo-European ancestor to both languages. We saw two of his false etymologies in Chapter 2. Here are some more examples:

[The word] *pater* “father” [arose] because *patetacit* “he makes evident” the seed [*semen*]; for then *patet* “it is evident” that conception has taken place, when that which is born springs forth from it. (V: 6)

Because Juno is wife to Jove, and he is Heaven, she is *Terra* or *Tellus*, [mother] Earth. Because *una iuvat cum Jove* “together with Jove she helps [people]”, she is called Juno. (V: 67)

*Ignis* “fire” is named from *gnasci* “to be born”, because from it springs life. Fire enkindles everything which is born; consequently [living things are] warm, and when they die, they lose the fire and become cold. From the fire’s *vis ac violentia* “force and violence” Vulcan gets his name. (V: 70)

[The word] *olligo* “squid” was originally *volligo* because *volat* “it flies” up from the deep; now it has one letter changed. (V: 79)

None of these is correct. Sometimes Varro got the fact of the relationship right, but its direction wrong; e.g. ‘*Mundus* is a woman’s toilet set, named from *munditia* “neatness”’ (V: 129). In fact *munditia* derives from *mundus*. But to be fair to Varro, he didn’t get it all wrong. For instance, the quote above from *DLL* V: 3 concerning *hostis* and:

From *manus* “hand” comes *manupretium* “worker’s wage”; *mancipium* “possession of property” derives from *capitur manu* “it is taken by hand”; *manipulus* “maniple, troop of soldiers” [is so named] because it unites several hands; *manipularis* “soldier in a maniple”; *manica* “sleeve”. *Manubrium* “handle” because it grasped by the hand. *Mantelium* “towel” on which the hands *terguntur* “are wiped”. (VI: 85)

Here we see a lexical network revealed by the pursuit of lexical derivation. *Manipulus* derives from *manus* and *pleo* “fill” and was originally “a handful or bundle”. Units in the Roman army were led by a standard to which a *manipulus* of corn was tied, and the name transferred from the standard to the troop of soldiers. Another derivation-based network is found in the following; only the etymologies marked [✓] are accurate.
Terra “earth” is [...] named thus because teritur “it is trodden”. [...] From this, the place reserved near a town as common land for farmers is territorium [✓], because it is trodden most. Then there is the linen garment extermentarium because teritur “it is rubbed” by the body. Again, at harvest time tritura “threshing” [gets this name] because the grain is rubbed out [from the wheat] [✓], and tribulum “the threshing-sledge”, too [✓]. The boundaries of the fields are called termini because those parts are trodden most on account of the boundary lane – therefore this word is pronounced with ‘i’ in some places in Latium, not terminus but terimen, and this form is found in Accius: it is the same word which the Greeks call termôn.

Perhaps the Latin word comes from the Greek. (V: 21)

We can see from the quotations that Varro was attempting to plot lexical relations through derivation. It led him to propose unattested reconstructed items such as *esum to link sum “I.am” to es “you.SG.arc” and est “3.SG.is”. Indeed, he contrasts the ‘sterility’ of words allowing of no affixation such as et “and”, iam “now”, vix “hardly” with the ‘fecundity’ of a root (radix, a term he was the first to use) such as lego “I read”, which can be inflected for person, number, tense, and aspect and derivationally related to lectio “collection”, lector “reader”, legens “reading”, lecturus “about to read”, lecte “choicely (VIII: 9; VI: 36). Varro’s important legacy was to make the earliest significant study of morphology.

It was Varro who first distinguished between ‘inflectional’ and ‘derivational’ morphology. He did this in the course of discussing the so-called ‘analogy versus anomaly controversy’, which is more appropriately described as a focus on regularity versus a focus on irregularity in language structures. For some ‘analogists’, language structure and lexical meaning were originally, and ideally certainly ought to be, regular: all grammatical paradigms (case, number, tense, etc.) should be regular, and lexical meaning should be as natural and predictable as possible (e.g. females and feminine things should be represented by female gender). There is some overlap between the views of analogists and naturalists. Many analogists regarded irregularity as a sign of degenerateness, and suggested language reforms. ‘Anomalists’ exaggerated the irregularity to be found in languages: language is conventional, large parts of it are irregular but some parts happen to be regular. One of the Byzantine scholars quoted by Bekker writes:

since grammar is not in all places governed by consistent principles [analogia], but often just by the tradition of usage, and we often find grammar unprincipled, they say that this is how the definition holds: grammar is a matter of practical knowledge [empeiria] with many words, but for the most part it is science [technē]. (Bekker 1965: 730; see Colson 1919).

Varro adopted the commonsensical view that regularity is to be preferred, but only when it is sanctioned by normal usage (consuetudo). It is normal usage that sanctions most

12. This is the only recorded use of extermentarium anywhere.
13. Lloyd 1996: 59f reports that the Stoics first distinguished inflectional from derivational morphology; given Varro’s Stoic orientation this is possible, but nonetheless the documentary evidence favours Varro. Blank 1982: 1–4 argues that these remarks of Varro and reports of them (e.g. Aulus Gellius, c. 123–80 CE, Gellius 1927, II.xxv) are the only evidence of an analogy vs anomaly controversy in the ancient world.
irregularities. In several places he points out that like must be compared with like: the similarity between Priamus (a king’s name) and Hecuba (his wife) is much less than that between the inflectionally related pairs lego “I read” and legi “I have read” or Priamus (nominative) and Priamo (dative) (VIII: 3). Masculine nominatives praetor and consul add –i to make the dative, so the nominative supplies the stem for case inflection; but socer and macer go different ways, and in the accusative one becomes socerum, the other macrum; in fact it is these forms minus the –um suffix which supply the stem for the other singular oblique cases, and all plurals (X: 28). Varro also says it is not the nominative singulars dux [<= *ducs] and trabs which serve as the stem forms for their declension, but the nominative plurals duces and trabes that, minus the –es suffix, give the stem for all other case inflections, including the nominative singular (X: 56f).

Therefore the oblique forms can sometimes be determined from the nominatives and sometimes the nominatives from the oblique forms; sometimes the plural from the singular forms, and sometimes the singular forms from the plural. (X: 59)

Varro partially accounted for the split between regularity and irregularity in language by recognizing two kinds of declinatio. This Latin term, which is the source for English decline/declension, was a semantic extension of the verb meaning “bend to one side”, and there seems to be a conceptual link with the notion of ptōsis-casus-case sketched in Figure 4.3. Varro recognized the usefulness, necessity, and ubiquity of declinatio:

Inflection [declinatio] has been introduced not only into Latin speech, but into the speech of all men, because it is useful and necessary; for if this system had not developed, we could not learn such a great number of words as we have learned – for the possible forms into which they are inflected are numerically unlimited – nor from those which we have learned would it be clear what relationship existed between them so far as their meanings are concerned. (VIII: 3)

Varro uses declinatio both of the affixing of inflectional morphemes (noun declension, verb conjugation) and the affixing of derivational morphemes; so perhaps the ideal translation of declinatio would be “word-form variation” or “affixation”.

There are two kinds of affixation: voluntary and natural. Voluntary affixation is that which is the product of an individual person’s volition. [He gives examples of lexical derivation.] On the other hand, natural derivation is based not on the volition of individuals acting singly, but on general agreement. [He gives examples of case inflection.] (VIII: 21f)

Varro gives declinatio naturalis “inflectional morphology” the attributes of natura “natural”, constantia “consistent”, ars “known through skill”, ratio “systematic”, analogia “regular”.14 Typically, inflectional morphology is regular because it adds a morpheme (form and meaning) to the stem of a large subset of words from one lexical class such that the combination of stem plus inflection is semantically transparent. An inflection never changes the lexical class of the stem word. For example, the English plural is an inflectional morpheme that can be attached to most nouns such that N+PLURAL normally means “more than one N”, as in cat–cats, sheaf–sheaves, mouse–mice, ox–oxen, criterion–criteria, datum–data. Despite the variation of forms, which can be explained on grounds of

---

14. The Latin is in every case a noun, but the meaning is better rendered by an English adjective.
phonotaxis or the stem word originating in another language, there is an obvious regularity or set of regularities in the system as a whole; irregularities are readily dealt with by means of a small set of exception rules. Similarly with the tense or the aspect system, both of which are inflectional.

By contrast, declinatio voluntaria “derivational morphology” has the attributes of impositio or voluntas “creation by an individual’s will”, inconstantia “inconsistency”, historia “known by listing [as a special case]”, consuetudo “known by convention, because unsystematic”, anomalia “irregularity”. In Varro’s etymology, the adjective voluntaria is lexically related to voluntas “will” and volatus “flight” ‘because the mind flies instantly wherever it wishes’ (VI: 47), see Taylor 1974/5: 27; this is what allows the mind to ‘impose’ names (word forms) on things. For instance, at his master’s will a slave might be named Ephesius after his town of origin, or Artemis after someone called Artemidorus. The original names (what Kripke 1972 called, using semantic extension, ‘baptisms’) were all imposed in this way. Derivational morphology is comparatively irregular, and sometimes subject to individual rather than dialectal variation, e.g. appropriacy/appropriateness, suitableness/suitability. Derivational morphemes apply to only a small subset of members of the class of the stem word, and often they cause its lexical class to change. For instance, -en attaches to some adjectives to turn them into causative or inchoative verbs, black~blacken, red~redden, sad~sadden, but there are no verbs *greenen, *bluen, *happien. Varro illustrated similar phenomena with the examples in Table 4.2 (adapted from DLL VIII: 54–55). In derived words the semantic content of the stem plus the derivational morpheme is rarely transparent except in the case of new coinnings: contrast well-established, widely used cooperate with the newer, less frequent co-occur; or consider the various semantic effects of the so-called “causative” –ize suffix in legalize, atomize, computerize, womanize, fraternize. Such differences between inflectional and derivational morphology are universal.

<table>
<thead>
<tr>
<th>Stem</th>
<th>Derivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>sus “pig”</td>
<td>suile “pigsy”</td>
</tr>
<tr>
<td>ovis “sheep”</td>
<td>ovile “sheepfold”</td>
</tr>
<tr>
<td>bos “ox”</td>
<td>*bovile</td>
</tr>
<tr>
<td>avis “bird”</td>
<td>*avile</td>
</tr>
<tr>
<td>avis “bird”</td>
<td>aviarium “aviary”</td>
</tr>
<tr>
<td>ovis “sheep”</td>
<td>*oviarium</td>
</tr>
<tr>
<td>vinum “wine”</td>
<td>vinaria “wine shop”</td>
</tr>
<tr>
<td>creta “chalk” (for cleaning)</td>
<td>cretaria “chalk shop”</td>
</tr>
<tr>
<td>unguentum “perfume”</td>
<td>unguentaria “perfume shop”</td>
</tr>
<tr>
<td>caro “meat”</td>
<td>*camaria</td>
</tr>
<tr>
<td>pelles “hides”</td>
<td>(laniera) “butcher’s shop”</td>
</tr>
<tr>
<td>calcei “shoes”</td>
<td>*pellaria</td>
</tr>
<tr>
<td></td>
<td>(pellessina) “leather shop”</td>
</tr>
<tr>
<td></td>
<td>*calcearia</td>
</tr>
<tr>
<td></td>
<td>(sutrina) “shoe shop”</td>
</tr>
</tbody>
</table>
Irregularity may be a function of *declinatio voluntaria* “derivational morphology”, but some of it is not due to derivational morphology. For instance, Varro draws attention to the fact that while most nouns distinguish singular from plural (*puella* “girl”, *puellae* “girls”), *faba* “bean [F.SG.]” was also used to mean “beans collectively” (IX: 38) – for the same reason that *sugar* in English is collectively used of grains of sugar. A distinction is made between the sexes of creatures that are significant in the speech community, such as *equus* “stallion” and *equa* “mare”; but no such distinction is normally made between a male and female crow (compare *crow* with *hen* and *rooster* in English). Varro adds that all pigeons were once known as *columbae* [F.PL.], but once they began to be bred as domestic animals it became necessary to distinguish between male *columbus* and female *columba* (IX: 56). And further:

The meaning may naturally allow for three genders to be distinguished by language users, such as with *doctus, docta, doctum* [“learned+M., l.+F., l.+N.”]; for learning is compatible with all three. Use has taught us to differentiate a learned thing from human beings; and among the latter to distinguish the male from the female. But in respect of a male or a female or what is neither, the nature of the male does not shift, nor that of the female, nor the neuter nature; and for this reason there is no *feminus, femina, feminum* [“woman+M., w.+F., w.+N.”]; similarly with the others. (IX: 57)

We turn now to what we know of Varro’s syntactic assumptions. As procedural methods for analysing language, Varro recommends not only taking into account the characteristics of the denotation (IX: 40; IX: 42), but also a variety of formal diagnostics. For example, to determine the gender of a noun he suggests (a) formal analogy with a noun of known gender (VIII: 41; VIII: 81), which can be facilitated by setting up paradigms (X: 43–44); (b) co-occurrence with a demonstrative such as masculine *hic*, feminine *haec* (IX: 41); and/or (c) use of the diminutive form (Fragments 9, 10). He divided the parts of speech into four on a purely formal basis. He says there are two criteria for classification: (i) the kind of inflection that a stem takes, and (ii) its form (X: 11). The primary categories are identified using the first criterion, their subcategories by the second (VIII: 44; X: 17).

- **Appellandi** (because they typically name): inflected for case but not tense (*quaeb habet casus neque tempora*). Exemplified by noun and adjective; but in a construct like *homo doctus* ‘man learned’ the noun is notionally prior and, normally, first in sequence.
- **Dicendi** (perhaps because a single verb may constitute a sentence): inflected for tense but not case (exemplified by verbs).
- **Iungendi** (because they subordinate propositions): inflected for both case and tense (exemplified by participles, and in X: 34 named *participalia*. According to Priscian 527 II: 16, the Stoics had classified participles along with verbs.)
- **Adiminiculandi** (because of their supporting function): inflected for neither case nor tense. Exemplified by conjunctions and adverbs. In the verb~adverb construct *scribit docte* ‘writes knowledgably’ the verb is prior and normally first in sequence.

As shown in Table 4.3, this use of two inflectional characteristics [+case, ±tense] yields a very neat distinctive feature analysis which uniquely distinguishes each category – as Varro himself recognizes (X: 17). Notice that this system stands apart from *declinatio voluntaria*,
Table 4.3. Varro’s use of inflectional characteristics to distinguish parts of speech.

<table>
<thead>
<tr>
<th>CASE</th>
<th>Nominals/Articles</th>
<th>Participles</th>
</tr>
</thead>
<tbody>
<tr>
<td>+TENSE</td>
<td>nominals/articles</td>
<td>participles</td>
</tr>
<tr>
<td>-TENSE</td>
<td>conjunctions/adverbs</td>
<td>verbs</td>
</tr>
</tbody>
</table>

yet each inflectional category can be exemplified by a set of derivationally related words (VI: 36; VIII: 58):

[+case, –tense] appellandi, e.g. lector “reader”, lectio “collection”
[–case, +tense] dicendi, e.g. leges “you will read”, lego “I read” (for Varro, the root form)
[+case, +tense] iungendi, e.g. legens “reading”, lecturus “about to read”
[–case, –tense] adminiculandi, e.g. lecte “choicely, selecty”

The appellandi [+case, –tense] class divides into nominals and articles (including pronouns). Articles may be definite pronomina such as hic, haec “this M.SG., F.SG.”, or indefinite provocabula such as quis interrogative “who”, quae relative “who/what F.SG.” (VIII: 45). The nominals divide into vocabulum “common noun or adjective” and nomen “proper name” (X: 20). Varro points out that Latin has six cases whereas Greek has only five, and (in Stoic fashion) he offers a semantic description of them (VIII: 16):

NOMINATIVE: what something is called (e.g. Hercules)
VOCATIVE: the form you use when you call someone (e.g. Herculē)
ACCUSATIVE: what you are calling about (e.g. Herculem)
ABLATIVE: by whom the calling is done (e.g. Hercule)
DATIVE: to or for whom you call (e.g. Herculi)
GENITIVE: of whom you call (e.g. Herculis)

He identifies three genders (sexum) as in doctus “learned” masculine, docta feminine, and doctum neuter; and number: ‘multitudinem, unum an plura significet, ut hic hi, haec hae’ “number, signifying more than one, as in this [M.SG.] these [M.PL.], this [F.SG.] these [F.PL.]” (VIII: 46). He describes a matrix of six cases intersecting with six genders (three singular and three plural), yielding the distinctive feature matrix in Table 4.4 (next page). The text which discusses and exemplifies the cells in the matrix is unfortunately missing, and the example is invented. In the extant text Varro makes no provision for the five noun declensions of Latin.

The dicendi [–case, +tense] class has six subcategories (species): tense (tempus), person (persona), interrogative (rogandi), declarative (respondendi), subjunctive (optandi), imperative (imperandi) (X: 31). Varro identifies three tenses: past, present, and future; the past and future forms of verbs derive from the first person singular present form. He continues:

The persons of the verb are also of three kinds: the one who is speaking, the one addressed, and who or what is spoken about. Every verb has three persons, which [to some extent] explains why there are so many verb forms. (VIII: 20)
The last four subcategories of the *dicendi* are moods, but no category of mood or illocutionary type is recognized in the extant texts. Varro groups them to identify the impersonal passive as containing mood and tense but no person (X: 32). Aspect is recognized in IX: 96–100, X: 33, and X: 48, giving rise to the tense-aspect paradigm exemplified by a first conjugation verb in Table 4.5. Despite his Stoic inspiration, Varro prefers formal contrastive analysis to semantic or notional classes. Aspect in Latin is very different from aspect in Greek; there is no aorist and Varro is the only Roman grammarian to identify the future perfective indicative (X: 48), which is often indistinguishable in form from the present perfect subjunctive (Taylor 1990; 1995).

### Table 4.5. Varro’s tense-aspect paradigm.

<table>
<thead>
<tr>
<th>ACTIVE</th>
<th>PAST</th>
<th>PRESENT</th>
<th>FUTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPLETE</td>
<td>amaveram</td>
<td>“I had loved”</td>
<td>“I shall have loved”</td>
</tr>
<tr>
<td>PASSIVE</td>
<td>amatus eram</td>
<td>“I have been/was loved”</td>
<td>“I shall have been loved”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTIVE</th>
<th>INCOMPLETE</th>
<th>PRESENT</th>
<th>FUTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>amaban</td>
<td>“I was loving”</td>
<td>“I love”</td>
<td>“I shall love”</td>
</tr>
<tr>
<td>amabar</td>
<td>“I was being loved”</td>
<td>“I am loved”</td>
<td>“I shall be loved”</td>
</tr>
</tbody>
</table>

Varro recognizes that many verbs have the binary opposition (*contraria*) active–passive as in *amo*, *amor* “I love, I am loved”. Some ‘intransitive’, namely deponent, verbs have passive form but active meaning, e.g. *loquor* “I speak”, *venor* “I hunt”. These exemplify irregularity in the system because they have full participial forms, e.g. *loquens* “speaking”, *locuturus* “about to speak”, *locutus* “having spoken”. But the other intransitives such as *curro* “I run” have no passive (VIII: 59).

Varro’s approach to linguistic analysis was the most similar to a modern linguist’s of any of the ancients in the Western Classical Tradition. But although he had some slight influence on Priscian, his methods were not generally adopted by practitioners within the tradition, and his work did not have the effect that it merits. Varro moved beyond the Stoics, though he was clearly influenced by them. Judging from the text still extant, *DLL* was a wide-ranging analysis of language for its own sake, whereas the Greek Stoics analysed language as a tool for dialectic, or rhetoric, or poetry. Varro was as close as the Romans got to a theoretical linguist. His principal insights arise from his work on lexical networks, in
which he sought to determine how a language such as Latin can generate a boundless vocabulary from finite elements (Langendoen 1966). He divided words into a sterile class and a productive class from which new words are generated by affixation (declinatio). The latter divides into declinatio voluntaria, which is irregular and has to be learned by rote, and declinatio naturalis, which is a regular system applicable to much of the vocabulary in a language. Declinatio naturalis further identifies lexical categories that are [–case, +tense], [+case, –tense], [+case, +tense], [–case, –tense]. Varro’s use of distinctive feature analysis was rediscovered and further developed in the twentieth century (see Chapters 9 and 11). He gave a rational account of the fact that languages contain both regularities and irregularities in morphology (and, for all we know, syntax too). The learnability of language is explained by the application of finite systematic processes to a finite set of primitives. At the same time, declinatio voluntaria allows for new growth provided there is a referent for the new word and the word is susceptible to declinatio naturalis; this constrains an individual’s will to ‘impose’ (i.e. create) names, and enables a new word to be interpretable by other people. Varro sought to explain both regularities and irregularities by taking a commonsense approach to the functions and use of language, given the nature of human perceptions of the world. Today this approach is echoed in the work of cognitive and functionalist grammarians. The abstract nature of his theory of declinatio is demonstrated by the discussion of proportional relations between numbers in X: 43–46, which is explicitly analogical with morphological relations (X: 44, 47). For instance, he compares what he calls ‘the disjoined proportion’ of

\[
1 \text{ to } 2 \text{ is as } 10 \text{ to } 20
\]

with noun paradigms, e.g.

\[
\text{rex "king [NOM.SG.]" is to regi "king [DAT.SG]"}
\]
\[
\text{lex "law [NOM.SG]" is to legi "law [DAT.SG]"}
\]

The ‘conjoined proportion’ of numbers, e.g.

\[
1 \text{ is as } 2 \text{ is to } 4 \text{ [in which } 2 \text{ is a common element]}
\]

is analogical with the conjoined proportion of verb paradigms, e.g.

\[
\text{legebam "I was reading" is to lego "I am reading" as lego is to legam "I shall read"}
\]

Here he has shown how a system may operate within both mathematics and language. Varro had a very commonsensical approach to notions of variation from ‘correct’ language use.

As to the man who uses as ablatives monti [“hill"] and fonti [“spring”] where others say monte and fonte, along with other words which are used in the two forms,15 one form is correct and the other is wrong; yet the person who errs is not destroying the regularities [analogias], although the one who speaks correctly is strengthening it. He who errs in using these words (where there are two forms used) is not destroying the logic in the system when he uses the wrong form; and even with words that are not pronounced in two ways, someone who decides to pronounce them in an unusual manner, does not falsify knowledge of the language but merely exposes his own lack of knowledge. (IX: 112)

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15. See VIII: 66 for additional examples.
It is a great pity that Varro’s cool theoretical approach to language was not adopted and developed during the next two millennia.

**The development of a linguistic theory**

As was said at the outset of Chapter 2, for the ancient Greek philosophers the study of language was a means to several ends, including the development and understanding of dialectic (sound reasoning), rhetoric (persuasive use of language), and poetry. With the Stoics, there were significant advances in the analysis of propositional types, propositional structure, the forms of propositions and combinations of propositions, and valid inferences that may be drawn from propositions (single or combined). This led to the development of propositional logic on the one hand and grammatical analysis on the other. Hellēnismos and the studies of rhetoric and of poetry benefited from, and therefore strengthened the significance of, linguistic analyses.

The Stoics considered language to be an abstract entity with mental and physical correlates, but they concentrated on the logical system of language as an abstract entity. They greatly expanded grammatical analysis and contributed significant innovations. Thinking about how negation fits into propositional structure led the Stoics to investigate negative scope to a more sophisticated conclusion than Aristotle. They explicated the deduction that a predicate which applies to a class of objects applies also to any member of the class. They postulated rules of inference, and came to a notion of quantifier scope. The manner in which propositions are connected to one another can affect the inferences to be drawn, so a class of connectives needs to be identified. At the same time there is a need to identify the language forms that represent these notions and to relate them to $\text{onoma}$ and $\text{rhēma}$; consequently, the parts of speech and their subcategories came to be identified one by one, as the need arose.

For the Stoics, logos was supplemented with the lekton – a clause classified into an illocutionary type. Of lekta the most frequently discussed is the axiōma “judgment, statement”. And although the predicate (or verb) was accorded the same features as before, nominals were divided into proper nouns and common nouns (which included adjectives). Aristotle’s sundesmos was reinterpreted as “sentence connective”. The Stoic ‘article’ includes prepositions but not conjunctions. And the Stoics separated out the adverb. They also recognized a number of secondary grammatical categories: case, gender, number, mood, tense, aspect, voice, and transitivity – though Aristotle had earlier made some remarks upon gender and also number. In semantics they identified illocutionary type (or something very like it), and they clearly distinguished between what we would now call intension and extension.\(^{16}\) In phonology (probably resulting from studies of poetry) they distinguished vowels from consonants, and distinguished some classes of consonants. Although little is known for sure of Stoic syntax, they seem to have developed rules such as the following (Egli 1987). A lekton consists of a subject and a predicate. A subject may be

\(^{16}\) The extension of a language expression designates something that exists in a particular world, usually the world being spoken of.
definite, indefinite, or neither. It may be singular or plural. A predicate may be one-place or two-place; if two-place it may be active or passive. A predicate and the *lekton* that contains it may be in present, past or future tense; and it may be negated. *Lekta* may also be conjoined, disjoined, or in a conditional relation. Perhaps these properties were once to be found in Varro’s syntax; we don’t know.

Of the scholars we have considered so far, only Varro can truly be said to have had a theory of language. Steeped in Stoic ideas, Varro was more of a linguist than a philosopher. His conception of language as an abstract object was based on the empirical investigation of language in which he recognized recursive processes for generating new terms out of old ones – a notion that was Stoic in motivation if not origin. His naturalist etymologies can be seen in this light: as a search for the sources of word meanings, the relationships between words, and the connection between meaning and form. He was further motivated by an interest in the (pre)history of his language.

In the extant text of *De Lingua Latina* Varro investigated morphological affixation, recognized the generative properties of a regular system of affixation as making the unbounded potential of language learnable, and he developed formal criteria for grammatical categorization in a thoroughly modern manner without losing sight of semantic criteria. Varro identified the major clause constituents by their inflectional characteristics in terms of the features [±case], [±tense]. He also developed feature-based paradigms of nominal and verbal suffixes. It is a great pity (a) that Varro’s analysis of syntax has been lost, and (b) that his work did not become a direct foundation for language scholarship in the centuries that followed.
Chapter 5  Quintilian, Dionysius, and Donatus:  
the start of a pedagogic tradition

From philosophy to pedagogy

The pedagogical progenitor to the Western Classical Tradition in linguistics arose in Alexandria on the west bank of the Nile delta in Egypt. Because Alexandria was inhabited by Egyptians, Greeks, and Jews, it has been suggested that the growth of grammatical interest there was the result of the Greek community living among speakers of other languages. This naturally enkindled an interest in a Greek which had to be not only learned by foreigners, but also preserved as the language of culture and the traditions of the people who identified with Greek culture. Hellenism (Hellenismos) was perhaps a more powerful force on foreign soil than in Greece itself and it was inclusive: Isocrates (c. 436–338 BCE) had written, ‘The people we call Greeks are those who have the same culture as ours, not the same blood’ (Panathenaicus, quoted in Marrou 1956: 130). Cultural pursuits were funded by the government. Around 250 BCE the great Library of Alexandria held 120,000 books (Marrou 1956: 260); scholars of literature and science were encouraged to work and teach in the adjoining Museum “seat of the Muses” – which today would be called a university. Instead of being interested in grammar as an adjunct to philosophy (like Plato, Aristotle, and the Stoics), the Alexandrians were interested in grammar as a tool for literary study; so they focused on that part of the grammatical tradition that came from Aristotle’s expositions of rhetoric and poetry, along with those of the Stoics.

‘The Stoics teach that logic is divided into two parts, rhetoric and dialectic’, wrote Diogenes Laertius 1925, 7: 41. The importance of rhetoric or oratory was championed by Plato’s contemporary Isocrates. Although many people could read, all copies of every book were handwritten; consequently, reading material was expensive and rare. The public lecture was the prime source of information; silent reading was virtually unknown: poetry was normally recited, dramas acted, songs sung. When there were no print or electronic media, oratory was at least as important in politics and law as it is today. As we shall see, this oral culture explains much about the format of the Alexandrian grammars.

Plato had favoured parallel education for boys and girls (especially during their mid-teens) in riding, archery, javelin throwing, and other militaristic sports; in music, dancing, and singing (Laws VII: 804c–805b, 813b). He believed that geometry in particular and mathematics in general was a good basis for developing rational thought (Republic VII: 526a–527c) and thought them best studied during the late teens. Education began at about the age of ten with the study of grammar, that is, with the exegesis of literature. Perhaps

2. A distinction can be made between rhetoric and oratory, but for our purposes they present the same needs.
because Homer (ninth or eighth century BCE) wrote of gods and heroes and history (mythical or real), there was a view that the poet’s function is to educate. Much of Homer, especially the Iliad, was learned by heart (Marrou 1956: 70). Other favoured writers were the tragedian Euripides (c. 484–406 BCE), the comedian Menander (c. 342–292 BCE), and the speech-writing orator Demosthenes (c. 384–322 BCE). It is possible that Hellenist educators were, in part, concerned with preserving the Greek language from ‘decadence’ (at every period of history some people have insisted that their language – whichever one they spoke – was being degraded by contemporary speakers). It was the duty of the grammarians to find out how Greek should be written and spoken, so as to fix it in the ‘correct’ form. Thus the notion arose that the function of a grammarian is to prescribe correct usage, rather than to describe observed usage as the philosophers and Varro had done. The difference is mostly a consequence of the purpose for which linguistic study is undertaken: someone teaching a second language or an older variety of the language is necessarily prescriptive; but the forms of language that are being taught ought nonetheless to be based upon the analyses of data collected by a descriptive linguist.

**Quintilian**

Some two generations after Varro died, Marcus Fabius Quintilianus (35–95 CE) was born. Quintilian headed the foremost school of oratory in Rome and composed the *Institutio Oratoria* “Institutes of oratory” (Quintilian 1920-22) around 88 CE. A manual for the public speaker, it contains some very commonsensical views on language, at least some of them traceable to Varro – although Quintilian castigates Varro, among others, for proposing absurd etymologies (ibid. I.vi.32–38). Quintilian regarded the study of grammar as a vehicle for developing knowledge of correct speech (recte loquendi scientia) and nurturing the ability to read and recite with understanding. Despite claiming ‘I did not set out to write a treatise on grammar’ (I.v.54), he nonetheless wrote in Book I about letters, syllables, words, parts of speech, correct ways of speaking, avoidance of barbarisms (faults of pronunciation), solecisms (grammatical errors), use of onomatopoeia, orthography, regularity (analogia), etymology, authority, and usage. The parts of speech he identifies (I.iv.18–20) are verbs, nouns, conjunctions (he prefers convictiones to coniunctiones as a translation of sundesmoi), articles, prepositions, common nouns (appellationes) – which he says are sometimes subsumed to nouns (nomines), pronouns, participles, and adverbs. ‘Our

3. Although Homer is credited with being the author of the Iliad and the Odyssey (Homer 2003a; b), these epics may well have been created by a number of different rhapsodists – the people who recited the poems in public performance.

4. There are nearly 15,700 lines in the full version of the Iliad but early papyri often have at least 2,000 fewer; the Odyssey has more than 12,100 lines, though early papyri have fewer than half this number (Marrou 1956: 525).

5. This includes attention to prosodic features, e.g. ‘palus means a “stake” if the first syllable is long, a “marsh” if it be short’ (I.vii.3). Pālus, -i (M), vs palus, -udis (F).

6. As we shall see in the Technē Grammatikē and Ars Grammatica, discussed later in this chapter.
own language dispenses with the articles, which are therefore distributed among other parts of speech. But interjections must be added to those already mentioned.’ Roman grammarians used the demonstrative in place of the Greek article, e.g. *haec Musa* “this Muse.NOM”, *huīus Musae* “this Muse.GEN”, *huic Musae, hanc Musam*, etc. (Donatus 1961b: 355f; Marrou 1956: 371f). Quintilian holds the Greek language and classical Greek authors in very high esteem: ‘For Latin is largely derived from that language, and we use words which are admittedly Greek to express things for which we have no Latin equivalent’ (I.v.58). Horace (65–8 BCE) had written

Captive Greece took captive her savage conqueror and brought civilization to rustic Latium.

*(Letters II.i.156, Horace 1929)*

Roman education was the transfer to Latin of Greek education, and although Latin was the national language from the first century BCE, educated Romans were fluent in Greek; and in most Greek areas of the Roman Empire, Greek remained the lingua franca, as it was in Byzantium in the days of Priscian (sixth century; see Marrou 1956: 297ff). No other language within the Roman Empire enjoyed the status of Greek with respect to Latin. However, Quintilian had too much common sense to despise Latin, and he even proposed that the instrumental function of the Latin ablative should count as a seventh case, an idea subsequently ignored.

Regularity *(analogia)* ‘cannot be universally applied, as it is often inconsistent with itself’ (Quintilian 1920-22, I.vi.12).

For analogy was not sent down from heaven at the creation of mankind to frame the rules of language, but was discovered after they began to speak and to note the terminations of words used in speech. It is therefore based not on reason but on example, nor is it a law of language, but rather a practice which is observed, being in fact the offspring of usage. *(I.vi.16)*

The importance that Quintilian gives to *consuetudo* “usage, custom” (i.e. the conventions of language use) strikes the twenty-first century linguist as very modern.

Language is based on reason, antiquity, authority, and usage. Reason finds its chief support in analogy and sometimes in etymology. […] Authority as a rule we derive from orators and historians [but not poets …] Usage, however, is the surest pilot in speaking, and we should treat language as currency minted with the public stamp. *(I.vi.1–3)*

Usage remains to be discussed. For it would be almost ridiculous to prefer the language of the past to that of the present day, and what is old language but the old manner of speaking? But even here judgment is necessary; we must make up our minds what we mean by usage. If it be defined merely as the practice of the majority, we shall have a very dangerous rule affecting not merely style in language but life as well, a far more serious matter. For where is so much good to be found that what is right should please the majority? […] I will therefore define usage in speech as the agreed practice of the educated. *(I.vi.43–45)*

Quintilian’s views were generally respected during the ages that followed, but the notion of correctness in language usage (or, whose dialect should be chosen as standard), though it was echoed by Sextus Empiricus *(AM I: 176–240)*, did not really become an issue for discussion again until the seventeenth and eighteenth centuries (see Chapter 7). Like other educators, Quintilian believed that children ‘should study what is morally excellent’ *(I.viii.4)*.
It is therefore an admirable practice which now prevails, to begin by reading Homer and Virgil, although the intelligence needs to be further developed for the full appreciation of their merits: but there is plenty of time for that, for the boy would read them more than once. In the meantime let his mind be lifted by the sublimity of heroic verse, inspired by the greatness of its theme and imbued by the loftiest sentiments. The reading of tragedy also is useful, and lyric poets will provide nourishment for the mind. (I.viii.5–6)

In lecturing, the teacher of literature must give attention to minor points as well: he will ask his class after analysing a verse to give him the parts of speech and the peculiar features of the feet which it contains: these latter should be so familiar in poetry as to make their presence desired even in the prose of oratory. He will point out what words are barbarous, what improperly used, and what are contrary to the laws of language. (I.viii.13)

Teachers should discuss metaphors and figures of speech and the style of presentation. Students should write aphorisms, moral essays (chriae) and discuss the character of personae (ethologiae) (I.ix). All these grammatical-cum-literary studies (grammatice) should precede the study of rhetoric and oratory (I.x.1, II.i.3–4). The latter includes, among other things, knowing when it is appropriate to substitute one expression for another. Instead of “I know,” we say “I am not ignorant,” or “the fact does not escape me,” or “I have not forgotten,” or “who does not know?” or “it can be doubted by none.” But we may also borrow from a word of cognate meaning. For “I understand” or “I feel” or “I see” are often equivalent to “I know.” Reading will provide us with a rich store of expressions such as these, and will enable us not merely to use them when they occur to us, but also in the appropriate manner. For they are not always interchangeable: for example, though I may be perfectly correct in saying “I see” for “I understand,” it does not follow that I can say “I understand” for “my eyes have seen.” (X.i.12–14)

Quintilian warns against imitation in favour of new discovery, because ‘whatever is like another object must necessarily be inferior to the object of its imitation, just as the shadow is inferior to the substance’ (X.ii.4–11).

Quintilian’s grammatical sketch is probably indebted to Quintus Rhemnius Palaemon (first century CE, Palaemon 2001), reportedly his teacher. It is Palaemon who is credited with writing the first Latin ars grammatica, introducing the interjection in place of the article among the parts of speech, and describing Latin declensions and conjugations – although Quintilian has no term for conjugate. Although Quintilian lived at least four generations after Dionysius Thrax, he makes no mention of him. Yet many of Quintilian’s recommendations are consistent with what Dionysius describes as the function of grammar; and the sequence of instruction seems to match. One can only conclude that the brevity of the Technē Grammatikē and of Donatus’ De Partibus Orationis (the Ars Grammatica Minor) is what led to their wider use in pedagogy than Quintilian’s much more thorough – though at the same time less detailed – discussion in his Institutionis Oratoriae.
The *Technē Grammatikē* of Dionysius Thrax

The Alexandrian tradition was established by Dionysius Thrax (c. 160/170–85/90 BCE) and more particularly by Apollonius Dyscolus (c. 80–160 CE). It was taken over into Latin by the Roman Aelius Donatus (315–85 CE), who adapted Dionysius’ work, and by Priscianus Caesariensis (490–560 CE), who adapted and built upon the work of Apollonius (see Chapter 6). In Europe the hegemony of the Latin language lasted until modern times, and throughout the centuries what was taught was founded on the grammars of Donatus and Priscian.

Aristarchus of Samothrace (216–144 BCE) was one of the earliest Homeric scholars and has been credited with a number of developments in grammar, but nothing of his work remains. Aristarchus lived and lectured in Alexandria, where he taught Dionysius Thrax (so-called because his father supposedly came from Thrace, Θράκις).

Dionysius became a Homeric scholar like his teacher, wrote some literary commentaries, and taught rhetoric in Rhodes and Rome. The work for which he is most celebrated is *Technē Grammatikē* “The art of grammar” (hereafter TG), written in Rhodes about 100 BCE (Pfeiffer 1968: 271).

Technai are handbooks or manuals (Marrou 1956: 126). TG runs to 25 sections in *Anecdota Graeca* (Bekker 1965: 627–43) and less than 3,000 words of Greek text. In Dionysius 1987, which we shall use for reference, it is a mere 20 sections. Although traditionally attributed to Dionysius, doubts about his authorship of the extant text have circulated since ancient times (Pinborg 1975: 103ff; Dionysius 1987: 169f; Law and Sluiter (eds) 1995). There are a number of bases for doubt.

Everyone accepts that Dionysius is responsible for the first five sections of TG. The sceptic Sextus Empiricus in *Adversus Mathematicos* writes (in the late second century):

> Now Dionysius the Thracian says in his Manual [*tois parangelmasi*] that grammar is mainly expertness regarding the language of poets and composers [*sungrapheusi*], meaning by ‘composers’ (as is plain from its contrast with ‘poets’) none other than the writers in prose. For the grammarian appears to interpret the writings of the poets such as Homer, Hesiod, Pindar, Euripides, Menander and the rest; and he also takes it as his proper task to investigate those of the composers such as Herodotus and Thucydides and Plato. Accordingly, some grammarians have dealt with many of the composers, whether historians or orators or even philosophers, seeking to discover which of their writings are correctly and idiomatically expressed and which are faulty, and what for example is the meaning in Thucydides of *zankloa* (“sickle”) and *torneutontes* (“rounding off”), and in Demosthenes of ‘he shouted as though from a wagon’ [he shouted like a fishwife]; and how we should pronounce the word *ēdos* in Plato – whether the first syllable should be aspirated, or the first syllable unaspirated and the second aspirated, or whether both should be aspirated. It is because of such investigations that grammar has been called expertness regarding the language of poets and

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8. He is known in French as Denys le Thrace “Dennis the Thracian”.

9. The translator is Alan Kemp who, following Uhlig (ed.) 1883 *Grammatici Graeci* I, includes Bekker’s §5 with §4; Bekker’s §13 with §12 (which become Kemp’s §11); Bekker’s §17 and §18 with §16 (Kemp’s §15); Bekker’s §22 with §21 (Kemp’s §17).

10. Not found in any extant work of Thucydides.
Sextus says (AM I: 72f) that such expertness is appropriate to conjectural (stochastikē) skills like navigation and medicine but not to grammar, which is a skill more akin to music and philosophy. Grammar only exists when being practised by the grammarian, ‘as walking is nothing apart from the walker’ (AM I: 74). Sextus favours the views of Crates, Tauriscus, and Asclepiades that grammar should deal with (1) the exegesis and criticism of language and grammatical tropes (figures of speech) in poets and prose-writers, including distinguishing genuine from spurious works; (2) the technical part, dealing with dialects, Hellenism, and the parts of speech; and (3) historical information about the persons and places written of (cf. AM I: 92f).

And Dionysius Thrax, in asserting that there are six parts of grammar […] includes amongst them the historical; for he says that ‘the parts of grammar as skilled reading according to the scansion, explanation concerning the tropes which the poems contain, exposition of the phrases and histories, the discovery of etymologies, the reckoning of analogy, the judging of compositions.’ (AM I: 250)

This is consistent with Dionysius’ reputation as a Homeric scholar.

Dionysius’ first and foremost concern is the exegesis of poetical texts, especially Homer’s epics. He is a grammatikos, a scholar, someone active in the field of letters in a very wide sense. Linguistic studies as such are not his concern. (Schenkeveld 1995: 43f)

Given what we have seen of the place of literary studies in education, and in the light of Sextus’ references to Dionysius, Schenkeveld’s comment seems justified: Dionysius did not set out with the same intention as a modern linguist would. Nevertheless, TG has come to be viewed as a linguistic work. Here’s another caveat:

If the primary use of grammar was to help children to read literature, then we should expect to find more grammars of Homeric Ionic than anything else; since we do not, it seems unlikely that this was how grammatical texts were normally used. (Morgan 1995: 81)

Morgan makes an interesting but misconceived point. For whatever reason, the ancient Greeks championed the Attic dialect of Athens as they pursued Hellenismos; Ionic is a closely related dialect, spoken within 100 kilometres from Athens on many Aegean islands east of Attica and coastal Asia Minor. Classical Attic was also preferred in Hellenistic education to the common spoken version of it, koinē.

TG begins with a statement of the purpose and function of grammar.

§1 Grammar is the practical knowledge of the general usages of poets and prose writers. It has six parts: first, accurate reading aloud [anagnōsis] with due regard to the prosodic features [viz. accent, rough/smooth breathing, vowel length, phonotaxis]; second, explanation of the literary expressions in the works [exēgēsis]; third, the provision of notes on phraseology [glōssai] and subject matter [historiai; e.g. on historical figures and events]; fourth, the discovery of etymologies; fifth, the working out of regular paradigms [analogiās eklogismos]; sixth, the appreciation of literary compositions [krisis poïēmatōn], which is the noblest part of grammar.

Consistent with what is known about Dionysius, there is emphasis on literary appreciation and the importance of studying good style. This will remain characteristic of the
pedagogical branch of the Western Classical Tradition in linguistics; indeed, we have already seen it in Quintilian’s *Institutes*. It is exactly the kind of study that Diogenes Laertius reported as characteristic of the Stoics when they were concerned with rhetoric and consequently with *Hellēnismos*. It builds upon the work of the Stoics, and it is consistent with what Varro did. So far then, there is continuity in the tradition as we have seen it develop. The difference is the abandonment of philosophy and a shift of focus to the preservation and perhaps restoration of literary classics of the Greek tradition. Hence Dionysius talks of grammar in terms of ‘practical knowledge’. Material was drawn from the written texts of selected authors whose usage justifies his descriptive statements. The same method was used in grammars for the next twenty centuries – with the drawback that constant reference was made to the descriptions and conclusions of earlier grammarians who may have been writing about a different language. We often find the English grammarians of the seventeenth to nineteenth centuries looking to the usage of Greek or Roman writers and arguing that that was what should be copied in the English of the day (see Chapter 7).

The introduction, §1 of *TG*, sets out a much wider programme than is covered in the existing text, and the inconsistency suggests multiple authors. Pfeiffer 1968: 268–72 disputes the doubts of authenticity, while admitting that the text is incomplete and has been recombined by some early anonymous editor. It has been suggested, e.g. by Robins 1995, that *TG* may have changed as it was constantly and anonymously updated; earlier versions were lost and inconsistencies not resolved. This hypothesis is feasible. Nothing like copyright existed until after the invention of printing; authors did not necessarily insist on being identified; and revision while copying a text was far from uncommon. Robins demonstrates that *Gray’s Anatomy* of 1954 is in places vastly different from the original text of 1858, and that the different sources for Saussure’s *Cours de linguistique générale* also diverge significantly (see Chapter 11). Thus, even in modern times, different editions may show significant textual divergences. We may conclude that the extant text of *TG* comprises the work of Dionysius together with that of anonymous scholars who lived several centuries later. Instead of Dionysius being the precursor to Apollonius that Donatus would later be to Priscian, it is possible that the progressive portions of the extant text of *TG* date from the two centuries between Apollonius and Donatus.

§2 of *TG* is on reading aloud, the significance of which in antiquity has been mentioned more than once. *TG* exhorts correct pronunciation and a delivery appropriate to the subject matter; for example, an elegy should be spoken in plaintive tones, an epic declaimed vigorously.

Unless these rules are carefully observed, the true value of the poetry is lost, and the reader’s whole approach becomes subject to ridicule.

§3 instructs how to read the accent diacritics ′, ′, ‾, or ⊃. Greek accents (earlier referred to by Aristotle in *Poetics* 1456b31, see p. 46 above) were originally pitch accents (tones) in Attic, Ionic, and Aeolic dialects. The rules are complex, and the following is an oversimplified sketch.
• A grave accent falls only on a final syllable and only when another word follows with no intervening punctuation.
• An acute accent may only occur on the penultimate syllable when the final syllable is long: ἀνθρώπος. If it occurs on the antepenult (i.e. a syllable before the penultimate syllable), the final syllable must be short: ἀνθρώπος.
• A so-called circumflex accent (often symbolized by ˜ ) is in fact a length marker; it falls only on a long vowel or diphthong: ἄ, ἐ, ἰ, ὦ, ἐ, Ἐ, etc.

It was Alexandrian scholars who invented these diacritics for marking the proper pronunciation of classical Attic Greek words. In addition to marking prosody, they must have aided word division and understanding in scripta continua. The Alexandrians also introduced the two breathing diacritics. The early Greek alphabets write H as a letter for [h], but this pronunciation was lost in Ionia; when Attic adopted the Ionian alphabet H was used for the front vowel eta, but that created written ambiguity between e.g. ἑ “or” and ἑ “which”; so the Alexandrians contrasted the smooth breathing diacritic ἑ “or” with the rough breathing diacritic ἑ “which” (see Householder in Apollonios Dyscolus 1981: 236).

§4 is on how long to pause at the three punctuation marks: the high point ‡ marked a full pause (teleia), counterpart to our full stop (period); the mid point † (mesē) marked a long pause, roughly counterpart to our semicolon; and the low point . (hypostigmê) was roughy counterpart to our comma.

§5 tells that a ‘rhapsody’ is part of a poem which contains a theme of its own. Traditionally, the people called rhapsodists recited and also offered commentary on Homer’s epics (Pfeiffer 1968: 11). The aforementioned sections §§2–5 offer some detail on the first part of the practical study for the student of grammar promised in §1. Perhaps §§6–10 on letters and syllables do so too; or perhaps these sections should be classed with the rest of TG as ‘working out [the] regular paradigms’ – which is the fifth part of grammatical study identified in §1. However, verifiable direct quotations of §§6–20 are not found before the fifth century CE and so they may have been authored many years later than §§1–5. What is certain is that, of the parts of grammatical study described in §1, the second (exegesis), third (critical and historical commentary), fourth (etymology), and sixth (critical appreciation) are not dealt with anywhere in TG; it is even questionable that we have an account of the regular paradigms (part five), rather than merely an introduction to setting them out.

To further the teaching of reading aloud, in §6, TG gives an account of the phonetic values of the 24 letters of the Greek alphabet. The letter (gramma or stoicheion) was, of course, regarded as having three parts: name, form, and pronunciation. Dionysius (for convenience we will assume he is the author11) identifies seven vowels – phônêenta, named thus because each is a phônê “sound” in its own right. This is recognition of the sonorant characteristic of vowels. He writes of vowel length and the construction of diphthongs; although as Sextus points out (AM I: 115–18, 169), the digraphs oi, ei, ou, and at had long been monophthongs (respectively [y], [i], [u] and [e]). There are 17 sumphôna “withvowels”

11. This is comparable with assigning authorship of the Iliad and Odyssey to Homer.
like the Latin loan translation *consonant* (borrowed into English). Consonants need an accompanying vowel in order to be pronounced – *<c>* is pronounced /ti/ not /t/. Consonants divide into *hēmiphōna* “semivowels”, in today’s terms siblants and sonorants which can readily be pronounced in isolation, and *aphōna* “mutes”, which include stops and the *dasea* “rough” aspirated voiceless stops θ /θ/, φ /φ/ and χ /χ/, which by the second century CE (if not earlier) had become fricatives /θ/ <th>, /φ/ <ph>, and /χ/ <ch> or <kh>. They are phonotactic counterparts to the voiceless stops, called *psila* “smooth”, when these are immediately followed by an aspirate: e.g. *eip hopē* becomes *eiph hopē*, *autik ho* becomes *autich ho*, etc. What today we call voiced stops were called *mesa* “middle”. The letter ζ <z> is said to consist of σ + δ <s+d> – presumably a voiced dental affricate. Aristotle had claimed this to be a matter of dispute in *Metaphysics* 99335 and perhaps was suggesting that <z> takes the sibilance of <s> and the voicing of <d>, which accords with Sextus giving it the phonetic value [z] (AM I: 169, 174). The letter ξ <x> is composed of κ + σ <k+s>, ζ <ps> of π + σ <p+s>. The liquids (*hugra*) l, m, n, r do not change in verb or noun inflections and are therefore called invariable. Five letters occur at the end of masculine nominative singulars (-n, -x, -r, -s, -ps), eight in feminine nouns (-a, -ē, -ō, -n, -ks, -r, -s, -ps), six or seven in neuter nouns (-a, -i, -n, -r, -s, -a and perhaps -o); -a, -ē, -ō occur in the dual; and -i, -s, -a, -ē in the plural.12 So *TG* combines phonology with morphology here.

§§7–10 are on syllables. A syllable (*sullabē*) is defined in §7 as being ‘a combination of consonants with one or more vowels’ or a vowel on its own. There are eight kinds of long syllable (§8) determined by vowel length, a diphthong, or more than one consonant. Short syllables (§9) are defined on short vowels. There is also a ‘common syllable’ (§10), which is a syllable joining with the following syllable to form a single syllable (a sort of sandhi13 rule).

In §11 the word (*lexis*) is defined as ‘the smallest part of a properly constructed sentence’. This is similar to Aristotle and not so thorough as the definition left by the Stoics. The sentence (*logos*) is defined as

\[
a \text{a combination of words in prose [and poetry] that makes complete sense in itself. There are eight parts to the sentence: noun, verb, participle, article, pronoun, preposition, adverb, conjunction.}
\]

Stoic influences persisted in Greek speaking areas well into the middle ages. According to Apollonius and various scholiasts,15 Dionysius was much more of a Stoic than the present text suggests. He reputedly distinguished *onoma* from *prosēgoria* as distinct parts of speech, whereas *TG* has the common noun (prosēgoria) as a subcategory of the noun (onoma). Dionysius defined the verb as denoting a predicate (*lexis kategorian sēmainousa*), whereas

12. Ancient Greek had a three-term number system: singular “one”, dual “two”, and plural “more than two”.
13. Sandhi is the assimilation of word-final or stem-final phones to the initial phone of the following word or suffix.
14. This does not appear in the older manuscripts.
15. See Uhlig (ed.) 1883 I.iii:124 lines 8–14; 160 lines 27f; 161 lines 6–8; 356 lines 12f; II.i:5 lines 18f; Robins 1995; Schenkeveld 1995.
TG gives it a formal morphosyntactic description (see discussion of §13 below). And like the Stoics, Dionysius classified personal pronouns as *arthra deiktika*, which, again, is not verified in the existing text of TG. Dionysius was probably influenced by both peripatetic (Aristotelian) and Stoic schools, and may have adopted opinions consistent with the different schools in different books written at different times. Certainly the Stoic distinction between *merē lexēōs* “parts of expression” and *merē logou* “parts of a proposition” is not maintained by the Alexandrians, who incorporated these logical or semantic categories into a more formally oriented grammar. The eight parts of speech (i.e. constituents of a phrase, clause, sentence or utterance) in TG are: noun, verb, participle, article, pronoun, preposition, adverb, conjunction. The sequence is reckoned to be ‘natural’ on the following basis: nouns are first because substance is most basic and necessarily prior to any action, undergoing, becoming, or attribute; the verb is second because it predicates the noun; the participle is a combination of verb and noun; the article and pronoun are both dependent on the noun (the article precedes the noun in a phrase, and that may be why it precedes the pronoun in this listing of parts of speech); the preposition (covering both what we call prepositions and also prefixes) precedes both nouns and verbs; the adverb is dependent on a verb; the conjunction conjoints any of the preceding parts of speech. These parts of speech were retained—normally in exactly this sequence—throughout the Western Classical Tradition; except that, because Latin has no article, this part of speech was replaced in Latin grammars by the interjection (as we saw when discussing Quintilian I.iv.19–20). Both article and interjection were recognized to be necessary for grammars of ‘modern’ languages such as English, French, and German. Each of the parts of speech is subcategorized according to various *parepomena* “consequential attributes, subcategories”.

§12, the longest in TG, is on the noun and its subcategories.

A noun [*onoma*] is the part of speech inflected for case, denoting a body [*sōma*] or thing/event [*pragma*].

This combines a formal with a semantic description in the Stoic manner. There are five subcategories of the noun, all of which have further subclasses. To the traditional three genders are added ‘common’ (for nouns like *horse* which may be either masculine *ho hippos* “the.M stallion”, *hē hippos* “the.F mare”) and ‘epicene’ (for nouns like *aetos* “eagle” of which the grammatical masculine denotes a bird of either sex). Morphological analysis starts with complete word and isolates prefixes and suffixes; there is no notion of a morphological root; a proper treatment of morphology had to wait for Priscian (Law 1995a). There are two types (*eidos*) of nouns: primitive (*prōtotupon*) e.g. *gē* “earth” and derived (*paragōgon*) e.g. *gaiē̂s* “sprung from the Earth”. There are seven kinds of derived nouns: patronyms, possessives, comparatives, superlatives, diminutives (hypocorisms), denominal (e.g. the name *Theōn* from *theos* “god”), and deverbal (nouns derived from verbs). Some nouns are simple in form (*schē̂ma*), others are compounded from either complete or incomplete words. Some are super-compounds, having a derivational affix on a

16. *Arthra* is the plural of *arthron*.

compound: simple (haploun) Memnōn, compound (suntheton) Agamemmōn, super-compound (parasuntheton) Agamemnonidēs. There are three numbers: singular, dual, plural; some singulars are collectives, applied to plural denotata such as dēmos “people”; some plurals apply to singular denotata such as Athēnai “Athens”, some to duals, e.g. amphoteroi “both”. Nouns have five cases: nominative (orthē “upright”, onomastikē “nominative”, eutheia “direct”), genitive (genikē “generic”, kētīkē “possessive”), dative (epistaltikē “epistolary”), accusative (kataitian “causal”), vocative or salutatory. Notice how the typical functions of the cases are named as an aid to identification and memory. Finally, 24 species of nouns are identified including proper, common, collective, interrogative, and onomatopoeic. One of these types, epitheton “attached noun” (the third mentioned), is what today we call the adjective ‘placed next to either proper or common nouns, and conveys praise or blame’. At the end of this section §12, Dionysius divides the noun into active (e.g. kritēs “judge, one who judges”) and passive (pathos), the latter being adjectival (e.g. kritos “judged, one who is judged”).

§13 is on the verb, and here we see the influence of both Aristotle and the Stoic grammarians, though a verb’s predicative function is not mentioned.

The verb [rhēma] is a word without case inflection, indicating tense, person and number, and showing activity or passivity. The verb has eight subcategories [parepetai]: mood, voice, type [eidos], form [schēma], number, person, tense, and conjugation [suzugia].

The five moods identified are the ones retained in the Western Classical Tradition: indicative (which includes both declarative and interrogative clause types), imperative, optative, subjunctive, and infinitive. The three voices are those identified by the Stoics: active, passive, and middle (focusing on an action of benefit to the subject, e.g. middle elousamēn “I bathed [myself]” vs. active elousa “I bathed [someone else]”). The next three subcategories parallel similar ones for nouns: primitive and derived types of verbs; simple, compound, and super-compound forms of verbs; and singular, plural, and dual number.

There are three persons: first, second and third. The first is the source of the utterance, the second is the one to whom it is addressed, and the third is the person spoken about. This is very similar to what Varro wrote in De Lingua Latina, though it supposedly predates it by about 55 years:

The persons of the verb are also of three kinds: the one who is speaking, the one addressed, and who or what is spoken about. Every verb has three persons, which [to some extent] explains why there are so many verb forms. (Varro 1938, VIII: 20)

There are said to be three tenses, but

four kinds of past tense: imperfect, perfect, pluperfect, and aorist. There are three close relationships between these tenses, namely between present and imperfect, perfect and pluperfect, aorist and future.

This is something of a misunderstanding of the Stoic account we saw earlier in Chapter 4 Table 4.1. But in TG, the perfect is aligned with the past tenses, creating a lack of system.

18. The optative typically expresses counterfactuality and remote possibility, while the subjunctive expresses nonfactive and less-remote possibilities. Allan 2006a argues against counting the infinitive a mood, but it is certainly a clause-type.
The loss of the completive aspect to the category of past tense persisted in the Western Classical Tradition through to the twentieth century. Aspect is not labelled as a separate category, though it is seemingly recognized in the words ἡν συγγενεῖαι εἰσὶ τρεῖς “the relationships of which are three”. However, the relationship envisaged is formal rather than functional: the pluperfect egegraphei is built on the reduplicated stem of the perfect gegraphe; the imperfect egraphe is built on the stem of the present graphei; the aorist egrapse and the future grapsei each have an -s- stem (which is probably not an etymologically validated connection). On this interpretation, aspect is ignored in TG.

§14 is on the conjugations (suzugiai) of ancient Greek: 19 ‘Conjugation is a type of inflection belonging to verbs.’ The different conjugations are broadly classified according to those with no stress on the final syllable; those with stress on the final syllable; those ending in –mi. There are many finer subclassifications.

Whether the model for Varro, or inspired by him, TG identifies the participle (metochē) as a distinct category, defined in §15 as

a word partaking of the characteristics of both nouns and verbs. It has all the subcategories of nouns and those of verbs, except for mood and person.

§16 is on the article (arthron) – no longer referring to Aristotle’s range of connectives.

An article is a part of speech which takes case inflections and may precede or follow a noun. When preposed it takes the form ho, when postposed it is a relative pronoun with the form hos.

Its subcategories comprise three genders (M, F, N), three numbers (SG, DU, PL), and five cases (NOM, GEN, DAT, ACC, VOC). Note the formal and distributional description.

A pronoun (antōnumia), §17, ‘is a word which substitutes for a noun and indicates definite persons.’ It has the same five subcategories as a noun and, in addition, person.

A preposition (prothesis), §18, ‘is a word preposed to other parts of a sentence in compound forms and in syntax.’ TG included with prepositions what we would today call prefixes, such as sun– and kata– as in kataphron. Dionysius listed 18 prepositions.

The adverb (epirrhēma), §19, ‘is a part of the sentence without inflection [cf. Varro], in modification of or in addition to a verb.’ This combines a morphological with a syntactico-semantic description. The Latin adverb (whence English adverb) is a loan translation of epirrhēma. TG proceeds to identify 26 kinds of adverbs (Dionysius 1987: 183–85). They include interjections like babai “Good heavens!”, euhoi “Hallelujah”, exhortatives eia, age, phere “Come”, prohibitives mē, mēdamōs “Don’t!” and oaths ma “No, [by god]”, nē “Yes, [by god]”.

Finally, in §20, the conjunction (sundesmos) ‘is a word that binds the discourse together, giving it order, and fills gaps in its interpretation.’ This functional description is supported by the exemplification of nine kinds of conjunctions, disjunctions, adversatives and discourse markers. Padley 1976: 256 seems wrong to have judged this definition inadequate compared with the others in TG.

19. Kemp’s decision to follow Uhlig (ed.) 1883 and include these sections as further specification of the verb seems appropriate.
How does TG compare with what we have seen of the Stoics, Varro, and Quintilian? Most significantly, there is no theoretical underpinning for the linguistic categories offered in TG. By contrast the Stoic theory of the lekton underlies at least some aspects of their linguistic analysis; and Varro’s theory of language permeates De Lingua Latina. Quintilian’s approach is closer to Dionysius in that he is primarily focused on the proper materials for teaching literary exegesis and literary appreciation as preparation for instruction in rhetoric and oratory. Quintilian presents reasoned arguments for the topics he proposes for student instruction but these are almost entirely lacking from TG. On the other hand, TG is more of a teaching manual than the Institutes of Oratory because TG presents a more detailed description of the language being studied. Although the TG definition for verbs and participles uses the defining parameters of case and tense in a manner similar to that of Varro, TG lacks the systematic and principled basis of Varro’s linguistic categorization in which these parameters are used across the board. There is less breadth in Quintilian than in Varro, but more than in TG. Whether it is because Dionysius expressed no theory of the lekton, or because there is no syntax or logic within TG, the Stoic notions of subject and predicate as functional sentence constituents are effectively lost in favour of lexical classes. TG improves upon the Stoic noun subcategories insofar as we know them; but the same cannot be said of the verb subcategories. Aspect disappears as an independent (sub)category; and there is nothing on illocutionary type, only mood. Both aspect and illocutionary type are ignored by Quintilian and, with the exception of the insight of Apollonius Dyscolus into illocutionary force (see Chapter 6), they remain out of the Western Classical Tradition until the twentieth century. Lastly, the lexical relations and notions of derivational and inflectional morphology seen in Varro, and to a lesser extent in Quintilian (who mixes diachronic with synchronic derivation), are not to be found in TG. Perhaps mercifully, there are no etymologies in TG; but etymologies were intended to teach semantic parsing, and one would expect a pedagogical manual to include such examples as luchnos “lamp” from luein to nuchos “to blot out the night”; proskephalaion “pillow” from pros and kephalē “that which is placed under the head”. Quintilian’s sceptical discussion of etymology would surely have been a useful pedagogical aid. The major omission from TG is any statement of Greek syntax, although the word class system and the morphological analysis did form the basis for later syntactic statements. Varro’s work on syntax is lost, and Quintilian had as little to say about syntax as Dionysius. Practical exercises in morphology are first found in the third century CE, e.g. writing out a verb in all its voices, moods, tenses, persons, and numbers or a sentence in all possible forms, cases, number, persons, etc. [TG] summed up in a concise form the results of the past and became a school book in the future, suffering the corruptions and alterations unavoidable in this sort of literature. The brief and abrupt sentences in a staccato style20 called forth copious explanatory notes through the centuries. (Pfeiffer 1968: 268)

TG makes no contribution to the potential development of theoretical linguistics as the philosophers and Varro did. It was translated into Armenian and Syriac very early on and

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20. A similar style was later adopted by Donatus and it had a similar effect, as we shall see.
Quintilian, Dionysius, and Donatus: the start of a pedagogic tradition

much discussed and commented upon in the middle ages. TG is a source for about 70 metalinguistic terms such as hypotaxis, diphthong, prototype, patronymic, anaphoric, deictic, neuter, dual, participle, conjugation, among others that remain in the Western Classical Tradition. TG functions very well as a school Greek primer. Its provenance as a pedagogical tool is all the more obvious in Donatus’ Latin version of it, as we see in the next section.

The Artes Grammaticae of Aelius Donatus

Latin took over from Greek as the language of European scholarship. Vulgar Latin was the colloquial spoken lingua franca; but classical Latin was the ideal for scholarly writing. Because it was nobody’s first language, classical Latin needed to be taught, and the most influential teaching texts were the De Partibus Orationis (Ars Grammatica Minor) “On parts of speech (Short grammar)” and the Ars Grammatica Maior “Major grammar” of Donatus, and the Institutiones Grammaticae of Priscian (see Chapter 6). Donatus’ De Partibus Orationis is a condensed, explicitly pedagogical version of the Ars Grammatica (Major) that is restricted to defining the eight parts of speech.

Aelius Donatus (c. 315–85 CE) was obviously very strongly influenced by the Technē Grammatikē, because the Artes Grammaticae are very similar to it in construction and presentation. The parts of speech identified are exactly similar to those of TG, the only difference being that, following Palaemon and Quintilian, the article is omitted and the interjection introduced; thus the number of parts of speech remains eight. Like TG, Donatus’ Artes omit any significant discussion of syntax. Donatus wrote principally (Law 1997: 58, 130) for people who already spoke Vulgar Latin, contemporary common koinē Latin which shows many features that were to emerge in Romance languages, but which are not found in classical Latin.

In the Ars Maior (Donatus 1961a) Donatus defines vox “speech” as aer ictus sensibilis auditu “an audible puff of air”. He says that all speech is either anomalous or meaningfully articulated (articulata) and can be written (est quae litteris comprehendi potest, Donatus 1961a: 367). This seems to recognize the difference between utterance as a physical event that is used not only to carry meaningful sentences in a language, but also babbling and nonsense noises (even a dog’s bark could be said to be uttered – though it is unlikely that Donatus had any such thing in mind). We recognize utterance through brute perception; we understand meaningful sentences (and other linguistic fragments) via cognitive processes. These facts seem to be what Donatus is indicating.

He writes: ‘the letter is the smallest part of articulated speech’ (Donatus 1961a: 367). Perhaps this identifies the most significant part of today’s definition of the phoneme; nevertheless, it is inferior to Aristotle’s description of the letter in Poetics 1456b22 and

21. Ars grammatica is more literally rendered “the art of grammar” or even “the art of letters”.
22. Latin major is also spelled maior and usually pronounced with a medial semivowel [j], i.e. not with the alveolar-palatal affricate [ʤ] used in English major.
furthermore it is an inaccurate description of a letter such as \(<x>\), phonetically \([ks]\). Donatus also discusses syllables, feet, tones and junctures, punctuation, barbarisms, solecisms, and other faults such as tautologies, verbosity, inappropriacy, and abbreviation. Finally, he names and illustrates several kinds of tropes and figures of speech. The *Ars Maior* also contains a more extensive discussion of the parts of speech than is to be found in the *Ars Minor*: for instance, noun and verb are said to be the principal parts of speech; the Latins count the interjection in place of the Greek article; and three parts of speech – noun, pronoun and participle – take six case inflections (Donatus 1961a: 372).

In *De Partibus Orationis* (the *Ars Minor*) Donatus starts right in with a robust and vivacious pedagogic style:

> **Partes orationis quot sunt?** Octo. **Quae?** Nomen pronomen verbum adverbium participium coniuncto praeposito interiectio.

**DE NOMINE**

> Nomen quid est? Pars orationis cum casu corpus aut rem proprie communiterve significans. Nomini quot accidunt? Sex. Quae? ...

"How many parts of speech are there? Eight. What are they? Noun, pronoun, verb, adverb, participle, conjunction, preposition, interjection.

**CONCERNING THE NOUN**

> What is a noun? A part of speech inflected for case which denotes a person or thing either specifically or generally. How many subcategories does a noun have? Six. What? ...

(Donatus 1961b: 355; Salus 1969: 92)

One can well imagine generations of pupils repeating the answers to these questions as they struggled to learn how to parse Latin. Each of the eight parts of speech is introduced in the same manner, and a surprising quantity of information is packed into the roughly 3,650 words of the *Ars Minor*. The limitation is that only one example is given for each point made. For instance:

> How many degrees of comparison are there? Three. What? Positive as *learned*; comparative as *more learned*; superlative as *most learned*. What nouns are compared? Only common nouns signifying quality or quantity. What case is the comparative degree used with? The ablative without a preposition, for we say *doctior illo* “more learned than he”. What case with the superlative? Only the genitive plural, for we say *doctissimus poetarum* “the most learned of the poets”. (ibid.)

Donatus’ definitions of the parts of speech are as follows.

> A noun is a part of speech inflected for case denoting a proper name such as *Rome, Tiber*, or a common object such as *town, river*. (Donatus 1961a: 373)

This is identical in style with the formal and semantic description of *Technē Grammatikē*. Six subcategories of noun are identified. Qualities may be proper or common; the latter included adjectives on the basis of the formal characteristics (number, gender and case) shared with nouns. Comparison was applicable only to what today we call the adjective; but Donatus did not identify this restriction. The five genders of *TG* are also mentioned in *Ars Grammatica*: M, F, N, common and epicene. Only two numbers are listed, singular and plural, no dual. Nouns are typed simple or compound, with four subtypes of compounding identified. There are the same six cases as in Varro and Quintilian (nominative, genitive,
dative, accusative, vocative, ablative). Donatus gives examples of each subcategory as illustrated in the following quote.

Magister ["master, teacher"] is a common noun of masculine gender, singular number, simple form, nominative and vocative case, which will be declined thus: in the nominative, hic magister ["this master"]; in the genitive huius magistri; ... (Donatus 1961b: 355f; Salus 1969: 93)

He continues through the declensions in singular and plural for all genders, e.g. M.NOM.PL hi magistri, GEN horum magistorum, DAT his magistris, ACC hos magistros, VOC o magistri, ABL his magistris; F.NOM.SG haec Musa “this Muse”, huius Musae, huic Musae, hanc Musam, o Musa, his Musis; etc. The example given for common gender is M or F sacerdos “priest(ess)”; that for epicene gender is the adjective felix “happy”, which may be M, F, or N.

Regularities of various kinds are demonstrated, e.g.

Those nouns which have the ablative singular in a or o make the genitive plural end in what?

In rum, the dative and ablative plural in is. (Donatus 1961b: 356; Salus 1969: 94)

For example, puellā–puellārum–puellīs; dominō–dominōrum–dominīs.

A pronoun is

a part of speech that is often used in place of the noun to convey the same meaning and may refer to a person previously mentioned. (Donatus 1961a: 379)

Pronouns have six subcategories: quality, gender, number, form, person, case. The qualities are definite (personal pronouns) and indefinite (relative and interrogative pronouns). There are three persons and only four genders (M, F, N, common). In other respects the subcategories are as for nouns.

As for verbs:

A verb is a part of speech with time and person and without case; it denotes doing something [active transitive], or undergoing something [passive], or neither [i.e. is intransitive]. (p. 381)

There are seven subcategories of the verb: quality, conjugation (coniugatio), voice (genus), number, form, tense, and person. Qualities include the moods (modi): indicative (which includes declarative and interrogative), imperative, optative, subjunctive, infinitive, and impersonal. There are the four forms (formae) among qualities: undefined (lego “I read”), desiderative (lecturio “want to read”), frequentative (lectito “read often”), and inchoative (calesco: “grow warm”); these are aktionsarten or aspects conditioned by the interaction of the verb form with its basic meaning, like the English verbs want, keep [doing], begin [doing]). There are three conjugations, formally defined, e.g.:

What is the third? That which in the indicative mood, present tense, singular number, second person, active and neuter (intransitive) verb, has a short i or a long i before the last letter; in the passive, common, and deponent, in place of i, short e or long i before the last syllable as with lego–legēs, legor–legēris ["read"], audio–audēs, audior–audēris ["hear"]; and the future tense of the same mood ends in am and in ar as with lego–legam, legor–legar, audio–audiam, audior–audiar. It can be seen immediately in the imperative and in the infinitive whether the letter i is short or long. For short i is turned into e; if it has been made long it is not changed. When does the third conjugation end the future tense not in am only but also in bo? Occasionally when it has had the letter i not shortened but lengthened as with eo–īs–ībō ["go"], queo–quīs–quībō ["be able"]. (Donatus 1961b: 359; Salus 1969: 97)
A possible reason for the discussion of the future is that in Vulgar Latin it was often periphrastic, e.g. instead of legam “I will read” it was legere habeo “I will have read”. The five kinds of verb seem to include aspects of voice and transitivity: active, passive, intransitive (neuter – e.g. for active sto “I stand” there is no passive *stor “I am stood” in Latin), deponent (passive form, active meaning), common (e.g. deponent osculor te “I kiss you” and osculor a te “I am kissed by you”). There are two numbers (SG, PL). There are simple or compound forms. And three tenses, of which the preterite divides into imperfect, perfect, and pluperfect (as in TG). Other than the aktionsarten identified in the formae, aspect is ignored – perhaps because it was judged semantically irrelevant. There are three persons. The given sequence of subcategories seems arbitrary today, but was probably thought natural by Donatus.

‘An adverb is a part of speech which being added to the verb explains or completes its meaning’ (Donatus 1961a: 385). Adverbs have three degrees of comparison: positive (docte “knowledgably”), comparative (doctius “more knowledgably”), superlative (doctissime “most knowledgably”). Again, there are simple and compound forms. Donatus identifies 24 types (significationes) of adverb which are similar to those in TG, excepting interjections.

‘A participle is a part of speech which is part noun and part verb’ (p. 387). With the noun it shares gender and case; and with the verb time and denotation. The six subcategories of participle are therefore: four genders, six cases, three tenses, five voices, two numbers, and two forms.

‘A conjunction is a part of speech joining and ordering [the constituents of] a sentence’ (p. 388). There are five functions (potestas) of a conjunction: copulative (e.g. et, que “and”), disjunctive (e.g. aut, vel “or”), completive (expletivae, e.g. quidem “truly”, videlicet “obviously”, autem “moreover”), reason (causales, e.g. si “if”, quando “when”, quidem “for certain”, seu “whether”), and logical (rationales, e.g. itaque “thus”, enim “for”, ergo “therefore”). A conjunction has either a simple or a compound form. It may be classified according to its relative position: preposed, postposed, or common (i.e. placed between the conjoined constituents).

‘A preposition is a part of speech which is put before other parts of speech to change, augment, complete or diminish their meaning’ (p. 389). The only subcategory of a preposition is case. Some prepositions are bound forms; i.e. in today’s terms they are prefixes.

Palaemon reportedly defined the interjection as having no referential but only emotive or expressive meaning. Donatus writes much the same:

An interjection is a part of speech interjected between other parts of speech as an expression of an affected mind such as fear, hope, grief, or joy. (p. 391)

Interiectioni quid accidit? Tantum significatio “What subcategories has an interjection? Only its meaning.”

The similarity of Donatus’ Ars Grammatica to Technē Grammatikē is obvious. The only difference would be that the Ars Minor (De Partibus Orationis) is more explicitly pedagogical. As with TG, Ars Grammatica presents no theory of language structure, and there are many similarities in the definitions for parts of speech as well as in the format in
which they are presented. Donatus was fortunate that the categories induced for the analysis of Greek language structure transfer comfortably for use with Latin. Where there are obvious differences between the languages as with the additional Latin case and the lack of an article in Latin, the difference is readily accommodated. Dubious is Donatus’ assumption of the distinction which existed in classical Greek between the optative mood expressing counterfactuality and remote possibility and the subjunctive expressing nonfactive and less-remote possibilities, a distinction which did not operate in Latin (Lyons 1977: 815ff). The transference of grammatical categories from the analysis of one language to that of another was a feature of linguistic analysis until the twentieth century.

The parts of speech in the pedagogical tradition

It may be that the extant text of Technē Grammatikē is almost contemporary with the Ars Grammatica of Donatus rather than nearly 500 years older. We assume nonetheless that the Latin text is inspired by the Greek rather than vice versa. Both are principally pedagogical texts; both comprehensively describe the parts of speech in their respective languages; both omit an account of syntax. Technē Grammatikē begins with a general statement of the purpose and function of grammar; Ars Grammatica has nothing comparable. Donatus’ Ars Maior distinguishes the physical event of utterance from the cognitive content of language used in making a meaningful utterance; Technē Grammatikē has nothing comparable. Dionysius spends time discussing what is needed for reading aloud, expounding pronunciation, letters, and syllables; the Ars Maior has sections on speech (vox), letters, syllables, feet, the three accents, and junctures (positurae); but these are lacking from the Ars Minor. As in Aristotle (and the Western Classical Tradition through to the late nineteenth century) the translation equivalents of the term letter were used of the name, grapheme, and (typical) pronunciation, e.g. pee, <p> or <P>, and /p/. Whereas Dionysius discusses the pronunciation of letters, the Ars Maior has the general statement that the letter is the smallest part of articulated speech.

Dionysius defines both word and sentence, but Donatus does not. The definitions in Technē Grammatikē are:

- A word is the smallest part of a properly constructed sentence.
- A sentence is a combination of words in prose and poetry that makes complete sense in itself (expresses a complete idea).

Both these definitions continued through the Western Classical Tradition.

Both Dionysius and Donatus recognized that there are eight parts of speech, i.e. constituents of a word (in the case of ‘preposition’), phrase, clause, sentence or utterance: noun, verb, participle, article for Dionysius or interjection for Donatus, pronoun, preposition, adverb, and conjunction. The Western Classical Tradition adopted all nine, eventually distinguishing adjective from noun adjective in the twentieth century. The definitions were essentially similar and were retained in the Tradition.

- A noun is inflected for case and denotes a proper name or a common name for person, thing or event.
Other subcategories of the noun were also identified and although specific to either Greek or Latin are similar because the two languages are related. The notable difference is that Latin has an additional case, the ablative, often referred to as the Latin case. When the definition of noun was later applied to languages which do not have explicit case morphology (such as Chinese or modern English), the formal part of the definition was simply omitted, leaving only the semantic description.

- A verb is without case, but indicates time (or tense), person, and number; it denotes activity or passivity (is transitive or intransitive).

Notice that the definition is primarily formal and syntactic. The verb subcategories of transitivity and voice were more precisely identified in Dionysius and Donatus than in the verb definition just given above; also mood and tense were identified and the optative mood inappropriately applied to Latin (where it is identical with the subjunctive). Aspect was ignored and included along with tense – where it remained in the Western Classical Tradition until the twentieth century.

- A participle partakes of the characteristics of both nouns and verbs: from the noun it has gender and case, and from the verb time and denotation.

Essentially the participle is given the same definition in both Dionysius and Donatus. Notice the balance of formal and semantic definition.

- An article is a part of speech that takes case inflections and may precede or follow a noun.

This definition is found only in Dionysius because classical Latin did not have an article, although during Donatus’ lifetime Vulgar Latin was adopting the articles that we see in Romance languages today. On formal and syntactic (distributional) grounds, the article includes the relative pronoun – an application that quickly dropped from the Tradition under influence from Latin.

- An interjection is located between other parts of speech as an expression of the affected mind, such as fear, hope, grief, or joy.

Although Ancient Greek did have interjections, they were not recognized as a distinct part of speech, but were included under adverbs. Perhaps they were distinguished in Latin grammar because of the Roman love of oratory; but such a hypothesis ignores the fact that the Greeks also studied and valued rhetoric. The inclusion of the interjection as a distinct part of speech does seem justified. It is possible that the sole motivation was to keep the number of parts of speech at eight. Whatever motivated Donatus, he listed the interjection last among the parts of speech – perhaps because they stand outside of sentence structure; Quintilian (and presumably Palaemon) had listed them last, too. The Latin case, the ablative, was also listed last among cases, suggesting a habit among scholars. The interjection has stayed within the Western Classical Tradition, usually listed last (likewise the ablative case).

23. The ablative is strangely omitted from Alice’s memory of ‘her brother’s Latin Grammar, “A mouse—of a mouse—to a mouse—a mouse—O mouse!”’ (Alice’s Adventures in Wonderland, Carroll 1965: 33f). These respectively list the nominative, genitive, dative, accusative and vocative – the normal Greek sequence. The ablative would be from or by a mouse.
A pronoun is a word that substitutes for a noun to convey the same meaning and indicates definite persons (i.e. persons previously mentioned).

Fittingly, Donatus discussed pronouns immediately after nouns. Dionysius seems to have thought that verbs preceded them in importance. The beliefs about priority of substance (already discussed in Chapters 1, 2, and 3) explain why the noun is the first part of speech to be discussed. After that there are competing reasons for selecting a sequence. The notion that a pronoun stands in place of a noun is widely held by English speakers today, even though it is strictly false: most pronouns function within sentence structure as noun phrases and not as nouns; e.g. in *Ed kissed the tall girl with green eyes who was wearing dark glasses, and was surprised when she slapped him*, although ‘him’ is coreferential with the proper name ‘Ed’ (apparently a noun though arguably a noun phrase), there is no doubt that ‘she’ is not merely coreferential with ‘girl’ but with ‘the tall girl with green eyes who was wearing dark glasses’. Greek *onoma* and Latin *nomen* ambiguously mean “name, noun, noun phrase”. The English pronoun *one(s)* does stand in place of a noun, as in *Harry ate all the black olives and Marge gobbled up the green ones*. Although ‘ones’ appears within a definite noun phrase it is not itself definite; and although it refers to ‘olives’, these are not the same olives as Harry ate.

A preposition is a word preposed to other parts of a sentence in compound forms and in syntax to change, augment, complete or diminish their meaning.

Dionysius and Donatus had essentially the same definition for preposition. Both of them applied the term to prefixes, a practice that continued until at least the seventeenth century.

An adverb has no case or tense inflection and when added to the verb modifies or adds to its meaning.

Dionysius says simply that adverb ‘has no inflection’ whereas Donatus describes its three degrees of comparison. What Dionysius is referring to is the lack of case or tense inflection, which is written into the bulleted definition here.

A conjunction joins the constituents of a sentence, binding the discourse together, giving it order, and filling gaps in its interpretation.

This definition combines the essentially similar definitions given by Dionysius and Donatus. Once again this has remained in the Western Classical Tradition.

The *Technē Grammatikē* and Donatus’ *Artes* laid the foundation for word and paradigm grammars that developed in the early medieval period; but, notably, they lack anything but the barest sketch of a paradigm (see Chapter 7). Because the *Technē Grammatikē* was written for speakers of a variety of Greek and the *Artes Grammaticae* for speakers of a variety of Latin, it may be supposed that a student’s existing knowledge of syntax could be called upon to apply the facts identified within these accounts of the parts of speech to the interpretation of classical texts without it being essential to study syntax as well. Nevertheless, a study of syntax would certainly be desirable because of the dialect differences between the everyday language spoken by the students (*koinē* for the Greeks, Vulgar Latin for the Romans) and the language of the classics they were meant to understand and perhaps imitate. The lack of an account of syntax in Dionysius and Donatus
renders their work inferior to that of their respective successors, Apollonius Dyscolus and Priscianus Caesariensis.
Chapter 6  Apollonius and Priscian, the great grammarians among the ancients

Apollonius

In Plato’s time a philologist was a cultured man; in Hellenistic times (the period of \textit{Hellēnismos}) the philologist was a student and expositor of literature and correct standards in language use with the aim to imitate – as well as to fully understand and appreciate – the language and style of the classical Athenian writers. We saw the intention of the Alexandrian grammarians to develop literary style and an appreciation of the classical literature in the \textit{Technē Grammatikē} attributed to Dionysius Thrax. The \textit{TG} contains nothing on the combination of the parts of speech into sentences but it did, along with other works now lost, form the basis for later writings on grammar and syntax. None achieved the authority of the grammar of Apollonius Dyscolus.

Apollonius (c. 80–160 CE) lived all his life in Alexandria. His works reveal that he was dismissive of opposing views, often describing them as silly or absurd or stubborn, e.g.

> The people who specify that the Dorians don’t form contracted future subjunctives, then, and investigate the question why they don’t are plain silly. [...] And if those who listen to the complete argument refuse to share this opinion [of mine] they are behaving extremely stubbornly. (Apollonius Dyscolus 1981 III: 141)

Also his writing is dense and sometimes difficult to follow. When not quoting one or another of the literary giants of ancient Greece, the language examples he invents often suggest the schoolroom; so he was probably an impecunious teacher. Certainly he had a reputation for being ill-tempered, hence the sobriquet \textit{Dyscolus} “grouch”. Apollonius was not the first to write on syntax, though little or nothing survives of his predecessors’ works; but in any case he appears to have written the most comprehensive account. The extant works of Apollonius are: \textit{On Syntax}, \textit{On the Pronoun}, \textit{On Adverbs}, \textit{On Conjunctions}, \textit{Fragments (Parts of Speech)}.\footnote{Translation from the Greek is based on Householder’s translation in Apollonius Dyscolus 1981, with occasional modifications. A French translation by Jean Lallot alongside the Greek is Apollonius Dyscole 1997.} His work takes up that of scholars like Dionysius Thrax on parts of speech, even though Dionysius himself is not named at all in \textit{On Syntax} (henceforth \textit{Synt.}). By contrast, Tryphon (roughly contemporary with Christ) rates 52 mentions (and Tryphon’s student Habro, nine), Aristarchus (c. 217–145 BCE) is mentioned 24 times, and Zenodotus (third century BCE) 14 times (Householder 1981: 5). Apollonius’ work shows clear evidence of influence from the Stoic grammarians: for instance, that a sentence is complete only if it has a definite subject (\textit{Synt.} I: 14); that proper names express individual quality (\textit{idia poiotēs}) (\textit{Synt.} I: 78); and

\footnote{Teaching was badly paid throughout the ancient world, too (Marrou 1956: 204).}

\footnote{\textit{Peri Suntaxeōs} Uhlig (ed.) 1883 II.i; \textit{Peri Antōnumias} II.i.3–116; \textit{Peri Epirrēmatōn} II.i.117–210 [sic]; \textit{Peri Sundesmōn} II.i.211–58; \textit{Fragments} II.iii.}
The construction [parathesis] of a nominative with a transitive verb always remains half complete [because it requires an object NP]: *Truphōn blaptei* ["Tryphon harms"] or *Truphōn philei* ["Tryphon likes"]. That is why the Stoics gave the name ‘partial-predications’ [*elatton ἑ katēgorēmata*] to such verbs in contrast to the [intransitive] verbs that are complete in themselves and do not always demand an oblique case complement. (III: 155)

Apollonius’ writings (especially *Synt.*), along with lost work of his son Herodian (Herodianus), formed the basis for Priscian’s study of Latin syntax. Priscian several times described Apollonius as the greatest authority on grammar (Priscian 527, VI: 1; VIII: 87; XIV: 1; XVII: 1), adopted his methods and, where applicable, his analysis. So Apollonius Dyscolus was a powerful influence on the Western Classical Tradition in linguistics.

Apollonius believed that linguistic phenomena are ordered according to knowable rational rules of grammar; knowing these rules is a better guide to correct language understanding and production than merely observing the usage of either poets and dramatists or ordinary speakers. There is a precursor here of the Chomsky 1965 distinction between competence and performance: in the view of Apollonius, authorities may disagree on what counts as proper usage and everyone has gaps in their knowledge. It is knowledge of the rational analysis that provides a firm basis for decision and allows one to spot errors in usage.

Just as the utility of the literary tradition is very great for correcting both the texts of poems and the usage of everyday speech, and determining the application of words among classical authors as well, in the same way also our present investigation of grammaticality will provide a rational correction for all sorts of errors. (I: 60)

Apollonius correlated linguistic explanation with an understanding of different levels of adequacy in grammar. Towards the end of Book III he writes:

The foregoing account [of noun–verb relations] is adequate for anyone who wishes merely to understand the facts of usage and tradition [*paradosis*]. But for anyone who wants to investigate in detail the underlying theory of grammar [*ta tēs suntaxeōs tou logou*], it will be necessary to inquire which verbs take the genitive and why, which the dative, and again for what reason, and finally also the accusative. Obviously it is going to be a big and difficult task. (III: 158)

Notwithstanding his theoretical bias, Apollonius requires that all grammatical claims be data-based and apply to all the data:

I rely not merely on poetical citations, because poetic constructions can be either elliptical or pleonastic, but on common everyday usage, the practice of the best prose-writers, and, most of all, on the force of theory which must be applied even about constructions which are not in the slightest doubt. (II: 49)

Meanings rely on contextual information:

we must always determine the sense not by studying the accent, but from the sentence context, just as, in other types of indefinite ambiguity, distinctions are made from the sentence context, not from the presence of enclisis [inflection] or accent. (II: 102)

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Apollonius and Priscian

**Synt.** does not examine all the rules of grammar but only those which raise interesting questions to serve as exemplars of the method to be used in linguistic analysis. Apollonius adopted the Stoic view that there is a naturally correct way of expressing every thought clearly, unambiguously, and correctly; idiosyncrasies and anomalies are perversions of natural expressions. Once irregularity is understood and explained it is no longer a threat to the regularity within the system. This idea seems to have been adopted by Priscian:

So then, from the ordering of words we determine the sense of the construction, whether it be correct or not. For, if it be anomalous, it will create an error. (Priscian 527, XVII: 6)

The sequence for presenting a syntactic analysis follows the supposed order in which the various parts of speech were brought into being. It was believed that the sequence of letters in the alphabet, ΑΒΓΔΕΖΗΘ, etc. is natural. The natural order of the parts of speech, the sequence in which they were assumed to have been phylogenetically invented and ontogenetically acquired, is noun, verb, participle, article, pronoun, preposition, adverb, conjunction.

[T]he noun is prior to the verb. (Synt. II: 4)

The noun necessarily precedes the verb, since influencing and being influenced are properties of physical things, and things are what nouns apply to, and to things belong the special features of verbs, namely doing and experiencing. (I: 16)

The natural sequence of cases is nominative, genitive, dative, accusative, vocative; for genders masculine, feminine, neuter (Synt. I: 13); for tenses it is present, imperfect, past, future (‘the present and past are known but the future is uncertain’ I: 114); for mood, we begin necessarily with the indicative mood, not because it is indeed primary, but because it is the most transparent, occurs frequently, and can provide instructive cases of homophony, phonological changes [pathos] and derivation. (III: 62)

In general, each definition only has to mention previously defined classes. In Book III: 13, Apollonius divides the parts of speech into the four superclasses of Table 6.1. The proper inclusion of the word classes of C within A suggests corruption of the text. Certainly Priscian 527, XVII: 153 combines the overlapping C with A and replaces it with a temporal category (Table 6.2); this may have been innovative or a faithful reproduction of Apollonius’ original scheme. Tables 6.1 and 6.2 should be compared with Varro’s use of ±case, ±tense to categorize the parts of speech (presented in Table 4.3). Apollonius makes no significant use of the superclasses in Table 6.1. The four books into which Synt. is divided are slightly more closely aligned to Priscian’s superclasses in Table 6.2: Book I is on

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5. One can attach some credibility (not much) to the naturalness of the supposed sequence of the parts of speech, see above p. 89; but absolutely none for the naturalness of the sequence of letters in the alphabet. In Synt. I: 18 Apollonius says that the name alpha comes from alphein “to know one’s ABCs” (Coogan 1990): ‘A took the name of all the letters to itself because of its initial position, and the coincidence of the initial sound of the word.’ The very opposite is more likely to be true.

6. Apollonius has no distinct name for aspect, referring to both the perfect and the aorist as past.

7. See p. 90 above. Apollonius on mood is discussed in more detail at pp. 109f.
Table 6.1. Apollonius’ four categories among the parts of speech.

<table>
<thead>
<tr>
<th>Category</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. +case, +number</td>
<td>noun, participle, article, pronoun</td>
</tr>
<tr>
<td>B. +person, +number</td>
<td>verb, pronoun</td>
</tr>
<tr>
<td>C. + gender</td>
<td>noun, article</td>
</tr>
<tr>
<td>D. –case, –number, –person, –gender</td>
<td>preposition, adverb, conjunction</td>
</tr>
</tbody>
</table>

Table 6.2. Priscian’s four categories among the parts of speech.

<table>
<thead>
<tr>
<th>Category</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. +case, +number, + gender</td>
<td>noun, pronoun, participle</td>
</tr>
<tr>
<td>B. +person, +number</td>
<td>verb, pronoun</td>
</tr>
<tr>
<td>C. + tense/time</td>
<td>verb, participle</td>
</tr>
<tr>
<td>D. –case, –number, –person, –gender, –tense</td>
<td>preposition, adverb, conjunction, interjection</td>
</tr>
</tbody>
</table>

the definite article and the relative pronoun; Book II on pronouns; Book III on soleicism (syntactic error), verbs and their arguments and participles; while Book IV deals with prepositions, adverbs and conjunctions.

On Syntax (Synt.) begins

In our previous publications we discussed the theory of words [phōnē], as the nature of the subject required; the present work will cover the topic of the combination [suntaxis] of these words, according to appropriate collocation rules, into independent sentences, a topic which we have chosen as deserving the greatest precision because of its essential importance for the interpretation of poetry. (I: 1)

Apollonius pointed out (I: 8) that one must recognize correct spelling in order to recognize correct structure; that the letter (stoicheion) is unanalysable; and that syllables are structured into words (lexis).

[W]ords […] being the primes of a regularly constructed complete sentence [logos], must accept restriction by the structural rules of syntax. For the meaning [noēton] which subsists in each word is, in a sense, the minimal unit [stoicheion] of the sentence, and just as the minimal units of sound compose syllables when properly linked, so, in turn, the structural combining of meanings will produce sentences by combining words. Just as the word is made of syllables, so the complete sentence is made by grammatical collocation of meanings. (I: 2)

So he has grounds for claiming (I: 9) that If Dionysius is walking he is moving is true but the converse is false. For Apollonius the word is the minimal unit of grammatical analysis; he has no conception of ‘morpheme’ (thus when I use the term ‘morphosyntactic’ in describing his work I am imposing a modern concept that applies to what he is discussing).

Apollonius used some of the same criteria in defining his parts of speech as Dionysius Thrax but he gives far more detail and combines semantic with formal explanation.

For the phonological forms of words do not weigh as much in classification as what is meant by them. (II: 33)

8. The article class includes the relative pronoun in Greek due to morphological similarities in form and behaviour: relative pronouns normally follow the noun and agree with it. Colson 1919: 24f suggests that ‘[the article and the pronoun] are the counterparts of one another, dealing with the meaning of the word as a single entity.’
Showing his Stoic credentials, Apollonius was responsible for offering a common class meaning for each of the eight parts of speech, and so for the purely notional descriptions that came to characterize parts of speech in the Western Classical Tradition. Though he gave priority to meaning he did not ignore morphosyntactic form and function. He distinguished between *schema* (form) and *ennoia* (meaning) and assigned grammatical structure to the category of *ennoia*. Pinborg 1975: 106 claims that it was ‘through the work of Apollonius and his son Herodian, that uniformity [was first] achieved.’ The degree of achievement depends on whether the formalized word class system in our text of the *Technē Grammatikē* was available to him from whatever source; but this is not to doubt that Apollonius himself was perfectly capable of devising such a system. He correctly recognized (*Synt. I: 37*) that the mention of a word (e.g. the conjunction *men*) presupposes knowledge of its morphosyntactic classification. Apollonius defined the pronoun not only as noun substitute, as the *Technē Grammatikē* does, but in addition as referring to substance without qualities (i.e. pronouns are semantically minimalist) – a statement that Priscian repeated and which was later used in medieval grammars. Focusing on their anaphoric function, he said that pronouns ‘are used where nouns cannot be used or where they have already been said once and cannot be used again’ for stylistic reasons (*Synt. II: 11*). Because word boundaries were often not marked in Ancient Greek texts, this matter is a focus for Apollonius when he discusses whether prepositions/prefixes are separate words or not. Our distinct terms *preposition* for the separate words and *prefix* for affixations help to obviate the difficulty.

Apollonius’ use of analogical, distributional, and phonological criteria (such as accent placement) is similar to methods used today.

This preposition [or prefix] will not gravitate toward any other word than one that can accept a relationship with it. And so *emPlatōn* is impossible but *embainei* [“comes in”] is all right; likewise *sumPlatōn* is out but *sumbainei* [“comes along”] is OK, as are *diabainei* [“crosses”] and *peribainei* [“comes around”]. Since such a sentence has only one person altogether – I mean sentences like *Platōn bainei* – when a preposition is brought in from outside it will gravitate to the position before the verb, since it is a prepositive element and the verb is postpositive. (*IV: 15*)

Apollonius had no terms for phrase categories such as noun phrase, verb phrase, prepositional phrase, or adverbial phrase, etc. He had no term for “clause” (which is at best *logos* “sentence”). Nor did he have names for grammatical relations like subject, direct object, indirect object; instead he uses the case terms *nominative* for subject, *accusative* for object, etc. Very occasionally he uses *topic* where we might use “subject”. Other terms and notions he employs are:

- **sunthesis**: A compound: usually two words put together to form one lexeme.
- **parathesis**: A construction: overlaps with our notion of phrase but is not identical to it.
- **suntaxis**: A construction with a syntactic relationship between the component words as in onomatikē/epirrēmatikē suntaxis “nominal/adverbial construction” (*Synt. I: 55*).

Both *parathesis* and *suntaxis* are constructions but they are never treated as constituents within larger constructions. Both terms occur in *parathesis prothetikē kai arthrikē suntaxis* “prepositional placement and articular construction” i.e. preposition followed by relative pronoun (classed as an article) as in *eis ho* “to which” (*IV: 57*) (Householder 1981: 2).
Apollonius frequently uses the term *katallēlon* or *katallēlotēs*, which is concord among word forms. *Katallēlotēs* is a measure of the regularity and rationality of a construction; the grammatical correctness will be in agreement with the meaning. Irregularity is the result of corruption. Apollonius accurately and graphically distinguishes inappropriate reference from solecism:

> [W]hen someone says *houtos me etupsen* [“this.M beat.3.SG me”] of a woman, it is not a grammatical error. The sentence obeys all the rules of agreement and government [katallēlon]. But if, referring to a female, someone were to say *hautē me etupsan* [“this.F beat.3.pl. me”], even if the gender reference is correct, this is a solecism because of the error in [number] agreement. (III: 10)

Correct or incorrect reference has nothing to do with *katallēlotēs*. On the other hand:

> The masculine of *husterikē* [“suffering in the womb”] or of *ektrousa* [“having miscarried”] are morphologically possible but semantically not. (III: 149)

which is the other side of the coin. Apollonius was sensitive to scope relations, recognizing that *ho deipnēsas pais koimasthō* is ambiguous between “Let any boy who has dined go to bed” and “Let the particular boy who has dined go to bed”, the latter being similar to *ho pais deipnēsas koimasthō* (I: 111). He also demonstrates that the article ‘belongs to the thing possessed’ (I: 101f); thus although both *ho emos patēr* (the my father) “my father” and *emos ho patēr* “the father is mine” are possible, *ho emos ho patēr philosophei* is not; it must be *ho patēr ho emos philosophei* (the father the my philosopher) “my father is a philosopher”.

Apollonius based his description on the relations between nouns and verbs, and he noted how these relations were revealed by cases. Instead of identifying grammatical relations, Apollonius distinguishes two ‘persons’ (*prosōpa*): one *diatithen* “affecting” or *energoun* “acting” – perhaps both best translated *actor* in the sense of Role and Reference Grammar; and the other *diatithemenon* “affected” or *energoumenon* “acted upon”, i.e. *undergoer*. All datives other than instrumentals and temporals are benefactive, therefore he had no need to identify an indirect object. His treatment of verb syntax suggests a rule something like (1) with an implicit rule putting the nominative NP before V; e.g. from (2) derive (3).

(1) \[ S \rightarrow V (\text{NP})^6 \]
(2) \[ S \rightarrow V \text{NP}_{\text{NOM}} (\text{NP})^6 \]
(3) \[ \text{NP}_{\text{NOM}} V (\text{NP})^6 \]

He also recognizes NP sequences such as ART\[^{\wedge}\]ADJ\[^{\wedge}\]N\[^{\wedge}\]REL.

According to Householder 1981: 17 (thinking in terms of post-Chomsky 1965 grammar), ‘Apollonius Dyscolus was the inventor of the abstract base.’ *Synt.* apparently justifies this claim. It is certainly true that Apollonius proposes underlying constructions that explicitly represent meaning by using constructions that are in various ways distinct from the normal surface sentences of Greek; his underlying constructions need to be transformed into surface structure by epenthesis, rearrangement (*huperbaton*), ellipsis and substitution (*enallagē*). The use of such transformations in etymologies presumably predates Plato; but Apollonius seems to have developed the concept. And some of his proposed underlying structures bear

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9. See Van Valin and LaPolla 1997; Allan 2001; and Chapter 11 below.
a close resemblance to analyses independently proposed in the late twentieth century. For Apollonius the underlying structures are the regular and correct grammar from which both ordinary speech and poetry derive; though poets typically make more transformations than the ordinary language user. For instance, he insists that the protasis of a conditional (sunaptikos) logically precedes the apodosis; thus conditional ei “if” and para-conditional epei “since, when”, etc. are logically sentence initial even in

(4) phōs estin ei hēmera estin
light is if day is “It’s day if it is light”

For it is only in the surface order [sunthesis] that ei hēmera estin [in (4)] stands second, not in the explicit semantic structure [diexodikē epangelia]. For the mind must first accept the thought it is day, and then it can accept it is light. So never can we agree that the conditional particle ei is not sentence initial [semantically] even though it may sometimes occur later in the sentence. (II: 77)

On underlying case relations:

In effect one who says ton emon doulon epaisa [“I struck my.ACC slave”] is saying *ton emou [GEN] doulon epaisa which must become ton emautou [1.SG.GEN.REFLEXIVE “my own”]. (II: 106)

In Ancient Greek, verbs of ruling take the genitive and according to Apollonius (III: 175f) the verbs are denominal, e.g. turannō humōν [1.SG.rule you.GEN “I rule over you”] and turannos humōν [ruler.GEN you.GEN, “your ruler”]. Thus although in Aristarchou doulos [Aristarchus.GEN slave.NOM] the possessor head noun is genitive, in kurieuō egō toutōν [1.SG.be.lord.of I.NOM them.GEN] the possessor is nominative and the possessed genitive. The verb requires a nominative subject and possession is dependent on that. He also explained the fact that philein “to love” takes the accusative while eran “to love” takes the genitive on the ground that the latter involves more passionate love (compare English philology versus eroticism). Turning to the dative: in legō soi [I.tell you.DAT] the dative is correctly used because ‘I am benefiting you’ but in

legō se kleptēn [I.tell you.ACC thief, “I call you a thief”] signifies [sēmainei] I assert by means of the speech which I am uttering that you have done the act of stealing […] because it directs the act against the object and so takes the accusative construction. (III: 177)

So-called ‘psych verbs’ take a dative subject, e.g. melei/metamelei Sokratei (cares/repents Socrates.DAT) “Socrates cares/repents”.

the Stoics called these verbs pseudo-predicates [parasumbama] whereas the other verbs, according to their subject-verb relations, were called by them either sumbama or katēgorēma [“predicate”]. (III: 187)

On reflexives:

Anyone who says emauton etupsa [“I hit myself”] affirms a relationship coming from himself to himself, as if he were saying egō eme auton etupsa [“I myself hit myself”]. (II: 139) Boulomai ploutein “I want to be rich” implies a reflexive: boulomai ploutein emauton “I want myself to be rich” (III: 162).
Sullēpsis is the amalgamation of several notions into a portmanteau lexeme, e.g. fiercer is analysed as “more fierce” and a stable as “a barn containing horses” (III: 61). Similarly, Tryphon spoke to me and you and Dionysius can be expressed as Tryphon spoke to us where ‘us’ is an example of syllepsis (III: 38).

We also know that every plural form of first and second person involves a conjoining of different persons: hēmās [1.PL] is a reduced expression for either me and thee and him or me and you or me and them. Similarly in the case of the second person: humās [2.PL] is thee and them. (II: 159)

Time adverbs like echthes “yesterday” and aurion “tomorrow” have no gender but in construction with prepositions they take the feminine article: Apollonius assumes that there is an implicit feminine noun hēmerā “day” in expressions like en tēi echthes (during the.F yesterday) “during yesterday” and en tēi aurion “during tomorrow” (IV: 70).

Explicating the meaning of the conditional conjunction, Apollonius is sorely in need of a term for aspect or aktionsart, which he does not have:

eān mathō “[if I learn]” which means ei anasumai to mathein “[if I finish the act of learning],
or ean dramā “[if I run] means] ei anasumai to dromein “[If I finish the act of running];
whereas ean trechō means ean en pararesei genōmai tou trechein “[if I get into the continued process of running” …] the conjunctions themselves signify the potential future, whether progressive [paratasis] or perfective [anamis]. (III: 140)

This aside, Apollonius makes intriguing analyses of the verbs and their subcategories of mood, voice, type (primitive or derived), form (simple, compound or super-compound), number (singular, dual, plural), person, and tense. We have seen brief glimpses of the considerable attention he devoted to concord between nominative noun and verb and to the verbal government of cases. According to Hahn 1951: 31, it was Apollonius who first noted that ‘a given verb-form is an enklisis; it shows or possesses a diathesis.’ This sums up concisely what is outlined, but not explained in detail, in the Technē Grammatikē. Apollonius argues that person, number, and mood are not properties inherent in the verb, but expressed by addition (enkliseis) to the verb (I: 51). The term diathesis is used of the three kinds of voice: active, passive and middle (or neutral).

the category of voice […] is present in every mood, not even excluding the infinitives, because of the logical necessity for all tenses to be marked as either active or passive or middle. (III: 147)

Active verbs denote an action ‘passing over to something or someone else’; in other words, the clauses in which they occur are transitive; passive and middle verbs occur in intransitive clauses. Apollonius noted the case structure of nouns for functional relations with these species of verbs.

But perhaps the most interesting insight of Apollonius was recognizing that each mood or clause-type has a psuchichē diathesis “mental disposition”, which Householder 1981
correctly identifies as illocutionary force.\textsuperscript{11}

Every mood may be paraphrased using an infinitive as the generic name of the verb. E.g. if we have a declarative sentence \emph{peripatei Truphōn} ["Tryphon is walking"] we can turn it into a report of the utterance by adding the verb implicit in the indicative mood, namely \emph{hōrisato} ["He declared"], giving \emph{hōrisato peripatein Truphōna} [literally, "he.declared to.walk Tryphon"]. And similarly for the optative form \emph{peripatoiē Truphōn} ["May Tryphon walk"]. Here too one may supply [the verb] inherent in wishing, and say \emph{ēuxato peripatein Truphōna} ["He wished for Tryphon to walk"], see also \textit{Synt.} III: 95. And similarly for the imperative mood \emph{peripateitō Truphōn} ["Let Tryphon walk"] one would say \emph{prosetaxe peripatein Truphōna} ["He ordered Tryphon to walk"] (I: 51).

The Homeric practice of using the infinitive form by hypallage for the imperative construction, I think, is also explained by its generality, the fact that all special [moods] can be transformed into infinitives. (III: 63)

But infinitives, since they [unlike finite verbs] have not yet acquired subject persons, naturally also have no expression of the mental attitudes of those persons. (III: 59)

[Because the infinitive] has no mental attitude [illocutionary force] it cannot be blocked from occurring with all moods [\textit{enclisis}] with the addition of words signifying the characteristic mood; and conversely every mood can be converted into the infinitive. For \emph{graphei} ["Write!"] can be equated to \emph{graphein soi prostassō} ["I bid you write!"], where we necessarily add the bid which is implicit in the imperative along with the pronoun \emph{you}. For the infinitive has no share in either of these [mood or person]. \emph{Peripatoiēs} ["May you walk!"] is equivalent to \emph{euchomai se peripatein} ["I pray you walk!"], and \emph{grapheis} ["You are writing"] to \emph{horizomai se graphein} ["I declare that you are writing"]. The conversion [\textit{metalēpsis}] is obvious also [in reports]; \emph{graphoi Dionusios} ["Would that Dionysius write!"] goes to \emph{ēuxato graphein Dionusion} ["He prayed for Dionysius to write"], and \emph{graphēto Dionusios} ["Let Dionysius write!"] to \emph{prosetaxen graphein Dionusion} ["He gave the order for Dionysius to write"]. (III: 25; see also III: 61)

In passages like these Apollonius foreshadows an analysis that reappeared some 1800 years later in Ross 1970: 261 as ‘Every deep structure contains one and only one performative as its highest clause’ causing it to be known as ‘the performative analysis’.\textsuperscript{12} The postulated deep structure was \textit{I} \textsuperscript{PERFORMATIVE} \textit{you} \textsuperscript{S}, which is not quite the same as what Apollonius wrote of. For instance, in the quote from I: 51 Apollonius uses a third person subject rather than first person; and he certainly had a less sophisticated notion of illocutionary force than obtained in the late twentieth century. Nevertheless his depth of insight is salutary. It gives him the basis for writing of negation

[The indicative mood] contains the force of affirmation [\textit{kataphasis}]. And this is why the so-called negative adverb of denial [\textit{ou(k)}], which has the force of fighting the yes assertion, regularly accompanies the indicative mood [\textit{horistikē enklisis}] in order to reject the inherent

\textsuperscript{11} Here ‘illocutionary force’ is what Allan 2006a refers to as the ‘Primary Illocution’ of the clause-type. There is some overlap between mood and clause-type and they were mistakenly identified in Allan 2001, but distinguished in Allan 2006a.

\textsuperscript{12} See p. 347 on performatives. There is more detail on the performative analysis and its flaws in Allan 1986: 8.10.3; Allan 1994, and works cited therein. Allan 2006d argues that Apollonius can be interpreted to identify the primary illocution of clause-types – though Apollonius would have spoken of mood.
affirmation: *ou graphei* [“Not he is writing” (I deny that he is writing)], *ou peripatei* [“Not he is walking” (I deny that he is walking)].’ The imperative and optative take the prohibitive particle *mé* instead of *ou(k).* (III: 90)

This combines the Stoic account of sentence negation, which is the direct ancestor of modern semantic accounts of negation, with his account of the illocutionary force implicit in each clause-type.

The *Syntax* of Apollonius Dyscolus is a magnificent tour de force that argues for the semantic basis of grammar, while still paying close attention to formal aspects of the object-language.\(^{13}\) We can look at it as principally an exposition of the language structures found in classical Greek literature and in first century Greek; the main intention was apparently to bring students to recognize the regularities that Apollonius perceived in the morphosyntax of the language and for which he offered rational explanations. The regularities often underlie a less regular surface structure which is derived through transformations deleting, inserting, and transposing the semantically based underlying structures. The extant text of *On Syntax* is fairly comprehensive as it stands, and Apollonius’ complete oeuvre certainly seems to have been comprehensive. It deals with all aspects of literary craft – poetic effects, tropes, figures of speech, manipulation of syntax – that would enable his students to understand and emulate the classical literature. Implicit in *Synt.* is the view that the classical literature was superior in its language to contemporary spoken Greek; although Apollonius does not belabour such a view. Apollonius’ son Herodian is best known for his work on prosody. Later prosodists described not only pitch levels, vowel length, syllable quantity, and aspiration but also vowel elision, pitch changes resulting from word compounding and derivation, and word boundary juncture, e.g. *Let’s get away Bill* vs *Let’s get a weigh-bill,* *a whole nother thing*; and, for some Australian speakers, *a night* vs *an eight.*

In Greece, grammar developed from interest in the forms of language in which philosophical speculation and logical analysis were conducted. The use of language in epistemological explanation also encouraged the investigation of the way in which language operates and, too, the way in which it originated. The pursuit of *Hellenismos* made the language used by classical authors such as Homer and Euripides the standard – an uneasy mix of Ionian and Attic dialects, though Attic dominated because it was the dialect of Athens. Other Greek dialects were often referred to, but everyday *koinê* “common” Greek was mostly ignored. The tradition of favouring classical literary language over everyday spoken language persisted through the Western Classical Tradition into the twentieth century. The Greeks built up grammatical analysis from nothing, and the framework which they passed on to the Latin grammarians, if far from perfect, nevertheless supported a grammatical tradition that has lasted 2,000 years.

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\(^{13}\) The object-language is the language under investigation.
Priscian

In the period following Apollonius, the Roman emperor Diocletian (fl. 284–305 CE) moved the administrative capital of the empire east to Byzantium, which his successor Constantine (fl. 306–37 CE) renamed Constantinople. From the end of the fourth century, Constantinople was the capital of the eastern (Orthodox) empire until it fell to the Turks in 1453. With Constantine, Christianity became the official religion of the Roman Empire, whose political, commercial, and cultural centre remained in Rome, where, by tradition, St Peter was martyred. Rome remained the capital of the western empire centred on the Bishop of Rome (the Pope). From this time onward scholars in the Western Classical Tradition tended to be Christian, with a new ideological basis for philosophy, literature, and language. It was believed that the original language must have been Hebrew, the first language of God (Augustine 1984 XVI: 11). There were, however, three languages of God: Hebrew, Greek (because the earliest Christian texts were written in Greek), and Latin because St Jerome (Eusebius Sophronius Hieronymus, 340–420) translated the Old Testament from Hebrew and Aramaic into Vulgar Latin (contemporary common koiné Latin); this became known as the ‘Vulgate’. Vulgar Latin shows many features that were to emerge in Romance languages, but which are not found in classical Latin.

From earliest times Christian missionaries were involved in language teaching to spread the gospel. St Jerome wrote a letter, Epistola 57, on the theory of translation (Jerome 1963). Gothic (a Germanic language) is known only through Ulfilas’ (c. 311–82) translation of the Bible into that language, for which he reputedly created an alphabet based on Greek and Roman alphabets (Wright 1954). St Cyril of Byzantium (c. 827–69) adapted the Greek alphabet for Christianized Slavs thus creating the Cyrillic alphabet. As we shall see in Chapter 7, in the early medieval period Christian missionaries gave impetus to the teaching of Latin grammar. Since about 1934 the Summer Institute of Linguistics (http://www.sil.org), in order to proselytize, has been developing orthographies based on the Roman alphabet and IPA symbols and writing grammars for the languages of many preliterate peoples.

The study of classical Greek and Latin literature required studying the grammar, which motivated linguistic studies to concentrate on the language of the past; contemporary language was ignored, and generally regarded as inferior to that of the classical authors. Of the Latins, Varro was the most independent and original writer, but he was peripheral to the main course of the Western Classical Tradition – perhaps because his work was largely lost to Europe until the fourteenth century. Quintilian is somewhat closer to the tradition, and the

14. Jerome was born in Stridon in Dalmatia (inland from the Adriatic coast of Croatia), which was sacked by the Goths in 377. Brought up a Christian, he studied classical Latin with Donatus but eventually rejected the classical authors because of the pagan content of their works.

15. St Isidore had a different explanation: ‘There are three sacred languages, Hebrew, Greek, and Latin […] for it was in these three languages that the charge against the Lord was written above the cross by Pilate’ (Etymologies IX.i.3; Brehaut 1912: 208). See Chapter 7.
Latin grammarians that follow him (there are more than we have space to consider\(^\text{16}\)) stem more directly from the Alexandrian tradition of Dionysius Thrax and Apollonius Dyscolus. However, all these scholars have roots within the Stoic tradition.

As we have seen, the parts of speech remained at eight, the article having been replaced by the interjection. The relative pronoun, which had been called \textit{arthron} by the Greeks, was relegated to the pronoun class by Probus (first half of the fourth century CE) in \textit{Instituta Artium} (Probus 1961) and to the noun class by Priscian. Of the Latin grammarians that endured, the most celebrated are Donatus (Chapter 5) and Priscianus Caesariensis Mauri, born in Mauritanian Caesaria c. 490 CE, who died, probably in Constantinople, c. 560. If he was Christian, he didn’t flaunt the fact in his works. He was a prominent official in Constantinople under Justinian I,\(^\text{17}\) where he wrote \textit{De Figuris Numerorum quos Antiquissimi Habent Codices} (on numerals, Keil (ed.) 1961, 3: 406–17), \textit{De Metris Fabularum Terentii} (on metrical feet in Terence, \textit{ibid.} 418–29), \textit{Praexercitamina} (on aspects of rhetoric, \textit{ibid.} 430–40), \textit{De Accentibus} (on pronunciation, \textit{ibid.} 519–28) – as well as describing and teaching classical Latin to people whose first language was Greek. His work was extensive, of very high quality, and it has survived; for those reasons Priscian is pre-eminent among the Latin grammarians. His \textit{Institutiones Grammaticae} “Institutes of Grammar” or “Grammatical Doctrine” (also known as \textit{Institutionum Grammaticarum} and here abbreviated to \textit{Inst.}) consists of 18 books constituting some 974 (admittedly heavily annotated) pages in Keil (ed.) 1961, 3–4 (= Priscian 527). Most of the nearly 1,000 manuscripts that survive are of Books I to XVI on sounds, word formation, and inflection; these are known as \textit{Priscianus Major} or \textit{De Octo Partibus}, which was copied by Flavius Theodosius, a clerk in the imperial secretariat of Justinian. Books XVII to XVIII of \textit{Inst.} (\textit{Priscianus Minor} or \textit{De constructione}) are on syntax. \textit{Inst.} was written in the years 526–27 while Priscian was teaching in Constantinople; it is less obviously pedagogical than two later works: \textit{Institutio de Nomine, Pronomine et Verbo} “On the noun, pronoun and verb” (Priscian 1961a, hereafter \textit{De Nomine}) and \textit{Partitiones Duodecim Versuum Aeneidos Principalium} “Analysis of the first lines in the twelve books of the Aeneid” (Priscian 1961b, hereafter \textit{Partitiones}). We will consider each of these in turn.\(^\text{18}\)

\textbf{Priscian’s \textit{Institutiones Grammaticae}}

In the middle ages a manuscript copy of Priscian’s \textit{Institutiones Grammaticae} had a monetary value comparable with owning a prestige car (such as a Rolls-Royce) today: in 1044 one was exchanged in Barcelona for a house plus block of land (Law 2003: 128). Book I is on sounds and letters, and their part in constructing and differentiating words, inflections and derivational morphs (to use today’s terminology). Book II is on the

\(^{16}\) E.g. Diomedes (Keil (ed.) 1961, 1) and Charisius (Keil (ed.) 1961, 1; Charisius 1964; Matthews 1994: 74–76).

\(^{17}\) Justinian was a Latin and Greek speaking Illyrian (Illyrians were later swamped by Serbs, Croats, and other Slavs).

\(^{18}\) Unfortunately, there are no English translations of Priscian’s major works.
properties of syllables, words, sentences, nouns and their accidence, proper nouns, common nouns, adjectives, and their primitive and derived types. Book III is on how to form comparatives, superlatives, and diminutives. Book IV is on derivations from nouns, verbs, participles, and adverbs and how to form them. Book V distinguishes gender on the basis of word endings; then it discusses grammatical number, compounds, and cases. Book VI examines nominative case as expressed with vowel and consonant suffixes; then genitives in respect of both final and penultimate syllables. Book VII turns to the other oblique cases in both singular and plural. Book VIII is on the verb and its accidence; Book IX on regular conjugations; Book X on pasts and perfects. Book XI discusses participles. Books XII and XIII are on pronouns. Book XIV is on prepositions; Book XV on adverbs and interjections; Book XVI on conjunctions. Books XVII and XVIII are devoted to *de constructione sive ordinacione partium orationis inter se* “constructions or the arrangement among parts of speech” i.e. syntax. Throughout Inst. Priscian makes very extensive use of literary examples from a range of Greek and Latin authors; most of the last 100 pages of Book XVIII consist of quotations from literature: literature was his corpus.

The discussion of sounds (*voces*) in Book I makes no advance on Donatus 1961a; however, the discussion of letters includes quite a lot of Greek, including extensive discussion of the Aeolic digamma ϝ and the old Greek aspiration marker ꞌ such that ꞌθ = θ, ꞌφ = φ and ꞌχ = χ (I: 24). Latin r is ‘without aspiration’, whereas in word initial position and in geminates Greek ρ is aspirated, cf. the transliterated English words *rhetor* and *Pyrrhus* (I: 40). In I: 43 we find rules like the noun and verb stem transforms in Tables 6.3 and 6.4 respectively.

**Table 6.3.** Graphemetic simplification.

<table>
<thead>
<tr>
<th>NOMINATIVE</th>
<th>GENITIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>–c</td>
<td>apec+s → apex</td>
</tr>
<tr>
<td>–g</td>
<td>greg+s → grex</td>
</tr>
<tr>
<td>–ct</td>
<td>noct+s → nox</td>
</tr>
</tbody>
</table>

The third conjugation verb stem with a present ending in –h changes to –x in the perfect, P:

**Table 6.4.** A morphophonemic rule.

\[
\begin{align*}
\text{h} & \rightarrow x \\
\left\{ \begin{array}{c}
\text{veh}–+\text{P} \rightarrow \text{vex}– \\
\text{trah}–+\text{P} \rightarrow \text{trax}–
\end{array} \right.
\end{align*}
\]

Priscian discusses syllable structure in Book II, but there is nothing new. ‘A syllable is the sound of a letter uttered without pause in one pitch contour [accentus] and one breath’ (II: 1). A Latin syllable can be from one to six letters long – *stirps* is an example of the latter. Priscian includes phonotactic variations on syllables, though he simply creates a list and proposes no phonotactic rule; e.g.

the consonant in the prefix *ad-* changes before c or g or p or t, e.g. *accumbo, accido, aggero, applico, appello, attingo, attingeo*; similarly for ꞌ– *affectus*; l – *allido*; r – *arrideo*; n – *annuo*; and s – *assidius*. (II: 7)
The word is defined (II: 14) as the smallest part of a sentence that makes sense as a whole. For instance, *vires* “strength” cannot be divided into *vi (~*“*”) + *res* (“thing”) because these do not compose its meaning. ‘The sentence is a coherent sequence of words that makes complete sense’ (II: 15). But Priscian does allow for one-word sentences as responses, e.g. to the question “*What’s best in life?*” the answer “*Honesty.*” is a good sentence, he says. A sentence is composed from a nominal signifying substance or quality and an active or passive or deponent (vaguely described as *uter* “other”) verb with the subcategories of mood, form (primitive or compound) and tense, but not case. He distinguishes finite verbs from nonfinites and participles. Pronouns are also sentence constituents. Adverbs are put with verbs to complete their meaning (II: 20). A *praeposito* is one of two types: prepositions that affect the case of a noun, e.g. *de rē[ABL]. a pud amicum[ACC]*; and prefixes that are affixed to words in compounds and do not affect case. For example, in *indoctus* “unskilled” the prefix is negative and takes no case; but the preposition *in* would take the accusative if illative (“into”) and the ablative if inessive (“within”). The preposition *inter* normally takes the accusative case, but in the compound verb *intercurro* “run between” none. The preposition *pro* normally takes the ablative (*pro bono publico* “for the public good”) but not in the compound noun *proconsul*. Finally, conjunctions like *either ... or, both ... and* may link nouns and other case bearing words (such as pronouns and participles) or verbs or adverbs. Some prepositions, but never conjunctions, function like verbal prefixes, e.g. in *subtraho, addico, praepono, produco, dehortor*. Priscian also distinguishes the adversative connectives *a(s)t* and *sed* (“moreover, but”) without clearly identifying their function.

Next there is a section on nouns:

A noun is the part of speech which assigns a particular common or proper quality to persons or things. (II: 22)

*Man* and *art* are common nouns, one human, the other not; *Virgil* is a human proper noun; *the grammar of Aristarchus* is a non-human proper noun – presumably because it makes unique reference. The primacy of nouns is not mentioned here, but in Book XIV we find: ‘For the noun, which is the principal among all the parts of speech …’ (XIV: 1); cf. *Apollonius’ Synt.* II: 4. Back in Book II we are told that nouns have five subcategories (*accidents*): type (primitive or derived), gender, number, shape (simple or compound), and case. There are further extensive sections on patronymics and possessives.

Book III begins with a long discussion of comparatives and the identifying morphology, then moves to do the same for superlatives and diminutives. Book IV on denominals begins with names derived from adjectives like *Maximus* and *Catulus* ← *catulus* “whelp” diminutive of *catus* “clever, cunning”. Then there are derivations from verbs, participles, other nouns, and adverbs, presented according to the form of the nominal’s suffix. Patterns are presented (IV: 3–4) like *amicus* “friend.NOM”, *amicī* “friend.GEN”, *amicitia* “friendship.NOM”; *Graecus* “Greek.NOM”, *Graeci* “Greek.GEN”, *Graecia* “Greece.NOM”; *prudens* “prudent.NOM”, *prudenti* “prudent.DAT”, *prudentia* “prudence.NOM”. Although the regularity is shown, there is no explanation offered for the root of the final denominals being a dative; it is presented as arbitrary fact. Sometimes the seemingly obvious is missed:
Both the second conjugation verb *lucere* “to be bright” and the third conjugation *ducere* “to lead” (*lucere* and *duco* are the first person singular present indicative) have the first person singular perfect indicative *luxi* and *duxi* respectively, which offer a more convincing source for the nouns “light” and “leader” than do *lucere* and *duco*. The roots are probably *luc-* and *duc-*, from which the nominal is derived by applying an –s suffix; the digraph <cs> is simplified to <x>, with which it is homophonous. The explanation for the second pair is virtually identical. In fact, for the third conjugation *coniungere* “to join together” it is identical, the root being *coniunc-* (cf. the perfect participle *coniunctum*). The noun “spouse” is created by adding –s ⇒ *coniuncs ⇒ coniunx*. The perfect of the second conjugation verb *arcere* “to hinder, keep out” is *arcui* or *arc+vi*;19 its root is *arc-*, to which –s is applied to create the noun *arx* “stronghold”. A discussion (in Book VI: 93f) of nominative and genitive case in nouns like *vox~vocis, nex~necis, fornix~fornicis, dux~ducis, grex~gregis* suggests deleting the final –x of the nominative and adding –cis; but we may instead take the –x as a simplification of an underlying –cs, consisting of a nominative suffix –s on a stem ending in –c; to the stem ending in –c, the genitive –is is suffixed. This is essentially the rule exemplified in Table 6.3 (and I: 43).

Book V lays out the formal correlations between final syllables and genders. There is not so much any new insight here as the surveying of an immense amount of data. A section on number begins with saying that the form of the word (he evidently means “noun”) normally distinguishes the quantity being referred to. There is explicit mention that we find only singular and plural because, unlike Greek, the mother tongue of Priscian’s immediate audience, Latin has no dual, *dalis apud Latinos non inventur* (IV: 46). He pays some attention to effects of quantifiers on nouns, verbs, participles and pronouns; and shows that adverbs are not responsive to number (IV: 49f). Although there is sometimes ambiguity about whether the form of a noun or pronoun is singular or plural (e.g. *res, sui* and *qui*) this is never the situation with verbs (IV: 52). He discusses collective nouns having singular form and plural meaning, e.g. *populus* “people, crowd”, *legio* “legion”; and other nouns – all proper names – with plural form and singular meaning, such as *Athenae, Thebae* (as in the Greek originals and also English *Athens, Thebes*). Book V continues with discussion of the simple or compound form of nouns, e.g. *magnus, magnanimus, magnanimitas* (“the great, the magnificent, magnanimity”) (V: 56). The book ends with a discussion of case. Priscian begins with invariables (*monoptota*) such as letters and numbers: hoc[NOM] *alpha, huius*[GEN] *alpha; hi quattuor, horum quattuor*. He proceeds through nouns that have two, three, four, five, and six (*hexaptota*) case forms.

Book VI begins with a discussion of nominative and genitive cases. Priscian says he is going to offer explanations and try to correct the errors of others without malice (VI: 1). He looks at the masculine, feminine, neuter, and common gender noun and pronoun suffixes. Then he examines some variations in case endings in different dialects or in older and

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19. Letters <u/U> and <v/V> are interchangeable in Latin. So too are <i/I> and <j/J>. 
contemporary Latin. Some genitives in –tis are on words derived from Greek; he looks at nominals with short vowels, others with long vowels (or long syllables). He identifies some female names from Greek that end in –on and take a feminine article (i.e. demonstrative) but decline like a neuter noun in –um e.g. ἡ Δόρκιον haec Dorcium, ἡ Γλυκέριον haec Glycerium, ἡ Χρύσιον haec Chrysium, etc. (VI: 24). Later he demonstrates some masculine proper names from Greek that behave otherwise – the pairs here are nominative and genitive: Μέμνων Μέμνωνος, hic Memnon huius Memnōnis, Σίνων Σίνωνος, hic Sinon huius Sinōnis, Λαοκόων Λαοκόοντος, hic Laocoon huius Laocoōntis (IV: 29). No rule is offered; readers are left to learn them by heart or invent their own rule.

On variations:

Besides, Caesar declined “youth” pubis puberis; others, like Probus, pubes puberis, and yet others puber puberis. (VI: 65)

However, impubis is the same in both nominative and genitive!

Occasionally there is a rule suggested:

Masculine nouns ending in os make the genitive by deleting the s and adding ris, e.g. lepos leporis, ros roris, mos moris, flos floris. An exception is nepos nepotis “grandchild, nephew/niece” which some people class as a common noun despite nepotis being feminine.20 (VI: 68)

One might compare this with the common gender sacerdos~sacerdotis “priest(ess)”. And then Priscian exemplifies some other nouns of common gender before looking at the case forms of particles (VI: 77f). He points out that some trees denoted by second declension feminine nouns look masculine; the demonstrative reveals their gender: haec ornis ~ huius ornī “mountain ash”, haec fagus ~ huius fagi “beech”, etc. But quercus, pinus, ficus etc. (“oak, pine, fig”) are regular fourth declension feminines with the genitive in –ūs (VI: 83).

Book VII, on other cases, begins by listing the final letters of all nominals in Latin; sometimes these are case morphs, but often Priscian omits the preceding segments of the case morph; in other words, he does not here recognize case morphs as such. However, once he starts discussing oblique cases of the first declension (starting at VII: 3), he does indeed identify the morphs. He identifies the first declension variations through the nominative and genitive, then deals in turn with accusative, vocative, and ablatīve; first singulars, then plurals. He draws attention to syncretistic or ambiguous forms, such as the fact that the nominative and vocative plurals are formally identical with the dative singular (VII: 9). Such homonyms can be disambiguated by co-text, for instance, the third declension singular dative and ablatīve huic[DAT] marī[“sea”] and ab hoc[ABL] marī21 (VII: 55). Having finished with the first declension he proceeds through the other four declensions.

Book VIII is on verbs.

A verb is the part of speech with tenses and moods, without case, signifying actions or being acted upon. [...] Both intransitive (also called ‘complete’ [by the Stoics]) and deponent verbs, according to their nature, are either active or passive. (VIII: 1)

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20. There is a similar rule applying in haec servitūs ~ huius servitutis, salūs salutis, etc. (VI: 83).
21. The ablatīve singular of this neuter noun can also be mare.
The verb has eight subcategories: tense, mood, type, form, conjugation, person and number, and meaning without reference to gender (VIII: 2). Deverbal nouns open the discussion. A section on ‘signification’ (starting at VIII: 7) identifies the link between an active (transitive) or intransitive form ending in –o with a corresponding passive in –or. And here Priscian seems to be identifying transitivity rather than voice.

When I say ‘I hear you’, I say it because my ears are being acted upon by your voice; and conversely, when I say ‘I am heard by you’, my voice is making something happen in your ears. (VIII: 7)

Intransitive verbs (neutra) don’t have these properties. For instance one cannot make passives out of spiro, vivo, ambulo, pergo (“I breathe, live, walk, continue”) (VIII: 12f). These verbs are intrinsically active, but others are intrinsically passive, e.g. rubeo, ferveo, caleo (“I am blushing, boiling, warm”). Yet others express reciprocal (communia) acts that are both active (or in fact deponent) and passive, e.g. osculor te “I kiss you” and osculor a te “I am kissed by you”, crimor te “I accuse you” and crimor a te “I am accused by you”. Deponents do not necessarily have this reciprocal property, cf. conspicor te “I catch sight of you”, sequor te “I accompany you” (VIII: 14). Later he identifies semantically related verbs such that one can say quaeror a te “I seek an answer from you” as an alternative to interrogor te “I interrogate you” (VIII: 21). Then there are semantically and formally related pairs like intransitive labo “I totter” and deponent labor “I fall down” (VIII: 36).

The section on verb tenses (de temporibus verborum) identifies three tenses, of which the past is further divided into three: imperfect, perfect, and pluperfect. The indicative mood freely takes all tenses. The imperative (VIII: 40f) accepts the present when we want something done immediately (quae statim in praesenti vovermus fieri sine aliqua dilatatione) but is otherwise future. The past imperative takes the form of the perfect or pluperfect subjunctive. The optative is used for wishing and praying in all three tenses:

The optative, however, although it also seems to pertain to the future – as we wish for those things which we want to be given to us in the present or future – nevertheless is used of the past, as well, since we often pray for what we lack or wish to know of things we don’t know. (VIII: 42)

The subjunctive occurs in all three tenses. The tenses of the infinitive, participles and verbs in different voices are then considered (VIII: 43–62).

The moods indicate several different mental attitudes. There are five of them: indicative or definitive, imperative, optative, subjunctive, infinitive. (VIII: 63)

Priscian fails to point out here that there is no formal distinction made between the optative and the subjunctive; they are semantic variants of the same clause-type (mood form). Moreover, they interact in interesting ways with the imperative and infinitive. Both points are mentioned in Book XVIII, where there is some discussion of the relations among optative-subjunctives, imperatives, and infinitives; but the lack of formal distinction between optative and subjunctive is dismissed. Surprisingly, there is nothing in Priscian to compare with Apollonius’ treatment of mood, other than the likelihood that inclinationes animi (VIII: 63) is a Latinization of psuchiché diathesis.
The Western Classical Tradition in Linguistics

From a modern morphological standpoint the discussion of verb types (species, primitive and derived) and forms (figura, simple and compound) should probably be amalgamated under a common heading – even though the discussion of types focuses on origin, that of forms on construction. The rest of Book VIII contains brief discussion of conjugation, person, and number as verbal subcategories.

Books IX and X present rules for declining verbs. For instance, the past imperfect is formed from the present thus:

**Table 6.5.** Formation rule 1 for the past imperfect.

In the 1st, 2nd, and 4th conjugation ending in \( -eo \), delete \(-s\) from the second person and add \(-bam:\)

\[
\begin{align*}
\text{amās} & \rightarrow \text{amābam} & (\text{Infinitive amare}) \\
\text{docēs} & \rightarrow \text{docēbam} & (\text{Infinitive docere}) \\
\īs & \rightarrow \ībam & (\text{Infinitive ire})
\end{align*}
\]

**Table 6.6.** Formation rule 2 for the past imperfect.

For verbs of the 3rd conjugation and those of the 4th in \( -io \), the \(-o\) of the first person changes to long \(-ē\) and assumes \(-bam:\)

\[
\begin{align*}
\text{legō} & \rightarrow \text{legēbam} & (\text{Infinitive legere}) \\
\text{facio} & \rightarrow \text{facēbam} & (\text{Infinitive facere}) \\
\text{venio} & \rightarrow \text{venībam} & (\text{Infinitive venire})
\end{align*}
\]

Matthews 1974: 72f criticizes Priscian for deriving the past imperfect forms individually from a specific present tense form. Priscian was probably assuming either

(a) that his students already knew Latin and he was teaching them how to relate grammatical forms to one another; or alternatively

(b) that the present tense forms would be learned first and thus serve as a basis for new learning.

The present tense usually is learned before other tenses because it is the least marked tense and can be realistically illustrated by using ostension in the teaching situation. Thus what Priscian may have been doing is giving an effective enough rule to teach the correct tense forms from a known model. To criticize his rule on the basis of illogicality or psychological unreality in a language acquisition situation, or for giving priority to one form rather than another when they are all equal in the ear of the native speaker is to miss the point.

Book XI is on participles.

Thus the participle is a part of speech which is used in place of the verb from which it derives; it has gender and case like a noun and is without verbal inflection for person and mood. (XI: 8)

Uses for the participles are demonstrated, e.g. ‘reading I learn for I read and I learn, and from my teaching you learn for I teach and you learn’ (XI: 9).

Book XII rehearses the subcategories of pronouns. Book XIII opens with ‘Case is found on pronouns as it is on nouns’ (XIII: 1). There are five cases except in second person address, where there is a sixth, the vocative. Priscian extensively discusses syncretism
among case forms. In Book XIII there is a lot of comparison of Latin with Greek; for instance, Priscian contrasts (formally) simple Latin adjectives with their compound Greek counterparts, and vice versa; e.g.

felix ευτυχής, sanctus εὐσεβής, pius εἰσεπής, et alia mille.

“ fortunate, holy, pious, and a thousand others.”

incestus μεμολυμένος, ineptus μωρός, superflus περιττός, sicut et multa alia.

“sinful, foolish, superfluous, as well as many others.”    (XIII: 17)

Book XIV is on prepositions and prefixes; and once again there is frequent reference to Greek. At the outset Priscian follows in the footsteps of Apollonius:

And so it seems right to me that the most learned Greeks, and above all Apollonius, whose authority in all things I have acknowledged, should have proposed that the preposition is indeclinable; therefore I begin from that.   (XIV: 1)

When discussing accents on prepositions in XIV: 6 he claims similarity with Greek and in XIV: 9 he claims that where Greek has only one preposition, Latin often has several:

ut περί pro circum et circa et erga et de et super, quando memoriae est, ponitur; similiter παρά pro apud et prope et praetor et propter.

He notes that whereas in Greek a preposition may cause the accent to shift on the stem, this is not so in Latin except for the one adverb inde:

ut πλησίος παραπλήσιος, apud nos in uno adverbio hoc solet facere, inde, déinde, éxinde, próinde, súbinde, …    (XIV: 20)

He occasionally uses Greek in giving the meaning of a Latin word, e.g.

De does not only mean apo but also brings to mind peri as in ‘on [“concerning”] parts of speech’; it is also a rendition of kata in some environments such as ‘bring down’, ‘go down’, ‘take down’, ‘throw down’, ‘look down’, ‘look down upon’; it is used for expectations in ‘seize’ …    (XIV: 45)

Rather curiously, but not irrationally, Priscian counts the conjunctive suffix –que a preposition (XIV: 3).

Book XV begins

The adverb is an indeclinable part of speech which adds meaning to the verb. The meaning of the adverb augments the meaning of the verb in the same way that the adjective adds meaning to common nouns, e.g. a prudent man acts prudently, a happy man lives happily.    (XV: 1)

Priscian points out that the Greeks included interjections among the adverbs: ‘In hoe, au, heu, ei, oh, ah terminantia interiectiones sunt, quas Graeci adverbiis connumerant’ (XV: 17); ‘Interiectum Graeci inter adverbia ponunt’ (XV: 40).

In Book XVI Priscian identifies seventeen types of conjunctions.

The conjunct is an indeclinable part of speech that connects other parts of speech with which it consignifies showing augmentation or sequencing: there is augmentation when the same entity is assigned different attributes as in Aeneas was both virtuous and brave; there is sequencing when a consequence of things is shown, as in if he walks, there is movement. Motion follows from walking, however walking does not always follow from there being motion. It is possible for things sitting and lying down to move; but to walk without moving is not possible.    (XVI: 1)
That ends the *Priscianus Major*.

*Priscianus Minor* consists of the two very long Books XVII and XVIII on syntax.

In the preceding exposition of the parts of speech in this book we have mostly followed the authority of Apollonius, not omitting input from others either Latin or Greek where necessary; and we were even able to add something new ourselves. In a similar manner we shall now speak of word order or syntax, which the Greeks call *suntaxis*; we shall examine the data and if we should discover patterns in the work of others or for ourselves, we shall not hesitate to bring them forward. (XVII: 1)

What Priscian says about the construction of sentences is very similar to what we found in Apollonius’ *Synt.* I: 2.

Letters when they come together in an appropriate way form syllables and syllables form words, so also words form sentences. (XVII: 2)

To construct *oratio perfecta* “well-formed speech” (XVII: 2),

The noun is put in first place, the verb second and to be sure no sentence without them is complete [...] if you take away the noun or the verb it makes the sentence incomplete. (XVII: 12)

Shades of the Stoics.

Before the verb, therefore, it is necessary to put the noun; it is proper for entities to act or undergo [“be acted upon”], in which is born the position of the noun and from these the properties of the verb, that is active and passive. (XVII: 14)

The article merits a mention. Recall that Priscian’s audience is Greek and he seems to be explaining that Latin speakers do not feel the lack of a definite article.

However Latin lacks a preposed article. When declining the noun grammarians put the pronoun *hic* in front of it in place of the definite article, as it is called. But there is never any consciousness of the article in everyday speech. (XVII: 27)

In XVII: 75f he points out the incongruousness of *Priscianus scribo* “Priscian I.write” in comparison with *Priscianus scribit* “Priscian writes[3.SG]”. Book XVII contains many analogia like the following:

*tu meus filius legis, ego tuus pater doceo et tu Virgili doces, ego Priscanius doceor*

“you, my son, learn [literally, “read”]; I, your father, teach and you, Virgil, teach; I, Priscian, learn.” (XVII: 111)

At least once, Priscian the dry scholar reveals his human side:

So indeed the genitive of the possessives themselves is used in every case of secondary possession; that is, whatever is possessed by a possession – as if a wife speaking of her husband’s field or of some other thing [of his] should say *iste ager mei est* [“that is the field of my [man]”, *tou emou* [“my masculine thing/person”], *semine mei praegnans sum* [“I am pregnant with the seed of my [man]”], *prolem mei doligo* [“I love the child of my [man]”], *thalamis mei caste pareo* [“I virtuously obey my [man] in the bed-chamber”]. (XVII: 131f)

‘Mei’, translated here as “my [man]” (perhaps it should be “my husband”), is the masculine singular genitive of the first person pronoun.

Priscian notes a variety of transformational relations, though he does not consistently use any such term for them.
The passive is made from the object NP [per obliquos activo coniunctos verbo] being transformed into the appropriate nominative form for the noun which is in concord with the passive verb; the agent is transformed into an ablative as in ‘Caesar vanquished Pompey, Pompey was vanquished by Caesar; I love you, you are loved by me.’ (XVII: 135)

Other examples of active to passive transforms are given in Book XVIII: 127f, and the passive rule is also given, in similar terms to the above, in XVIII: 139. A plural transform is exemplified:

putting the singular [noun] with the singular [verb] and the plural with the plural, when referring to one and the same person intransitively, as in I Priscian write well and we orators write well. (XVII: 153)

Book XVIII is about the relationships between nouns and verbs (XVIII: 1). For instance, We don’t say Priscianus lego[read.1.SG] nor Apollonius legis[read.2.SG] [it is a solecism]; instead the way [to speak correctly is] I, Priscian, read and You, Apollonius read. (XVIII: 4)  

In this next passage Priscian recognizes omission of the relative pronoun.

Similarly with other cases following the nominative, either on a participle as discussed above, or instead understood to necessarily belong to the nominative: my good friend set off that is the one who is a good friend; a man with an honest face [honest as to face] is perceived that is the one who has an honest face; the swift footed man runs is understood as [the man] who is [swift footed]. (XVIII: 7)

There is extensive discussion of all the cases and their different uses, for instance from XVIII: 9 possessives using the genitive, dative, and ablative are exemplified. Perhaps under the influence of Apollonius, Priscian recognizes an underlying have in possessives, e.g. a man[NOM] of great virtue[GEN] for a man having great virtue[ACC]; an unusually beautiful[ABL] woman[NOM] for [a woman] having exceptional beauty[ACC]. (XVIII: 13)

There are implicational relations like me doctore[ABL ABSOLUTE], dum ego doceo “me being a teacher whilst I teach” and virtute florente[ABL ABSOLUTE], quoad virtus floret “virtue is flowering as long as virtue flourishes” (XVIII: 16).

learned in grammar is a participle […] student of grammar is a noun (XVIII: 21)

He mentions such lexical relations as the converses, father–son, master–servant, the contraries friend–enemy, and some words similar in meaning like companion–ally, near–neighbouring (XVIII: 26), but he does not demonstrate these relations using constructions.

The closest Priscian comes to adopting Apollonius’ analysis of mood is just this one remark:

From the infinitive does Apollonius begin to explain regularities among verbs, showing it to be the generic form of the verb; and for all verbs it is possible to express moods using it. (XVIII: 40)

22. ‘non dicimus Priscianus lego nec Apollonius legis; quomodo autem ... Priscianus ego lego et tu Apollonius legis [recte dicitur].’
He seems more interested that the infinitive can occur with nominative, accusative and ablative nouns as in *cognitus est posse dicere*, *cognitum hunc posse dicere*, *cognito posse dicere*, which the English translation, roughly “what is known can be said”, does not satisfactorily distinguish.

    *cum dico enim bonum est legere nihil aliud significo nisi bona est lectio.*  
    “when I say it is good to read I mean nothing other than reading is good.”  

The contrast is between the impersonal *bonum*[N.NOM] *est* with the infinitive and the nominal; *bona*[F.NOM] is in agreement with the feminine noun *lectio*[F.NOM].

The discussion of moods is disappointing after reading Apollonius. Priscian does identify and exemplify the fact that one mood is used where we might, perhaps, expect another and he would be on better ground if he were able to refer to the different clause-types that can be used to express different illocutions. He recognizes that imperatives are used to persons of equal and higher status as well as to inferiors across a range of commands, exhortations, supplications, and invocations (XVIII: 70f); and that

As we show above, however, authors are found to use the indicative, optative and subjunctive as an alternative to the imperative.  

    (XVIII: 74)\(^{23}\)

Be aware also that imperative verbs joined with vocatives make a well-formed sentence, as in

    *Their* nominative [counterparts] require the presence of verbs [in the indicative] and at the same time require relative articles, cf.  
    *you who are Apollonius teach, you who are Trypho learn.*  

(XVIII: 75)

Priscian mentions in XVIII: 77 the fact that there is no formal distinction between the optative and subjunctive in Latin but then ignores it, maintaining the contrastive distinction inherited from Greek. The optative is used in prayers and with the adverb *utilam* “would that” (XVIII: 76); the subjunctive expresses doubt or uncertainty (XVIII: 79).

This subjunctive mood, therefore, examples of whose force I have briefly gathered together, among the Latins is used when there is doubt, approval, or possibility in cases where supposition is brought in.  

(XVIII: 91)

Priscian’s *Institutiones Grammaticae* is a massive work with the grammatical points made being extensively illustrated from Greek and Latin literature. It is poorly structured, a fact noted by early medieval commentators, some of whom reorganized the material in excerpts so that, for instance, all aspects of the noun were collected together instead of being strewn across several books. One accessible example (because the Latin is translated into English) is the *Excerptiones de Prisciano* (c. 980–90; Porter 2002), which was the source for Ælfric’s grammar of Old English (/Ælfric 11th c. manuscript; 1880). By comparison with Apollonius’ *Perí Suntaxeōs*, Priscian’s *Inst.* lacks verve and originality.

**Priscian’s De Nomine**

*Institutio de Nomine, Pronomine et Verbo* examines the inflecting word classes among the parts of speech. It begins with the five noun declensions defined formally in terms of the

\(^{23}\) See Allan 2006a: 46f for some discussion of this.
All nouns used in good Latin are inflected according to five declensions which are numbered in accordance with the sequence of vowels forming their genitive case. The first, then, has its genitive ending in the diphthong ae, e.g. hic poēta [NOM “this poet”], huius poētae [GEN “this poet’s”]; the second has a long i as the case ending, e.g. hic doctus [NOM “this learned man”], huius docti [GEN]. The third [ends] in short i, e.g. hic pater [NOM “this father”], huius patris [GEN]; the fourth in long us, as in hic senātus [NOM “this senate”], huius senātūs [GEN]; the fifth in ei divided into [two] syllables, e.g. hic merīdies [NOM “this noon”], huius merīdīēi [GEN].” (Priscian 1961a: 443)

In this work Priscian is at least as thorough as Apollonius. Even though Priscian lived in the eastern empire, where the principal language was Greek, it is clear from this passage, as from all his work, that his audience was assumed to be fluent in Latin. He was not teaching Latin as a foreign language, although it is quite likely that the variety of Latin he describes was not the Latin spoken by his contemporary audience. He quite often cites or quotes Greek authors and refers to the Greek language, for instance, while exemplifying further the first declension nouns in Latin he compares them with Greek nouns (ibid. 443):

υτ ὁ Λυσίας τοῦ Λυσίου hic Lysias huius Lysiae, ὁ Ἄντας τοῦ Ἀντα hic Antas huius Antae, ὁ Πριαμίδης τοῦ Πριαμίδου hic Priamides huius Priamidae …

Even if he didn’t expect his audience to have a better knowledge of Greek than of Latin, he certainly thought that they could usefully learn the grammar of Latin by comparing the two languages. He introduces many additional comparisons for other declensions. He proceeds through the various case forms in singular and plural for all declensions of nouns before recommending (ibid. 449) further study of the topic in Books VI and VII of Inst.

With the same decisiveness we see in the opening discussion of nouns, Priscian says that there are fifteen pronouns in Latin, divided into eight ‘primitive’ pronouns (ego, tu, and six third persons sui, ille, ipse, hic, iste, is) and seven ‘derived’ or possessive pronouns: meus, tuus, vester, nostras, vestras, etc. are all first or second person; the third person possessive uses a genitive of one of the third person primitives. The first and second person primitives have only the one case form; the other cases are derivatives, e.g. mei [GEN], mīhi [DAT], me[ACC], a mē [ABL]. Only the second person has a vocative form and it is identical with the nominative: tu, vos. Next, Priscian identifies nine ‘variable names’ (nomina mobilia, p. 449), which include indefinite pronouns such as quis “who, what” and quantifiers like unus, nullus, totus, alter (“one”, “none”, “all”, “other”) and discusses their inflections.

Then he turns to the four conjugations of verbs. Once again these are defined formally. For example,

Thus the first conjugation has the first person ending in o which changes to long as to make the second person, e.g. amo [I.love] amās [you.SG.love]. The second conjugation has its first person in eo which changes into long es in the second person, which is always in this conjugation a minor syllable, e.g. doceo [I.teach] docēs. (Priscian 1961a: 450)

Priscian reviews tense and mood paradigms. Using the second person singular present indicative suffix as a diagnostic he goes through all forms that share this characteristic. For instance, the second person singular in –as:
amas and all persons in the present indicative: amo (1.SG), amas (2.SG), amat (3.SG), amamus (1.PL), amatis (2.PL), amant (3.PL)
amabas and all persons in the imperfect indicative: amabam, amabas, amabat, amabamus, amabatis, amabant
amaveras and all persons in the pluperfect: amaveram, amaveras, amaverat, etc.
legas and third and fourth conjugation present subjunctives: legam, legas, legat, legamus, legatis, legant
He proceeds with all forms congruent with the second person singulars in es, e.g. second conjugation present indicative doceo, doces, docet, docemus, docetis, docent; first conjugation imperfect subjunctive amarem, amares, amaret, etc.; first conjugation present subjunctive amem, ames, amet, etc.; third conjugation imperfect subjunctive legerem, legeres, legeret, legeremus, legeretis, legerent. What Priscian is doing here is demonstrating regularities that proceed from a known source, namely, second person singular present indicative forms. Only after dealing with the regularities does he turn to the few irregularities. He offers transformational rules such as
The pluperfect in all conjugations turns the final i of the perfect into a short e and adds ram
e.g. amāvī ⇒ amāveram, audīvī or audī ⇒ audīveram or audieram. (Priscian 1961a: 452)
He discusses imperatives, subjunctives (which, in this work, he always calls optatīvi “optatives”), and infinitives before moving on the tense forms of participles and supines.24
Here again he makes comparison with Greek. There is an intermission where voice is exemplified and discussed. To the first person in any conjugation, tense or mood ending in o add r to create a passive, e.g. amo, amor; amabo, amabor; legunto, leguntor (“I love, I am loved; I will love, I will be loved; let them read, let them be read”). And there are comparable if not such simple rules for constructing all other passives. He then returns to present participles and deverbal nouns. And he ends up referring to his further discussion of all these matters in Inst.

Priscian’s Partitiones
The Partitiones Duodecim Versuum Aeneidos Principalium opens with the first line of Virgil’s Aeneid followed by a discussion of the feet that appear in the verse and a more general discussion of all the kinds of feet found in various types of verse: dactyls – - -, spondees – – , anapaests - - -, iambs - -, trochees – -, etc. Then follows a pattern of analysis repeated for the first lines of each of the twelve books of the Aeneid. The verse is scanned, the caesuras identified and the forms of the parts named. The parts of speech are then discussed in great detail along with their subcategories, their potential as the basis for derivations, and other kinds of alternative forms. Consider the discussion of the first line of

24. Supines are a restricted set of verbal nouns, e.g. Hic liber facilis est lectu[read.SUPINE] “This book is easy to read”; Romam Caesarem visum[see.SUPINE] ivimus “We went to Rome to see Caesar”; mirabile dictu[say.SUPINE] “amazing to relate”.

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The Partitiones Duodecim Versuum Aeneidos Principalium opens with the first line of Virgil’s Aeneid followed by a discussion of the feet that appear in the verse and a more general discussion of all the kinds of feet found in various types of verse: dactyls – - -, spondees – – , anapaests - - -, iambs - -, trochees – -, etc. Then follows a pattern of analysis repeated for the first lines of each of the twelve books of the Aeneid. The verse is scanned, the caesuras identified and the forms of the parts named. The parts of speech are then discussed in great detail along with their subcategories, their potential as the basis for derivations, and other kinds of alternative forms. Consider the discussion of the first line of
Book V: *Interea medium Aeneas iam classe tenebat* “Meanwhile Aeneas held the fleet in the mid way.” The first paragraph reads:

> Scan the verse. *Interea medium Aeneas iam classe tenebat.* How many caesuras does it have? One. What? A semiseptenarius, *Interea medium Aeneas.* How many are its elements (syllables)? Ten; for it has three dactyls and two spondees. [The caesura, marked ||, occurs in the preferred position after the long syllable at the beginning of the fourth foot: $\text{intērē̄ā mēdī}$[iǐm elided before a vowel] $\text{Āenē̄ās}$ || $\text{iām}$ || $\text{clāssē tēnēbāt}$. (Dactyl, dactyl, spondee, spondee, dactyl, trochee.)] Discuss each foot. Interea etc. [this is skipped perhaps because the same kind of thing has been done four times already]. How many parts of speech has this verse? Six. How many nouns? Three. What? *Medium, Aeneas, classe.* How many verbs? One, *tenebat.* What else is there? Two adverbs, *interea* and *iam.* Discuss each part of speech.

*Interea* is what part of speech? Adverb. What is an adverb? … (Priscian 1961b: 480)

The style is reminiscent of the *Ars Minor* of Donatus (Donatus 1961b). Every part of speech is exhaustively discussed as it arises. There is not much repetition in the twelve sections of this work because there is something different to say about each word in the verse and its morphological construction and particular type. E.g. *interea* “meanwhile” is a temporal adverb; it is a derivation from the free (*integro*) element *inter* and the bound (*corrupto*) part *ea.* The noun *medium* here is an excuse to compare (*ibid.* 481) the definitions of nouns in Donatus (a part of speech with case signifying each a thing or a proper name) and Apollonius (a part of speech signifying a concrete or abstract thing with the quality of being either a common name or a proper name). Then all the properties of common nouns and adjectives are examined. Proper nouns are examined in the discussion of the name *Aeneas.*

Let’s now skip to the end of the book where there is a parsing of the proper noun *Latinos* from the first line of Book XII of the *Aeneid.*

*Latinos* is what part of speech? Noun. What sort? Derived, masculine gender, singular number, simple form. Of what type? Derived. Nonetheless it can be the proper name of a thing, the father-in-law of Aeneas, a Latin person from Latium, or possessive in *Latinus ager* “Latin field” [. Also Latium is the name of something concealed or broad. *Latinitas* [“Pure Latin”] is [derived] from Latin [the language]; from *Latium* also derives *Latius* [“something from the region”] and *Latiaris* [“Jupiter, patron of the Latins”]. Make a compound noun. *Latinigena* [“Latin people”] in the manner of *Troiugena* [“Trojans”, *Graiigena* [people of Greece]. But in the latter the second of the geminate i’s changes to u making *Troiigena* and *Graiigena* *Troiugena* and *Graiigena* respectively. (Priscian 1961b: 515)

This sufficiently demonstrates Priscian’s method in *Partitiones* and explains why it was much used in teaching Latin. Anyone who associates the word *parse* with studying Latin grammar has this work of Priscian’s to thank.

**A summary of Priscian’s contribution**

Priscian describes the word as a minimum unit of sentence structure. A sentence is an arrangement of words expressing a complete thought. The eight parts of speech are largely semantically defined and indeed Priscian says – following Apollonius: ‘the parts of speech cannot be correctly known without knowing their proper signification’ (Priscian 527 II: 17). Priscian’s definition of the noun made no reference to it taking case inflection (Priscian 527
II: 22), although he did deal with the various subcategories of the noun, just like Donatus had done. This suggests a presumption that the case inflections were already known to his audience. The verb was given the same description as in the Technē Grammatikē and the Artes of Donatus.

**Noun.** Assigns a common or particular quality to every body or thing.

**Verb.** The part of speech with times and moods signifying action or being acted upon.

**Participle.** A part of speech deriving from the verb and having at the same time gender and case.

**Pronoun.** Is substituted for proper nouns and can take specific persons. (This is descriptively inadequate.) Following Apollonius, Priscian 527, XIII: 31 says that the pronoun indicates substance without further properties.

**Adverb.** A part of speech without inflection (i.e. it is indeclinable) which is added to the meaning of the verb.

**Preposition/prefix.** Is indeclinable and put before other parts of speech in either apposition or composition. [...] It is put before and in apposition to case-inflected words, and in composition with both cased and non-cased words.

**Conjunction.** An indeclinable part of speech conjoining other parts of speech which are to be understood together, and showing the relationship between them.

**Interjection.** A class of words syntactically independent of verbs, indicating feeling or state of mind.

Priscian talked about the properties or essence of each part of speech, e.g. Proprium est nominis/verbi/pronominis/adverbii, etc. and it is clear that he thought the semantic content of the parts of speech was their most significant property. But he also discussed their subcategories, thus giving some account of their morphological properties. However, semantic and functional descriptions dominated the Western Classical Tradition.

Priscian’s morphological description of nouns and verbs took the relatively unmarked nominative and present indicative forms from which are derived the other forms by a process of letter changes.

Varro’s important insight into the difference between derivational and inflectional morphology was ignored by Priscian, who followed the Alexandrian practice.

Case was shown to rest not on forms of any one noun or declension of nouns but on semantic and syntactic functions systematically correlated with differences in morphological shape over the system as a whole. The many-to-one relations between form and meaning (use) are clearly allowed for in his analysis. In looking at case forms he uses the concord with various established case forms of the demonstrative hic/haec/hoc “this.М/Л/T” as normative models.

In analysing the verb he used the same model as is found in the Technē Grammatikē, which was not entirely applicable to the Latin verb. He did recognize that the perfect and the aorist are syncretic in Latin. However, unlike Varro, he did not recognize aspect. Like Donatus, he recognized a difference between optative (expressing wishes) and subjunctive (other hypotheticals) in Latin, following the Greek verb morphology, although this is not superficially distinct in Latin verb morphology (as it is not in English). Here we have an
early example of a formally nonexistent category being carried over from one language to another. It is very much like talking about the nonexistent (surface) cases of English nouns as many traditional grammars did.

Priscian held that the normal constituent order in the Latin sentence of subject (nominative noun or pronoun) before verb is natural because substance is prior to the action it performs or undergoes:

Before the verb, therefore, it is necessary to put the noun; it is proper for entities to act or undergo, in which is born the position of the noun and from these the properties of the verb, that is, active and passive. There is the idea of a subject noun in the verb itself, which without the noun cannot be meaningful. (XVII: 14)

This idea stretches back to Aristotle, if not Plato; it is certainly found in the Stoics. There are of course many languages in which the subject noun phrase does not precede the verb; but none of these would have been known to grammarians before the nineteenth century. It is foolhardy to make statements about naturalness on the basis of one or two related languages.

The terms subject and object were not in use in Priscian’s time, although reference was occasionally made to a logical subject or topic. Priscian did notice that transitive verbs govern an oblique case.

There is not much systematic analysis of Latin sentence structures in Priscian’s opera, but there is something on relations between parts of speech and sentence structure in so far as nouns and verbs are recognized as primary, and other parts of speech as subordinate to them. Thus there would be a sort of governance hierarchy:

- sentence governs nouns and verbs;
- nouns govern prepositions and pronouns;
- verbs govern adverbs.

Subordination was only acknowledged when one whole clause is subordinated to another clause. Conjunction was not recognized as either coordinating or subordinating.

In his detailed application of the Greek grammatical framework to Latin, Priscian achieved the goals of Roman grammarians from the previous five hundred years. Inst. is less consistently reliant on formal criteria than its Greek predecessors, but Priscian makes greater use of semantic criteria. In fact, no other Greek or Latin grammarian appears to have achieved the same degree of preciseness in formal descriptions of parts of speech as are found in the extant version of the Technē Grammatikē.

Priscian stands at the end of late antiquity. The next five or six hundred years are the early middle ages.

Up to here, the chapters in this book have been sequenced chronologically as well as thematically. Chapters in the rest of the book are thematic with sequenced internal chronology, but the chronology within the chapters overlaps with the chronology within other chapters. This allows for a more coherent structure than a rigid chronological matrix would.
Chapter 7  Prescriptivism from the early middle ages on

The prescriptivist tradition

It is one thing to speak Latin, and another to speak grammar.  (Quintilian 1920-22, I.vi.27)

Grammar seems to be permanently split into two camps: one of theoretical, philosophically oriented grammarians; the other of pedagogically engaged, and hence prescriptive, grammarians. A teaching grammar necessarily prescribes what linguistic structures are to be learned. It must demonstrate an approved model of grammatical usage to establish criteria for good usage and good style. In antiquity the standards for language excellence were the great poets like Homer, Virgil, and Horace; dramatists like Aeschylus, Euripides, Plautus, Seneca, and Terence; orators and rhetoricians such as Isocrates, Demosthenes, Cato the elder, Cicero, and Quintilian. The literary greats were normally canonized only when long dead: good style was invested in revered models from the past. Within the western world, from the fourth century to the nineteenth, this reverence for past authority in literary and grammatical excellence was transferred to the language of the Bible and the Church fathers. The celebrated originators of school grammars of Latin, such as Donatus and Priscian, were also treated with reverence in the middle ages; it was, however, acceptable to criticize their statements on grammar and the limitations of their grammars as it never was tolerable to criticize the language of the Church, which set a new standard for pure Latin.

Our chapter begins with a review of pedagogical grammar in the Europe of the early middle ages, which established a tradition of prescriptive grammars that has lasted until today. During the renaissance, or a little before, interest shifted from sole concern with the grammar of Latin (because it was the language of the Church) to writing grammars of vernacular languages that were modelled on existing word-and-paradigm grammars of Latin. European interest in vernacular grammar coincided with, and was probably motivated by:

- the rise of Protestantism and the consequent translation of the Bible from Latin into vernacular languages;
- the growth of printing, which took book production out of monasteries and made books widely accessible; and
- concomitantly, the emergence of a nationalistic merchant class.

Nationalism is usually accompanied by exaggerated pride in the national language: the language which is believed to best express the unique national culture and ‘genius’ of the people. Hence, there is an interest in the purity of the vernacular language expressed through prescriptions of ‘correct’ grammar and usage which create doctrines that apply to a notional ‘standard language’. In 1697 Daniel Defoe was moved to propose a ‘Society’ on the model of the Académie Française:

The Work of this Society shou’d be to encourage Polite Learning, to polish and refine the English Tongue, and advance the so much neglected Faculty of Correct Language, to establish
Prescriptivism from the early middle ages on

Purity and Propriety of Stile, and to purge it of all the Irregular Additions that Ignorance and Affectation have introduc’d; and all those Innovations in Speech, if I may call them such, which some Dogmatic Writers have the Confidence to foster upon their Native Language, as if their Authority were sufficient to make their own Fancy legitimate. (Of Academies, Defoe 1697: 233)

In this chapter we look at prescriptivism in eighteenth century Britain as an offshoot, if not a continuation, of the prescriptivism of school grammar in the early middle ages. Behind the prescription is the notion of a standard for English – more accurately, as many notions of a standard as there were grammarians, albeit with common threads. Alongside the pedagogical and prescriptive grammars, there was between the eleventh and the eighteenth centuries a new interest in the theory of grammar, which we examine in Chapter 8. It had some effect on the pedagogical tradition, as we shall see, but it focused on and philosophized about the essential nature of grammar. The eighteenth century doctrines of ‘correctness’ in English usage continued to affect the teaching of language throughout the nineteenth century and well into the twentieth. Indeed, there are very similar notions of ‘correctness’ around today.

Figure 7.1. Europe in the early middle ages.
The early middle ages

They were called the ‘middle ages’ by renaissance scholars who viewed the period between the flowering of the classical world and the rebirth of learning in the fifteenth century as an era of darkness and philistinism. It was a conservative epoch where rote learning remained the norm; but it was not without innovators. The fall of Rome to the Visigoth (German) invasion resulted in the loss of much classical literature. The philosophical schools of Athens were closed by the Byzantine Emperor Justinian I (ruled 527–65) in 529. The eastern Roman world, the repository for ancient Greek works, was difficult to access from the west and north; and by the late sixth century the Byzantine state was confronting many of the same threats that had destroyed the western empire in the fifth century. Barbarians pressed upon it from beyond the Balkan frontier while others manned the armies defending it. Wealth accumulated during the fifth century had been expended; and there were few native Romans living there. The Byzantine empire avoided the fate of Rome by requiring its barbarian subjects to accept Orthodox Christianity and the emperor’s authority. Christianity was a fragile veneer that often cracked in moments of crisis, and loyalty to the emperor was often forsworn. Nevertheless, the Christian faith and the ecclesiastical institutions defined in the sixth century proved more cohesive and morale boosting than the pagan culture of the western empire.

Until the late eighth century, today’s Romance languages were more regional dialects than distinct languages. The situation was probably similar amongst Germanic peoples; missionaries from Anglo-Saxon England could readily communicate with Saxons and Austrasians in the east of the Frankish Empire. As time passed, the Latin of antiquity ceased to be anyone’s mother tongue. Where Donatus could assume that his readers were familiar with Latin, the grammarians and commentators of the early middle ages had to help those for whom it was a second or foreign language. Instead of studying grammar to improve understanding and delivery of the classical Roman texts, it was a case of studying Latin grammar in order to understand Christian Scripture. The earliest Latin biblical texts were in vetus Latina “old Latin” and not only gave many variant readings for the same source text but abounded in solecisms and calques on Greek and Hebrew from the Septuagint. The new translation in St Jerome’s Vulgate (382–405) quickly became the definitive biblical text (we can ignore the fact that there was more than one version). Throughout western and northern Europe a knowledge of Latin was needed to understand Scripture and exegetical works, Church liturgy and ritual, or to undertake ecclesiastical duties such as delivering a sermon. Latin was the lingua franca of Europe. The grammatical works of Donatus and to a lesser extent Priscian were studied, copied, commented on, and elaborated. The principal innovation was the Christianizing of grammars. Classical Latin was written by pagans, and many Churchmen believed that it could not be studied in detail without barbarizing the

1. Supposedly the Hebrew Bible was translated into Greek independently by 72 scholars in 72 days; and these holy men were so inspired by God that their translations did not differ from one another by a single word. In fact, the Septuagint was compiled at various periods between the third and first centuries BCE. By Jewish and patristic tradition there were (?coincidentally) 72 languages in the world.
student. In any case, the Latin of the Church fathers was more highly valued because it had God’s imprimatur. Pope Gregory the Great (590–610) in his Epistola missoria ad Leandrum Hispalensem declared, ‘I deem it most unworthy to restrict the words of the heavenly oracle under the rules of Donatus.’ The ninth century French Abbot Smaragdus of St Mihiel-sur-Meuse (fl. 809–19) based his grammatical commentary on Donatus, but held the authority of the Vulgate to be superior.

In all these things we do not follow Donatus, because we hold the authority of Divine Scripture to be greater. Indeed we do not deny that cortex, silex, stirps and dies have common gender; however we are taught by the authority of the Scriptures that radix, finex and pinus are of feminine gender. (Smaragdus 1986 4T, 121–25)

Names and notions were chosen from Scripture and the Church milieu to replace those of pagan Rome. The pedagogical method of Donatus and of Priscian’s De Nomine and Partitiones (Priscian 1961a; b) was hijacked and Christianized as in the early eleventh century Beatus Quid Est? “What is holiness?” (from England) with its uplifting vocabulary. For instance, the lists of comparatives: castus [“chaste”], castior [“more chaste”], castissimus [“most chaste”]; probus [“upright, worthy”], probior, probissimus; iustus [“just”], iustior, iustissimus; sanctus [“sacred, saintly”], sanctior, sanctissimus; doctus [“learned”], doctior, doctissimus; beatus [“blessed, happy, holy”], beatior, beatissimus (Bayless 1993: 90).

It was generally accepted that the standard for grammars should be founded on three criteria:

- *auctoritas* – the authority of an accepted model (Virgil, Horace, Plautus, Cicero, Varro, Donatus, Charisius, Priscian); *auctoritas* came to be confused with *vetustas* “antiquity”;
- *ratio* – rational explanation in a systematic account consisting of definitions and rules (*regulae, analogia*);
- *consuetudo* or *usus* – contemporary usage.

Of these criteria St Augustine (354–430) judged *ratio* the least important (contrary to Apollonius) and *consuetudo* the most important (Augustine 1861). But St Isidore of Seville (560–636) reveals a lack of confidence in *consuetudo*, an awareness that Vulgar Latin was not like the classical Latin of the Roman republic or early empire, but had become ‘corrupted’ by solecisms and barbarisms (Etymologies IX.i.6–8, Isidore 1617; Brehaut 1912). That was one good reason for the heavy reliance on old faithfuls like Donatus and Priscian (Priscian was accepted as a native speaker of Latin despite his North African origin and relocation in Byzantium). The works of these masters were reorganized and Christianized and commented upon, but there was no significant advance in grammatical theorizing or descriptive practices during the early middle ages. There was, however, development of word-and-paradigm introductory school grammars (primers) that virtually ignored syntax and established a pedagogical tradition that persisted until the twentieth century.

2. See also 4T 146, 152; 8T 115–20; 9T 52–57; and 5T, 62–65, where Smaragdus favours the use of a singular for *scala* “ladder, staircase” in Genesis against Donatus’ prescribed plural.
Isidore of Seville, encyclopaedist

Greek science had fought against superstition and engaged in empirical observation and rational interpretation of reality. In the early middle ages attention centred on the spiritual world of neo-Platonist Christianity. For example, Isidore wrote history and many theological works, including one on the canon law of the Spanish church (Isidore 1862b); he wrote treatises on linguistics (Differentiarum Libri “Books of differences”, Isidore 1862a), on natural science and cosmology (De Ordine Creaturarum “On the order of creatures” and De Natura Rerum “On the nature of things”), and on the mysticism of numbers (Liber Numerorum, Isidore 1862c). Outstanding among Isidore’s literary production were the 20 books of his Etymologiae (hereafter Etym.; Isidore 1850), which compiled extracts from the works of previous encyclopaedists, specialists, and various Latin writers as well as his own observations. Almost 1,000 manuscripts of the Etymologies are still in existence. Isidore fuses education in the seven liberal arts with more general encyclopaedic data, using ideas from Aristotle (though he had no Greek and had to rely on translations), Nicomachus of Gerasa (numerologist, fl. 100), Porphyry, Varro, Cicero, Suetonius, Moses, St Paul, Origen (theologian, 185–254), St Jerome, St Augustine, and Donatus. Isidore plagiarizes Magnus Aurelius Cassiodorus (c. 490–585); especially De Artibus ac Disciplinis Liberalum Litterarum (Cassiodorus 1865).

From the time of Varro, Latin scholars had preferred to summarize all knowledge rather than specialize. Varro and Pliny the Elder (23–79 CE) cribbed from original texts; but the encyclopaedists who followed them drew further and further away from primary sources. There was little attempt to match reported statements with observations of reality: what was significant was the authority of the source and not pragmatic validation of its assertions. If there was ever a difference of opinion, Isidore preferred the authority of the Bible or a Church father. He confidently asserts that Origen, Jerome, and Augustine surpassed all pagan authors in genius, wisdom, quality, and number of works (Etym. VI.vii.2–3). Rather curiously, he says:

We have God’s apostles as authorities. […] And so even if an angel from heaven shall preach otherwise, let him be anathema.4 (Etym. VIII.iii.3).

Isidore asserts that ‘Hebrew is the mother of all languages and alphabets’ (Etym. L.iii.4), sourcing this from St Jerome (Epistolae XXIX, XXX in Jerome 1864: 441ff).

The diversity of languages arose after the flood, at the building of the tower [of Babel]5; for before that […] there was one tongue for all peoples,6 which is called Hebrew. (Etym. IX.i.1)

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3. Neo-Platonism is an amalgamation of Plotinus’ (c. 205–70) interpretations of Plato, Porphyry’s (c. 234–305) edition of Plotinus’ Enneads, the Septuagint, Christian, Gnostic, and Jewish teachings. The Cosmos is the flawed expression (presentation) of the Divine (Platonic) Idea. See http://www.iep.utm.edu/n/neoplato.htm.
4. Translations of Isidore are taken, sometimes slightly adapted, from Brehaut 1912.
Adam, of course, spoke Hebrew (*Etym. XII.1.2*). But it seems that God speaks to a person in their own language, whatever it may be (*Etym. IX.1.11*).

There are three sacred languages, Hebrew, Greek, and Latin [...] For it was in these three languages that the charge against the Lord was written above the cross by Pilate. (*Etym. IX.1.3*)

The strength of Isidore’s beliefs in the authority of the Bible and its disciples was typical of scholars in the period between late antiquity and the renaissance – if not well into the nineteenth century.

Like many of his contemporaries Isidore was a mystic. He perceived patterns and connections where we cannot. For instance, between the knees and the eyes:

[M]an in his beginning and first formation is so folded up that the knees are above [against the eyes], and by these the eyes are shaped so that there are deep hollows. [...] Thence it is that when men fall on their knees they at once begin to weep. For nature has so willed that they remember their mother’s womb where they sat in darkness, as it were, until they should come to the light. (*Etym. XI.1.109*)

And there was the magical number 22:

[...] And there are twenty-two generations from Adam to Jacob, from whose seed sprang all the people of Israel, and twenty-two books of the Old Testament as far as Esther, and twenty-two letters of the [Biblical Hebrew] alphabet out of which the doctrine of the divine law is composed. (*Etym. XVI.xxvi.10, see also I.iii.4 and VI.i.3*)

The Jewish historian, Flavius Josephus, wrote (c. 90 CE) that Jews recognized 22 books (Josephus 1737); today Jews recognize 24 books. St Augustine followed the Septuagint and listed 44 books. There are 27 letters in Modern Hebrew. Isidore’s approach to etymology is also mystical: ‘His idea was that the road to knowledge was by way of words, and further, that they were to be elucidated by reference to their origin rather than to the things they stood for’ (Breault 1912: 33). In other words, Isidore made no distinction between natural and philological sciences; he was an out-and-out ‘naturalist’.

A knowledge of etymology is often necessary in interpretation, for, when you see whence a name has come, you grasp its force more quickly. For every consideration of a thing is clearer when its etymology is known.

Etymologies are given in accordance with cause, as reges from *regere* ["to rule"], that is *recte agere* ["do what is right"]; or origin, as homo ["man"] because he is from humus ["earth"]; or from contraries, as lutum ["mud"] from *lavare* ["to wash"] – since mud is not clean – and *lucus* ["sacred grove"], because being shady it has *parum luceat* ["little light"]. (*Etym. I.xxix.2, 3; cf. I.xxxvii.24*)

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7. Cf. John 19: 19–20. The *titulus crucis* in Hebrew was *YEHU HANOTZRI MELECH HAYEHUDIM* (reordered from the right-to-left Hebrew script); the Greek was *IIESOY Ο ΝΑΖΑΡΕΙΟΣ Ο ΒΑΣΙΛΕΥΣ ΤΩΝ ΙΟΥΔΑΙΩΝ* and in Latin *IESUS NAZARENUS REX IUDAEORUM* (whence INRI). All of these would have been in *scripta continua*. The three languages are vouched for in Luke 23: 38, but the wording is different: ‘This is the King of the Jews’. Matthew 27: 37 and Mark 15: 27 don’t mention the three languages, and the wording is different in each, though all gospels report ‘King of the Jews’.
Ossea [“bones”] are named from ustus [“burned”], because they were burned by the ancients, or as others think, from os [“the mouth”], because there they are visible [teeth], for everywhere else they are covered and concealed by the skin and flesh. (Etym. XI.i.86)

Apes [“bees”] are so called because they hold to one another by the feet [pes “foot”], or it may be because they are born without feet. […] In a correct sense apes are so called because they spring from boves [cattle] as hornets from horses, drones from mules, wasps from asses. (Etym. XII.viii.1, 2)

There is, of course, the medieval belief that the Earth is at the centre of the universe.

The earth is placed in the middle region of the universe, being situated like a centre at an equal interval from all parts of heaven. In the singular number [orbem], it means the whole circle, in the plural [terrae] the separate parts. And reason gives different names for it; for it is called terra for the upper part where it suffers teritur [“erosion”]; humus from the lower and humid part, as, for example, under the sea. Again, tellus, because tollimus [“we take”] its fruits. It is also called ops [“power”] because it brings opulence. It is likewise called arva [“ploughed”], from arando [“ploughing and cultivating”]. (Etym. XIV.i.1)

On the basis of a twenty-first century understanding of the term etymology, most of Isidore’s etymologies are absurd. However, as I said in Chapter 4 when discussing Varro’s etymologies, the ‘naturalist’-inspired understanding of the term in antiquity, which remained in force throughout the middle ages and is still with us, would be better glossed in today’s terms as “lexical semantics”. To be more precise, the aims of the ancient and medieval etymologist were, mutatis mutandis, similar to those of today’s students of lexicology in trying to map lexical relations in terms of both morphological form and meaning. The assumptions and methods are very different, but the aim is very similar. The modern understanding of etymology is “tracing the diachronic development of a linguistic expression via the changes in its meaning and form, identifying related expressions within the same and other languages, and reconstructing the proto-item” – we might loosely gloss this as word-history. This is just one specialized aspect of lexicology, but for Plato, Varro, and Isidore (among many others) etymologia was the whole of lexicology and more. Here are some more of Isidore’s etymologies. In the first three he identifies correlations within a semantic field among words that appear to be formally related and therefore might plausibly be recalled as a group.

Disciplina [“teaching”] takes its name from discendo [“learning”]: hence it can also be called scientia [“knowledge”]. So scire [“to know”] is so called from discere [“to learn”] because

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8. Robert Southey (1774–1843) suggested, perhaps not light-heartedly, that lass derives from alas, sighed at the thought that the girl ‘would in time become a woman, – a woe to man!’ ‘Because by woman was woe brought into the world’ (Southey 1834-47, 7: 76f); but the OED entry 1.k for woman shows that many seriously derive the word from woe to man. The late twentieth century feminist neologism herstory, dissimilating it from history, is based on false etymology. It is said that male hysteria is an oxymoron because Greek hystera means “womb”. And so forth. As Kate Burridge has pointed out to me (p.c.), these false etymologies demonstrate a kind of prescriptivism.

9. The semantic field of a word is determined from the conceptual field in which its denotatum occurs; it is structured in such a way as to mirror the structure of the conceptual field. See Chapter 13.
none of us knows unless he learns. Otherwise it is called disciplina because it is discit plena ["fully learned"].  

( Etym. I.i.1)

They are called litterae ["letters"] almost like legiterae because they offer an iter ["path"] to the legentibus ["readers"] or because they are in legendo iterentur ["repeated in reading"].  

( Etym. I.iii.3)

The word princeps ["chief"] gets its meaning from capiendi ["taking"] because he primus capiat ["takes the first place"] just as municeps ["official"] from one who munia capiat ["undertakes public duties"].  

( Etym. IX.iii.21)

In the next three quotes Isidore is attempting to explain the meanings of oratio, articuli, and verbum also by identifying correlations within a semantic field.

Oratio ["sentence, utterance"] is almost oris ratio ["reason of the mouth"].  

( Etym. I.v.3)

Articuli ["articles"] are so called because they artantur ["are pressed together with"] nouns.  

( Etym. I.viii.4)

Verbum ["word, verb"] is so called because the verberato ["vibrating"] air resounds, or because this part of speech versetur ["is used"] frequently.  

( Etym. I.9.1)

Etymologia included finessing the original forms and meanings of words in what would today be called the proto-language; it included word history, but it was a wider concern with relationships among the vocabulary items in the language with the focus being always on nouns or names (since ὄνομα and nomen mean both “name” and “noun”). We would today include part of this enterprise under morphological analysis, but for the ancients it had a semantic aspect that makes a term like lexical relations more appropriate. The relationships identified are often mistaken, but the meaning of etymologia is, nonetheless, “lexicology” or “lexical relations” and occasionally “lexical semantics”, rather than what we today call etymology.

Isidore is a prime example of scholarship in the early middle ages: existing knowledge was not extended, but compiled and rearranged. As Brehaut 1912: 32 says of Isidore’s endeavour: ‘Secular knowledge had suffered so much from attrition and decay that it could now be summarized in its entirety by one man.’ We are sometimes struck by the absurdity of his claims and his gullibility; here is just one example:

The Blemmyes, born in Libya, are believed to be headless trunks, having mouth and eyes in the breast; others are born without necks, with eyes in their shoulders.  

( Etym. XI.i.3.17)

Perhaps the most perceptive remark that Isidore made on linguistics is the unoriginal ‘Grammar is the science of speaking correctly, and is the source and foundation of literature [liberalium litterarum]’ ( Etym. I.v.1).

10. In each of Ann Fisher’s A New Grammar (Fisher 1753) and Lindley Murray’s English Grammar, discussed later, one of the four sections was ‘Etymology’, which ‘treats of the different sorts of words, their derivation, and the various modifications by which the sense of a primitive word is diversified’ (Murray 1795: 19). What they in fact did in this section was discuss the parts of speech and their various subcategories in a word-and-paradigm grammar that might today also be called morphology.
The insular grammarians

Although Isidore thought Britain ‘beyond the circle of lands’ and ‘that the Britons were so-called according to the Latin because they are bruti [“stupid”]’ (Etym. IX.i.102),¹¹ the most influential grammarians of the early middle ages were of British or Irish origin: ‘It was on the Continent that almost all the Insular grammars were studied and copied’ (Law 1982: 98).¹² In Ireland, Latin scholarship combined with bardic tradition to produce the medieval bardic tracts such as the Auraicept na n-Éces “The scholar’s primer”, part of which dates to the seventh century and is the oldest study of a west European vernacular. Ireland was in the forefront of Christian civilization until the Scandinavian invasions of the ninth century. The scotti peregrini, wandering Irish scholars, were influential throughout Britain and the rest of Europe; some, such as Anonymus ad Cuimnanum,¹³ Sedulius Scottus and Johannes Scottus Eriugena were grammarians or commentators on grammar. Viking raids in the late eighth and ninth centuries in Northumbria, East Anglia, Kent, and Wessex led to many Danes settling in England; Norse kings reigned intermittently in York until 954. King Alfred, who kept the Norsemen in check, saw the Viking menace as God’s punishment; so he encouraged a return to Latin learning to strengthen the Church while at the same time championing literacy in Anglo-Saxon. Few in Anglo-Saxon Britain knew much Latin until after 669, when the learned monks Theodore and Hadrian arrived to re-establish Latin scholarship. Only Donatus’ Artes, Priscian’s Institutio de Nomine (hereafter, De Nomine), and the first book of Isidore’s Etym. were widely known in Britain before the carolingian renaissance of the late eighth century. Aldhelm and Virgilius Maro, both possibly British, knew Priscian’s Institutiones Grammaticae. St Aldhelm of Malmesbury (c. 639–709), who claimed to have been instructed by Hadrian, wrote on Latin metrics but not grammar. ‘Aldhelm’s works are notorious for their highly elaborate, syntactically complex and lexically recherché Latinity’ (Law 1997: 190); they were influential in eighth century England. Virgilius Maro (Law 1995b) was a seventh century parodist who invented novel ‘Latin’ words and created a mythical set of grammarians.¹⁴ He was an original thinker and much quoted as a serious grammarian, though today it is difficult to see him as that. Undoubtedly British were Tatwine, Boniface, and Alcuin.

St Tatwine (d. 734 when Archbishop of Canterbury) wrote the Ars Tatui (Tatwine 1968), probably before 700, when teaching at the monastery at Breedon-on-the-Hill, Leicestershire. The detailed elementary grammar (primer) is based on Donatus’ Artes. Donatus offers only a very incomplete account of Latin inflectional morphology, but it was sufficient for his native-Latin-speaking audience. He used one third conjugation verb legere

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¹². This chapter owes a lot to the scholarship of Vivien Law.
¹³. Anonymus ad Cuimnanum 1992 has Hibernian properties and is addressed to an Irishman.
to demonstrate the terminology applicable to describing its various forms; gender, though not declension, is covered by the five nouns *magister* (“master”, M), *musa* (“muse”, F), *scamnum* (“bench”, N) *sacerdos* (“priest(ess)”, M or F) and *felix* (“happy”, M or F or N). No verbs of the other conjugations or nouns of the fourth or fifth declensions are described. The Constantinople-based Greek student of Priscian, Eutyches, wrote the *Ars de Verbo* (Eutyches 1961), an alphabetically organized form-based account of verbs which supplements Donatus. Priscian’s *De Nomine* identifies the noun declensions and was the basis for many revisions of Donatus during the early middle ages. Tatwine utilized Eutyches and Priscian while taking his vocabulary from ecclesiastical literature; his other sources include Martianus Capella (fifth century CE, Capella 1983), Isidore’s *Etym*. Book I, Pompeius (Pompeius 1961, a fifth to sixth century North African commentator on Donatus), and the *Ars Asporii* (Asporius 1961). The *Ars Asporii*, probably composed in Gaul before 650, is a Christianized Donatus-based primer, with more numerous paradigms and more copious examples than Donatus, but which shows no knowledge of Priscian’s *De Nomine*, and does not identify declensions.

The *Ars Tatini* was unknown to the west-countryman St Boniface (Uynfreth Bonifatius, 675–754) when he wrote the *Ars Bonificii* (Boniface 1980) at Nhutselle (Nursling, Hampshire) before he left on a mission to Germany in 716. Concerned with Latin accidence, Boniface has one paradigm for each of the five declensions. He relies heavily on (indeed, plagiarizes chunks of) the third to fourth century Greek commentator Phocas’ form-based, alphabetically arranged *Ars de Nomine et Uerbo* (Phocas 1961). The *Ars Bonificii* is a good primer that pays more attention to anomalies than other elementary grammars. Boniface’s *Praefatio ad Sigibertum* “Preface to Sigeberht” gives a revealing account of his intentions, assumptions, and procedures.

I skimmed the works of a number of grammarians in cursory examination and carefully assembled the rules that are the most useful and essential in composition for each of the eight parts of speech.

Where the meaning I lit upon was somewhat shadowy, in matters dealt with cursorily by only a few of the grammarians, I have expanded it by adding some long-pondered words of explanation. […] When I noticed that the grammarians had set forth conflicting rules, […] I thought it superfluous, even ridiculous, for me born of ignoble stock amongst the remotest tribes of Germania to pop up like a sheepish shepherd from behind a thorn bush or a clump of reeds and pronounce judgment. […] In each rule I have opted to follow that one found in holy treatises and in my daily reading to be the most often followed by the ecclesiastical dogmatists.

[…] Not so much as a single twig of a rule is grafted into this book without being firmly rooted in one of [Priscian, Donatus, Probus, Audax, Velius Longus, Romanus, Flavianus, Eutyches, Victorinus and Phocas].

[…] Once you have scanned and understood all this [grammar], you will be able to contemplate the pages of Holy Scripture all the more lucidly. (Law 1997: 173f, slightly adapted)

Boniface is acting as a ‘florilegist’ – collecting together the best excerpts from his authorities. In fact, Boniface did not use all the sources he claims to have used and he did use others unmentioned. The appeals to authority counter his being a non-native speaker of
Latin. Novelty is perilous. He rephrases his borrowings and substitutes his own examples to clarify the text. Following Charisius in *Ars Grammatica* (c. 350, Charisius 1964), he uses *ordo* for noun classes (declensions) and *declinatio* for case inflection. His intended readership was monks and nuns with some knowledge of Latin. Of course, he prefers the Latin of the Scriptures for his model, but unlike Smaragdus (writing about 805) who, as we have seen, commented on differences between grammarians’ prescriptions and Scripture, Boniface didn’t use examples from biblical texts. Only five of Boniface’s sources were the same as Tatwine’s: Donatus’ two *Artes*, Priscian’s *De Nomine*, Isidore’s *Etym.* Book I, and Asporius. Boniface also uses Charisius, Phocas, Audax (late classical period, Audax 1961), Diomedes (fourth century, Diomedes 1961), Sergius (Sergius 1961), Virgilius Maro, and Aldhelm.

Alcuin or Alhwin (732–804) taught in his native York before joining Charlemagne16 in 781 as palace educator and librarian. He compiled the *Epistula de Litteris Colendis* (784–5) for Charlemagne, prescribing intensive study of Latin language and literature for all monastic and cathedral schools. In 796 he left the court in Aachen to become Abbot of St Martin in Tours, where he developed cursive minuscule script and promoted the illumination of manuscripts. Alcuin wrote treatises on grammar, orthography, rhetoric, and dialectic. His definition of grammar is not unlike that of Dionysius Thrax: ‘Grammar is knowledge of letters and knowledge of correct speaking and writing’ (Alcuin 1995: 857D). He was the first to exploit Priscian’s *Institutiones Grammaticae* (Minor) in his *Dialogus Franconis et Saxonis de Octo Partibus Orationis* “Dialogue between a Frank and a Saxon about the eight parts of speech” (Alcuin 1995), which presented grammatical instruction in easily digestible question-and-answer form.

**FRANK:** Don’t forget that you said there were fifteen pronouns. Then why is it that Donatus included *quis* [“who”], *qualis* [“what sort”], *talis* [“such”], *quot* [“how many”], *tot* [“so many”], *quotus* [“what’s the number of”], *totus* [“all”] among the pronouns as well?

**SAXON:** I remember saying that there were fifteen pronouns about which there could be no doubt. As for the ones you mention, there is doubt as to whether they are pronouns or nouns. Priscian, that ornament of Latin eloquence, says that they are interrogative, relative or reductive [rejoinder] nouns and says that they cannot be pronouns because they do not denote a definite person, which is one of the properties of pronouns that have case. (Alcuin 1995: 873C, see Law 1997: 137)

Alcuin was a fulcrum for the so-called ‘carolingian renaissance’ because the influence of insular grammars spread from Charlemagne’s court. He trained the Italians Paulus Diaconus and Peter of Pisa who wrote insular-type parsing grammars based on Donatus; they were supplemented by paradigms from tracts such as *Declinationes Nominum* (unpublished) which was probably composed in early eighth century Britain (and often physically attached to the *Ars Asporii*). The *Declinationes Nominum* was a collection of noun paradigms using

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15. Although Boniface wrote Latin with confidence, he spoke it with less confidence: when visiting the Pope in Rome he sought a written instead of an oral interview (Law 1997: 196).

16. Charles I (c. 742–814), King of the Franks and Lombards, and Holy Roman Emperor from 800.
Priscian’s system. Paradigms were set out in running text to facilitate reading aloud. To save space any part thought predictable was omitted as in (1), a truncated form of (2):

(1) hae uirtus tutis ti tem tus te tes tum bus tes tes bus [from a ninth century MS, cited by Law 2003: 135]

(2) haec virtus virtutis virtuti virtutem virtus virtute virtutes virtutum virtutibus virtutes virtutibus

Batches of such paradigms were copied from work to work with additions and subtractions resulting from scribal insights, error, preference, or whim; consequently, some versions of the *Declinationes Nominum* have more subtypes within first and second declensions than others. In one ninth century manuscript Jeudy finds copying errors in a list of diphthongs where the scribe had replaced AU with the word *aut* “or” (Jeudy 1993: 132). He also wrote ‘Hoc habent infinita, ideo non sunt aspirationes’ “Infinitives have this feature, and for this reason are not aspirations/aspirated”, thus misquoting Priscian’s *non sunt separanda* “are not to be separated [from verbs as parts of speech]” (ibid. 136; see also Law 1997: 21). Texts such as *Iustitia Quid Est?* “What is justice?” (Law 1982: 82), the eighth century *Quae Sunt Quae?* “What’s what?” (ibid. 86), and the eleventh century *Beatus Quid Est?* “What is holiness?” (Bayless 1993) present sets of questions exhausting every aspect of concepts raised and the terms used when discussing such words as *beatus* or *iustitia*; and they give model answers with commentary.

**Ælfric of Eynsham**

Anglo-Saxon England was the first country in Europe to develop and widely use a literary form of the vernacular, which it did from the time of the Benedictine reform c. 960. Anglo-Saxon glosses of Latin were common, but the structure of Old English was ignored. Literacy in Latin was dismal by the time that Ælfric (955–1010) of Eynsham in Oxfordshire wrote his grammar in the decade after 992. Ælfric’s *Excerptiones de Arte Grammatica Anglice* (Ælfric 11th c. manuscript; 1880; Porter 2002) used the vernacular as a medium for instruction, but in other respects it was a typical medieval elementary grammar of Latin.

Once you have studied the eight word classes of Donatus’ grammar in this book you will be able to incorporate both languages, Latin and English, into your tender minds until you arrive at more advanced studies. (Quoted in Law 1997: 207)

So it was not training in Latinity, but a means of rendering Latin accessible to facilitate better understanding of the Scriptures. Ælfric presents lots of vocabulary in his subject-based *Glossary* that was inspired by Isidore’s *Etymologies*.17

17. In Ælfric’s *Homilies* we find an Isidore-type etymology: *Godspell is witodlice Godes syfes lar* “[the] gospel is certainly God’s own teaching” (Gneuss 1990: 25).
There was a conversation manual (the *Colloquium*), but, surprisingly, no prosody. Moreover, there are few or no insights into the grammar of either Latin or Old English. Latin definitions, examples, and quotations are translated using local colour and religious examples, for instance, *uestri sutoris instrumenta* – ēower sūtēres tōl “the tools of your cobbler”; *Eadgarus Adelwoldus rex episcopus* “King Edgar, Bishop Athelwold”.

Imperatiōnis is bebēōdendīc, ac swā dēāh wē hit ēwendað oft tō gebede. *Miserere mei, deus* miltsa mē, god.

“The imperative is for commands, but we use it often in praying: *Have mercy on me, God.*” (Quoted in Law 1997: 210)

And there is exemplification-cum-commentary in Old English:


“If you were to say Who taught you? I would say Dunstan. Who ordained you? He ordained me.” (Law 1997: 208)

The major source for Ælfric’s work is the extensive *Excerptiones de Prisciano* “Selections from Priscian” (Porter 2002), which, though structured on Donatus’ *Ars Maior*, takes its content from all of Donatus, Priscian’s *Institutiones Grammaticae*, *Partitiones*, and *De Accentibus*, and Isidore’s *Etym*. Book I. The *Excerptiones* clumps together material on the same topic that Priscian had distributed among different books. It is not a beginner’s grammar but serves as an introduction to or digest of *Institutiones Grammaticae*.

**Table 7.1. Ælfric’s parts of speech.**

<table>
<thead>
<tr>
<th>LATIN</th>
<th>ANGLO-SAXON</th>
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</thead>
<tbody>
<tr>
<td>declinatio</td>
<td>declinung, gebigednyss</td>
</tr>
<tr>
<td>nomen</td>
<td>nama</td>
</tr>
<tr>
<td>pronomen</td>
<td>naman speliend</td>
</tr>
<tr>
<td>verbum</td>
<td>word</td>
</tr>
<tr>
<td>adverbium</td>
<td>wordes gefera</td>
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<tr>
<td>participium</td>
<td>daelnimend</td>
</tr>
<tr>
<td>conjunctio</td>
<td>gepeodnys, feging</td>
</tr>
<tr>
<td>syllaba</td>
<td>stægefeg</td>
</tr>
</tbody>
</table>

Using loan-words, loan-formations, and semantic loans, Ælfric created an Old English metalanguage; there is a sample in Table 7.1. Many of these terms disappeared after the Norman Conquest. Ælfric expounds Latin morphology where he sees the necessity. For instance, for the Latin ablative he gives Preposition + Dative as the Old English equivalent. He draws attention to different gender assignments in the two languages (e.g. *liber M, bóć F*). He notes that the six Latin words *et, que, ac, ast, at, atque* all translate Old English *and*. He is thorough and not afraid to tackle difficult questions. “[In Britain] Ælfric’s grammar completely displaced other grammars at the elementary level soon after its appearance, and retained its dominating position into the twelfth century” (Law 1997: 215).
The Anglo-Saxon grammar of Elizabeth Elstob

Elizabeth Elstob (1683–1756) was a pioneer in studies of Anglo-Saxon, and the first woman whose grammar has survived (see above p.15). Her *Rudiments of Grammar for the English-Saxon Tongue* was based on ‘Ælfric’s Translation of Priscian’ and her grammar (Elstob 1715) is therefore very much in the Western Classical Tradition, though its influence was slight. On page 2 she distinguishes a linguistic sound, *andgíftfullic* [andgíftfullic stemn], from the non-linguistic sound that an animal makes, *gemencged* [gemencged stemn]. Then she turns to ‘letters’:

A letter in *Saxon* *stæf* [stæf], is the least part of any Book or Writing, and cannot be divided. A Book or Writing may be divided into Words, *Ś. cwýdas* [cwýdas], those Words into parts, *Ś. dælas* [dælas], those Parts into Syllables, *Ś. stæf geʃgas* [stæf geʃgas], and afterward Syllables into *stæf geʃgas* [stæf geʃgas] Letters. Beyond this there is no further Division. In each Letter may be consider’d, its Name, *Ś. nama* [nama], its Figure, or Shape, *Ś. hiy* [hiy], the same as our hue, its Power, *Ś. miht* [miht], i.e. what Power Letters have being join’d together with one another. (Elstob 1715: 2f)

Elstob then discusses the five vowels, plus the ‘Greek’ vowel y ‘much used in Saxon’ (p. 3). The fricative consonants *f, s, x*, together with liquids and nasals, she describes as ‘semi-vowels’; the grouping may be partly explained by the fact that ‘the first six, ef, el, em, en, er, es, begin with the Letter e’. Stop consonants except for *k* are, of course, ‘mutes’. *K* is grouped with *h* and *z* because they respectively have the names *ka*, *ha*, *za*. Thorn (*þ*) and eth (*ð*) are not mentioned. Sounds are combined into syllables, syllables into words, and words into ‘speech or discourse’, but Elstob does not say how these larger categories are constructed.

Giving Anglo-Saxon grammatical terminology throughout, Elstob identifies a traditional eight parts of speech, the first four of which decline: noun, pronoun, verb, participle, adverb, conjunction, preposition, and interjection. The noun has six cases (p. 7f); three genders; singular, plural and, occasionally, dual number. Following the Latin tradition of Ælfric, the article is included with nouns instead of being separated out as it would be in a Greek grammar; seven declensions are identified (pp. 10–12); simple and compound nouns are exemplified; adjectives, ‘Namer geʃgeʃma’, are described (pp. 17–19). Pronouns are subcategorized into singular, plural, and dual in the second person; primitive, possessive, relative, and reflexive pronouns are distinguished, and quantifiers such as *some*, a/one, *all*, along with cardinal numbers are included in the pronoun category. The verb (*geʃba*) is defined as ‘a Part of Speech, with Time or Tense, and person, but without Case’ (p. 30; cf. Priscian 527 VIII.1, quoted above p. 116). Subcategorizations include active, passive, and neuter (intransitive); three tenses and six moods (indicative, imperative, optative, potential, subjunctive, infinitive). Irregularity is illustrated (pp. 45–48). The passive is discussed further in the section on participles (p. 43). The adverb is ‘always joined with a Verb and has not its full Signification without it’ (p. 49); Elstob lists 24 types. She also lists eight types of conjunction (p. 52). As in her models, Ælfric and Priscian, Elstob distinguishes those ‘prepositions’ (*geʃgeʃma*) which govern cases and those which are ‘used in...
composition’ that today we call ‘prefixes’ (pp. 55f.). Finally she identifies eight classes of interjections.

Under the heading ‘Of Syntax’ Elstob offers a brief discussion ‘Of the Construction and Ordering of NOUNS and VERBS’ (pp. 57–64) in phrases as well as sentences. There follow short accounts of the dialects of Anglo-Saxon, of Anglo-Saxon poetry, and an unsatisfactory mention of ‘accent’ (p. 69), which is said to distinguish e.g. God from gód “good” and man (indefinite pronoun) “one, people” from màn (neuter noun) “crime, sin” or (adjective) “bad, false”; Elstob fails to say that the accent marks a long vowel in such monosyllables.

Elstob’s *Rudiments of Grammar for the English-Saxon Tongue* is at best a sketch grammar in the tradition of Dionysius Thrax and Donatus rather than Priscian. It is located in this chapter for that reason and because it was inspired by Ælfric’s grammar, rather than because it is a prescriptive grammar.

Prescriptivism and standards in English grammar

A descriptive grammar is one which sets out to describe the structure of a language, whether this is as an end itself or is to increase our knowledge of the language under description or of natural language in general. But any grammar which sets out to teach a language rather than to simply describe it must be prescriptive. Rules are given, but there is no philosophizing about them. Most of the grammars written early in the Classical Tradition had a primary pedagogical purpose. Dionysius Thrax and Apollonius Dyscolus described and exemplified good Attic Greek grammar and style for speakers of an Alexandrian koinē. Their Latin heirs, Donatus and Priscian, described good classical Latin for speakers of Late Latin or of Greek. Priscian created the prototype for parsing grammars in his *Partitiones* and he suggested some neat ways for learning new constructions on the basis of simpler constructions already known. Like their Alexandrian forebears, Donatus and Priscian disparaged solecisms, metaplasms,18 tautology, and verbosity. St Jerome’s Vulgate established Scripture as God’s own Latin, and *ipso facto* the best model that there could ever be; throughout the early middle ages and beyond, grammars in the Western Classical Tradition were Christianized. Tatwine, Boniface, and Alcuin all wrote competent Christianized Latin primers elaborating on Donatus’ *Artes* and Priscian’s *De Nomine* (plus, in Alcuin’s case, *Priscianus Minor*), with assistance from intervening exegetical works. In England, Ælfric of Eynsham’s *Grammar* and *Colloquium* were specifically intended as practical manuals for the teaching of Latin to speakers of Old English. In 1199 the *Doctrinale* (Alexander de Villa Dei 1893), which rapidly became popular all over Europe, used rhyme as a mnemonic to present a simplified version of Priscian’s grammar in Latin hexameters for students from non-Latin backgrounds who spoke *laicae linguae*.19 The

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18. A metaplasm is the alteration of a word by epenthesis, deletion or transposition of letters. Former U.S. President George W. Bush’s *nukular/nucular* is a metaplasm.
19. Other versifiers include Alexander Neckham (d. 1217) in *Corrogationes Promethei*; Eberhard Bethune’s *Graecismus* appeared about 1212; Ludolf of Luckowe’s *Flores Grammaticae*
teaching method was similar to that of ancient Greece: starting with sounds, it moved on to vocabulary, parts of speech, some dialectic, rhetoric, and models of good writing; but all with a Christian motivation. Throughout, there was the heavy reliance on memorization, which is a consistent feature of pedagogical grammar.

In 1540 William Lily (c. 1468–1522) wrote a grammar of Latin (Lily 1557; Lily and Colet 1970) that was prescribed by Henry VIII in 1542 for use in English schools. The ‘King’s grammar’ was traditional in favouring Virgil, Terence, and Cicero as models of good Latin; but came to be severely criticized because the rules for Latin were given in Latin rather than English. It was so well known that Shakespeare could refer to it as ‘the grammar’ in *Titus Andronicus* IV.ii when Chiron says, ‘O, ’tis a verse in Horace; I know it well: / I read it in the grammar long ago’, and obliquely in *Henry IV, Part 1*, ‘Homo is a common name to all men’ (Gadshill at the end of II.i.). English translations and commentaries were added by a number of seventeenth and eighteenth century grammarians. John Milton’s Latin grammar (Milton 1669) makes heavy use of it; and there are many others, some listed below. The long titles are given in full because they reveal the animosity and dogmatic self-confidence in the writer’s own preferred standard of ‘correctness’ contrasted with the fallaciousness of others.

*The Royal grammar reformed into a more easie method for the better understanding of the English, and a more speedy attainment of the Latin tongue* (Wheeler 1695)

*A Treatise of the Genders of Latin Nouns: by way of examination of Lily’s Grammar rules, commonly called, Propria quae maribus; Being a specimen of Grammatical commentaries, intended to be published by way of subscription upon the whole grammar* (Richard Johnson 1703)

*Grammatical Commentaries: being an apparatus to a new national grammar; by way of animadversion upon the falsities, obscurities, redundancies, and defects of Lily’s system. Necessary for such as would attain to the Latin* (Richard Johnson 1706)

which provoked a counter-attack

*Nolumus Lilium Defamari: or, A Vindication of the common Grammar, so far as it is misrepresented in the first Thirty Animadversions contain’d in Mr. Johnson’s Grammatical Commentaries. With remarks upon the same* (Symes 1709)

with a riposte

*Grammatical Commentaries: being an apparatus to a new national grammar; by way of animadversion upon the falsities, obscurities, redundancies, and defects of Lily’s system now in use. In which also many errors of the most eminent grammarians, [...] are corrected [...]. With an alphabetical index* (Richard Johnson 1718).

Lily’s text was revised in, e.g.

*A supplement to the English introduction of Lily’s Grammar: with select rules of the genders of nouns and the heteroclites. The whole from Lily’s Latin grammar, publish’d at Oxford. For the use of the school in Exon, commonly call’d the Free-School* (Lily 1719)

appeared mid-thirteenth century; John of Garland (d. c. 1272) wrote *Compendium Grammatice* and *Clavis Compendii* (see Law 1997: 267).
Lily’s grammar was in use for more than three hundred years.

The eighteenth century grammarians of English were mainly clergymen like the Reverend Dr Robert Lowth (1710–87), retired gentlemen like Robert Baker (fl. 1770), and amateur philosophers like George Campbell (1719–96). One wrote for the ‘Female Teacher in the British Dominions’ (preface to Farro 1754: vii); some wrote for the improvement of persons in trade or manufacturing; but ‘the majority of writers seem to have felt that they were writing for the edification and use of gentlemen, to warn them against inadvertent contamination with the language of the vulgar’ (Leonard 1929: 169):

Purity and Politeness of Expression […] is the only external Distinction which remains between a Gentleman and a Valet; a Lady and a Mantua-maker. (Withers 1789: 161)

Although this classism was the norm, it was not universal.

If a Man were with a serious Countenance to ask a Servant-Wench, that is standing at a Door, what a Noun Adjective is, and whether such a Verb governs a Dative or an Accusative Case, she would conclude him to be out of his Senses; and would perhaps run frightened into the House, and tell her Mistress that a Madman was going to do her a Mischief. And yet this Wench, who never heard a Word of Prepositions, Participles, Substantives and Verbs, makes use of all these Parts of Speech (and, generally speaking, very properly) without knowing they have any Names. (Baker 1770: v)

The prevailing attitude of the eighteenth century was put by Jonathan Swift (1667–1745) in A Proposal for Correcting, Improving, and Ascertaining the English tongue.

I do here, in the Name of all the Learned and polite Persons of the Nation, complain […] that our Language is extremely imperfect; that its daily Improvements are by no means in proportion to its daily Corruptions, that the Pretenders to polish and refine it, have chiefly multiplied Abuses and Absurdities, and that in many instances, it offends against every part of Grammar. (Swift 1712: 8)

Dr Samuel Johnson (1709–84) wrote in the Preface to his Dictionary: ‘I found our speech copious without order, and energetic without rules’ (Johnson 1755). Views like those of Swift and Johnson led to an outflow of prescription for what was proper in English. Swift gave as one reason for the inferiority of English that ‘the Latin tongue in its purity was never in the Island’ (op.cit. 9). The supposed superiority of Latin was a constant theme, though Greek was elevated to a higher position, with Latin universally classified ‘a Species of Greek somewhat debased’ (James Harris 1786: 148). Romance languages were vulgar corruptions of Latin; and Germanic languages were barbaric to most except Elstob 1715.

Buchanan 1767: ix, finding errors in the work of Swift, Addison, and Pope, wrote ‘Had they not the Rules of Latin Syntax to direct them?’ Lowth 1763: 42 (Lowth 1789: 47) wrote that ‘the Double Superlative most highest is a Phrase peculiar to the Old Vulgar Translation of the Psalms; where it acquires a singular propriety from the Subject to which it is applied, the Supreme Being, who is higher than the highest’; for which he was criticized by New York maths teacher Mennye 1785 on the basis that the Latin translation ‘maxime altissimus would
be ridiculous’. George Harris 1753: 20f says like ‘ought never to be used when it cannot be translated into Latin by the Word Similis.’ There was, of course, a contrary view:

I am not ignorant, that the Practice may be supported by the Syntax of ancient Languages. But what have we to do with foreign Idioms? It is Wisdom to enrich our Vocabulary with Words from every Quarter of the Globe; but an Indignity to suffer any Nation to controul our Style.

(Withers 1789: 40f)

It was rare for Latin to be rejected as a model. Blair put a compromise position, which relied on general or universal grammar (see Chapter 8): ‘All the rules of Latin syntax, it is true, cannot be applied to our language. […] But] the chief and fundamental rules of syntax are common’ (Blair 1783 I: 166f). And Withers 1789: 150f notes that Latin persecutio means “prosecution” and that prosecutio means “persecution”, so recourse to Latin when seeking the meanings of English words can lead to error.20 Noah Webster (1758–1843), favouring description over prescription, recognized that grammars should show ‘what a language is – not, how it ought to be’ (Webster 1789: 204ff) and is very modern when he writes ‘spoken language […] is the only true foundation of grammar’ (Webster 1798: 15f); nevertheless, he appealed to Latin when discussing whether or not the preposition should accompany the interrogative pronoun in wh- questions, and what form the wh- word should take, and therefore was convinced that ‘whom do you speak to? is a corruption’, preferring who (Webster 1789: 287).21

Appealing to reputable literary authorities to set the standard was a problem.

I have censured even our best Penmen, where they have departed from what I conceive to be the Idiom of the Tongue, or where I have thought they violate Grammar without necessity.

(Baker 1770: iv)

The classical English authors were all criticized for solecisms by some grammarian or other. Shakespeare, because of Ben Jonson’s evaluation of his ‘little learning’, was expected to use vulgarisms. The ‘wrong’ use of prepositions

even by Swift, Temple, Addison, and other writers of the highest reputation; some of them, indeed, with such shameful impropriety as one must think must shock every English ear, and almost induce the reader to suppose the writers to be foreigners. (Baker 1770: 109)

Lowth 1762: iii, among others, later reported much the same. As we have seen, there was often acrimony involved, since what was correct to one writer was incorrect to another. ‘Lowth censures Addison for writing “as either of these two qualities are wanting.” […] Priestley censures, in Smollett’s Voltaire “The number of inhabitants were not more than …”’ (Leonard 1929: 218, 220). Webster 1807: 16f accuses Dr Johnson of using attain in the sense obtain. Johnson 1755 writes of flee ‘This word is now almost universally written fly,

20. The lesson has some force, but Withers is not altogether accurate: accusatio is more frequently “prosecution”, and prosequor does not normally mean “persecute”; insectatio is “persecution”.

21. Murray 1795: 122 wrote, ‘the placing of the preposition before the relative [pronoun] is more graceful, as well as more perspicuous, and agrees much better with the solemn and elevated style’; but not in conversation or informal writing. For more on preposition stranding see Yáñez-Bouza 2008.
although properly to fly [...] is to move with wings and flee [...] to run away.’ Lowth 1789: 118f objects

In a few instances the Active Present Participle hath been vulgarly used in a Passive Sense: as beholding for beholdeo: owing for oren … ‘I would not be beholding to fortune for any part of the victory.’

And he says that, contrary to what was often heard, whereas I mistake/am mistaking means ‘I misunderstand’, I am mistaken means ‘I am misunderstood’. Baker 1770: 11 complains ‘To Demean signifies to behave, to comport, and not to debase or lessen.’ Elsewhere he prescribes ‘I get, go, or come up or down stairs; I am above or below stairs’ (ibid. 15). On p. 7f he favours different from over different to, though he admits the latter is frequently used, even by ‘good Writers’; he did, however, reject different than altogether. Many authors used you was for the singular, but Lowth 1789: 55 dismisses it as ‘an enormous solecism’; Campbell 1776, I: 339ff says you was is colloquial, like there’s the books. Both these expressions persist today and are condemned by purists – whose past strictures have obviously been ineffective. There was much discussion of Mark 8: 27 (King James version) Whom do men say that I am? The almost universal view was that the translators erred: ‘Whom’ should be Who.22 Murray 1795: 113, for instance, points out that the interrogative pronoun is governed by ‘am’, not ‘say’, and should agree in nominative case with I. A lot of the argument was concerned with what are surely stylistic and dialect variations. Particularly blatant examples of pure prejudiced personal preference are to be found in J. Johnson 1763: 19, who castigates as ‘Scotticisms’ a pretty enough girl instead of a pretty girl enough; paper, pen and ink instead of pen, ink and paper; and nothing else for no other thing. Baker 1770: 115 had written, ‘These seeming Minuties are by no Means to be despised, since they contribute to the Intelligibleness of Language’ – a valid point, but it does not apply to J. Johnson’s reviled ‘Scotticisms’.

Ann Fisher was ‘the first woman to produce a grammar of English’ (Tieken-Boon van Ostade 2008a: 145f); moreover, as was remarked in Chapter 1 (p. 16), her grammar was, deservedly, extremely popular in the late eighteenth and early nineteenth centuries. Fisher believed in a universal grammar such that study of the grammar of any one language would facilitate command of another (see Chapter 8 below).

A Person therefore who understands English grammatically, must be allowed to have good Notions of Grammar in general; i.e. that of every other Nation, and consequently, if he endeavours to learn any other Tongue, will, from this Analogy, find his Progress surprisingly facilitated. (Fisher 1753: ii [sic])

[The Reason why those among us, who have learned Latin, &c. are greater Adepts in our own Language than those who have only learned English at Random, or ingrammatically, is entirely from their Knowledge of Grammar in general; which they acquire by learning such or such Languages by It: For though every Language has its peculiar Properties or Idiotisms, the Nature of Grammar is, in a great Measure, the same in all Tongues. (ibid. iv [sic])

Q. Are the Parts of Speech the same in English as in Latin?

22. As it is in other translations, see http://bible.cc/mark/8-27.htm.
A. Yes, and in all other Languages as well as Latin: For that which is a Name, or Noun Substantive in English, is a Noun Substantive in the Latin, Greek, Hebrew, French, &c. Languages. (ibid. 61)

Fisher was convinced that English is at least the equal of, if not superior to, any other language.

That the English Language is as copious, significant and harmonious as any in the World, none pretend to dispute. (ibid. ii)

If to be Master of any Language, so as to write it with Propriety and Exactness, is to understand it grammatically; it must certainly be a nearer or more concise Way, to the Perfection of ours, to learn the English Grammar itself, than to go about to study the Latin One, &c. merely to come at the Knowledge of our own from the Nature of theirs. (ibid. v)

As in English we have but this one Case [the Genitive Case, or Possessive Name], we express the Circumstances, Properties, or Affections of Things to one another by the Help of little Words called Prepositions, such are of, to, with, from, by, &c. whereby we are freed from the great Trouble that is found in other Languages of expressing the Circumstances, &c. of Names in twelve Cases, and five or six different Declensions: So likewise our having no difference of Gender in our Names, is an Advantage as great as the former, and which no other Language Antient or modern enjoys, except the Chinese. (ibid. 70)

Fisher’s New Grammar with Exercises of Bad English has four parts (i) Orthography, dealing with spelling, syllabification, and punctuation; (ii) Prosody, pronunciation; (iii) Etymology, parts of speech and their morphology (‘so very essential to polite Writing, that I cannot think any one qualified to speak, write, or compose with a happy Propriety, a Clearness, and Comprehensiveness of Expression, who has not a thorough Knowledge of and Regard to it’ (ibid. x); (iv) Syntax, ‘which shews how to connect Words aright in a Sentence, or Sentences’ (title page). The method of instruction is question and answer, like that of Donatus (see Chapter 5), e.g.

Q. What is Grammar?
A. Grammar is the Art of expressing the Relation of Things in Construction, with due Accent in speaking, and Orthography in Writing, according to the Custom of those whose Language we learn. (Fisher 1753: 1)

Part I on Orthography and Part II on Prosody are thought to have been the particular interest and contribution of Daniel Fisher in the first edition of the book; but if that was indeed so, Ann Fisher must have been an apt pupil. In any case, it seems clear that these two parts also owe a great debt to Thomas Dyche (d. c. 1733), see Dyche 1707. The section on Orthography deals with letters and their pronunciation in words. Vowels and consonants are defined. Vowel length and its distribution in English are discussed; there is no mention of the term monophthong, only of diphthongs and triphthongs. The focus on written language is evident in that an ‘Improper Diphthong’ is one like the eo in people pronounced as ‘e long’; puzzlingly, another is the double aa in Aaron. Fisher deals with y and w as each being both vowel and consonant; she examines some of the vagaries of English spelling with

23. See above p. 16.
24. The Fishers may have used the later 24th edition, corrected, published in London by Richard Ware in 1737.
respect to pronunciation, and gives the correct pronunciation for borrowed Greek, Hebrew, Latvian, and French words (pp. 14, 18, 24). Her description of syllables in English is thoughtful and apt; it has rules of syllabification which include some remarks on derivational morphology (p. 34) – which is also written of under Etymology in Part III. Punctuation is discussed, which is beyond the interest of a linguistics student, but not that of the English language student for whom this grammar is written.

In Part II Prosody is explained. Word stress distribution is examined in polysyllabic words. The different stress marking of noun and verb in words like accent, concert, desert, etc. are identified (e.g. accent vs accènt). A term from Dyche 1707, Double Accent, is defined as follows:

[T]he Use of ["the Double Accent] is everywhere to denote, that the Letter which begins the Syllable to which it is prefixed has a double Sound, one of which belongs to the preceding Syllable: Thus the Words Ba"-lance, Cha"-pel, Mt"-stress, A"-ni-mal, &c. are sounded with double Consonants; as, Bal-lance, Chap-pel, Mis-stress, An-ni-mal. (Fisher 1753: 47)

We see that pronunciation has changed since the mid-eighteenth century; this is also evident for certain other pronunciations given in Fisher’s phonetic spelling such as perfect (perfit), perfected (perfited), Chorister (Quirister), Ribband (Ribbin) (ibid. 18f).

Part III is on Etymology ‘or, the kinds of words’. Etymology was not interpreted like etymologia among the ancients and early medievals, but as morphology or word-and-paradigm grammar, as the term etymologia was used by the modistae in the late middle ages (see Chapter 8). Part III deals with derivational morphology and the four parts of speech: Names, ‘which express Things, or Substances; Qualities, ‘which express the Manners, properties, or Affections of Things’; Verbs, ‘which express the Actions, Passions, or Beings of Things’; Particles ‘shew the Manner or Quality of Actions, Passions, or Beings, &c.’ Names are subcategorized into common, proper, and ‘Relative Names, or Pronouns’. The latter are different from other Names in having a form for the ‘leading State’ (subject form, e.g. I) and ‘following State’ (oblique form, me). Number, gender, and the genitive case are illustrated. Qualities (adjectives) can be identified ‘By putting the Word Thing after them, which they will bear with good Sense; as, a good Thing … [A] Quality cannot clearly signify any Thing, without a Name either expressed or understood; as, […] refuse the evil (Thing) and choose the good: Thing is, in both places, understood’ (p. 71). What today would be called determiners are included among Qualities; so too participles, as in a scolding Woman, a ruined Man. The Verb ‘is that Part of Speech which betokens the doing, being, or suffering of a Thing; to which belongs the several Circumstances of Person, Number, and Time’ (pp. 79f). Auxiliaries are named ‘Helping Verbs’. Four kinds of Particles are identified: Adverbs, Conjunctions, Prepositions, and Interjections. In traditional fashion Prepositions divide into those ‘set separate or before other Parts […] or] joined or set in composition’ (p. 96), the latter being prefixes. Discussing the derivation of words, conversion is described, e.g. ‘from a House comes the Verb to house (houze)’ and ‘almost every Verb has some Name coming from it; and, by adding the Termination er to a Verb comes a Name, signifying the Agent or Doer’ (p. 103). Many other derivations are also identified. Because this is a pedagogical grammar there are parsing exercises (e.g. p. 109).
Part IV is about Syntax, or Construction, ‘The right joining of Words in a Sentence, or Sentences together’ (p. 112). Just ten rules of syntax are offered (pp. 113–17). Some perceived exceptions ‘being authorised by Custom, and not reducible to Rule, may be called Anglicisms, viz. a few Days; many a Time; me thinks; every ten Years; whilst the Book was a-printing; whilst the Stream was a running, &c.’ (p. 121). Fisher discusses normal and unusual word order in sentences with the urging to ‘follow the Use of the best Speakers and Writers’ (p. 123). Pp. 126ff offer many examples of bad English with correction exercises; misspellings in these give some clue as to contemporary colloquial pronunciation, for example ‘youmer’ for humour, ‘featers’ for features, ‘natral’ for natural, ‘pictors’ for pictures. Part of the advice on reading aloud is that different meanings result from different sentence stress, e.g. ‘there may possibly be four different Senses, from the different placing of Emphasis’ on Will you ride to the Town To-day and these are elaborated (p. 148).

Fisher’s New Grammar is an excellent example of a pedagogical grammar of English; if it makes no original contribution to grammatical theory, this is typical of its genre. She disagreed with the Dean of St Patrick’s and many others that English was inferior to Latin and that it was intrinsically imperfect; instead she dwelt on how proper instruction in English would establish grammatical usage among its speakers and render the English language as copious, significant and harmonious as any in the world.

Lowth’s A Short Introduction to English Grammar was also written in response to Swift. Like Fisher, Lowth agreed that many people speak and write ungrammatically, but he did not believe that English is by ‘nature irregular and capricious’ and he set about describing for it ‘a System of rules’. His grammar has a very traditional format, discussing in turn letters (and their pronunciation), syllables, words, and nine parts of speech: article, noun, pronoun, adjective, verb, adverb, preposition, conjunction, and interjection. His grammar also had sections on sentences, punctuation, and gave exercises in parsing.

The principal design of a Grammar of any Language is to teach us to express ourselves with propriety in that Language, and to be able to judge of every phrase and form of construction, whether it be right or not. […] A good foundation in the General Principles of Grammar is in the first place necessary for all those who are initiated in a learned education; and for all others likewise who shall have occasion to furnish themselves with the knowledge of modern languages. […] When [a person] has a competent knowledge of the main principles, the common terms, the general rules, the whole subject and business of Grammar, exemplified in his own Language; he then will apply himself with great advantage to any foreign language, whether ancient or modern. […] A competent Grammatical knowledge of our own Language is the true foundation upon which all Literature, properly so called, ought to be raised.

(Lowth 1762: x–xii)

Lowth states that strong verbs like write and ride should distinguish between past tense and past participle forms, identifying what he regarded as ‘common mistakes’:

He begun, for he began; he run, for he ran; he drunk, for he drank: The Participle being used instead of the Past Time. And much more frequently the Past Time instead of the Participle:
as, I had wrote, it was wrote, for I had written, it was written; I have drank, for I have drunk; bore, for born; chose, for chosen; bid, for bidden; got for gotten &c. This abuse has been long growing upon us, and is continually making further incroachments. (Lowth 1762: 86–89)
In his own private informal correspondence, however, Lowth flouted this grammatical rule. In a letter to his wife we find ‘My Last was wrote in a great hurry’; and later in the same letter ‘whose faces and names I have forgot’. We might accuse Lowth of hypocrisy because he was willing to violate his own theoretical prescriptions when writing informally to his wife or to close friends, but he took care not to make the same ‘mistakes’ in more formal letters (Tieken-Boon van Oostade 2002: 463–5). People have confused past tense and past participle forms of strong verbs since the beginning of the medieval period (Lass 1999: 166ff); language is not amenable to being forced into a standard mould and anyone who attempts to do so will find themselves bemired in contradiction.

American-born Lindley Murray (1745–1826) settled in England in 1784. His *Grammar* is very similar in design to Lowth’s but is more comprehensive and better laid out, using bigger print for more important points and numerous sets of rules and verb paradigms (a teaching method indebted to Claude Lancelot’s instructional grammars of several languages, e.g. Lancelot 1681; 1758 – the latter an English translation). Murray’s book had four main sections. Orthography dealt with letters and their pronunciation, syllables, and spelling. As for Fisher 1753, ‘Etymology […] treats of the different sorts of words [nine parts of speech], their derivation, and the various modifications by which the sense of a primitive word is diversified [by subcategories such as number, case, tense, mood]’ (Murray 1795: 19). His definitions of parts of speech are a mix of formal and semantic criteria, for example,

*An article* is a word prefixed to substantives, to point them out and show how far their signification extends. […] A substantive or noun is the name of anything that exists or of which we have any notion. It may in general be distinguished by taking an article before it or by its making. (*ibid.* 41)

[A] word which has the article before it, and the possessive preposition of after it, must be a noun. (*ibid.* 117)

Murray floats the idea that there are as many cases in English as ‘the various combinations of the article and different prepositions with the noun’ (*ibid.* 28), but he doesn’t follow it up; however, he does see the need to exemplify English cases via Latin:

- **Nominaive.** MAGISTER, A master.
- **Genitive.** MAGISTRI, Of a master.
- **Dative.** MAGISTRO, To a master.
- **Accusative.** MAGISTRUM, The master.
- **Vocative.** MAGISTER, O master.
- **Ablative.** MAGISTRO, From or by a master. (*ibid.* 26)

Murray should have followed Fisher’s better example (see the quote p.147 above from Fisher 1753: 70). Murray uses a transitive clause to identify ‘the objective case’ (*ibid.* 29) ‘Syntax […] shews the agreement and right disposition of words in a sentence’ (*ibid.* 86). He discusses the parts of speech in the sequence article, noun, pronoun, adjective, verb, adverb, preposition, conjunction (including here comparatives), and interjection. In the Stoic tradition he claims that ‘Two negatives, in English, destroy one another, or are equivalent to an affirmative’ (*ibid.* 121) but as Cameron so rightly says:
I have yet to meet any speaker of any variety of English who on hearing Mick Jagger sing ‘I can’t get no satisfaction’ has entertained for one moment the belief he means the opposite. (Cameron 1995: 25)25

The same was true in the eighteenth century. Murray includes more parsing exercises than Lowth. His discussion of prosody reviews ‘accent’ (stress), ‘quantity’ (syllable length), ‘emphasis’ (sentence stress), ‘cadence’ (downdrift intonation), feet in versification, and punctuation:

The Comma represents the shortest pause; the Semicolon, a pause double that of the comma; the Colon, double that of the semicolon; and the Period, double that of the colon. (Murray 1795: 159)

It is a moot point whether this is accurate even for texts read aloud; it certainly needs revising in terms of degree of semantic-syntactic disjuncture for written texts. Murray is very modern in his recommendations for the use of capital letters. The Grammar ends with an Appendix containing Rules and Observations for promoting perspicuity and accuracy in writing. This is a precursor to the Gricean maxims (Grice 1975) and is closely modelled on John Hughes’ essay ‘Of Style’, written in 1698 and circulated thereafter (Hughes 1915). Like Hughes, Murray favours ‘purity’ (avoid obsolete, new-coined, ungrammatical, or foreign expressions), ‘propriety’ (avoid violations of what would come to be called the manner maxim), and ‘precision’ (choose the right expression and observe the quantity maxim); sentences should be clear, relevant, and have internal unity. He champions semantic extension and figurative usage because they ‘enrich language […] give us, frequently, a much clearer and more striking view of the principal object’ (Murray 1795: 212) and because they are necessary: ‘No language is so copious, as to have a separate word for every separate idea’ (ibid. 211). Prescriptive he may have been, but there is much good sense in Murray 1795. In a link back to the early middle ages, Holy Writ was his standard:

In the course of this work [his Grammar], some examples will appear of erroneous translations from the Holy Scriptures, with respect to grammatical construction; but it may be proper to remark, that not withstanding these verbal mistakes, the Bible, for the size of it, is the most accurate grammatical composition which we have in the English language. […] Dr Lowth […] says, “The present translation of the Bible is the best standard of the English language.” (Murray 1795: 103)

He deliberately used uplifting examples such as Blot out all mine iniquities and The man is happy who lives virtuously (p. 32); The scholars were attentive, industrious, and obedient to their tutors; and by these means acquired knowledge (p. 102). His Grammar was popular throughout the nineteenth century and it was supplemented by exercises (Murray 1799).

Aristotle’s observation that language is conventional was generally accepted from his day on. John Locke (1632–1704) in his Essay Concerning Humane Understanding had reiterated the notion, disclaiming any inherent or necessary link between a word and its denotatum (Locke 1700: III.i.1). Locke was an empiricist – like his friends and fellow members of the Royal Society, Robert Boyle and Isaac Newton. The Essay was to be ‘a

25. As pointed out more prosaically in Chapter 4 the double negative in English I cannot not go is synonymous with I must go, which implies, but is not implied by, I can go.
Survey of our own [human] Understandings, examine our own Powers, and see to what Things they were adapted’ (ibid. I.i.7). ‘Ideas’ provide the mind with representations of objective qualities of objects (such as size, shape, or weight) and also secondary qualities such as colour, taste, or smell which are subjective (ibid. Book II). To understand thinking and knowing one must understand language as the means of thought and communication (Book III). Locke claimed that words only mean what they are understood to mean; consequently, usage must be the sole arbiter.

Words in their primary or immediate Signification, stand for nothing, but the Ideas in the mind of him that uses them. (ibid. III.ii.2)

Linguistic forms represent the ideas of things and not the things themselves (ibid. III.ii.5). Frequently, the idea signified is not clear, and sometimes words are used even when there are no ideas corresponding to them. This is particularly so in the case of generic terms and universals. Locke suggests that such terms are nothing more than a creation of the mind, through abstraction; they denote ‘nominal essences’. He also discusses definitions, and rejects the Aristotelian view that all definition must be per genus et differentiam, saying that this only works so long as the Idea behind a word is explained:

For Definition being nothing but making another understand by Words, what Idea, the term defined stands for, a definition is best made by enumerating those simple Ideas that are combined in the signification of the term Defined. (ibid. III.iii.10)

Locke identifies three criteria for efficient communication:

First, To make known one Man’s Thoughts or Ideas to another. Secondly, To do it with as much ease and quickness, as is possible; and Thirdly, Thereby to convey the Knowledge of Things. Language is either abused, or deficient, when it fails in any of these Three. (ibid. III.x.23)

Locke’s embrace of the criterion of usage was less prestigious among the eighteenth century commentators on grammar than the views of Horace and Quintilian. Horace wrote, c. 13 BCE, ‘the will of custom, in the power of whose judgment is the law and the standard of language’ (Ars Poetica 71f, Horace 1928). Quintilian similarly:

Usage, however, is the surest pilot in speaking, and we should treat language as currency minted with the public stamp. (Quintilian 1920-22, I.vi.1–3)

[W]e must make up our minds what we mean by usage. If it be defined merely as the practice of the majority, we shall have a very dangerous rule affecting not merely style in language but life as well, a far more serious matter. For where is so much good to be found that what is right should please the majority? [...] I will therefore define usage in speech as the agreed practice of the educated. (ibid. 43–45)

Eighteenth century grammarians would doubtless claim to be presenting ‘the agreed practice of the educated’ in their works; but in fact there seems to have been more dispute than consensus over what constitutes good usage: each grammarian presented his own judgments which, as we have seen, often disagreed with those of his fellows. Any appeal to good usage ought to describe what is meant by such a phrase; and the better grammarians did so. For instance, George Campbell in The Philosophy of Rhetoric identified it as ‘reputable, national, and present’ (Leonard 1929: 148). By ‘reputable’ he means used at Court or found in authors acknowledged by educated gentlemen (Campbell 1776, I: 351f). By ‘national’ he
Prescriptivism from the early middle ages on 153

means neither provincial nor foreign (ibid. 353). By ‘present’ he means within the previous century, though he apparently excludes examples of good usage from living authors (ibid. 366). We have already seen that an appeal to the standards set by authors of reputation was fraught with controversy over their perceived occasional ungrammatical usage. Campbell’s canons of good usage (Leonard 1929: 154–60) include:

(a) unambiguous expression;
(b) regular rather than irregular forms;
(c) simplicity rather than complexity;
(d) euphony;
(e) conformity with Latin or Ancient Greek syntax;
(f) avoiding solecisms, barbarisms, etc.

(a), (c) and (f) seem very reasonable by today’s standards. Even (d) is a reasonable criterion for good style. But (e) we would now reject; the eighteenth century views on the matter have already been discussed. (b) is a quaint preference for ‘analogy’ such as led George Harris 1753: 24 to be sad that the regularizations knowned, falled, rised cannot be (re)introduced; in the light of (e), though, it is doubtful whether Campbell would have approved such regularized plurals as syllabuses and phenomenons.

The rational justification for an appeal to the classical languages as models for English grammar was a belief in ‘universal’ or ‘general’ grammar: 26 ‘the chief and fundamental rules of syntax are common’ to all languages (Blair 1783, I: 166f).

All men, even the lowest, can speak their Mother-tongue. Yet how many of this multitude can neither write, nor even read? How many of those, who are thus far literate, know nothing of that Grammar, which respects the Genius of their own Language? How few then must be those, who know GRAMMAR UNIVERSAL; that Grammar, which without regarding the several Idioms of particular Languages, only respects those Principles, that are essential to them all. (James Harris 1786: 11)

On the presumption that so-called ‘modern’ languages are corruptions of the ancient languages, the latter were supposedly closer to general grammar. Harris used many Greek and Latin examples. His universal grammar admitted parts of speech and other syntactic phenomena from familiar languages but excluded the unfamiliar, such as postpositions (which occur in, for example, Hungarian, Japanese, and Turkish). He claimed that the sun and moon are naturally masculine and feminine respectively – in defiance or ignorance of the Germanic and Slavic languages. For such infelicities he was rightly condemned by John Horne Tooke 1786. Notice the implicit assumption that the earliest language was closest to, if it did not embody, general grammar.

They [eighteenth century grammarians] built in general upon the neo-Platonic notion of a divinely-instituted language, perfectly mirroring actuality but debased by man, and they labored to restore its pristine perfection. (Leonard 1929: 14)

One pervading view was that grammar mirrors nature:

26. The term ‘general’ in general grammar derives from Latin genus–generis; the unique aspects of grammars of particular languages manifest species in their accidentia. The history and development of general grammar is discussed in Chapter 8.
THOSE PARTS OF SPEECH UNITE OF THEMSELVES IN GRAMMAR, WHOSE ORIGINAL ARCHETYPES UNITE OF THEMSELVES IN NATURE. (Harris 1786: 263f [sic])

This is a hangover from the speculative grammars of the late middle ages (discussed in Chapter 8). Similar was Burnet 1773-92 Vol II: 343 and Withers 1789: 124 – who, in this context, described Nature as ‘the Source of real Elegance’ and then explained ‘what are the Laws of Nature but the Operations of the Deity?’ (ibid. 185f).

Those eighteenth century grammarians who championed usage as a criterion of grammaticality were usually contrasting it with a notion of general grammar. This occurs, for example, in Campbell’s ridicule of Swift for thinking that language could offend ‘against every part of Grammar’ (Swift 1712: 8, quoted above p. 144).

What could the Doctor’s notion of grammar be, when he expressed himself in this manner? Some notion, possibly, he had of grammar in the abstract, an universal archetype by which the particular grammars of all different tongues ought to be regulated [...] I acknowledge myself to be entirely ignorant of this universal grammar; nor can I form a conjecture where its laws are to be learnt. [...] One thing indeed every smatterer in philosophy will tell us, that there can be no natural connection between the sounds of any language, and the things signified, or between the modes of inflection and combination, and the relations they are intended to express. [...] If he meant the English grammar, I would ask, whence has that grammar derived its laws? If from general use (and I cannot conceive another origin), then it must be owned, that there is a general use in that language as well as in others; and it were absurd to accuse the language, which is purely what is conformable to general use in speaking and writing, as offending against general use. But if he meant to say, that there is no fixed, established, or general use in the language, that it is quite irregular, [...] he ought to have said, that it is not susceptible of grammar; which, by the way, would not have been true of English, or indeed of any of the most uncultivated languages on the earth. (Campbell 1776, I: 342f, quoted in Leonard 1929: 149)

There was another view of language, too, which stemmed from rationalist grammar (also discussed in Chapter 8). This used the principle that language is conventional to argue for improving language by rational means to modify linguistic conventions. It permits the quibble that if a form or expression is logical, then it must be acceptable; if it is illogical it is unacceptable. What was logical was general grammar, which, as we have just seen, was perceived to be most closely represented by the grammar of a classical language.

A number of eighteenth century grammarians appealed to the ‘genius’ of the language, e.g. Harris 1786: 11, quoted above, and Johann Michaelis:

Every one who is master of the language he speaks [...] may form new words and form new phrases, provided they coincide with the genius of the language. (Michaelis 1771: 79)

The term genius of the language27 retains some of the classical sense of genius as a tutelary god or controlling spirit of the language which determines its distinctive character; but it had come to mean what the native speaker of the language (perhaps only the educated gentleman) intuitively finds correct (Leonard 1929: 29). Certainly, the mystical quality of

27. The earliest reference I know of is Petit 1686: 116: ‘Les Romains entendoient leur langue avec la même facilité que nous entendons la nostre. Chaque nation a disposé la sienne selon son genie, sans songer si l’on garderoit le mesme ordre dans les autres.’
‘genius’ comes out equivalent to a grammarian’s opinion of what best matched the grammatical norms of the language. Thus, as the grammarian established the grammar of the language, he concomitantly identified the ‘genius’ of the language, to which he could then appeal when justifying his pronouncements. There was, therefore, a vicious circularity.

The eighteenth century prescriptivists had very few new insights into linguistic analysis. There were some, however. For instance, Hugh Blair, writing of the omission of the relative pronoun (in such a phrase as the man I loved), notes,

> But though this elliptical style be intelligible, and is allowable in conversation and epistolary writing, yet, in all writing of a serious or dignified kind, it is ungraceful. There, the relative should always be inserted in its proper place, and the construction filled up. (Blair 1783, I: 221f, 453)

This shows a keen awareness of the difference between language usage in the spoken and the written medium – essentially a difference in the style of language used. On the other hand, Withers 1789: 405 thinks that omission of the relative pronoun is acceptable in writing. Fisher 1753 and Priestley 1761 noted that English has no future (syntactic) tense, something that is not always recognized even today. Much eighteenth century linguistic criticism was, however, oriented to matters of style. John Hughes’ essay ‘Of Style, written at the Request of a Friend in the Year MDCXCVIII’ (so, a little before the century began) has some ideas that one may compare with one of Grice’s maxims of the cooperative principle (Grice 1975), namely, manner:

> All the Qualifications of good Style I think may be reduced under these four Heads, Propriety, Perspicuity, Elegance, and Cadence: And each of these except the last, has some relation to the Thoughts, as well as to the Words. [...] There is another Particular which I shall mention here, [...] and that is Purity, which I take more particularly to respect the Language, as it is now spoke or written. (Hughes 1915: 80f)

Blair (1793, I: 439) takes perspicuity to be ‘the fundamental quality of style’, with purity, propriety, and precision as its subcategories. He says the necessity for precision is ‘not only that every hearer may understand us, but that it shall be impossible for him not to understand us’ (1793, I: 171). As noted already, this was taken up by Murray 1795: 177ff. Most of the discussion on style in the eighteenth century seems trivial to a modern linguist. The usual procedure was to complain of lack of clarity, logicality, or propriety on grounds that are almost invariably based on the personal belief and subjective judgment of the grammarian. The emphasis was on the ‘correctness’ of each word, while clarity or force in the communication of ideas was almost ignored.

The concern with ‘correctness’ in English grammar and usage is still with us; there are certainly displays of it within the community in letters to newspapers and authors (such as Truss 2004; Watson 2003; 2004) who set themselves up to be what Cameron 1995 calls ‘verbal hygienists’. Verbal hygienists include language conservation groups, movements for plain language use and spelling reform, those who take elocution lessons and ‘communication’ courses, editing language to a house-style, guidelines for non-discriminatory language, the mocking of accents, and sanctions against swearing (Cameron 1995: 9). Most of these have aims similar to those of the eighteenth century prescriptivists:
to clean up and ‘correct’ the language, and to teach youngsters what is deemed correct. There is even a moral dimension:

If you allow standards to slip to the stage where good English is no better than bad English, where people turn up filthy at school [...] all these things tend to cause people to have no standards at all, and once you lose standards then there’s no imperative to stay out of crime. (Norman Tebbit MP, on BBC Radio 4, 1985; quoted ibid. 94)

Bad English is correlated with slovenly unkempt appearance and criminal behaviour. If children are drilled in rule-governed grammar, the view held by people such as Tebbit is that they will learn discipline and imbibe a respect for order, tradition, authority, hierarchy, and rules (ibid. 95, 112). There is absolutely no experimental foundation for the view that learning a language or any other rule-governed intellectual behaviour (such as logic or mathematics) constrains subsequent delinquent behaviour. And the everlasting problem of deciding what counts as ‘correct’ grammar persists. Today, as in all earlier times, the evaluation of good and bad language rests in the eye, ear, and brain of the individual or among the social group to which that individual belongs. We may be pleased that the move to non-discriminatory language in the late twentieth century has been remarkably successful; but most attempts to manipulate language usage fail. Language is a social practice and changes will only be made when a particular practice becomes a convention. Roughly speaking, a convention (Lewis 1969: 78) is a regularity of behaviour to which, in a given situation, almost everyone within a population conforms and expects almost everyone else to conform. Moreover, almost everyone prefers this state of affairs to an alternative. This is not to say that the convention is immutable: if people cease to conform to a particular regularity and prefer to cease to conform to it, it will cease to remain a convention; and if they gradually adopt another regularity in behaviour, this will become a convention when almost everyone in the population conforms to it and almost everyone prefers this state of affairs to the alternative. Even when language conventions such as forms of address are imposed following a revolution, they do not succeed in being maintained unless they are willingly accepted within a community – as French, Russian, and Chinese revolutionary history has shown us.

When language is being learned there must be prescriptions about what is ‘correct’. ‘Standard English’ is the written variety that is promoted in schools and academia, that is used in most non-fiction books, law courts and government institutions. Students are expected to use it in essays; and ESL instructors teach it to foreign learners of English. Writers are supposed to acquire the standard rules and those who do not are in danger of being regarded as recalcitrant, lazy, and incompetent; they are said to have poor command of grammar. Standard English should properly be referred to as the ‘standard dialect’ or ‘standard variety’. There is no standard spoken-English: people reading speeches in Parliament or scripts in media broadcasts read Standard English in the written text, but their spoken delivery uses many accents. Once upon a time the most favoured accent was spoken at Court; then it was the speech of the well-educated upper class, so-called ‘received pronunciation’, the model for ‘BBC English’. Outside Britain there were different accepted spoken varieties such as General American. Although there are regional variations in written Standard English, regional variation in spoken English is extensive and far more obvious.
There is a perception that words need to appear in a dictionary before they count as words of the language; hence the power of dictionaries like the *Oxford English Dictionary* and *Webster's Third New International Dictionary* (Webster 2000 – the first edition of which was Webster 1828). When the project for the publication of a *New English Dictionary* was proposed in 1857, the aim was to create a dictionary that, based on ‘all English books’, was exhaustive and systematically traced the historical development of the senses and uses of every word, ascertaining its etymology within English and cognates in other languages (Philological Society 1859).

This Dictionary shall record, under certain limitations, the existence of every word in the language for which sufficient authority, whether printed or oral, can be adduced, shall investigate its history and derivation, and shall determine, as far as possible, fully and precisely, its several meanings and its appropriate usage, illustrated by quotations. (Philological Society 1860: 3)

The *OED* supplies a written standard for words (and many other dictionaries are afforded a similar status within the community) but there is no comparable institution for English grammar. Nonetheless, many people in the community believe, as their forebears have believed, that lexicographers and grammarians ought to fix the language.

One slightly surprising hangover from earlier times is that a study of Latin is supposed to be an aid to the command of good English.

The teaching of Latin in schools benefits the English both of those pupils who study it, and those who do not. Standard English has been formed through the centuries by its contact with Latin; and without some knowledge of Latin an Englishman will always remain, to an extent, a stranger to his own culture. […] The teaching of Latin] ensures a supply of English teachers whose grasp of Latin will make their command of English and its grammar firmer and more explicit. (Marenbon 1987: 38)

This is pure prejudice. What Marenbon says about the relation of Latin to English applies almost as well to French and somewhat less well to Greek. Marenbon’s error probably derives from the facts that

- the amount of Latin most people learn is limited in scope;
- Latin is no longer anyone’s first language, and definitive rules can be stated for it without there being a large number of speakers of the language who blatantly violate the proposed rules;
- starting with Donatus, history has given us Latin grammars that are succinct.

These conditions make Latin appear to be a model of a neat rule-governed language that gives people confidence in their command over its grammar. But such conditions simply will not transfer to the everyday complexities and flexibility of a living language like English.

**Prescriptive linguistics from the middle ages till modern times**

The period from 550 to 1100, the early middle ages, did little to advance the Western Classical Tradition in linguistics. Throughout the period the pedagogical grammars of Donatus and Priscian were explicated and developed. From the time of Charlemagne the
teaching of Latin had to be adapted to the needs of speakers of other languages. The result was a model for language teaching that strait-jacketed school grammars of Latin and then grammars of vernacular languages for more than a thousand years. The primers of the early middle ages identify the eight parts of speech in the traditional sequence of *nomen, pronomen, verbum, adverbium, participium, conjunctio, praepositioc, interiectio*, defining each and listing its accidents, 28 each property being discussed in turn. During the earliest period the heaviest reliance was on Donatus; but after the carolingian renaissance this extended to Eutyches, Phocas, and Priscian. It was during the early middle ages that Latin teaching was Christianized and principally aimed at the advancement of religion.

Throughout that period those being educated in Latin would typically have a passive knowledge of the language from church services, liturgy, hymns, and the Bible from which a familiar stock of examples were harvested. The Bible was revered for deriving directly from God, which gave the Vulgate authority over everything. The Latin of St Jerome and the other Church fathers was divinely inspired and *ipso facto* superior to the Latin of any pagan writer. You might think that the difference between classical Latin and Vulgate Latin would have sparked off some interest in historical linguistics, but it didn’t; the early middle ages were not an era of enquiry.

To supplement the skeletal grammars of Donatus, which were too underspecified for non-Latin speakers, reference grammars expanding on Donatus and containing lists of paradigms began to be circulated. Many of these are little more than fair copies of teachers’ notes; they were typically less systematic and complete than primers and often limited to noun and/or verb paradigms. Although orthography got some attention, phonology and syntax were virtually ignored. The focus on word-and-paradigm grammar stayed within the pedagogical arm of the Western Classical Tradition until the twentieth century. Priscian’s parsing grammar, the *Partitiones*, was not widely known until around 800, though it became a favoured teaching model in the post-carolingian period. It was used as a means of instilling the parts of speech and expanding vocabulary and what was then called *etymologia* – lexical relations (or lexicology); the focus was on derivational rather than inflectional morphology. The study of what we now call morphology was restricted to rote-learned paradigms and no systematic account of Latin accidence was developed. Parsing grammars offer scope for novelty as well as for religious and moral instruction through the text chosen for parsing; they are at the same time easier to update than the primers based on Donatus.

The carolingians returned to the pedagogical methods of antiquity in which grammatical study was based on literary texts; but now it was principally the Holy Scriptures and commentaries on them. In the late middle ages this gave way to dialectic, though only at higher levels of study.

From the late eighth century, the insular teachers addressing speakers of Germanic or Celtic languages were compiling form-based grammars. Eighth and ninth century Germany, in the Frankish Empire, was Christianized by missionaries from England and Ireland; it was

28. The references here and subsequently to *accidentia, accidentaliter, accidents, accidental mode*, etc. have to do with secondary grammatical categories typically expressed by inflections.
they and their students who preserved insular grammars. A glimpse into the way in which manuscripts were spread is the following:

[T]he Ars Tatuini commenced its Continental transmission at a Frankish centre, probably the palace-scriptorium, traveling outward in the company of two different groups of texts, one including several Classical works – Priscian’s *Institutio de nomine*, Servius’ *De finalibus*, and excerpts from Charisius – and the other consisting of the early medieval grammars of Augustine, Julian of Toledo and Paulus Diaconus. (Law 1982: 100)

Although Boniface was conscious of his obligations to English speaking students, it was another 300 years until Ælfric used English as a medium of instruction. But Ælfric did not go so far as to write a grammar of Anglo-Saxon despite the fact that people already wrote the language and presumably must have been instructed how to do so. Anglo-Saxon used as many as four letters not in the Latin alphabet: wynn <Ƿ,ƿ> [w], thorn <Þ, þ> [θ,ð], eth <Ð,ð> /ð/, and miniscule yogh <ȝ>, which in middle English become <ȝ> [ɡ,ɣ,j,ʤ]. Wynn and thorn are runic in origin and eth and yogh come from Irish. So some training in orthography must have taken place, but there is no record of grammar being taught.

By the ninth century there was already re-awakened interest in the rationale behind the parts of speech. Parsing grammars were updated and new topics such as *suppositum*, *appositum*, *regimen*, and *constructio* introduced. As we shall see in Chapter 8, this movement flourished during the late middle ages in the era of speculative grammars which re-established the theory of grammar in the Western Classical Tradition.

We skipped from the middle ages to post-renaissance England, where the Western Classical Tradition is manifest in English grammars that were closely modelled on traditional Latin grammars. There was a belief in the ‘genius’ of English which seems to correspond to what today we call ‘intuitions about grammaticality and acceptability’. Although there was constant harping on the purity of the language, there was a heavy reliance on the grammatical rules found in (or assigned to) the classical languages of the Bible, but especially Latin – which was better known than Greek or Hebrew. It was a view nourished by the training that all grammarians had received when learning Latin in school, but also from a notion that Latin is closer than English to the ‘general’ or ‘universal’ grammar common to all languages, and hence an excellent model for ‘correct’ grammar. Many seventeenth and eighteenth century grammarians believed that general grammar must be logically structured and so they looked to logic as the basis for ‘correct’ grammar. Others believed that language reflects nature, and looked to relations in nature to explain grammatical relationships, as the speculative grammarians had done in the late middle ages. Finally, there was the criterion of ‘good usage’, that is, usage by a ‘reputable person’, an educated gentleman, who spoke ‘pure’, i.e. not foreign or provincial, English. This encouraged a subjective judgment that the grammarian’s own brand of English was the correct one. It was the perfect environment for the grammatical bigot. Nineteenth century and early twentieth century linguistics castigated as unscientific the practices of eighteenth century prescriptivism which earned so-called ‘traditional grammar’ a bad name. The very

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29. There was a similar criterion on the results of scientific experiments being validated by gentlemen. See Shapin 1994.
negative connotation of the word *prescriptivism* among linguists in the twentieth century is the reason that Cameron 1995 referred instead to ‘verbal hygiene’, which, despite her disclaimer, is just a euphemism for prescriptivism (Allan and Burridge 2006, Ch.5). As I hope has been made clear in this chapter, there is nothing wrong with prescriptivism in pedagogy; it is a legitimate arm of the Western Classical Tradition in linguistics. Only when prescription aims to clean up the language by subjugating the description of actual linguistic practice to an imposed ‘corrected’ linguistic practice should it be reviled like any other form of censorship.
Chapter 8  ‘General’ or ‘universal’ grammar: from the modistae to Chomsky

The background to general grammar

Just as all men do not have the same orthography, so all men do not have the same speech sounds; but the mental experiences, which these directly symbolize, are the same for all, as also are those things of which our experiences are images.  

(Aristotle On Interpretation 163)  

The quote above from Aristotle’s *On Interpretation* is the seed for ‘general’ (⇐ Latin *genus,* *generis*) grammar, which takes the view that the fundamental rules of grammar are common to the *genus* language, a logically necessary component of all languages. Particular languages manifest *species* in their *accidentia* (secondary grammatical categories typically expressed by inflections). It is most unlikely that Aristotle himself entertained a notion of general grammar, but what he wrote gives grounds for it.

The two facts that

(i) Donatus seems to have adapted a grammatical description of Greek from the *Technē Grammatikē* attributed to Dionysius Thrax and

(ii) Priscian explicitly adapted the *Suntaxis* of Apollonius Dyscolus to Latin,

are not evidence that either Donatus or Priscian were general grammarians. They believed that Latin was the daughter of Greek, an idea that lived on into the nineteenth century. It is a view compatible and consistent with the notion of general grammar. The Christian grammarians of the early middle ages firmly believed that Hebrew, the original language of the Old Testament, was the mother of Greek – the language of the New Testament;¹ and they knew that the Romance vernaculars derived from Latin. So the notion of a linguistic genus, a family of languages, was already well established.

Against this background a theoretical interest in language structure began to develop in the carolingian period. Definitions were the starting point in describing parts of speech, and the carolingians identified up to six types: substance, sound, species, number, properties, and etymology. They also looked at what a term has in common with other things characteristic of the genus, its unique characteristics (*differentia*), and the concatenations it enters into. There were attempts to map the eight parts of speech onto Aristotle’s ten categories (Table 3.2). For instance, a collective noun such as *crowd* falls within two Aristotelian categories: being a noun it denotes substance; and being collective it is relational. Isidore of Seville had offered one sentence exemplifying all ten Aristotelian categories, and it was copied by Alcuin and Sedulius among others.

A complete sentence using all these [categories] is *Augustine* [substance], a *great orator* [quantity and quality], the *son of that person* [relation], standing in the temple [posture and place], today [time], adorned with a *headband* [state], having a dispute [action], gets tired [affection].  

(Etym. II.xxvi.11)

¹.  It is now generally agreed that Jesus spoke Aramaic, a Semitic language.
Dialectic is prior to grammar; a child needs to know what *homo* denotes before learning its accidence.

A general kind of subjection takes place in the names of all things. No creature can come to human knowledge without a name. It can be either a proper name or an appellative. Hence there is no creature, either corporeal or incorporeal, which is not subjected to its name. That is why Priscian said ‘each subjected body or thing’; that is, *subjected* to their names. Whatever is named by a *nomen*, is subjected to that *nomen*. Thus, general subjection concerns the subjection of all things, corporeal and incorporeal, to their names. And it is this kind of general subjection that Priscian is now talking about. (Attributed to Johannes Scottus Eriugena, ninth century; quoted in Luhtala 1996: 66)

[T]he noun is a conception of the mind for signifying the substance of things. Similarly the verb is a conception of the mind for signifying action and undergoing the action of substances. (ibid. 69)

Speculations about the ontology of parts of speech began during the carolingian renaissance and persisted throughout the rest of the middle ages. Remigius of Auxerre (d. 908) wrote:

> Why was the verb invented? But this is the difference between the signification of the noun and of the verb, that the noun signifies that which exists and is permanent, that is substance, whereas the verb signifies the unstable, transient motion of the substance, which is in no way permanent. This motion is understood as twofold, as pertaining to the agent and to the patient. When I say *amo* [“I love”], I express the motion of a substance as well as its undergoing action. But when I say the noun *amor, amoris* I understand the cause of the motion, since love [*amor*] is the cause that makes man love [ut homo amet]. (Remigius of Auxerre 1962-65, IV.184.12)

According to the medieval mind, motion and affect/effect are implicit in the concept of transitivity: the nominative causes an affect/effect that goes to the oblique. Religious interest in the concept of love caused much consideration of it from Alcuin on, provoked by sentences like (1).

(1) *Amo Deum.* “I love God.”

(1) creates a paradox because, if the object of love is acted upon, then humans can act on God by loving God, yet this was inconceivable to the religious mind.

The priority of the noun over other parts of speech goes way back through the Western Classical Tradition. Priscian (*Inst.* XVII: 14) had got it from Apollonius (*Synt.* II: 4) and the medievals got it from Priscian. A consequence is the developing interest in sentence (clause) structure that was born in the work of Apollonius, adopted by Priscian, and nurtured by medieval grammarians. Supposedly, verbs always joined to a nominative; therefore, the verb presupposes a subject (see Priscian 527, XIII: 28; XIV: 15; XVII: 14). Apollonius had described this as an independent construction marked by concord. According to the Stoics, Apollonius, Priscian, and the medievals, the relation is intrinsically intransitive. Where the intransitive construction is what the Stoics called ‘complete’, Priscian referred to it being ‘absolute’. Where there is also an oblique case, the action expressed by the verb proceeds from nominative to oblique (Priscian 527, XIII: 23): it was not the verb that was seen to be transitive, but the relationship between the nominals. Thus, in (2), *Socrates percutit* is described after the ninth century as *intransitio actus* “active intransitive”.

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*The Western Classical Tradition in Linguistics*
‘General’ or ‘universal’ grammar: from the modistae to Chomsky

(2) *Socrates percutit Platonem.* “Socrates struck Plato.”

According to the Apollonian criterion, because there is no concord between verb and oblique they do not compose an independent construction; however, *percutit Platonem* is transitive because the verb implies a third person nominative or subject. We shall see more of these structures when we look at speculative grammars.

Latin is a ‘free word order language’ because intraclausal relations are morphologically marked. This, along with the frequent heavy participial constructions, makes it a difficult language to read without careful parsing. As a result, medieval readers frequently marked semantic-syntactic relations on manuscripts, often in terms of preferred word order. Adverbs were always located sentence finally, and adjectives preceded nouns; in southern Europe the preference was for SVO sequence but, strangely, in northern Europe VSO was preferred (Luhtala 1993: 185). The VSO sequence violates the standard notion that SV is ‘natural’ for all the reasons given earlier. The VO sequence, regarded as natural because the action is naturally prior to the undergoer of the action, was maintained in both traditions.

**The modistae or speculative grammarians**

Grammar seems to be permanently split into two camps: one of theoretical, philosophically oriented grammarians; the other of pedagogically oriented, and hence prescriptive, grammarians. The two camps are maintained today in theoretical and applied linguistics. In the middle ages a tradition of pedagogical grammar was set by Alexander de Villa Dei’s *Doctrinale* of 1199 in rhyming couplets (see Chapter 7). Throughout the period there was heavy reliance on memorization: rules were given, but there was no philosophizing about them. Then came the modistae, who focused on a theory of language structure instead of language instruction.

In the twelfth century, William of Conches (c. 1080–1150) and his pupil Petrus Helias (fl. 1130–50) gathered together and systematized existing commentary on Priscian, and sought to define the nature of grammatical enquiry (Petrus Helias 1978; William of Conches 1965). Petrus Helias mentions grammars written for Greek, Hebrew, and Syriac (a branch of Aramaic); and, unlike his successors, he seemed to believe it necessary for there to be as many grammars as languages. He identified four parts to grammar: knowledge of letters, syllables, words, and sentences (*orationes*). Closer to Apollonius than to Priscian (though he probably did not have access to Apollonius), he defines mood as *varia animi inclinatio* “the changing inclination of the mind”, and resolves indicative, imperative, optative, and conjunctive (subjunctive) moods into an indicative and infinitive, cf. *lege* “read.IMP” has the meaning *impero te legere* “I.command.INDIC you read.INF” (Thomas of Erfurt 1972: 224 [55]). Priscian had written: ‘The parts of speech cannot be correctly known without knowing their proper signification’ (Priscian 527, II: 17) and the grammarians of the later
middle ages took this particular guidance to its logical conclusion. The modistae got their name from seeking to explain the *modi significandi* “modes of signification” of the parts of speech, of grammatical constructions, concord, and government.

[W]ishing to know about grammar [volentes habere scientiae grammaticae] we insist that it is first of all necessary to know its principles, which are the modes of signifying [modi significandi]. (Thomas of Erfurt 1972: 134 [1])

William of Conches complained in *Glosae super Priscianum* that Priscian’s definitions were obscure without exposition and lack functional explanations for parts of speech and their accidence (Covington 1984: 9; Law 2003: 172). Priscian did not concern himself with abstract grammatical relations but with the correct surface structure of sentences, i.e. the correct sequence of letters, the correct inflection, the correct syntactic structures. When Priscian identified the meanings of the parts of speech it was an aid to learning. The modistae, on the other hand, were much less concerned with surface grammar; they were only concerned with forms when form indicates a contrast in meaning, so they paid no attention to ‘letters’ or to regular and irregular morphology. Consequently, they ignore the morphology of case when defining nouns and verbs. They were students of grammar, not of Latin. They were interested in what, after 1964, was called ‘underlying structure’ – though, as we shall see, their conception of it was very different.

The modistae flourished in northern Europe where grammar ceased to be studied solely as a key to Latin classical literature or the Bible, and became ‘speculative’. The term *speculative* is based on Latin *speculum* “mirror; image” because speculative grammars sought to mirror reality. Grammarians adopted the Aristotelian belief (quoted at the head of this chapter) that the world is the same for all human beings and that language reflects that world. Grammar was looked upon by the modistae as dependent on the structure of reality and so the rules of grammar are independent of the language in which they are expressed (Bursill-Hall 1971: 35, 331). The basis for grammar is God’s world as it is filtered through the human mind, so that grammar becomes study of the formulation of concepts and their expressibility in well-formed sentences and component structures.

The modistic view of grammar led the speculative grammarians to concentrate on the universal properties of grammar instead of on grammars of individual languages. The exception is Roger Bacon (c. 1220–92). Bacon wrote grammars of Greek and Hebrew, as well as knowing some Arabic; he was interested in their practical instruction, and paid more attention to phonology than most of his contemporaries (Hovdhaugen 1990). He observed:

In the Latin language, which is one, there are many dialects […] since there is a number of nations using this language. For Italians in many cases speak and write in one way, the Spanish in another, the French in a third way, the Germans in a fourth, the English in a fifth, and so forth. (Bacon 1902: 26)

Bacon’s ‘grammatica vna et eadem est secundum substanciam in omnibus linguis licet accidentaliter varietur’ was much quoted as the basic principle of universal grammar; it occurs in the following context – which is obviously no universalist manifesto.

Since I want to describe Greek grammar for the benefit of Latin speakers it is necessary to compare it with Latin grammar both because I speak Latin for the most part as it is necessary since the great mass does not know how to speak Greek, and because grammar is one and the
same in all languages although there are accidental variations [grammatica vna et eadem est secundum substantiam in omnibus linguis licet accidentaliter varietur], and because Latin grammar in a certain particular way is derived from Greek grammar, as Priscian testifies, and as authoritative writers on grammar openly teach. (Bacon 1902: 27)

There is a quote that has been wrongly attributed to Bacon by Lyons 1968: 15f; Fromkin and Rodman 1998; and many others in cyberspace: ‘He that understands grammar in one language understands it in another, as far as are concerned the essential properties of grammar. The fact that he cannot speak or comprehend another language is due to the diversity of words and their different forms, but these are the accidental properties of grammar.’ In fact, the author is the anonymous thirteenth century modista quoted below. Bacon would not have shared his view. The fact that Bacon was not a universalist can be seen from:

no Latin will be able to understand as he should the wisdom of the sacred Scripture and of [Greek] philosophy, unless he understands the languages from which they were translated. (Bacon 1928: 76)

Bacon’s contemporary Robert Kilwardby (c. 1215–79) is more in line with the run of speculative grammars:

Combinations of parts of speech in grammar and their consignifications are based on natural properties of the things signified and so follow the rules of nature. But differences in the vocalization of suffixes and differences in their pronunciation are not by nature, but by human design. (Quoted in Hovdhaugen 1990: 120 from Kilwardby 1976: 218)

There is also the following from Boethius of Dacia3 (d. c. 1285):

There is but one logic for all tongues and therefore just one grammar. […] All dialects are characterized by one grammar. The reason for this is that the whole of grammar is based on things – it cannot be a figment of the intellect, because a figment of the intellect is something to which no reality corresponds outside the mind – and because the natural properties of things are similar among all, accordingly the modes of being and the modes of understanding are similar among all those who have different dialects and accordingly the modes of signifying are similar and accordingly also the modes of construction or speaking are similar. And so the whole grammar which is in one dialect is similar to that one which is another dialect. For which mode of being and understanding and signifying and constructing or speaking can be in one dialect and not in another? This does not seem possible. […] T]he whole grammar does not differ among different dialects. It is necessarily one in species and differs only as a result of different phonetic realizations which are accidental aspects of grammar. (Adapted from Hovdhaugen 1990: 120f, quoting Boethius of Dacia 1969: 11ff)

The anonymous thirteenth century modista mentioned earlier wrote:

And thus all of the grammar of one language is similar to that of another, and alike in conception to it, differing only according to different ways of speaking, which are accidents of grammar. Consequently knowing the grammar of one language is knowing that of another, so far as are concerned all the essentials of grammar. The fact that one cannot speak or understand another language, is because of its different phonology and morphology [diversitatem vocum et diversas figurationes], and these are accidents of grammar. (Thurot 1964: 125 [Bibl. Nat. de Paris lat. 16297 f.131])

3. Denmark.
According to Boethius, the ordinary language speaker knows the language on the basis of experience and usage but this is no qualification to teach the language; for that, an artifex “theorist” is needed who can explain the rationale behind the grammar (Boethius of Dacia 1969: 15). Apollonius would have approved. Boethius distinguishes the roles of philosopher and grammarian:

speculating on things themselves, [the grammarian] is a philosopher. When, however, he joins the thing with a word [vox] making it signify and making modi intelligendi from modi essendi and voices modi significandi from modi intelligendi he becomes a grammarian. (ibid. 7)

However, the anonymous modista quoted earlier thinks that grammar comes out of philosophy:

It is not the grammarian but the philosopher, diligently reflecting on the proper nature of things (from which appropriate essential modes are learned from different things), who discovers grammar. (Thurot 1964: 124 [Bibl. Nat. de Paris lat. 16297 f.131])

Aristotle’s Categories, On Interpretation and Topics were already known in the west from the early sixth century on; but Metaphysics and other works seem to have been lost until the crusaders visited Constantinople in 1204.4 These ancient manuscripts came to be known as the ‘new’ logic and were taught along with the ‘old’ logic at the University of Paris and elsewhere. Aristotle’s logic, his rigour in analysis, and his categorization of the universe were adopted by the modistae in their linguistic analyses. But they pushed this method of analysis much further than he had, linking Aristotelian categories with all linguistic expressions. They looked at the world and the way it was spoken about, then speculated on the set of binary relations between language expressions and the things that they denote. The most basic binary distinction, which they attributed to Aristotle, is between things that are permanent and stable in the world, which were said to have a modus ens or entis “mode of being”, as against things that are in a state of flux, variously described as modus esse “mode of succession of states”, modus fieri “mode of becoming”, modus fluxus “mode of flux”, modus motus “mode of motion or mutation”. Following the Western Classical Tradition of Plato and Aristotle, who had split the sentence into two (onoma and rhema) on logical grounds, and yoking this to the grammatical split between substance and either action or passion made by Apollonius and Priscian, the medievals reanalysed them into the modus ens, which was the mode of the nomen, noun or NP, and the modus esse, which was the mode of the verb (not today’s VP).5

4. This may not be so. St Anselm may have had access to Metaphysics in the eleventh century, see below.

5. This split derives from the philosophies of Parmenides and Heracleitus, respectively. Parmenides fl. 500 BCE held that the multiplicity of existing things, their changing forms and motion, are but an appearance of a single eternal reality (Being), such that ‘all is one’; thus, all claims of change (non-Being) are illogical. Heracleitus (c. 540–480 BCE) asserted that the world exists as a coherent system in which a change in one direction is ultimately balanced by a corresponding change in another.
In speculative grammar the parts of speech are motivated by (idealized) language speakers and not just found in the metalanguage of the grammarian. If modistic reasoning is accepted, this gives speculative grammar greater explanatory adequacy than any earlier grammars and most later ones as well. A pars orationis (part of speech, lexical class/category, henceforth PARS, plural PARTES) consists of

- the res “thing, referent”,
- the modus intelligendi “mode of understanding”,
- the vox “expression, utterance”, and
- the modus significandi “mode of signifying”.

The properties of the referent constitute a modus essendi “mode of being” (essendi is superordinate to ens and esse so is relevant to all parts of speech). The modus essendi is apprehended by the modus intelligendi, leading to the modus signandi “mode of signalling”, which converts the vox into the form of a dictio “word” combining form and meaning. The modus signandi gives rise to the modus significandi, which converts the vox into a PARS.

Going a step towards syntax, the modus consignificandi “mode of consignification” adds syntactic function to the PARS. In speculative grammar, every PARS correlates with a res.

The description just given oversimplifies. There are active and passive modes of understanding, signalling, and signifying. The idea is that the mind has to be in an active mode to perceive and apprehend, thus it is the modus intelligendi activus by which mind comprehends the modus essendi; the modus intelligendi passivus is the mental concept arising from the modus intelligendi activus and linking to the next step in the process, the modus signandi activus. The signalling process leaves off unless the resulting modus signandi passivus links to the modus significandi activus. The process is linear: modus essendi \( \rightarrow \) modus intelligendi activus \( \rightarrow \) modus intelligendi passivus \( \rightarrow \) modus signandi activus \( \rightarrow \) modus signandi passivus \( \rightarrow \) modus significandi activus \( \rightarrow \) modus significandi passivus, etc. The modus significandi passivus represents the functional or class meaning of the referent whereas the active mode reveals the property of the formal expression (vox significativa), giving rise to the ratio consignificandi “the means of achieving consignification”. There is also a ratio significandi “potential to signify” to which the modus signandi passivus links; and further back in the chain, a ratio signandi “signalling potential”. The ratio significandi creates lexical meaning; the modi significandi essentiales class meanings; and the modi significandi accidentales respectivi determine the ability of a PARS to be construed with other PARTES. The modistae sought to explain all these terms (and more) along with the relationships among them (Thomas of Erfurt 1972: 134 [1]).

A thing can be signified in as many ways as it can be understood. (Boethius of Dacia 1969: 71).

Within the system a single res may have different modi essendi; for example, a human may be of either masculine or feminine gender. Some properties present in the res may be ignored; for instance, one can speak of a man without reference to his colour, even though he has colour. Homo and hic homo “this man” can have the same referent, but they still have different modi significandi. Thomas of Erfurt 1972: 212 [46] compares and contrasts
different species\textsuperscript{6} of nouns having the same modus entis, such as albedo “whiteness” and albus “white”, against the related verb dealbo “whiten, whitewash” and its participle dealbans, which share the same modus fluxus. Each of these words has a distinct modus significandi. Following Aristotle in Categories 10\textsuperscript{29}, Thomas claims that whiteness must exist before white or white things can exist; he might have been echoing pre-modist Anselm of Canterbury (1033–1109), too, ‘just as a man is a rational mortal animal, so white is something-having-whiteness, or what-has-whiteness’ (Anselm 2000: 160).

The modus ens and modus esse are subdivided into matter versus form, yielding two more parts of speech, as in Table 8.1.

<table>
<thead>
<tr>
<th>MODUS ENS</th>
<th>MODUS ESSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATTER</td>
<td>noun</td>
</tr>
<tr>
<td>FORM</td>
<td>pronoun</td>
</tr>
</tbody>
</table>

The noun denotes substance and determinate quality, e.g. lapis “[the substance] stone”. The pronoun signifies substance without quality, because the quality is ignored (Boethius of Dacia 1969: 239f); e.g. ille “it” denotes substance but is not determinate like lapis. Nouns were subclassified in the tradition of Donatus and Priscian with some metaphysical modifications such as that proper nouns (which include the indexicals hic “this” and nunc “now” (Thomas of Erfurt 1972: 156 [17])) cannot be true predicates. Like a noun, a pronoun ‘can demonstrate and refer to something either in the mind or outside the mind, either fictive or true, in reality or hypothetically’ (ibid. 208 [43]). Given that in human languages reference to something unreal is just as possible as reference to something real, the criterion that a nominal must name something with a modus ens raises the question of how the speculative grammar is to account for figmenta “fictions” such as chimaera, hircocervus “goatstag”, negationes “negations” like nihil “nothing”, and privationes “deprivations” such as caecitas “blindness”. The terms chimaera, nihil, and caecitas have active modes of signifying just like concrete nouns do. The explanation for this comes from Aristotle: ‘because contradictories outside the mind are contraries according to the mind, as stated in Metaphysica IV.9’ (Thomas of Erfurt 1972: 208 [43], see also 140 [6], 154 [16]).

\[I\]t is admitted that deprivations are not real entities outside the mind, they are however real entities in the mind. (ibid. 140 [6])

The mind is, of course, in the real world.

\[B\]ecause we do not understand distinct substances except those perceived by our senses, therefore we give names to them according to the properties we perceive in them, and attribute active modes of signifying to their names. […] Similarly with the names of fictions, the active modes of signifying come from the names of the parts, from those components we imagine in a chimera, then, we imagine they are taken from the head of a lion, the tail of a dragon, and so on. (ibid. 138 [5])

\textsuperscript{6} A species is made up of genus and differentia specifica, which contrast matter and form.
There is a partial rephrasing here of Anselm, who says forms of speech allow us to talk about blindness and the like: ‘that which is signified is not something from the point of view of how things are, but only arises from the form of expression used’ (Henry 1967 §6.65).\footnote{Supposedly Aristotle’s \textit{Metaphysics} was not available to Anselm; so either that assumption is false or Anselm came up with much the same idea. Incidentally, Thomas of Erfurt does not once refer to Aristotle by name, though he does twice refer to \textit{Philosophus} “the Philosopher” (as one might refer to the Pope).}

Since no deprivations and negations are entities, it is seen that they cannot be classified under some property and therefore the active mode of signifying via the mode of being cannot originate in such cases from a property of the thing signified. [...] And because deprivations, negations, and fictions are entities according to the mind, therefore they count as an entity which property is a condition of permanence from which the general mode of signifying for the noun derives. (Thomas of Erfurt 1972: 154 [16])

In speculative grammars, noun subcategories are not significantly different from what we have seen in antiquity; though there are some new twists. For instance, gender was seen as reflecting active and passive forces. Masculine gender was perceived to be active on the ground that men are active in procreation, women are allegedly passive, and this is the essence of feminine gender (\textit{ibid.} 178 [27]). Martin of Dacia explains masculine \textit{lapis–lapis} “stone” as deriving from the active \textit{laedens pedem} “injuring the foot”; whereas feminine \textit{petra} “stone” derives from the passive \textit{pede trita} “rubbed away by the foot”; see Law 2003: 176f. Neuter is neither active nor passive, and \textit{omnis generis} “common gender” is one criterion for distinguishing adjectives from nouns. Another is that nouns have a \textit{modus per se stantis} (because they can stand alone) whereas the adjective has a \textit{modus adiacentis} and so is dependent on the noun for gender and number, e.g. in \textit{Plato albus} “pale Plato”. The treatment of case is very unsatisfactory; for instance, Siger de Courtrai (c. 1280–1341) describes the vocative as signifying a \textit{modus essendi excitati} “an essential mode of excitation” (Siger de Courtrai 1977). Perhaps he saw a similarity with interjections. The modistae ignored the formal morphosyntactic characteristics of Latin case. The nominal category of person was linked to the speaker, \textit{de se}, addressee, \textit{ad alium}, or third person, \textit{de alio}. Thomas derives the term \textit{persona} from \textit{per se sonando} “through oneself sounding” (Thomas of Erfurt 1972: 194 [34]).

We turn now to the two \textit{modus esse} PARTES, the verb and participle. The verb has the \textit{modus essendi} and \textit{modus significandi} of being/becoming/action, and by the \textit{modus distantia} it is separated from the nominal with which it is in concord, its \textit{suppositum}. The \textit{modus essendi} is material and shared with the participle; the \textit{modus distantia} is a formal characteristic\footnote{‘verbum de se significat per modum distantia’ (Thomas of Erfurt 1972: 220 [52]).} that distinguishes it from the participle, which has nominal properties and so a \textit{modus indistantia} from the noun and a \textit{modus adiectis} to the noun. However, to the usual subcategories of the participle, Thomas rather bizarrely adds person, which derives from the associated nominal. In the ninth century Sedulius had defined the verb as

A part of speech with tense, that is signifying any time whatever, which can be recognized through the motion of acting or suffering \textit{[patiendi]. The motion can either be increase or...
diminution, through local or temporal motion or through states of mind. (Sedulius Scottus 1977, *In Donatum Minorem* 34: 4–7)

The *modus esse* implies the passing of time, *successio*; but for the modistae, tense does not derive from the essence of the verb; it is an accidental mode either signifying or consignifying tense. This raises the problem of eternal propositions such as *Deus est* “God is/exists”. Thomas says

Not every *ens* has successive being [*esse successivum*] for the being of God and of intelligence is not in flux and succession and yet we say *Deus est* and *intelligentia est* […] They are however successive in terms of the succession of eternity [*successivum successione aeternitatis*]. (Thomas of Erfurt 1972: 210 [45])

Otherwise the verb subcategories are the same as those identified by Donatus and Priscian. Mood is an accidental mode of the verb that consignifies dependence of the verb on the *suppositum* “subject”. Thomas quotes Petrus Helius’ observation, already mentioned, that each mood can be resolved into an indicative that spells out the primary illocution together with an infinitive:

*lego*, *id est* *indicó me legère*; *lege*, *id est*, *impero te legere*, et sic de aliis. “I read, that is I say me to read; Read! that is I command you to read, and similarly for others.” (ibid. 224 [55])

All subcategories of grammatical voice are semantically defined, e.g. active *amo* is *verbum adiectivum activum*; passive *amor* is *verbum adiectivum passivum*. Thomas writes,

This mode of signifying is called genus [=voice], said to derive from *generando* because the form of one voice is generated from another; for instance the form of the passive [e.g. *amor*] from the active [amo]. (ibid. 230 [59])

Thomas innovatively defines mood in terms of the relation between *suppositum* and verb; and voice (active, passive, deponent) in terms of the relation between verb and the oblique – his term for which was *significatio* (in today’s terms V ¬ NP – not VP, because the NP is obligatory). The modists’ account of conjugation, like their account of gender, is very unsatisfactory because the category is formal and not semantically based.

The declinable *PARTES* – noun, pronoun, verb, and participle – were referred to by Siger de Courtrai 1977 as ‘magis principales’. Indeclinables are ‘partes minus principales’ whose *modus essendi* is the *modus disponentis* “mode of ordered distribution”. The *PARTES* therefore have one of three basic essences: being (*ens*), becoming (*esse*), or ordered distribution, i.e. entering a certain syntactic relationship with other *PARTES*. Hence indeclinables are classed as grammatical words defined on their syntactic functions; and they have fewer modes of meaning than declinables. Otherwise there are few innovations in the modistic discussion of adverbs, conjunctions, prepositions, and interjections. The different *PARTES* are differentiated by *modi speciales*. The adverb has a *modus adiunctus* which determines the *modus esse*. The *conjectio per vin* links two unifiables (curiously described by Thomas as *duo extrema* “two polarities”; op.cit. 256 [76]); the *coniunctio per ordinem* (e.g. ‘ergo’ in *Socrates currit, ergo movetur* “Socrates runs, therefore he moves”) is a subordinating conjunction. The modistae distinguished prepositions from prefixes on the basis that a preposition signifies a relationship between the *modus ens* and *modus esse*: ‘the preposition was in fact invented on behalf of case forms, not just any, only accusative and
ablative (ibid. 262 [80]). In fact, a preposition is ‘the part of speech signifying by means of the mode of adjacency to some case form, linking it and referring it back to the act’ (ibid. 264 [81]).

Speculative grammars were like their forebears in the very extensive discussion of what the modistae called ‘etymologia’ (corresponding to Priscianus Major), which means something like “word classes” – a use that filtered through to the general and rationalist grammars of the seventeenth and eighteenth centuries, and into prescriptive grammars like those of Fisher 1753 and Murray 1795. According to Covington 1984: 127, about a quarter of the manuscripts of Thomas’ treatise lack the section on syntax. Nonetheless, the modistae are far more interesting for their account of ‘diasynthetica’, which relates PARTES and their modi significandi to one another in syntax. Grammar was regarded as scientia organica (Thomas of Erfurt 1972: 312 [116]) and grammatical constructions should likewise be organic and be dealt with as a series of stages (passiones sermonis). In modistic syntax the basic syntagm is a constructio which holds between two PARTES and never more than two. A constructio is a change in accidence of the constructible; therefore constructions result from processes. In every constructible there is a modus dependendi and a modus dependentiam terminans; in other words modistic grammar is a series of binary dependency relations holding between a dependent and a terminant. Because it can stand alone, the nominal, denoting substance, is a terminant; it is also the suppositum “subject”. The verb is characteristically dependent on the suppositum (this particular idea recurs in today’s categorical grammars where the verb is <e,t> “dependent on an entity to establish a truth value”). The dependent may acquire properties from the terminant: for instance, the verb gets person and number from the suppositum; an adjective gets gender, number, and case from its noun terminant. The construction that results from the application of the consignification of a verb to the suppositum is a compositio (named from Boethius’ translation of Aristotle’s sunthesis9). Within the compositio the verb functions as the appositum that says something about the suppositum, see Plato’s Sophist 262d. The compositio of noun and verb varies by the quality of mood. A compositio is one kind of constructio. Figure 8.1 summarizes the syntax so far. The suppositum does not have to be in the nominative case, see Table 8.2 (next page).

\[
\text{constructio} \rightarrow \text{compositio}
\]

\[
\begin{array}{c}
\text{suppositum} \\
\text{terminant} \\
\text{Plato} \\
\text{modus ens}
\end{array}
\begin{array}{c}
\text{appositum} \\
\text{dependent} \\
\text{currit} \\
\text{modus esse}
\end{array}
\]

\textbf{Figure 8.1.} Compositio.

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9. This is the Roman Anicius Manlius Severinus Boethius (c. 480–524), see Boethius 1860; 1998.
Table 8.2. The case of the suppositum.

<table>
<thead>
<tr>
<th>suppositum</th>
<th>appositum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socrates.NOM</td>
<td>currit</td>
</tr>
<tr>
<td>Socrates.GEN</td>
<td>interest</td>
</tr>
<tr>
<td>Socrates.DAT</td>
<td>accipit</td>
</tr>
<tr>
<td>Socrates.ACC</td>
<td>legere oportet</td>
</tr>
<tr>
<td>A Socrates.ABL</td>
<td>legitur</td>
</tr>
</tbody>
</table>

Doubtless influenced by the fact that Aristotle’s *On Interpretation* 2189 asserts propositional equivalence between *the man walks* and *the man is walking* (see also *Metaphysics* 101728), Thomas Aquinas (1225–74) wrote ‘nihil enim differt dicere *homo convalescens est* et *homo convalescit* ‘there is no difference between saying *the man is convalescing* and *the man convalesces*’ (Sententia Metaphysicae V.ix.9, Aquinas 2005). On these grounds ‘percussit’ in Figure 8.3 and ‘currit’ in Figure 8.4 resolve into a constructio, with the terminant percussens “striking” in the former and currens “running” in the latter and a dependent est “is” in both. The example sentences in Figures 8.1 and 8.2 are all intransitive. The modistae adopted the carolingian account of transitivity, based on Priscian,
and discussed in respect of sentences (1) and (2) (pp.155f). In intransitives a pair of constructibles refer to the same thing; in transitives constructibles refer to different things in which there is a transition from one to another (Thomas of Erfurt 1972: 284 [93]). It follows that the *compositio* is always intransitive and a reflexive (*reciprocatio*) is also intransitive. It is notable that ‘video’ in Figure 8.5 is not resolved into a first person *modus ens*, despite this being incorporated as the person of the verb.

Modistic syntactic structures rely on Aristotle’s four ‘causes’ (see p. 39) as criteria for well-formedness. The ‘material’ from which a *constructio* is constituted are *PARTES* or combinations of *PARTES* of only two kinds, dependent and terminant, and that is why *Socrates percutit Platonem* has several dependencies (see Figure 8.3 and Thomas of Erfurt 1972: 274 [89]). The combination of constructibles gives rise to the ‘form’ of the *constructio*: ‘constructabilium unio est forma constructionis’ (*ibid.*). The *constructio* is brought into being (the ‘efficient cause’) by a proper congruent combination of constructibles. And ‘the expression of a compound concept of the mind is the goal of the construction’, i.e. the ‘final cause’ (*ibid.* 276 [89]). A well-formed *constructio* needs to have *congruitas* and the well-formed sentence be *perfectio* – a concept that is heir to the Stoic notion of completeness. There are two types of congruity, ‘concord’ and ‘propriety’ (non-anomaly). *Cappa nigra* “black cape (hooded clerical garb)” displays concord and propriety;
*cappa nigri* lacks concord; *cappa categorica* “categorical cape” has concord but no propriety. In isolation a *dictio* or *pars* is powerless without a *ratio* and *modus consignificandi* which identify its syntactic function and lead to a *modus construendi* which permits it to combine with other *partes*. There are two aims in every *perfectio* construction: first is the expression of a complete concept by means of a construction containing a verb; second is to create perfect understanding in the mind of the hearer by means of a congruent combination of constructibles containing the verb. Notice that the occurrence of the verb is pivotal (a fact remarked by Siger de Courtrai 1913: 139). Priscian had allowed for sentence fragments to occur in normal use; but the modistae were interested in the ideal *constructio* rather than a pragmatically viable one. Incomplete constructions like *si Socrates currit* “if Socrates runs” require a terminant such as *laedit pedem* “he gets sore feet” (Thomas of Erfurt 1972: 316 [118]). *Homo albus* (see the *suppositum* in Figure 8.4) is incomplete because it cannot be assigned a truth value, whereas *homo est albus* is a *sermo congruus et perfectus* “a well-formed sentence” because ‘circa quam compositionem consistit veritas et falsitas’ (*ibid.* 314 [116]; the idea is found in Aristotle’s *On Interpretation*). ‘It is required of the construction that no dependent should be left unterminated which might hold it back from its final purpose which is to express a compound concept of the mind and to generate perfect sense in the mind of the hearer’ (*ibid.*).

I have quoted extensively from Thomas of Erfurt’s *Grammatica Speculativa*, written c. 1300–10 which is one of few extant treatises to be complete. Thomas was one of the last of the modistae, and his work was much copied and commented upon in the following century. Nonetheless, speculative grammar was a theoretical discipline and was not so much used in the teaching of Latin as the *Doctrinale* of Alexander de Villa Dei and similar pedagogical works. The realism of speculative theories gave way to the nominalism of William of Ockham (c. 1285–1349). William says in *Summa Logicae* (c. 1323) that both language and cognition use terms like noun, verb, pronoun, adverb, conjunction, and preposition, but cognition is more parsimonious than language:

> one might wonder whether, among intentions [of the mind], participles constitute a separate part of speech over and above verbs in the way that they do in spoken and written language; for the participle of any verb, with the appropriate form of *to be*, signifies precisely what the corresponding form of that verb by itself signifies. [...] The relevant multiplicity has no place at the conceptual level. But since the distinction which spoken language exhibits between verbs and their participial forms does not enable us to express anything we could not express without the distinction, there is no need to postulate mental participles to correspond to spoken participles. A similar doubt is possible in the case of pronouns. (Ockham 1974: 52f [I.3])

Mental language has no need to distinguish verbs from participles nor pronouns from nouns. And although differences in number and case are both linguistically and mentally relevant, solecisms like *homo est alba* “the man is pale.F” are no impediment to understanding because (an utterance of) this sentence has the same truth condition as *homo est albus*M (*ibid.*). In other words, the study of syntax is no way to study cognition. What is important is reason itself. So grammar once again diverged from logic; though not for long. The true
grammatical heirs to the modistae were the rationalists of the late sixteenth to late eighteenth centuries.

**The recognition of vernacular languages**

From the end of the middle ages, vernacular languages came to be acknowledged as important vehicles of communication within the lay community, and were therefore worthy of study in their own right. The literary works in Italian of Dante Alighieri (1265–1321), Petrarch (Francesco Petrarca, 1304–75), and Giovanni Boccaccio (1313–75) led Leon Battista Alberti (1404–72) to defend the use of Italian and write a grammatical sketch of the language. Dante championed the vernacular in *De Vulgari Eloquentia*, written in Latin between 1302 and 1305 but not published until 1529.

What I call ‘vernacular’ is the language which we learn without any formal instruction by imitating a nurse. There also exists another, secondary language, which the Romans call grammatical [gramatica]. This secondary language the Greeks and others also have, but not all [peoples]; indeed, few achieve complete fluency in it, since knowledge of its rules and theory can only be developed through dedication to a lengthy course of study.

And of these two, the nobler is the vernacular: in part because it was the language originally used by mankind; in part because the whole world makes use of it – though with different pronunciations, accidence and words; and partly because it is natural for us, whereas the other is, instead, artificial. (Dante Alighieri 1981, I.i.2–4)

The first grammar of Spanish, *Gramática de la Lengua Castellana*, was published in 1492 by Antonio de Nebrija (1444–1522); it included a section on Spanish for foreigners and developed Spanish terminology for grammar. In his *Reglas de Orthographia en la Lengua Castellana* of 1517, Nebrija recognized that languages use only a small number of the sounds that humans can make (Nebrija 1926). In Germany Christoph Helwig (1581–1617) wrote the very short *Allgemeine Sprachkunst*, published in 1619 by his widow. Motivated by the belief that German Christians should read the Scriptures in Hebrew and Greek, he argued that students should learn the universal properties of grammars before studying a particular language (Juntune 1985: 98). I briefly surveyed the rise of English grammars in Chapter 7. The earliest French grammars were written by Englishmen in the fifteenth and sixteenth centuries; the best of these was *Lesclarcissement de la langue françoysse* (Palsgrave 1530). Petrus Ramus (Pierre de la Ramée, 1515–72) wrote grammars of Latin and Greek as well as a theoretical work *Scholae Grammaticae* 1559. In his *Gramere*\(^\text{10}\) of French (Ramus 1562), he divided grammar, modistic style, into Etymology (letters and morphology) and Syntax. In 1559–60 Abel Mathieu established that many French words once thought to show the Greek origins of French were in fact comparatively recent borrowings from Greek, arising from translations of Greek texts. His work was followed by the development of a more systematic comparative method for establishing etymologies, leading to Gilles Ménage’s *Les Origines de la Langue Française* (Ménage

\(\text{10}\). The title is in Ramus’ revised spelling for French *grammaire*; it was normalized in later editions.
The book begins with a survey of letter conversions, for example, from V to E and V to F (bear in mind that V corresponds to both our V and our U):

LAT. ῥυμοίς, remus. ῥυμολόχος, remulcus. ματίνη, mattea. Priscien liure t. V transit in E, pondus, ponderis; dejerat, pejerat, pro dejurat, pejurat; labrum, labellum; sacrum, sacellum. Antiqui auger & augeratus pro augur & auguratus dicebant.

En F.

FRANC. vices, vezes, fois. Varia, la Fere (Ville). nauis, nef. clauis, clef. boue, boeuf. nouum, neuf. ouum, oeuf. (Ménage 1650: xxxv)

All etymologies look plausible and systematic, e.g.


Ménage (1613–92) is among the earliest of the ‘modern’ more rigorous and systematic etymologists. In Diatriba de Europaeorum linguis (Scaliger 1610) Joseph Scaliger (1540–1609) suggested that there were several parents for European languages. Johannes Becanus of Antwerp in 1569 claimed that all languages derive from his mother-tongue, Brabantic (a dialect of Dutch): Adam derives from Hath-Dam “dam against hate”, Eve from Eu-Vat, “barrel from which people originated” or from Eet-Vat “oath-barrel”, Noah from nood “need”, Latin quercus “oak” from werd-cou “keeps out cold”. Becanus convinced himself that Egyptian hieroglyphics represented Brabantic. But he also launched the idea that many European languages derive from Scythian, spoken during the eighth and seventh centuries BCE by a powerful warlike nation of Iranian stock in what is now the Crimea. Wilkins 1668: 3f says Irish reputedly derives from Scythian; and Gottfried Wilhelm Leibniz (1646–1716) believed Scythian to be what is now called Proto-Indo-European (Waterman 1978: 63) – an idea that survived into the nineteenth century. The Greek historian Herodotus (c. 484–425 BCE) noted a few Scythian words that have been identified with Indo-European cognates. 11

With the reduced hegemony of the Roman Catholic Church, by the seventeenth century Latin was dying as a lingua franca. Classical instead of Church Latin became the object of study once again, as interest in classical authors was renewed during the renaissance; medieval Latin came to be despised as degenerate. With the change in the status of Latin the association between grammar and Latin was loosened. In the thirteenth century appeared grammars of Hebrew and Arabic; in the fourteenth, of Provençal and Catalan; in the fifteenth, Italian and Spanish grammars. ‘In the course of the sixteenth century grammars of 21 more languages were printed, and in the seventeenth century at least an additional 41’ (Rowe 1974: 361; for a list of these grammars see ibid. 372f). However, grammars of Native American languages, for instance, tended not to be available in Europe. So grammar was, to some extent at least, separated from Latin; nonetheless all learned men in Europe knew Latin until the twentieth century (and many scholars do today). However, there was no systematic contrast made between languages from different language families. Materials

11. There is more on language genealogy in Chapter 9.
were assembling for the growth of comparative linguistics, but it did not come about for another two hundred years following, on the one hand, the flowering and decline of general and rationalist grammar and, on the other, the search for an international language as a replacement for Latin. These two movements were closely intertwined, as we shall see.

**The search for a ‘philosophical language’ and a ‘real character’**

The search for an international language as a replacement for Latin led to proposals by, among others, the Czech Comenius (Jan Amos Komenský, 1592–1670), Bishop John Wilkins (1614–72), George Dalgarno (c. 1626–87) and Leibniz. They were in touch with each other and with the publisher-philanthropist Samuel Hartlib (1600–62), a German who had settled in London. A strong motivation was the concurrent interest in a general or universal grammar based on rationalist principles. The language to be created was therefore dubbed ‘philosophical’ or ‘real’. It was to be a clear representation of thought that would make learning easier and the transmission of knowledge more precise; it was also to be a nonsectarian, non-nationalistic means to reduce religious and political conflict. Babel was a curse that could be mitigated by a universal language.

[The Universal Character and Philosophical Language is judged] to be of singular use, for facilitating the matter of Communication and Intercourse between People of different Languages, and consequently a proper and effectual Means, for advancing all the parts of Real and Useful Knowledge, Civilizing barbarous Nations, Propagating the Gospel, and increasing Traffique and Commerce. (Foreword by William Morice to Dalgarno 1661)

In a broadsheet, Dalgarno writes, ‘This Character shall immediately represent things, and not sounds of Words, and therefore Universal [sic], and equally applicable to all Languages’ (Cram and Maat 2001: 109). It was, therefore, ideographic in conception. However, the language had to be transmitted through some medium, and in the written form was a ‘real character’ (i.e. one that directly represents the denotatum); there was a ‘vocal character’ (phonological representation) too. The real character was in part motivated by existing interests in the universality of mathematics, in shorthand, cryptography (because of bloody civil unrest in Britain between 1642 and 1651), and spelling reform (see Chapter 9). Francis Lodwick or Lodowick (1619–94) was, like others, motivated by

- the partly true but over-simplistic belief that Chinese logographs consist of ‘real’ basic roots and modifications on them;
- the universal recognition of Arabic numerals (0, 1, 2, …), despite almost every language having different names for them; and

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12. Such as Tommaso Campanella *Philosophiae Rationalis* 1638; Jan Comenius *Via Lucis* 1668 (in circulation from 1641); Pedro Bermudo *Arithmeticus Nomenclator* c. 1653; Thomas Urquhart *Eksubalauron, or the discovery of a most exquisite jewel* 1652; Seth Ward *Vindiciae Academiarum* 1654; Cave Beck *The Universal Character* 1657; Johann Becher *Character, pro notitia linguarum universalis* 1661; Athanasius Kirchet *Polygraphia Nova et Universalis* 1663 (Cram 2000).
• the possibility of exploiting abbreviation such as the Cabbalistic use of Hebrew letters as symbols for whole words (e.g. ה for “God”).

Lodwick’s characters were constructed from signs for a large number of basic roots and diacritics to signify negation and secondary grammatical categories like tense and mood. His conceptual analysis was ad hoc: e.g. king is composed from “rule + England”, emperor from “rule + Germany” (Lodwick 1647: 11) – which makes the ‘common writing’ logographic. There were better examples of ‘philosophical language’.

Dalgarno’s Ars Signorum claimed on its title-page:

The Art of Signs or a Universal Character and Philosophical Language. By means of which speakers of the most diverse languages will in the space of two weeks be able to communicate to each other all the notions of the mind (in every day matters), whether in writing or in speech, no less intelligibly than in their mother tongues. Furthermore, by this means also the young will be able to imbibe the principles of philosophy and the true practice of logic far more quickly and easily than from the common writings of philosophers. (Cram and Maat 2001: 139)

Nevertheless Dalgarno wrote in Latin and ‘only for the learned’ (Dalgarno 1661: 36). He analysed all knowledge into 17 irreducible categories indicated by letters from the Roman and Greek alphabets. A second letter indicates a sub-class, the third a sub-sub-class, etc. Further specification distinguished plant species and the like. Certain letters are prefixed to denote contrary meaning, or the mean between extremes; suffixes indicate secondary grammatical categories like tense and mood, cf. ponesi “I love”, ponese “I loved”, ponesa “I have loved”, ponesη “I had loved”, poneso “to love”, ponosu “to be loved”. The categorial system was probably intended to be a Cartesian methodical arrangement of ideas (Arnauld and Nicole 1965; 1996; Descartes 1637; 1668), e.g.

Ens, res
Substance
Accident
Concrete
Corporeal
Mathematical
Physical
Artificial
Spiritual
Soul
Angel
Composite [man]

Examples of the philosophical language (see Cram and Maat 2001; Dalgarno 1661) are tim “affirm”, trim “deny” (note the contrary infix -r-), tin “speak”, trim “write” (-r- infix), tif “understand”, tib “teach”, trib “learn” (-r- infix), tig “tell, narrate”, tip “rumour”, tit “define”, trit “distinguish” (-r- infix), tik “restrict”, trik “increase” (-r- infix), daf “past”, dlaf “present”, draf “future” (-r- infix); snapgηm “bee” = snap “flying exsanguinous beast” + gηm “sweet”; nefsis “gold” = nef “metal” + sis “perfect”. Radical words are ‘syncategoremata’: pronouns, conjunctions, interjections, and prepositions; they occur without an affix, e.g. sab “with”; an affix converts sab into a substantive sabu “instrument” (Dalgarno 1661: 83). ‘[O]ne and the same thing can be called by several names, by means
of different combinations of radicals, thus *elephant* can be *N̄ηkbeisap* [N̄ηk “whole-footed beast” (vs cloven-footed) *beis* “mathematical accident” *ap* “superlative”] or *N̄ηksop̄ηk* [sof “without” *pr̄ηk* “to rise”] (ibid. 41).

Dalgarno’s taxonomy of human notions is not comprehensive, but a minimal set of elements and rules to express the notions. Sanctius 1587 had earlier resolved the impersonal weather verb *pluit* “it is raining” into the unsatisfactory *Deus pluit* “God rains” or *pluvia pluit* “the rain is raining”. Dalgarno 1661: 76 offers the same: ‘*nen nenesi, pluvia pluit*’. His French contemporaries Lancelot and Arnauld 1660: 125f did something similar, interpreting *pluit* and *il pluie* in terms of *pluvia fit, la pluie est* “the rain is”. Also like Lancelot and Arnauld and a tradition that extends back to Aristotle 21 b9, Dalgarno resolves verbs into a copula + participle, e.g. *amamus* into *sumus amantes*: ‘the word *amamus* ["we love"] contains within itself four distinct notions; i.e. *we, present tense, are* (or rather *yes*), and *loving’ (op.cit. 65 [sic]).

Impressive though Dalgarno’s work was, far more comprehensive is Wilkins 1668, *Essay toward a Real Character and a Philosophical Language*. Wilkins also set out to schematize human knowledge:

> The second Part shall contain that which is the great foundation of the thing here designed, namely a regular enumeration and description of all those things and notions, to which marks or names ought to be assigned according to their respective natures, which may be styled the scientifical Part, comprehending Universal Philosophy. It being the proper end and design of the several branches of Philosophy to reduce all things and notions unto such a frame, as may express their natural order, dependence, and relations. (ibid. 1)

Like Dalgarno, Wilkins thought that ‘a Real Universal Character, […] should not signify words, but things and notions, and consequently might be legible by any Nation in their own Tongue’ (ibid. 13). He was motivated by the countering of Babel: ‘in almost every valley of Peru, the Inhabitants have a distinct Language. And [in North America it is reported that there are] more than a thousand different Languages’ (ibid. 3). He also sought to offset dialect variation:

> Whereas the inhabitants about London would say, *I would eat more cheese if I had it*. A Northern man would speak it thus, *Ay sud eat mare cheese gyn ay had et*. And a Western man thus, *Chud eat more cheese an chad it*. (ibid. 4)

And it would obviate the change of language over time: ‘Every change is a gradual corruption’ (ibid. 7–8). It would reform spelling and remove all irregularities, homonyms and other ambiguities from language.

Wilkins analysed nearly all knowledge into the 40 categories reproduced in Figure 8.6. It was thesaurus-like (ibid. 22–288), for example, herbs are categorized according to their leaves (70–80), their flowers (81–95), and their seed-vessels (96–106). It was not a natural classification. After the original manuscript was lost in the Great Fire of London, Wilkins was assisted by John Ray (1625–1705), who prepared the botanical tables; Ray wrote in a letter to Martin Lister (May 7, 1669):

13. Wilkins’ list of exclusions (ibid. 295f) includes names (of places, nations, sects), times, titles, degrees of professions, legal terms, garments, stuffs, games, drinks, meats, tunes, tools.
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<thead>
<tr>
<th>Things</th>
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<th>GENERAL</th>
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<td>ECCLESIASTICAL</td>
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I was constrained in arranging the tables not to follow the lead of nature, but to accommodate
the plants to the author’s prescribed system. […] What possible hope was there that a method
of that sort would be satisfactory, and not manifestly imperfect and ridiculous? (Quoted by
Aarsleff 1992: 27f)

The categorization was driven by (now obscure) mnemonics into groups of nine, six, and
pairs.

The character consists of about 3000 radicals. They include no verbs.

Whatsoever hath an Essence, must likewise have an Act; either of Being or becoming; or of
Doing or being done; or of making or being made: to be, or do. And consequently every
Radical Substantive which is capable of Action, should have an Active or Passive formed
from it, which is commonly called a Verb. (Wilkins 1668: 300)

Instead Wilkins lists the copula among essential particles.

That part of speech, which by our Common Grammarians is stiled a Verb, (whether Neuter,
Active or Passive) ought to have no distinct place amongst Integrals in a Philosophical
Grammar; because it is really no other then an Adjective, and the Copula sum affixed to it or
conteined in it: So Caleo, Calefacio, Calefio, is the same with sum Calidus, Calefaciens,
Calefactus. (ibid. 303)

Dalgarno had done much the same in resolving amamus into sumus amantes.

The most necessary [particle] amongst all the rest, which is essential and perpetual in every
compleat sentence, is stiled the Copula; which serves for uniting of the Subject and Predicate
in every Proposition. The word Subject I use, as the Logicians do, for all that which goes
before the Copula; which if it consist only of one word, then it is the same which
Grammarians call the Nominative case. By the word Predicate, I mean likewise all that which
follows the Copula in the same sentence, whereof the Adjective (if any such there be)
immediately next after the Copula, is commonly incorporated with it in instituted Languages,
and both together make up that which Grammarians call a Verb. (ibid. 304)

Particles may belong

1. To the Integral alone, as Articles. 2. To the Copula alone, as the Modes. or 3. Both to
Integral and Copula as the Tenses. (ibid. 315)

As in other schemes for a ‘philosophical language’ words are formed on the set of their
semantic components; e.g. the word for father is constructed from the symbols for ‘relation’
+ ‘consanguity’ + ‘direct ascendant’ + ‘male’ (ibid. 249, 396), which is more finely
semantically decomposed than Dalgarno’s ‘father is pagel [pag “beget” el “person”], the
person who begets’ (Dalgarno 1661: 92). ‘World’ is Da + ‘celestial’ (= Dad “heaven”) +
globe of sea and land (= Dady “Earth”); “planet” is Dade and “comet” Daded (Wilkins
1668: 51f, 398, 416). Initial o marks a contrary: Dad “Heaven” odad “Hell”; Dab “spirit”
o dab “body”. The vocal form of the Wilkins character is rather similar to that of Dalgarno:
Tit “temperateness”; Titala “temperateness + excess” = heat; Titalo “temperateness +
defect” = cold; Tuitala “adjective + temperateness + excess” = hot; Tuittala “adjective +
active + temperateness + excess” = heating; Tuimtala “adjective + passive + temperateness
+ excess” = heated (Vickery 1992: 344).

To Wilkins’ Essay was attached An Alphabetical Dictionary Wherein all English Words
According to their Various Significations, Are either referred to in their Places in the
Philosophical Tables, Or explained by such Words as are in those Tables. This dictionary
was compiled by William Lloyd; it has its own title page and, unlike the *Essay*, has no page numbers. According to Dolezal 1992: 309–13 it is innovative in the following respects. It covers a broad range of vocabulary that includes many multiword lexemes. It is highly systematic with a very methodical construction of entries. Unusually for contemporary dictionaries, the words used in definitions were also defined.

[T]he dictionary is largely dependent upon the Tables for complete definition of its lexicon. [...] For example, the Tables have a Radical for “Bee” but not for “Hive”; however, “hive” could be expressed in the philosophical language by addition of the Transcendental Particle “House” – i.e., bee + house = hive; ammunition + house = arsenal; fornication + house = brothel. (Dolezal 1992: 316, 321)

Lloyd’s dictionary was a model for later lexicographers; but unfortunately Wilkins’ philosophical language and real character proved too abstruse and recondite for practical application, and his highly stimulating, if flawed, masterpiece remains merely a historical curiosity.

Leibniz played with the notion of creating a philosophical language that would concomitantly be a medium for international communication, a simplified notation for science, and a method of discovery and demonstration (Cohen 1992). Such an aim was very similar to the aims of all others who worked in this field. However, Leibniz also proposed a logical calculus that had no precursor: he would try to symbolize primitive concepts using prime numbers and complex ones by the appropriate product. Such a synthesis as the latter could, in principle, be decomposed into prime factors. Unfortunately, Leibniz was no more successful than Dalgarno or Wilkins – indeed less so, because he published nothing on the matter.

The heirs to the seventeenth century seekers after a philosophical language include:

- The late nineteenth and twentieth century philosophers who have developed a variety of logics (e.g. Frege 1980; Russell 1956; Carnap 1937; 1950; 1956; 1959; Church 1941; 1956; Łukasiewicz 1963; 1998; Montague 1974; Kripke 1963; 1972; Lewis 1969; 1973; 1986; 1998; Groenendijk and Stokhof 1991; Kamp and Reyle 1993. Surveys include Kneale and Kneale 1962; Gamut 199114; McCawley 1993; Benthem and ter Meulen (eds) 1997; Seuren 1998).
- The nineteenth century phonetic-based shorthand systems of Isaac Pitman (1837) and John Gregg (1888). Shorthand has been dying out with the development of voice recording and most recently speech recognition programmes that automatically convert speech to print.
- The international alphabet of Morse code was developed between 1837 and 1844 for telegraphic communication. It is today mostly obsolete, though it is used in the vibrating alert of mobile phones, and the default SMS alert is ••• — • •• “sms”.
- The International Phonetic Alphabet was developed in 1887–8 (see Chapter 9).
- The International Radio Operator alphabet (*Alpha Bravo Charlie Delta Echo Foxtrot Golf Hotel India Juliet Kilo Lima Mike November Oscar Papa Quebec Romeo Sierra*

Tango Uniform Victor Whiskey X-Ray Yankee Zulu) was first adopted by the International Telecommunication Union in 1927 and updated in 1932.

- The componential analysis of meaning was taken up by Kroeber 1909 for analysis of kinship systems and Goedenough 1956; Zellig Harris 1948; Katz and Fodor 1963; Lounsbury 1956; Nida 1951 brought it into modern linguistics, where it thrives within a variety of theories.

- The development of Unicode for use on the web began in 1986 and it is still being developed; it is contrary to the spirit of a single alphabet (writing system) for all languages, since it aims to make orthographic symbols from all writing systems for natural and non-natural languages (like logics and mathematics) available in digital form for faithful reproduction on web documents.

**General or universal and rationalist grammar**

Rationalist (or rational) grammar goes beyond description to achieve a rational explanation for linguistic phenomena (Chomsky 1972: 14f). As Lakoff 1969 pointed out, the tradition of general and rationalist grammar seems to begin with Sanctius (Francisco Sánchez de las Brozas, 1523–1600), who, in Minerva (Sanctius 1587; 1664), postulates a syntactic rather than semantic rationalist basis for grammar that bears some resemblance to Apollonius’ system of explanatory underlying forms that do not appear on the surface to explain the ‘elliptical’ surface structure of ordinary language. Sanctius set out to explain the logic (ratio) of the Latin language (Sanctius 1664: 2). He sets logic as prior to tradition, authority, and custom, saying that usage is not changed without there being a logical basis, otherwise it is abuse (ibid. 4).

Since the subject about which we are speaking is to be supported first by logic, then by attestations and usage, no one should be surprised if now and then we do not follow the great men, for however much prestige a grammarian may have in my eyes, unless he supports what he has said with logic and with examples that are put forward, he will instil in me no confidence, particularly on questions of grammar. ‘Grammarians,’ as Seneca says […] ‘are the guardians of the Latin language’ – not its creators. (ibid. 5, transl. by Lakoff)

Language is the product of a rational mind and is therefore open to rational explanation, even if this is not immediately obvious. A grammarian must offer logical analyses and back these up with attestations and usage (ibid. 5). Sanctius allows for correct parsing on the basis of form without recourse to meaning. A grammarian is not prescriptive; instead the goal is to explain syntactic structures (ibid. 7). Language is elliptical and the meaning of underspecified expressions needs explaining; but this should be done carefully and noncontroversially (ibid. 269). It is notable that Sanctius has adopted many of the notions found in Apollonius Dyscolus (see Chapter 6); he differs in suggesting that the expanded versions of elliptical expressions are all possible surface structures that may be dispreferred for stylistic reasons (Lakoff 1969: 362); that was not the case for Apollonius.

Perhaps general and rationalist grammar is most famously exemplified by the Port-Royal grammar Grammaire Generale et Raisonée “General and rational grammar” (Lancelot and Arnauld 1660), which is a sort of digest of grammatical ideas found in Lancelot’s Nouvelle
Méthode pour Comprendre, facilement et en peu de temps, la Langue Latine “New method for understanding the Latin language easily and quickly”, first published in 1644 but then greatly revised for the third edition of 1654 under inspiration from Sanctius (compare Lancelot 1644 with Lancelot 1681). The title-page to Grammaire Generale et Raisonée (Lancelot and Arnauld 1660; 1753) states the following:

The explanation for what is common to all languages and the principal differences among them.

This is the standard view of general grammar dating back to the thirteenth century, and it makes rationalist grammar the proper heir to speculative grammar. Nicolas Beauzée, in his Grammaire Générale of 1767, writes:

Grammar, whose object is the description of thought via the spoken or written word, is of two kinds. One kind consists of immutable and universal principles which derive from thought itself and follow its course. The other kind consists of contingent principles, dependent on the fortuitous, arbitrary and mutable conventions which give rise to different languages. The first kind is called ‘general grammar’; the second is the object of ‘particular grammars’, i.e. grammars of particular languages. (Beauzée 1767: ixf)

Beauzée goes on to say that general grammar is ‘rational scientific study of the immutable and universal principles of language’, and grammatical knowledge is prior to all languages because its principles make languages possible. They are the same ones that direct human reasoning in its intellectual activities. In a word, they are eternally and universally valid. (ibid. xi)

Particular grammar is the ‘art’ or artifice of applying the principles of general grammar to ‘les institutions arbitraires & usuelles’ of a particular language, and grammatical artifice, unlike grammatical knowledge, depends on the prior existence of languages so that the general principles of language can be introduced to act on them artificially; because the analogical systems introduced by artifice are the necessary result of observations that have been made of existing usage. (ibid.)

Because the principles of general grammar are those of human reason, it follows that the characterization of general grammar is a characterization of the properties of human reason. Hence it was called rationalist grammar, and this is one way in which it differs from modistic grammar.

Géraud de Cordemoy (1620–84), in his Discours Physique de la Parole “A philosophical discourse on speech” (Cordemoy 1668; 1970), is backward looking when he writes that grammarians teach parts of speech in the same order that children learn them: substantives, adjectives, verbs, etc. (ibid. 34–36). But he is forward looking when he writes

the Reason of Children is entire from the beginning, seeing they learn perfectly the Language of the Countrey where they are born, and that in less time than Men of age need to learn that of a Country, where they should chance to travel, and not find anybody that understood theirs. (ibid. 38)

This is a thought echoed by Chomsky and others in the twentieth century. Learning a second language is a matter of assigning a new linguistic expression to ideas associated with an existing linguistic expression in the first language.
When we are in company with persons of different Countries, whose Tongues we understand, we easily retain every news, and all what was said upon the matters, that were spoken of, without remembering just the words nor the Language that was made use of to give us those images, which remain of them in us. (ibid. 39)

[For some people] when they learn a new Language, they always joyn to the words of that, which they already know, the words of the second, to represent to themselves what they signify.

Others, that have another disposition of the brain, do so easily joyn the sound of a new word in it self to the Idea of the thing, that that Idea is equally represented to them by the two words, and they not obliged to think on the one to understand the other. (ibid. 87)

Thus, although the manner of expression is different across languages, the underlying general and rationalist grammar is universal. It is a hypothesis about the nature of human reason.

But let’s go back to the Grammaire Generale et Raisonée. It was a product of the Jansenist convent of Port-Royal, outside Paris. Jansenism, often in conflict with the Jesuits, was a seventeenth century form of Augustinianism. It taught that divine grace, rather than good works, is the key to salvation. The best opportunity for children to resist the curse of original sin is education and especially a mastery of language and thought attained through the study of grammar and logic. The Augustinian motto is:

We owe then to reason what we understand; to authority what we believe; to error what we have an opinion about. (The Advantage of Believing, Ch. 25, Augustine 1885: 130)

Lancelot specialized in grammar and Arnauld in logic. Their colleague Bernard Lamy (1640–1715) was a rhetorician, and published De L’Art de Parler “On the art of speaking” (Lamy 1676). So, Port-Royal was the centre of contemporary studies in language and logic.

Claude Lancelot (c. 1616–95) was co-author of hugely successful grammars of Latin, Greek, and Italian (Lancelot 1644; 1681; 1758). Where previous grammars were often in Latin, he used French – arguing that it is common-sense to use the mother tongue to teach a foreign language. Rote learning and memorizing passages from the classical authors were replaced by a thorough grounding in general grammar exemplified mostly from French, but also much Latin and a little Greek and Hebrew. Lancelot believed that by using the rationalist basis for general grammar he could teach a second language using the general grammar implicit within the student’s first language. The rules of general grammar are ‘natural’. A Sanctius-like concern with explanatory underlying structure is found in Lancelot’s grammars. Following Aristotle’s suggestion that ‘occasionally, perhaps, it is necessary to coin words, if no word exists by which a correlation can adequately be explained’ (Categories 7.5), Lancelot proposes a strict analogical regularity for the derivation of Latin inchoative verbs like calesco “grow warm”:

The inchoatives are formed of the second person of the present, as from Labo, as; labasco; from Caleo, es; calesco: […] of Dormio, is, dormisco.

It is the same in regard to deponents, which are formed by feigning the active of the primitive. For Fruiscor comes as it were from fruo, is. The impersonals also follow this analogy: Miserescit, from misereo, es, &c.
Some of them are even supposed to come from nouns, as Ægresco from æger; Repuerasco from puer: though they may be said to come from the verbs Ægro, repuero, and the like, which are no longer in use: just as Calvesco, which they generally derive from calvus; and Senesco from senex, come from calveo, which we find in Pliny, and from seneo, in Catullus. (Lancelot 1681: 335)

Lancelot’s discussion of relative pronouns in Nouvelle Méthode has a significant theoretical consequence that is discussed below. The emphasis throughout the book was on good communication rather than good style, and students were encouraged to use naturalistic language in translation. Lancelot wrote user-friendly textbooks that present concise rules with catchy titles; give pronunciation clues (e.g. stress was marked on foreign words); points of special note like case endings are typographically distinct; French text is in a different type-face from Latin or Italian; and comments (notes) are in small print. Many of these innovations were later used by others, including Lowth 1762 and Murray 1795 (see Chapter 7).

Antoine Arnauld (1612–94) was principal author of La Logique, ou l’Art de Penser “Logic, or the art of thinking” (Arnauld and Nicole 1965; 1996), the most important book on logic in the seventeenth century. It was promptly translated into Latin and English and underwent many reprintings in the late seventeenth and eighteenth centuries. The Logic is strongly influenced by René Descartes’ (1596–1650) Discours de la Méthode “Discourse on method” (Descartes 1637; 1968), with its emphasis on using reason to think things out for oneself. ‘[L]ogic must examine how ideas are joined to words, and words to ideas’ (Arnauld and Nicole 1996: 24). The Logic is approachably informal and divides the topic into four parts. The first is to have an idea of something, often through the senses but ‘the ideas of being and thought in no way originate in the senses. Instead, the soul has the faculty to form them from itself, although often it is prompted to do so by something striking the senses’ (ibid. 29). The emphasis, then, is on conception rather than perception. The Logic uses Descartes’ example (6th Meditation, Descartes 1968: 150f) that one can comprehend and describe all the properties of both a triangle and a chiliagon (figure of 1000 angles), but picture only the former (Arnauld and Nicole 1996: 25f). To gain a proper idea of something, it is best to break it down into manageable parts. Neither Descartes nor Arnauld gives due credit to Aristotle for having proposed exactly this. To comprehend a general term one has to identify its attributes; its extension is the sets (and subsets) of individuals to which it applies. ‘I cannot conceive prudence while denying its relation to some person or other intelligent nature having this virtue’ (ibid. 32). Words are the conventional signs of thoughts (ibid. 37) but

we should not try to define all words, because this would often be useless. […] For in order to define a word it is necessary to use other words designating the idea we want to connect to the word being defined. And if we again wished to define the words used to explain that word, we would need still others, and so on to infinity. […] We should accommodate ourselves to usage as much as possible.

Definitions […] represent the truth of usage rather than the truth of things. (ibid. 64, 66).

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15. E.g. its 1000 angles add up to 1996 right angles.
The discussion of definitions was inspired by the work of the Port-Royal mathematician Blaise Pascal (1623–62). Primitive terms, evident to all, cannot be defined; ‘real’ definitions are descriptive and state the essential properties in the definiendum; ‘nominal’ definitions stipulate the conventions by which a linguistic term is to be used.

Bringing ideas together creates a ‘judgment’ consisting of an idea and an attribute (another idea) predicated of it. Affirmation brings two ideas together (the earth is round) whereas negation separates them (ice is not hot). One needs to be as certain as possible of identifying the real truth because ‘he who is falsely persuaded that he knows the truth thereby makes himself incapable of learning about it’ (ibid. 35). ‘Reasoning’ is syllogistic: the act of forming a third judgement from two others. Sorites are a series of interdependent arguments, e.g. Misers are full of desires. Those who are full of desires lack many things because it is impossible for all their desires to be satisfied. Those who lack what they desire are miserable. Therefore, misers are miserable (ibid. 137). Finally there is ‘method’. Never accept anything as true that is not known for sure to be so. Divide up the data into the smallest elements required. In definitions, use only terms that are perfectly known or have already been explained. Leave no term undefined. Be exhaustive, but pay attention to natural order, beginning with the most general and the simplest, and explaining everything belonging to the nature of genus before proceeding to particular species (ibid. 238, 259).

The spirit of the Logic is combined with Lancelot’s pedagogical prowess in the Grammaire Generale et Raisonée (hereafter GGR), which embodies that aphorism of the thirteenth century modista who wrote ‘non ergo gramaticus sed philosophus […] gramaticum invenit’ (Thurot 1964: 124 Bibl. Nat. de Paris lat. 16297 f.131). But the grammars of the modistae and the rational grammar of Port-Royal, although broadly similar in distinguishing universal grammar from particular grammars, are nonetheless very different in the way they approach the problem of universal grammar. Modistic grammars investigate a tripartite relation between reality (res), human understanding of the reality (modus intelligendi), and the linguistic expression that signifies the reality (vox). The speculative grammarians philosophized on the relation between form and meaning (modus significandi), and also the relation between form and thing (modus signandi); but they ignored the actual form of the sign (vox) as being an accidental element of grammar, inessential to general grammar. The rational grammarians, on the assumption that grammar reflects meaning, investigate the link between meaning and form and do discuss linguistic form. They de-emphasize reality. Thus the modistae speculated on nonobservable phenomena, whereas the rational grammarians discuss what would nowadays be called the relationship between deep and surface grammar.

The example of the latter made famous by Chomsky 1966 is the sentence Dieu invisible a créé le monde visible. GGR says of this

when I say Invisible God has created the visible world through my mind pass three ideas embedded in this proposition. Firstly there is the idea that God is invisible. 2. That he created the world. 3. That the world is visible. And of these three ideas (expressed here as propositions), the second is the principal and essential part of the proposition in the original sentence. The first and third are subordinate; the former being its subject, and the latter its direct object.
These incidental propositions are often in our minds without being expressed in words as in the example given above. But sometimes they are expressly marked, and this is what the relative pronoun is for: so I can reduce my example to the following: God \textit{who is invisible has created the world which is visible}. (Lancelot and Arnauld 1660: 68f)

Where two nouns are juxtaposed as in \textit{Vrbs Romana} [city Roman; \textit{sic}] “the city of Rome”, or in the N’Adj construction \textit{Deus sanctus} [God holy] “holy God”, and when the modifier is a participle as in \textit{canis currens} [dog running] “running dog”: all these are understood to contain the relative pronoun in their meaning, and it can be realized in surface structure \textit{Vrbs qua} [city which is called Rome]; \textit{Deus qui est sanctus} “God who is holy”; \textit{Canis qui currit} “the dog which runs”. It depends on the idiom of the particular language which one is used. Latin would use a participle where French uses a relative: \textit{Vide canem currentem}; \textit{Je voy un chien qui court} (ibid. 69f). English uses both: \textit{I see the dog running} and \textit{I see a dog which is running}. When discussing the relative pronoun, \textit{GGR} points out that Hebrew uses a demonstrative in relative clauses such as \textit{I see a dog which is running} (\textit{I see a dog, that [dog] runs}) and a relative (presumably ‘asher) as complementizer in sentences like \textit{Dico quod tellus est rotunda} “I say that the earth is round”. It is clear that \textit{GGR} is as concerned with the surface expression of the underlying meaning as with the meanings of parts of speech.

One criticism of the \textit{GGR} analysis of \textit{Invisible God has created the visible world} in terms of \textit{God who is invisible has created the world which is visible} is that no mapping rule is given. There is, however, an explanation in Lancelot 1681, II.i.iv (p. 452) (which appeared in the edition of 1654) to the effect that the relative pronoun indicates a logical antecedent and ‘serves to make an incidental proposition [subordinate clause] form a part of another which may be called the principal’. This is exactly comparable with a similar notion in today’s grammars.

Let’s compare the modistic description of verbs with the \textit{GGR} description of verbs to show just how different they are. In the modistic description of the \textit{verbum} the metaphysical features of being, becoming, succession, and flux replace the features of action or being acted upon. The characteristic of \textit{tempus} is relegated to an accidental mode of signifying. Moreover, there is emphasis on the dependence of the verb on the subject. The nominal subject expresses substance, more correctly, the mode of permanence and repose. There must be substance before there can be a predication of it: therefore \textit{ens} is prior to \textit{esse}. The verb is distinguished from the \textit{participium} with which it shares the essential \textit{modus motus} (motile mode) by means of a specific mode which is the signification of the member of a proposition separate from its subject; in contrast, the \textit{participium} adheres to its subject. The accidental modes of signifying correspond to the traditional \textit{accidentia} of tense, mood, person, etc. As it was for Aristotle, every verb in a construction is a \textit{compositio} of \textit{esse + participium} (be + participle). Thus \textit{Socrates currit} $\leftrightarrow$ \textit{Socrates est currens} (“Socrates runs $\leftrightarrow$ Socrates is running”). As Lancelot and Arnaud say in \textit{GGR}: \textit{[C] est la mesme chose de dire Pierre vit, que de dire, Pierre est vivant. “To say Peter lives is the same as saying Peter is living.”} (ibid. 91)

This is true for French, Latin, and Greek but not true for today’s English; however, it was true for very early modern English.
The *GGR* description of the verb begins with a description of the proposition that is almost identical with that of Aristotle:

A statement about things (as when I say, *the earth is round*) necessarily entails two terms; one being the subject of the affirmation, e.g. [*the* earth]; and the attribute, which is what is affirmed, e.g. [*being*] round. The link between the two terms is the action of the mind which predicates the attribute of the subject. ([ibid. 89](#))

Latin *sum* “I.am” entails the signification of the pronoun *ego* “I”; thus *sum* contains both subject and attribute ([ibid. 92](#)). A verb is ‘a word whose principal function is to signify predication [*affirmation*]’ ([ibid. 90](#)); they say that this has been overlooked by other grammarians, who have identified only the accidental signification of verb. According to *GGR*, Aristotle defined the verb as *vox significans cum tempore* “a meaningful sound with tense marking”; but this short-changes Aristotle. Defining a verb using the accidental features of tense and person is inadequate. Likewise it is inadequate to define a verb according to whether it denotes action or being acted upon; similarly, defining it as the modistae did as denoting “being”, “becoming” or “flux” may fail to account for *neque omni, neque soli* “all or even one [verb]”. The authors of *GGR* believe that verbs like *existit* “it exists”, *quiescit* “it rests”, *friget* “it is cold”, *alget* “it is chilled”, *tепet* “it is warm”, *calet* “it is hot”, *albet* “it is white”, *viret* “it is green”, *claret* “it is bright” are counterexamples to the semantic classification of the modistae; but to me these verbs denote either “being” or “becoming” and therefore fall within the modistic definition. Certainly there are parts of speech other than verbs which signify actions and passions, and even movement and change, for instance, the participles of the verbs: *fluens* is as motional as *fluit* but it is not a verb. Participles are also sensitive to time in that there are present and past participles. And if person is typically an accidental subcategory of verbs, we should remember that the vocative case is implicitly second person, and case is a nominal subcategory. On the other hand, a participle is not a verb because it makes no affirmation (nor, of course, does the vocative).

In Chapter 7 we saw that some proponents of universal and rationalist grammar believe that grammar mirrors nature:

**THOSE PARTS OF SPEECH UNITE OF THEMSELVES IN GRAMMAR, WHOSE ORIGINAL ARCHETYPES UNITE OF THEMSELVES IN NATURE.** (James Harris 1786: 263f [*sic*](#))

There was a slightly different take on a similar theme a century earlier:

Everything we have said about syntax demonstrates that it has a natural order in it when all parts of a discourse are expressed simply, with not one word too many or too few, and when it conforms to the natural expression of our thoughts.  (Lancelot and Arnauld 1660: 145)

The universal grammar of the seventeenth century rationalists was given a Romantic twist by some grammarians in the late eighteenth century; a Romanticism which may have contributed to the philological investigations of the *Junggrammatiker* (neogrammarians, see Chapter 9). But Chomsky’s revival of universal grammar in the mid-twentieth century was
explicitly rationalist and harked back to what he perceived as the Cartesian foundations of

The central doctrine of Cartesian linguistics is that the general features of grammatical
structure are common to all languages and reflect certain fundamental properties of the mind.
(Chomsky 1966: 59)

Noam Chomsky justifiably claims to be heir to the rationalist tradition. There are,
however, doubts about the validity of the label ‘Cartesian’. The principal argument in its
favour is that Descartes noted (with little originality, see Chapter 10):

\begin{quote}
  it is particularly noteworthy that there are no men so dull-witted and stupid, not even
  imbeciles, who are not capable of arranging together different words, and of composing
discourse by which to make their thoughts understood; and that, on the contrary, there is no
other animal, however perfect and whatever excellent dispositions it has at birth, which can do
the same. [… I]t is unbelievable that the most perfect monkey or parrot of its species should
not be equal in this to the most stupid child, unless their souls were not of an altogether
different nature from our own.   (Descartes 1968: 74f)
\end{quote}

Chomsky interprets this to be a declaration of innatism (plausible) and linguistic creativity
(questionable). It is also consistent with Descartes being in favour of general and rationalist
grammar, although there is no explicit avowal of this in his writings. Nor is there any
pronouncement in Descartes that directly bears on deep and surface grammar. Perhaps
Descartes’ assertions of the necessary truth of what is rational is what appeals to Chomsky,
but note that Descartes attributes this certainty to God – which is not a publicized opinion of
Chomsky’s.

\begin{quote}
  [O]bserving that this truth: \textit{I think, therefore I am}, was so certain and so evident that all the
most extravagant suppositions of the skeptics were not capable of shaking it, I judged that I
could accept it without scruple as the first principle of the philosophy I was seeking.
[T]he proposition: \textit{I am, I exist}, is necessarily true, every time I express it or conceive of it in
my mind.   (\textit{ibid.} 53f, 103)

[T]he things we grasp very clearly and very distinctly are all true, [are] assured only because
God is or exists, and because he is a perfect Being, and because everything that is in us comes
from him; whence it follows that our ideas and notions, being real things and coming from
God, in so far as they are clear and distinct, cannot to this extent be other than true.   (\textit{ibid.} 58;
and cf. 56, 128, 133, 145)
\end{quote}

It is rather puzzling that Chomsky adopted the title Cartesian rather than Port-Royalist, since
he does recognize the gentlemen of Port-Royal as intellectual forebears (unless ‘Royalist’
was a problem).

Leaving the so-called ‘Chomsky revolution’ for Chapter 12, here we focus only on
Chomskyan universal grammar – henceforth UG,

\begin{quote}
  the system of principles, conditions, and rules that are elements or properties of all human
languages not merely by accident but by necessity – of course, I mean biological, not logical,
necessity.   (Chomsky 1975b: 29)
\end{quote}
In *Aspects of the Theory of Syntax* Chomsky wrote

Real progress in linguistics consists in the discovery that certain features of given languages can be reduced to universal properties of language and explained in terms of these deeper aspects of linguistic form.  (Chomsky 1965: 35)

When this was written Chomsky was already seeing himself heir to the Port-Royal tradition. The celebrated distinction in *Aspects* between ‘competence’, an idealization of what the individual knows about their language, and ‘performance’, the manifestation of competence in the use of language but including such features of spontaneous speech as hesitation and slips of the tongue, was later revised into the distinction between ‘I-language’ (idealized and internalized) and ‘E-language’ (expressed, externalized).

The statements of a grammar are statements of the theory of mind about the I-language, hence statements about structures of the brain formulated at a certain level of abstraction from mechanisms. […] UG now is construed as the theory of human I-languages, a system of conditions deriving from the human biological endowment that identifies the I-languages that are humanly accessible under normal conditions.  (Chomsky 1986: 23)

The medieval distinction between ‘general’ or ‘universal’ grammar common to all languages and the ‘accidents’ peculiar to the grammar of a particular language are reinterpreted in terms of the Chomskyan division between ‘principles’ and ‘parameters’.

The grammar of a language can be regarded as a particular set of values for these parameters, while the overall system of rules, principles, and parameters is UG which we may take to be one element of human biological endowment, namely the “language faculty”.  (Chomsky 1982: 7)

The basic assumption of the P&P model is that languages have no rules at all in anything like the traditional sense, and no grammatical constructions (relative clauses, passives, etc.) except as taxonomic artefacts. There are universal principles and a finite array of options as to how they apply (parameters).  (Chomsky 1995: 388)

Note the move from the rationalist preoccupation with knowledge of language (in the mind) to the language faculty of the brain, which is a part of the human biological endowment. This incorporates an interest in language acquisition (also found among the seventeenth and eighteenth century rationalists) with the neurological mechanisms involved. So Chomskyan UG pretends to investigate the integration of grammar, mind, and brain.

The ‘principles’ of Chomskyan UG are believed to be innate. This view is founded on the belief that all and only human beings have (human!) language and that full linguistic competence cannot be acquired by parroting. Chomsky 1988 presents this in terms of an answer to ‘Plato’s problem’, which we discussed in Chapter 2: how it is that everyone knows more than their direct experience in the world seems to warrant.

The solution to Plato’s problem must be based on ascribing the fixed principles of the language faculty to the human organism as part of its biological endowment.  (Chomsky 1988: 27)

To acquire a particular language, e.g. Maasai, is to know the Maasai version of UG by the ‘switching on’ of certain parameters. For instance, the head parameter is responsible for Maasai speakers learning the conventional \verb~\verb SUBJECT~\verb OBJECT sequence of Maasai; English speakers will learn the \verb SUBJECT~\verb VERB~\verb OBJECT sequence instead; and Japanese
speakers SUBJECT OBJECT VERB. Language universals cannot be violated, but do not necessarily manifest themselves in every language. For instance, ‘move a’ (a UG principle of movement) may not be switched on parametrically: English questions typically involve movement (Where’s the restaurant? Is it close by?), Japanese questions do not (Restoran wa doko desu ka? Chikai desu ka? “Restaurant TOPIC where is Q? Close, by is Q?”).

The Chomskyan turn to universal grammar has had the effect that all major grammatical theories from the late twentieth century have pretensions to universal applicability, whether they be Functional Grammars (like Dik 1997); Systemic Functional Grammars (like Halliday 1994; Halliday, Fawcett and Young (eds) 1987-88); Lexical Functional Grammars (like Bresnan 2001; Kroeger 2004); Role and Reference Grammars (like Van Valin 2001; Van Valin and LaPolla 1997); Head-driven Phrase Structure Grammar (like Pollard and Sag 1994); or cognitive grammars (like Langacker 1987; 1991; Fried and Östman (eds) 2004; Goldberg 1995; Goddard and Wierzbicka (eds) 2002). Universal grammar with rationalist underpinnings is the default for all twenty-first century theories of grammar, a legacy from the Western Classical Tradition.

From the modistae to Chomsky

By the ninth century there was already reawakened interest in the rationale for the parts of speech. This eventually flourished during the late middle ages (1100–1350) in the era of speculative grammars which re-established grammatical theory within the Western Classical Tradition. Unlike the grammars of late antiquity and the early middle ages, speculative grammars sought to explain the ontology of the parts of speech. They were concerned not so much with the vox, the dictiones or partes orationis per se, but with modi significandi; that is, with our understanding of language as human beings and consequently with grammatical universals in general grammar. However, we should not assume that the word-and-paradigm grammar of the early middle ages was simply cast aside; the pars orationis came to be seen as a minimal sentence constituent and the focus (except in pedagogical grammars) was on syntactic construction rather than parsing. A constructio needs to have congruitas (well-formedness); a well-formed sentence is perfectio. Such grammatical constructs came to be reinterpreted in terms of universals. The late middle ages, then, is the first period at which the notion of a general or universal grammar is made explicit. Accordingly, the modistae concerned themselves primarily with modes of being or motion, understanding, and signifying. The essential modes identify what today we would call grammatical or lexical categories, each of which has accidental modes or subcategories such as number, gender, and case for nouns. Morphological form and structure was irrelevant to the semantic definitions of the modistae. The modistae did not aim for descriptive adequacy or pedagogic function, but for what Chomsky would call ‘explanatory adequacy’. Their aim was to produce a theory of syntax that characterized the essential properties of grammar even when describing the grammar of a particular language, because the particular grammar could be more easily learned through the rational explanations derived from general grammar. This was also the aim of the rationalist grammarians of the seventeenth and eighteenth centuries
and later of Chomskyan UG. One great difference was that these later rationalist theories also sought descriptive adequacy that led them to discuss processes for deriving surface from deep structures, or in more recent terminology to identify not only the principles of UG, but also explain how the parameters get switched on.

For the modistae, the *modus significandi* was based on a concept of the *res* “thing” and its properties; but unlike the rationalists of the seventeenth and eighteenth centuries, the starting point was the world of experience rather than the constructs in the mind. The mind understands the *res* and bestows on it a linguistic formulation in its mode of signifying. Thus, a word denotes, but to signify functionally in a construction it must consignify this structural ability. This use of consignificatio shows that full meaning includes the syntactic-functional meaning of the linguistic correlate of reality. The modistae saw the verb as indicating a change of state in the subject rather than as identifying action or passion. Active and passive came to be seen as subcategories of the change of state. Like Aristotle, the modistae recognize that the verb ‘consignifies’ tense. They regarded the verb as separated from the noun by being active (using terms such as *fieri, fluxus, successio*) as against stative (*habitus, permanens*). The participle was seen as adhering to the noun, and sharing some of its features, rather like an adjective. Like Aristotle (Topics 142a20), Apollonius (Synt. II: 4), and Priscian (Inst. XVII: 14), the modistae believed that the verb is dependent on and succeeds the noun. The priority of the noun justifies their view that the verb is grammatically dependent upon the noun. The syntactic consequence is a dependency hypothesis quite different from any modern dependency theories, in all of which the verb governs nouns (e.g. Hudson 1984; Mel'čuk 1988; Tesnière 1965). Dependency in modistic grammars was a semantic rather than a syntactic category, as one can see from Figure 8.7, in which the head noun of Virgil’s book is dependent: it is dependent because Virgil is the author of the book, and necessarily prior to it.

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Figure 8.7. Virgil’s book.

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During the renaissance the hegemony of Latin diminished. There was a gradual recognition that the vernacular languages of Europe were not so inferior as to make them unworthy of creative literature or of grammatical study. Also grammars of languages other than the *linguae sacrae*, Greek, Latin, and Hebrew, came to be written. Concomitantly, interest grew in the development of an international language to replace Latin, but this time an idealized language constructed on logical principles that would somehow directly and unambiguously represent (ideographically) the objects of perception and conception; it would be quick and easy to acquire, and facilitate both thinking and harmony among mankind. The universal understanding of Arabic numerals, despite the fact that they were
pronounced differently in every language, was the ideal model for a ‘character’ to represent this universal or ‘philosophical’ language. Paradoxically, these notions combined with an interest in shorthand, or *characterie*, also using atomized meaning. To create a ‘philosophical’ language one needed to systematically categorize human knowledge and perhaps the nature of human reason. The most celebrated examples were Dalgarno’s *Ars Signorum* and Wilkins’ *Essay Towards a Real Character and a Philosophical Language*, both published in the 1660s. These were magnificent failures in that they were not adopted for general use. Their legacies are dictionaries, thesauri, nineteenth century shorthand, the International Phonetic Alphabet, various systems of logic, and the componential analysis of vocabulary.

The interest in a universal ‘philosophical’ language was closely allied to the interests of contemporary rationalist grammarians who were the heirs to the general grammars of the late middle ages. The rationalists took up Aristotle’s observation that human minds have a common understanding, combined it with Descartes’ belief that God would not trick human reason, and sought a rational explanation for linguistic categories which are used to represent the world. They believed in the logical basis for language categories and offered systematic explanations for the structure of propositions and for relations between propositions. Inspired by Sanctius, the ‘gentlemen of Port-Royal’ created the seminal work in their *Grammaire Generale et Raisonée*. Like the modistae before them, they held that general grammar was a common property of all human languages; particular languages merely differ ‘accidentally’. Echoing the anonymous thirteenth century cleric quoted earlier who wrote that ‘It is not the grammarian but the philosopher […] who discovers grammar’, César Chesnau du Marsais (1676–1756) defined a grammarian as one who needs precise judgment and a philosophical approach enlightened by logic (Marsais 1797, V: 299). It is well-known that Chomsky identifies the Port-Royal rationalists as his own intellectual forebears, and certainly his version of universal grammar is a clear successor to the general grammars of the modistae and the rationalists. Their ‘general’ grammar is reinterpreted as the ‘principles’ of UG, and their ‘accidents of grammar’ as the ‘parameters’ that cause the learner of a particular language to apply certain principles from UG but not others. In pre-twentieth century grammars that distinguished deep from surface structure what is lacking is the specification of rigorously stated mapping rules from deep to surface. Also elaborations of simpler surface structures did not use abstract forms in the metalanguage but ordinary words from the object-language; and for everyone except Apollonius, the proposed underlying form was grammatically possible but stylistically (pragmatically) unacceptable. Chomskyan UG moves beyond the mind, beyond the pure rationalism of the seventeenth and eighteenth century grammarians to the ‘human biological endowment’ of the ‘language faculty’. This is a far stronger assertion of the innateness of UG than can be found among Chomsky’s predecessors in the Western Classical Tradition: it constitutes a step from rationalism towards neurological linguistics – a step that is a promise yet to be fulfilled.
Chapter 9  Phonetics, phonology, and comparative philology

The nineteenth century

This chapter concentrates on progress in linguistics during the nineteenth century. However, by way of introducing developments in phonetics and phonology, we first discuss the work of a twelfth century phonologist that was ignored by the tradition; had it not been, the rigorous study of sound systems might have begun in the middle ages instead of 700 years later. Beginning in the late eighteenth century, extensive comparisons of the phonology, lexis, morphology, and grammar of languages flourished during the nineteenth century, with two interconnected outcomes:

- The systematic identification of language families, which led to language typology as a subdiscipline of linguistics;
- Identification of sound change rules within and between languages, which evolved into historical linguistics; it also helped feed progress in phonetics that was hugely advanced at the very end of the nineteenth century by technological inventions for recording speech and for acoustic measurement.

There was cross-fertilization as progress in human social sciences such as anthropology, psychology, and sociology coincided with advances in linguistics during the late nineteenth and early twentieth centuries. But concomitant contemporary innovations in mathematics and logic had little direct impact on linguistics until the second half of the twentieth century (see Chapter 13).

A brief history of phonetics and phonology

Within the Western Classical Tradition, the history of phonetics goes back at least as far as the invention of the alphabet adapted by the Greeks from Phoenician syllabic characters during the ninth century BCE. Right up until the nineteenth century one of the meanings of (the translation equivalents of) letter was the sound(s) it stood for, its potestas. As we have seen, many grammars started off with some discussion of ‘letters’, their forms, names, and pronunciation. In the fourth century BCE Aristotle describes the letter as ‘an indivisible sound of a particular kind, one that may be a constituent of a word (sunetē phōnē)’ (Poetics 1456b22). In the fourth century CE Donatus 1961a: 367 wrote: ‘the letter is the smallest part of articulated speech.’ So from ancient times, scholars had available something very similar to the twentieth century notion of the phoneme, though there was no theory of phonemes nor a systematic discovery procedure to identify them. But until modern times phonetics was embryonic. Everyone recognized that different sounds were made in different positions in the mouth. The ancient Greeks had distinguished in the consonant triads psilôn, dasû, and mesê, which went through the Western Classical Tradition as tenuis, aspirata and media. The Greek originals literally mean smooth, rough and middle, which are not acoustically
precise descriptions. The term psilón was used of the stops /p, t, k/; dasú and aspirata of breathy phones such as fricatives and aspirates;¹ and whereas mesè/media are systematically distinguished from the other two terms, there is no concept of voicing indicated. The Alexandrians introduced a diacritic to mark /h/ (for which there is no letter in the Greek alphabet) and accents to mark prosodic characteristics such as stress, length, and pitch (see Chapter 5). In Carthage around 470 CE, Martianus Capella in Book III of De Arte Grammatica of De Nuptiis Philologiae et Mercvrii described each of the 23 letters of the Roman alphabet: for example, C is molaribus super linguæ extrema appulsis exprimitur “consonant articulated with the molars over the back of the tongue”; D appulsu linguæ circa superiores dentes innascitur “D the consonant [made] by the tongue touching the upper teeth”; I spiritus prope dentibus pressis “I the vowel [made] with the teeth close together”; M labris imprimitur “M the pressing together of the lips” (no mention of nasality); T appulsu linguæ dentibusque in pulsis extruditur “T the consonant [made] by the tongue being struck against the teeth”; and Q is appulsu palati ore restricto “the consonant [made] by an occlusion of the palate” (Capella 1983, III.261). This was as detailed an articulatory description as any in the early literature; and there was no systematic phonetic or phonological analysis until the twelfth century.

The so-called First Grammatical Treatise, concerned with Icelandic orthography, was written around 1135.² The misleading accolade for the ‘First Grammarian’ (abbreviated to FG here), whose name could be Hallr Teitsson (c. 1085–1150), arises because the treatise that he wrote in Icelandic happens to be first in a compendium such that it was referred to and later inscribed as ‘The first grammatical treatise’ and appended to Snorri Sturluson’s (1179–1241) textbook of poetics, the Snorra Edda (c. 1220). FG’s scholastic environment is often apparent: in his opening paragraphs he mentions Hebrew, Greek, and Latin, the three sacred languages; he also knew English and Danish. There are traces of Donatus in his discussion of mutae and semivocales, and of Priscian in his citing the superiority of vowels over consonants. The derivation of titulus from Titan he borrowed from Remigius of Auxerre (author of commentaries on Donatus, Priscian, Phocas, Eutyches, and Capella). FG also uses a few Latin words and makes statements about Greek vowel length which come straight from Remigius. The First Grammatical Treatise is not pedagogical but was probably intended for fellow scholars, because Icelandic was not taught until about a century later. It deals with orthography using the terminology shown in Table 9.1. Latin script had already replaced the Runic alphabet, but FG’s approach to adapting Latin script to his native language shows similarities to the way modern linguists create writing systems for previously unwritten languages in Africa, Asia, Austronesia, and South America. FG’s technique was to contrast minimal pairs, with the consequence that his ‘letters’ are very close to representing phonemes. Wherever his results can be checked by independent historical methods they have been validated. His phonetics were primitive, his etymologies no better than those of his predecessors; but he discovered a method for determining the

¹. The Latin aspirata and English technical term aspirate are ‘false friends’, the latter not being a completely accurate translation of the Latin.

². The only manuscript dates from c. 1360.
The First Grammarian insightfully says that the writing system for one language is not always applicable to another because different languages have different sounds.

And yet Englishmen write English with Latin letters, as many as can be rightly pronounced in English, but where these no longer suffice, they add other letters, as many and of such nature as are needed, taking out those that cannot be rightly pronounced in their language. [...] I have used all the Latin letters that seemed to fit our language well and could be rightly pronounced, as well as some other letters that seemed needful to me, while those were taken out that did not suit the sounds of our language. Some of the consonants of the Latin alphabet were rejected, and some new ones added. No vowels were rejected, but a good many were added, since our language has the greatest number of vowel sounds. (Haugen 1972: 13)

FG says that because consonants cannot be named without the help of a vowel, he deals first with vowels. This remark about consonants may have been original, or it may have come through the tradition that goes back at least as far as Aristotle. To a, e, i, o, u, FG adds ọ, ę, ø, y. The last of these, y, is apparently a regularization of û (u-caudata “u with a tail”).

He writes:

Ω gets its loop from a and its circle from o, since it is a blending of their two sounds, spoken with the mouth less open than for a, but more than for o. [...] Ω is made up from the sounds of e and o, spoken with the mouth less open than for e and more than for o, and therefore written with the cross bar of e and the circle of o. Y is a single sound made up from the sounds of i and u, spoken with the mouth less open than for i and more than for u so that it shall have the first branch of the capital U ... [sic] as they were formerly placed in the alphabet. (ibid. 15)

Although FG only describes the various vowels in terms of being either open or close and does not use the oppositions of front–back nor lip spreading–rounding, a vowel diagram can be constructed on the lines of Figure 9.1 (next page). The First Grammarian defends his new letters against those who (he says) declare that e is sufficient for both e and ę by saying:

it is not the virtue of the letters that enables you to read and to make out the pronunciation where the letters are unclear. That is rather your virtue, and it is not to be expected that I also, or anyone like me, if such there be, shall be able to read well and to make out which path to take; however more than one course is possible because it is written one way, but not clearly determined, and then one has to guess, as you claim you can do so well. (85.4–5, Haugen 1972: 15)

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Table 9.1. Letters.

<table>
<thead>
<tr>
<th>GREEK</th>
<th>LATIN</th>
<th>ÆLFRIC</th>
<th>FIRST GRAMMARIAN</th>
<th>ENGLISH</th>
</tr>
</thead>
<tbody>
<tr>
<td>στοιχεῖον</td>
<td>littera</td>
<td>staef</td>
<td>stafr</td>
<td>letter</td>
</tr>
<tr>
<td>όνομα</td>
<td>nomen</td>
<td>nama</td>
<td>nafin</td>
<td>name</td>
</tr>
<tr>
<td>χαρακτήρ</td>
<td>figura</td>
<td>hiw</td>
<td>voxtr, likneski</td>
<td>shape</td>
</tr>
<tr>
<td>ἕκφωνησις</td>
<td>potestas</td>
<td>miht</td>
<td>atkvæði, hljóð, jartein</td>
<td>sound</td>
</tr>
</tbody>
</table>

Table 9.1: Letters.
In contemporary Latin and English manuscripts η (e-caudata) was quite commonly contrasted with e, presumably on analogy with the distinction in Greek between eta η, /e/, and epsilon ε, /e/, on which the e-caudata is based. ‘Every vowel is pronounced in every context just as it is named in the alphabet’ he writes (86.21) – except in diphthongs, which are combinations of vowels and not separate sounds requiring special written symbols. (So he is pragmatic.)

Some of the First Grammarian’s minimal pairs are shown in (1)–(4).

(1) sar open and sor closer
(2) ser close and ser more open
(3) sor close and sor more open
(4) sur close and sur more open

His exemplary sentences are amusing as well as clever; cf. (5)–(7).

(5) The priest swore (sor) the fair (sør) oaths only.
(6) Mjök eru þeir menn frámið, er eigi skammask at taka mina konu frá mér.
“Those men are brazen who are not ashamed to take my wife from me.”
(7) Móna mín móna, kvíð barnit, við mik gora verst hjóna.
“My Mamma will not, says the child, treat me the worst of her household.”

FG then says that each of the nine letters can be nasalized, which he indicates with a dot above the letter, e.g. á, é, ô as in (6) and (7). He also says that each sound may be long, which he marks with an accent (perhaps named after the Old English word stryk); e.g. é, ó (again, see (6) and (7) above). This way, he identifies 36 vowel sounds by means of between nine and eleven symbols, although he talks about making them ‘out of five Latin vowels’ (Haugen 1972: 17). It is doubtful that there were in fact 36 vowel phonemes in twelfth century Icelandic. It has been shown that there was no contemporary phonemic distinction between long and short vowels; they were allophones of the same phoneme (ibid. 40). In all examples but one, the word with the long vowel is phrase-final if not sentence-final (ibid. 18); cf. (6) and (7) above. Furthermore, nasalization is thought to have died out not long after FG wrote his treatise; Haugen argues that the nasalized examples given suggest the remnant of a nasal consonant in the parent language of Icelandic.

The First Grammarian’s understanding that some consonants can be geminate in syllable final position leads him to propose that small capitals be used for geminate consonants. He
used $x$ for $ks$ and $K$ instead of majuscule $C$, because the latter is too similar to a lower-case $c$. Because /ks/ never occurs initially or as a geminate there is no need for majuscule $X$ or small capital $x$. The manuscript uses a long $s$, $ʃ$ “esh”, for the minuscule, but $S$ for the majuscule; however, the manuscript does not adopt the proposed spelling reform because it needed to be understood before being used. On the few occasions where the manuscript does adopt the new forms, it is presumably the copyist’s doing, because he does the same in the unrelated *Second Grammatical Treatise*.

The vowel in the name for a consonant letter precedes in the case of continuants, e.g. ‘ef’ for $f$, and also in geminates, e.g. $B$ is ‘ebb’, $G$ is ‘egg’; but non-geminate stops and $h$ have the vowel following, e.g. ‘be’ for $b$, ‘ha’ for $h$. There are no letters for voiced fricatives because the voicing of fricatives was environmentally conditioned in Old Icelandic, as it was in Old English; thus he has $f, ːf, ʃ$, but not $v, ːð, ʃ$. He writes

The $n$ which comes before a following $g$ in the same syllable is spoken less in the nose and more in the throat than other $n$’s, because it receives some admixture of the $g$. He calls this ‘eng’ and writes it $g$; it is phonetically [ŋ].

So, we see an innovative phonemicist approaching the problem of alphabetization in much the same way that modern linguists do when using the resources of various phonetic alphabets to produce an orthography for a language. FG displays admirable commonsense, suggesting that vowel diacritics and geminate marking should be optional and used only when required for disambiguation of homonyms (see 90.2–5). His use of minimal pairs to establish contrasts, and the economy of his symbolization, are very modern in conception; but, unfortunately, the advances he made in practical phonemics were not developed or built upon, perhaps because, at a time when most scholarship was conducted in Latin, he wrote in Icelandic. One of the most significant breakthroughs in linguistics since late antiquity was thus lost to the Western Classical Tradition.

Now let’s skip ahead 500 years to take up the story in renaissance England. For several reasons there was concern about the mismatch between spelling and pronunciation in sixteenth and seventeenth century Britain.

- The growth of printing since the fifteenth century had led to a great increase in literacy, and concomitantly renewed interest in the correlation between the spoken and written word.
- The replacement of Latin by English as the language of education boosted the prestige of English.
- With the growth of commerce among a class of people for whom Latin was no longer a lingua franca, foreigners needed to speak English. They were thought to have problems with English spelling. Perhaps the developing rationalist philosophy (discussed in Chapter 8) was also a motivating factor.
- In the seventeenth century there was growing awareness of linguistic diversity and dialect variation which, as we have seen, led people to look for a universal alphabet to match the universal grammar.

One of the earliest writers on English spelling reform was Charles Butler (c. 1561–1647). He was a follower of Petrus Ramus, who divided rhetoric between elocution (figures
of speech) and pronunciation (utterance and gesture), leading Butler to write De Elocutione and De Pronunciatione, both published in Butler 1629. In 1633 he published The English Grammar, or The Institution of Letters, Syllables, and Words, in the English Tongue. Whereunto is annexed An Index of Words Like and Unlike, which included a new orthography:

For, through the ignorance of our old Pen-men and Printers, it is come to passe; that sundry letters, of frequent use in our tongue, have yet noe peculiar and distinct characters […] the Latin letters are not sufficient to express all the single sounds of the English. So that wee are faine to borrow, for these uncharactered letters, other letters that have other forces of their owne; and whose names doe noe whit impie the forces of those letters, whose places they are forced to supplie. (Butler 1633: 3f of ‘To the Reader’)

Note the distinction made between letter and character in the phrase ‘uncharactered letters’. The character is a grapheme, a written symbol for the letter. The letter has a force, its phonetic realization which, because Butler attempted a phonemic representation, we can identify with a phoneme. He reformed spelling by simplifying digraphs such as ee, oo; omitting superfluous letters such as the u after q; and doing away with the redundancy inherited from Latin of having consonants /j/ and /u/ given the same values as vowels /i/ and /u/. He used d and D for /ð/; T and ȷ for /θ/; S and s for /ʃ/; C and e for /ʃ/ (Butler 1633: 2). He uses the opening quote symbol ‘ for the ‘quiescent’ letter e ‘which, being at the end of a word is not sounded at all’ (ibid. 10) but serves to mark vowel length in words like cloak, name, write and true, rendered clok’, nam’, writ’, and tru’. Butler also discussed, under the heading ‘words adjuncts’, prosodic features such as tone, amplitude, and accent (= stress).

Another early phonetician was William Holder (1616–98). In The Elements of Speech, an Essay of Enquiry into the Natural Production of Letters (Holder 1669), he gives an excellent account of the organs of speech and articulatory processes; here is a small part of it:

Of Letters the Material part is Breath and Voice; the Formal part is constituted by Motions and Figures of the Organs of Speech, affecting the Breath or Voice with a peculiar sound, by which each letter is discriminated. (Holder 1669: 22)

The Larynx both gives passage to the Breath, and also, as often as we please, by the force of Muscles, to bear the sides of the Larynx stiffe and near together, as the Breath passeth through the Rimula, makes a vibration of those Cartilaginous Bodies which forms that Breath into a Vocal sound or Voice. (ibid. 23)

He presents the following definition of consonants:

But where there is an Appulse of one Organ to another, the Letters, which are so framed, are Consonants. Again the Appulse is either plenary and occlude, so as wholly to preclude all passage of Breath or Voice through the mouth; or else partial and pervious, so as to give them some passage out of the mouth: and this later affects the Sound divers ways, giving it a Lisping, or Hissing, or else emitting it smooth, or else jarring.

The nature of Consonants being framed by Appulse, is […] much easier to be discerned, than that of the Vowels. (ibid. 35f)

Holder’s account of sounds is generally good. His description of laterals includes the voiceless Welsh /l/. He recognized the glottal stop as having some affinity with /k/ and /h/, and the fact that it is made by closing the larynx. He noted that terminal voiced consonants are
often devoiced in English (it is not only a feature of German). He attempted to establish a series of vowels according to their degrees of aperture, thus anticipating one dimension of the International Phonetic Association’s IPA vowel diagram. He also recognized lip-rounding, and different degrees of front and back tongue raising. Holder’s view of the syllable as the alternation of ‘apertures’ (vowels) and ‘appulses’ (consonants) accords well with modern views of the syllable.

The Vowels are made by free passage of Breath Vocalized through the cavity of the Mouth, without any appulse of the Organs; the said cavity’s being differently shaped by the postures of the Throat, Tongue and Lips, some or more of them, but chiefly of the Tongue.

As to the Number of Vowels, they, being differenced by the shape of the cavity of the mouth, may be reckon’d very many, if small differences be allowed. But those which are remarkably distinguished, and reasonably suffice to express the pronunciations in use, that we know of, may be reduced to [...] Eight. (ibid. 80f)

Note the implicit distinction between phones and phonemes. The vowel count derives from the eight symbols α, a, e, i, o, oo, u, and y. He lists eight long ones in the words fall, fate, seal, cole, fool, rule, two and four short ones in folly, fat, sell, ill, full. His descriptions of these vowels (pp. 80–87) are perhaps the weakest part of his book. However, it is clear that, overall, Holder made important advances in phonetics and phonology, although his work had little impact on the Western Classical Tradition in linguistics.

Francis Lodwick published A common writing (Lodwick 1647) and The groundwork or foundation laid, (or so intended) for the framing of a new perfect language and an universall or common writing (Lodwick 1652). In his Essay Towards an Universall Alphabet (Lodwick 1686) he proposed a universal alphabet using symbols that were not Roman and in which the vowels are indicated by diacritics. He set out his consonants in a table showing the manner and place of articulation in much the same way as the IPA consonant chart would later do (see Lodwick 1686: 130, 137).

In Tübingen in 1781 Christopher Hellwag published De Formatione Loqvelae, which includes a vowel chart (pp. 25f) reproduced in Figure 9.2. Unlike the IPA chart it has back vowels to the left instead of to the right. Hellwag’s chart looks pretty accurate when compared with the vowel chart for modern German in livonen 1987.

\[ u \quad ü \quad i \]
\[ o \quad ö \quad e \]
\[ â \quad ä \quad a \]

Figure 9.2. Hellwag’s Vowel Chart of 1781 (from Jakobson and Waugh 1979: 127).

In his Dissertation on the Orthography of Asiatick words in Roman letters (Jones 1784), polyglot Sir William Jones (1746–94) prefers the use of a syllabary (as in Devanāgarī or Classical Arabic) to an alphabet. He noted that English has many more than five vowel sounds, but this was already well-recognized. Jones is most celebrated for persuading scholars that Sanskrit was related to Latin and Greek. The similarities between Sanskrit and European languages had been remarked upon, but no notice was taken until after an address he made to the Asiatick Society (Jones 1786). It encouraged the study of Sanskrit grammar
and the theories of Pāṇini (c. 520–460 BCE);\(^4\) it also left philologists with the need to explain language change and so led to the postulation of sound change laws discussed later in this chapter.

Jean-François Champollion (1790–1832), celebrated as the Egyptologist who deciphered most of the hieroglyphics on the Rosetta Stone, used the phrase ‘the alphabet of phonetic hieroglyphs used by the Egyptians’ (l’alphabet des hiéroglyphes phonétiques employés par les Égyptiens) in Champollion 1822. It is the earliest published use of the term phonetic (or the equivalent). Mid-century Alexander Ellis (1814–90), friend and colleague of Isaac Pitman, published Essentials of Phonetics (Ellis 1848). In 1854, Egyptologist (Karl) Richard Lepsius (1810–84) wrote on transliterating hieroglyphics and numerous other writing systems to an internationally recognizable alphabet (Lepsius 1881). It is clearly an advance on earlier work and seems to have contributed to the IPA; however, Ellis 1867 criticized Lepsius for using too many diacritics and using them unsystematically. Eduard Sievers (1850–1932) talked about the necessity for early training before coping with unfamiliar sounds; he thought that phonetics should start with sentences and work down to the syllable and ‘the individual sound [which] often does not even exist isolated in speech in the absolute form in which it is generally presented in grammars’ (Sievers 1881, quoted in Lehmann 1967: 262). As we have seen in Chapter 8 and this chapter, the precursors to modern phoneticians were people interested in spelling reform and shorthand. One such reformer was Henry Sweet (1845–1912), who is credited with founding the modern science of phonetics. His Handbook of Phonetics, Including a Popular Exposition of the Principles of Spelling Reform (Sweet 1877) looks both forward and backward. His ‘Preface’ forthrightly begins:

The importance of phonetics as the indispensable foundation of all study of language – whether that study be purely theoretical, or practical as well – is now generally admitted. (Sweet 1877: v)

Sweet based his phonetic alphabet on the Roman alphabet because of its mnemonic value (ibid. 101–2). This has advantages over a need to learn a new writing system such as those proposed by Dalgarro, Wilkins, or Pitman. The standard alphabetic characters can be modified by case change (e.g. script, diacritics (ä, ä), turning letters (ø) and using digraphs (th) – Sweet used [th] for IPA [θ]. Sweet was influenced by Isaac Pitman’s phonetic-based shorthand as well as by Ellis and Lepsius. Sweet’s work in turn inspired Frenchman Paul Édouard Passy (1859–1940) of L’Association Phonétique des Professeurs d’Anglais to establish the International Phonetic Alphabet in 1886. In addition to Sweet’s Romic script, the IPA uses Greek symbols such as θ and ρ, special symbols like ꚠ and ꚡ, digraphs like ꚢ, and assigns new values to x and q. The IPA has been revised several times since then; for the current (2006) version see http://www.langsci.ucl.ac.uk/ipa.

Laura Soames\(^5\) (1840–95) was a schoolteacher who became interested in spelling reform (Soames 1880) and consequently in phonetics. She was elected to the council of the


\(^5\) For more information on Laura Soames see MacMahon 1994.
International Phonetics Association in 1890 and was highly regarded by its founder Passy and many other phoneticians in Europe, including Wilhelm Viëtor (1850–1918), founder of the journal *Phonetische Studien*. Viëtor revised her influential *Introduction to Phonetics* (Soames 1891) as *Introduction to English, French and German Phonetics* (Soames 1899; there was a third edition in 1913) and later he edited and added to a manuscript she was working on at the time of her death. This combined revisions of the *Introduction* with aspects of the book which had established her as a force in education, *The Child’s Key to Reading* (Soames 1894), and was published as *The Teacher’s Manual* (Soames and Viëtor 1897). Even in her introduction to phonetics, Soames is less the technical phonetician than educationist so that her notation is closer to normal orthography than we should expect today. She antagonized Henry Sweet by criticizing him for not taking the same path and also for his claim that English stress is ‘not rhythmic but logical’ (Sweet 1889); he dismissed her as a ‘beginner’ who should ‘keep out of general phonetics’ (see MacMahon 1994: 103). In Soames’ view, phonetic notation is an aid and not a rigorous representation, e.g. *the* is ‘dha’; the syllabic final /l̩/ of *little* is marked by a following apostrophe: ‘litl’; *he* is ‘hi’ and *his* ‘hiz’; the pronunciation is rhotic: *further* is ‘foerdhar’. Like many of her contemporaries, Soames referred to ‘educated’ pronunciation and allowed for variations such as rhoticity; she did not use Ellis’ term ‘Received Pronunciation’ (Ellis 1869-89 I: 23) later propagated by Daniel Jones. Soames inveighed against ‘imperfect’, ‘slovenly’ articulation (as did Sweet, too). Soames’ notation did not survive; her main contribution seems to have been to popularize phonetics among teachers. In posthumous editions Viëtor replaced her notation with IPA symbols.

Henry Sweet’s distinction between ‘Broad Romic’ and ‘Narrow Romic’ is exactly the distinction between a phonemic and a phonetic description; see Sweet 1877: 104, 113–15 (*e* is a high [e̞]).

(8)  Come up at once. I thought that that was all done with.

(9)  kəmə·pət ·wəns \ ai theət\dhæt dhæt\wəz aol ·dənwed\h \ [Broad Romic]

(10)  kəmə·pət ·wəns \ ehih theət\dhæt dhæt\wəz aol ·dənwɛ\d\h \ [Narrow Romic]

Sweet had observed that only the contrastive sounds of a language need to be noted in committing them to writing; but that a more detailed written representation of the speech sounds should also be available. Sweet himself never used the word *phoneme*, which was created by a Frenchman named A. Dufriche-Desgenettes (1804–78) in a letter of 1873, as a translation of German *Sprachlaut*. The term was adopted and spread by Ferdinand de Saussure (1857–1913) in his *Mémoire sur le système primitif des voyelles dans les langues indo-européennes* “Essay on the primitive vowel system of Indo-European languages” (Saussure 1879); he used it to mean a prototype in a parent language which has different realizations in daughter languages. Jan Niecislaw Baudouin de Courtenay (1845–1929) and his student Mikolaj Kruszewski (1850–87) were responsible for popularizing the term from 1881 and using it for an abstraction over a psychological construct. For example, they talked

6. First name unknown, see Joseph 1999: 55.
about the English /s, z/ alternation in terms of a ‘plural phoneme’ (though it is what would now be called a morphophoneme). In 1895 Courtenay defined the phoneme as

a unitary concept belonging to the sphere of phonetics which exists in the mind thanks to a psychological fusion of the impressions resulting from the pronunciation of one and the same sound; it is the psychological equivalent of a speech sound. (Baudouin de Courtenay 1972: 152)

(On the next page we find ‘The morpheme = that part of a word which is endowed with psychological autonomy and is for the very same reason not further divisible. It consequently subsumes such concepts as the root (radix), all possible affixes, (suffixes, prefixes), endings which are exponents of syntactic relationships, and the like.’) The psychological character of the phoneme was something that frequently cropped up during the period 1920–40, was often explicitly rejected, but never, in the end, satisfactorily dispensed with. Edward Sapir (1884–1939) in ‘La réalité psychologique des phonèmes’ “The psychological reality of phonemes” (Sapir 1933a) defined the phoneme as a complex of psychological associations which merge into an ideal sound. He also postulated that every meaningful sound in language falls within the scope of a phoneme of the language; and he emphasized the significance of distributional criteria in determining whether a phone was a phoneme. In saying that the phoneme has only limited distributional possibilities in relation to other phonemes in the language, he was echoing Saussure’s dictum that a phoneme was part of the language system in which everything has a value in relation to everything else (Saussure 1916: 64–98; see Chapter 11). For Otto Jespersen (1860–1943):

A phoneme is defined as a family of sounds which from an objective point of view may be regarded as distinct, but which are felt naturally by the speakers of a certain language as identical, because they are not used to keep words apart. Thus it may be said that in English the [k] of key and the [k] of car are two different sounds, as they are formed in different points of the palate, but they are members of the same phoneme, because the different formation is never used with distinctive value, but follows automatically from the character of the vowel to be pronounced after the consonant. A non-syllabic [j] and a consonant [j] formed with strong friction at approximately the same place in the mouth are certainly different sounds, which it requires only a little practice to hear as such, but there are probably very few languages which would use them as two phonemes serving to keep otherwise identical words distinct from one another. (Jespersen 1926: 9)

Something very similar is found in Leonard Bloomfield’s (1887–1949) Language (Bloomfield 1933: 79f) and a much elaborated account in Nikolaj Sergeyevich Trubetskoy’s (1890–1938) Grundzüge der Phonologie (Trubetzkoy 1969: 46–49). Bloomfield, whose extreme physicalism is discussed in Chapter 12, believed in the acoustic reality of the ‘features of sound’ from which phonemes are composed, and said

The physical (acoustic) definition of each phoneme of any given dialect can be expected to come from the laboratory within the next decades. (‘On the phoneme’, address to the University of Wisconsin Language and Literature Club, 13 April 1934, cited in Twaddell 1935: 23)

There is no record of Bloomfield’s 1934 paper in the bibliography in Bloomfield 1970 and perhaps he reconsidered the matter; certainly no evidence has ever been found to confirm this reported belief.
Among several definitions of the phoneme by English phonetician Daniel Jones (1881–1967), the best is:

A family of sounds in a given language which are related in character and are used in such a way that no one member ever occurs in a word in the same phonetic context as any other member. (Jones 1967: 10 [sic])

This includes reference to the contrastive function of the phoneme that was most succinctly captured in

A minimum same of vocal feature is a phoneme or distinctive sound. (Bloomfield 1926: 157, Definition 16)

The notion that a phoneme is a family of sounds gives rise to the condition that all allophones of a phoneme are phonetically similar; e.g. English /h/ and /ŋ/ never occur in the same phonetic context; they are in complementary distribution, /h/ occurring only syllable initially and /ŋ/ occurring only syllable medially or finally (sink, sing). They satisfy the distributional criterion for allophony, but their phonetic features are so very different that they constitute different phonemes. Jones, like Sweet, distinguished between what he called ‘phonemic’ or ‘linguistically broad’ transcription, and ‘allophonic’ or ‘linguistically narrow’ transcription (Jones 1960: 51) and he too was interested in practical applications of phonetics:

The main object of grouping the sounds of a language together into phonemes is to establish a simple and adequate way of writing the languages. (Jones 1931: 78; cf. Jones 1967: 219)

William Freeman Twaddell (1906–82), after discussing various definitions of the phoneme up to 1935, suggests that the phoneme is an ‘abstractional fiction’ (Twaddell 1935: 37). This avoided stating that the phoneme is a psychological entity or an acoustically definable object; but in practical terms, a phoneme is psychologically real and can be described – though not defined – acoustically. Twaddell’s description of what he calls the ‘macro-phoneme’ (ibid. 39) uses distinctive features, perhaps under influence from Prague school phonology. For instance, the various allophones of /p/ have in common the features ‘bilabial’ and ‘plosive’; allophones of English /t/ have in common the features ‘alveolar’ and ‘plosive’. He identifies English initial /p/ and initial /t/ as having in common the features ‘plosive’ and ‘aspirated’; from which we see that he prefers an articulatory to an acoustic definition of the phoneme (ibid. 56f). Twaddell says that whereas phonemes ‘are realities of some sort’ (ibid. 52) macro-phonemes are ‘abstractional fictions’. But today we say that the phoneme is a theoretical construct and therefore abstract; only its phonetic realizations are realities.

During the years 1928 to 1939 the Prague Linguistic Circle (Pražský lingvistický kroužek) included such personalities as Roman Jakobson (1896–1982), Sergei Karcevskiy (1884–1955), Vilém Mathesius (1882–1945), Jan Mukařovský (1891–1975), and Nikolaj Trubetskoy. The Prague school had significant influence on twentieth century phonological theory, functionalist linguistics, methods of structuralist literary analysis, text linguistics, and semiotics, which were publicized through the journal Travaux du Cercle Linguistique de Prague. Trubetskoy and Roman Jakobson defined ‘phonology’ as the study of the function of speech sounds. Basic to their method of phonological analysis is the setting up
of contrasts. The criterion for determining which sounds are significantly contrastive is meaning: phonetic differences that do not signal semantic contrasts are not contrastive. This was implicit in earlier work in phonemics, and also in Sweet’s distinction between broad and narrow transcription; the Prague school clearly distinguished the phoneme not as an acoustic object, but as a set of phones which contrast with other sets of phones. There is nothing absolute about the phoneme; some phonemes will consist of allophones of greater phonetic similarity than others; some pairs of phonemes will be very similar. There are various kinds of opposition. For instance, bilateral contrast is when phonemes share features not shared by any other pair of phonemes, e.g. /f/ and /v/ are labio-dental and fricative. Multilateral contrast is when the common features of two phonemes, e.g. two vowels, are shared by several others. Proportional contrast is, e.g., where the feature (voicing) which relates /p/ and /b/ is the same as that relating /t/ and /d/. The contrast between Spanish /r/ and /rr/ is isolated, because length is not otherwise a contrastive feature of Spanish consonant phonemes. The difference between /ph/ and /p/ is privative because one member is marked by aspiration and the other is unmarked; not all bilateral relations have a marked and an unmarked member (see Chapter 11). Distinctive features simply mark difference; they have no intrinsic lexical or grammatical meaning.

Prague school distinctive features were brought to Chomskyan grammar by Jakobson. In Preliminaries to Speech Analysis, co-authored with Gunnar Fant (b. 1919) and Morris Halle (b. 1923), all distinctive features were binary and based on both acoustic and ‘genetic’ (i.e. articulatory) characteristics. For example, the tense–lax opposition has as acoustic features more (vs less) sharply defined resonance regions in the spectrum, with increase (vs decrease) of energy and its spread in time; the genetic characteristics are greater (vs smaller) deformation of the vocal tract away from the rest position and muscular strain on the tongue, vocal tract, and glottis (Jakobson, Fant and Halle 1952). The emphasis on acoustic features may be partly explained by the work being a technical report for the Haskins Laboratory; for whatever reason, the emphasis shifted, and in later work distinctive features are identified primarily in articulatory terms (see Jakobson and Halle 1956; Jakobson and Waugh 1979). The Sound Pattern of English (hereafter SPE, Chomsky and Halle 1968) brought distinctive feature analysis to a wider audience. There were class features such as vocalic and consonantal, cavity features such as coronal, features of articulatory manner such as continuant and suction, and source features such as voice. Today the number of features is much reduced to, e.g. ±sonorant, ±continuant, ±voice, ±nasal, ±lateral, ±ATR (advanced tongue root); additionally there are the unary features labial, dorsal, and coronal (which subcategorizes into ±anterior, ±distributed). Features can be underspecified where they are predictable from general conditions; e.g. roundness does not have to be specified for vowels if height and backness is specified because, for instance, non-low vowels cannot have opposite values for roundness and backness (Roca and Johnson 1999). Phonology became explicitly linked with grammar following SPE, which postulated the transformational cycle as a means of introducing prosodic (suprasegmental) phonology into the surface realization of syntactically well-formed and semantically interpreted language structures. It was supposed that all major lexical category items bore a 1 stress when they
occur in sentences; cyclic reassignment of 1 stress to a 1 stressed constituent of the innermost bracketing was coupled with a convention subordinating all other stresses by one; thus, starting at (11), the stress rule for compounds generates (12), then the nuclear stress rule generates (13).

\[
\begin{align*}
(11) & \quad [A\{dew\}-[covered]] [N[lawn] \\
(12) & \quad [A\{dew\}-[covered]] \\
(13) & \quad [A\{dew\}-[covered]] [N[lawn] \\
\end{align*}
\]

And so on, until in *Harry mowed the dew-covered lawn* the final NP has the stress pattern in (14).

\[
\begin{align*}
(14) & \quad [A\{dew\}-[covered]] [N[lawn] \\
\end{align*}
\]

Obviously, the longer the sentence, the weaker the stress gets on some constituents. Chomsky and Halle 1968: 23 have an 8 stress on the word ‘sad’ in *My friend can’t help being shocked at anyone who would fail to consider his sad plight*, yet in reality there are only two or three stress levels in normal speech. Furthermore it was soon established, e.g. by Bresnan 1971; Bolinger 1972; Schmerling 1976; and Ladd 1980, that both the stress assignment rules and transformational cycle proposed in *SPE* were deeply flawed. The morphological derivations in *SPE* which ingeniously related synchronic twentieth century pronunciation to earlier forms (e.g. *divine* and *divinity* have the underlying form [divīn] in common) have also been criticized.

One reaction to the syntactic basis for phonological structure proposed in *SPE* was the development of metrical phonology, which groups phonemes into syllables, syllables into metrical feet, feet into phonological words, and words into larger units (see Liberman and Prince 1977). There are levels of representation for segments, syllables, and High and Low tones (word tone H*, phrase tone L*, and boundary tone L%). As Selkirk 1980: 29 wrote: ‘prosodic structure is not syntactic structure, nor is it isomorphic to it.’

### Nineteenth century comparative philology

‘Philology’ was the prevailing term for linguistics in the nineteenth century, and nineteenth century philologists were fascinated by the relationships that they discerned and explained among languages. Spanish Jesuit Lorenzo Hervás y Panduro (1735–1809) published a massive 21-volume *Idea dell’Universo* (Hervás y Panduro 1778-87) and the shorter *Catalogo* (Hervás y Panduro 1784), in which he recognizes with a great deal of accuracy various language families we still acknowledge (for example the relationship between
Hungarian, Finnish, Lappish, and Latvian). Hervás was an empiricist who did not assume that all languages derive from Hebrew (see Chapter 7); indeed, he questioned whether Hebrew was mother or sister to Arabic, Aramaic, Ethiopic, and Phoenician (called ‘-Semitic’ by August Schlözer of Göttingen University in 1781). Hervás surveyed the history and spread of languages for which he gave lexical and grammatical sketches. Partly inspired by Hervás, Johann Adelung (1732–1806) did something similar in Mithridates, completed by others after his death (Adelung 1806-17). It was in a review of Mithridates that Thomas Young (1773–1829) first used the term ‘Indo-European’ (Young 1813: 256). Hervás surveyed more than 300 languages, Adelung et al. more than 500.

In an address to the Royal Asiatick Society in Calcutta on February 2, 1786 (subsequently published in their Journal) entitled ‘On the Hindus’, William Jones established that Greek, Latin, and Sanskrit derive from a common source, perhaps extinct. Moreover, Sanskrit is closer to the source than either Greek or Latin. Jones also suggested that Gothic (Germanic), Celtic, and perhaps Old Persian have the same origin as Sanskrit. In the late sixteenth century the similarities between Sanskrit and European languages had been remarked upon, but no notice was taken until Jones wrote:

The Sanscrit language, whatever be its antiquity, is of a wonderful structure; more perfect than the Greek, more copious than the Latin and more exquisitely refined than either, yet bearing to both of them a stronger affinity, both in the roots of verbs and in the forms of grammar, than could possibly have been produced by accident; so strong, indeed, that no philologer could examine them all three, without believing them to have sprung from some common source, which, perhaps, no longer exists: there is similar reason, though not quite so forcible, for supposing that both the Gothick and the Celtick, though blended with a very different idiom, had the same origin with the Sanscrit; and the old Persian might be added to the same family. (Jones 1786: 26)

The existence of a parent for European languages was not a novel idea. It had been called Scythian by Johannes Becanus of Antwerp in 1569 (see Chapter 8) and this name was widely adopted. For instance, Andreas Jäger wrote in 1686:

The language of Japheth [Noah’s son] persisted accordingly among his descendants until the time when it was transformed into various others: that is, the Scythian language into the Phrygian [Greek], ancient Italic, Celtic, Gothick [Germanic], Slavonic. (Metcalf 1974: 235)

Note the biblical origins to link Scythian (a name that continued to be used well into the eighteenth century) to Hebrew, which was supposedly the first language of mankind. Jäger, like others before him, recognized that languages change but not that the changes were rule governed. That was an idea that only took root in the second decade of the nineteenth century.

Jäger made no mention of Sanskrit; it was Jones’ 1786 address which brought to notice an Indo-European (henceforth IE) language family. He mentioned other relationships among European languages in later addresses; for instance:

7. The kinship of Hungarian and Lappish was demonstrated in Sajnovics 1770 and that between Hungarian and Finnish by Gyarmathi 1799.
I would not insist with M. Bailly, that the people of Finland were Goths, merely because they have the word *ship* in their language; while the rest of it appears wholly distinct from any of the Gothick idioms: the publishers of the Lord’s Prayer in many languages represent the Finnish and Lapponian as nearly alike, and the Hungarian as totally different from them; but this must be an error, if it be true, that a Russian author has lately traced the Hungarian from its primitive seat between the Caspian and the Euxine, as far as Lappland itself; and, since the Huns were confessedly Tartars, we may conclude, that all the northern languages, except the Gothick, had a Tartarian origin, like that universally ascribed to the various branches of Scævonian. (Jones 1791: 123f)

It seems agreed, that a singular people, called Egyptians, and, by corruption, Gypsies, passed the Mediterranean immediately from Egypt; and their motley language, of which Mr. Grellmann exhibits a copious vocabulary, contains so many Sanscrit words, that their Indian origin can hardly be doubted: the authenticity of that vocabulary seems established by a multitude of Gypsy words, as angár, charcoal, cáshth, wood, pár, a bank, bhú, earth, and a hundred more, for which the collector of them could find no parallel in the vulgar dialect of Hindustán, though we know them to be pure Sanscrit scarce changed in a single letter. (ibid. 119)

Jones was a sophisticated linguist who recognized that lexical similarities are unreliable witness to kinship (as mentioned in one of the quotes above):

Etymology has, no doubt, some use in historical researches; but it is a medium of proof so very fallacious, that, where it elucidates one fact, it obscures a thousand, and more frequently borders on the ridiculous, than leads to any solid conclusion: it rarely carries with it any internal power of conviction from a resemblance of sounds or similarity of letters; yet often, where it is wholly unassisted by those advantages, it may be indisputably proved by extrinsick evidence. We know *a posteriori*, that both *fitz* and *hijo*, by the nature of two several dialects, are derived from *filius*; that *uncle* comes from *avus*, and *stranger* from *extra*; that *jour* is deducible, through the Italian, from *dies*; and *rossignol* from *luscinia*, or the singer in the groves; that *sciuro, écureuil*, and *squirrel* are compounded of two Greek words descriptive of the animal [σκια “shade” + ούρα “tail”]; which etymologies, though they could not have been demonstrated *a priori*, might serve to confirm, if any such confirmation were necessary, the proofs of a connection between the members of one great Empire; but when we derive our *hanger*, or short pendant sword, from the Persian because ignorant travellers thus mis-spell the word *khanjar*, which in truth means a different weapon, or *sandal-wood* from the Greek, because we suppose that *sandals* were sometimes made of it, we gain no ground in proving the affinity of nations, and only weaken arguments, which might otherwise be firmly supported. (Jones 1786: 20)

Grammatical correspondences are stronger evidence for the relationship between languages:

That the written Abyssinian language, which we call Ethiopick, is a dialect of old Chaldean, and a sister of Arabick and Hebrew, we know with certainty, not only from the multitude of identical words, but (which is the stronger proof) from the similar grammatical arrangement of the several idioms. (Jones 1791: 115f)

Jones was not interested in philology as an end in itself, but as a clue to the relationships between peoples. He saw connections between the myths of India and those of Greece and Scandinavia (Jones 1786: 28) and his ninth address of 1792 on the ‘Origin and families of nations’ compares biblical accounts of human history with those of India and elsewhere in a remarkably objective fashion for the time.
The next important figure in comparative philology was the Dane Rasmus Rask (1787–1832), who published the pedagogically biased *Vejledning til det Islandske eller gamle Nordiske Sprog* “Introduction to the Icelandic or Old Norse language” (Rask 1811; 1843). Its organization and method of procedure – describe and account for the causes and origins of linguistic elements – provided a model for subsequent work on comparative linguistics. The *Vejledning* was introduced to a wide public through Jakob Grimm’s review in *Algemeine Literatur Zeitung* (in four parts; 5–8 February, 1812). In 1814 Rask submitted a prize essay, *Undersøgelse om det gamle Nordiske eller Islandske Sprogs Oprindelse* “Investigation on the origin of the Old Norse or Icelandic language” (Rask 1818; 1993), setting out the precise principles to be followed in comparing and stating the origins of Old Scandinavian and Nordic and Germanic dialects. In it he surveys Greenlandic Eskimo, Celtic, Basque, Finnish, Slavic, Lettish (Latvian), ‘Thracian’ (which we would now call Proto-Indo-European – PIE) and some Asiatic languages. Contemporary scientific taxonomies of all kinds were influenced by Carl Linnaeus’ *Systema Naturae*, published in ten pages in Linnaeus 1735 but extended to 1384 pages in two volumes by the tenth edition (Linnaeus 1758-59). Taxonomies of languages were modelled on the Linnaean system for a hundred years from the late eighteenth century; and in a manuscript of 1815 Rask categorized languages (using the English terms in italics) into

1. _race_ (e.g., Indo-European),
2. _class_ (Germanic),
3. _stock_ (Scandinavian or Westgermanic),
4. _branch_ (Southern or Northern Westgermanic),
5. _language_ (Danish or Swedish; Dutch or Low German),
6. _dialect_ (Jutlandic or the dialect of Bornholm).

(Rask 1993: 298)

Rask recognized the relationship among all the IE languages (including Indian and Persian) except for Celtic – which he included (Rask 1993: 83 [Rask 1818: 103]) with the unrelated Austronesian, Basque, Eskimo, Finno-Ugrian, Malay, and Semitic. By 1818, however, he had recognized that Celtic was in fact IE (Pedersen 1931: 250). Like Jones before him, Rask recognized that grammatical correspondences are more significant than lexical similarities:

> Although language consists entirely of words, separate words do not yet constitute language, unless they are connected to each other in some way. In most languages such connection is established through certain changes in words, or, as they are called, inflections. Such form changes and more generally the entire structure and system of a language provide a new object of etymology or [...] _language analysis_. (Rask 1993: 16 [30])

Now if we want to compare several languages, and if this comparison is to be complete and enable us to judge of their kinship, age, and other circumstances, we must necessarily take [individual words, their form changes and ways of combination] into consideration and, in particular not forget the grammatical part; for experience has shown lexical agreement to be most uncertain. Through the intercourse of nations an unbelievable number of words may find their way from one language into another, however completely dissimilar they may be in origin and kind. Thus a considerable amount of Danish has come into Greenlandic [Eskimo] and much Portuguese and Spanish into Malay and Tagalog.

Grammatical agreement is a much more certain sign of kinship or basic unity; for it will be found that a language, when mixed with another, very rarely if ever takes up form changes or

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8. Page numbers in [...] refer to those in Rask 1818.
Phonetics, phonology, and comparative philology

inflections from that other language, but rather the other way round, loses its own. (ibid. 33f [49])

Rask argues for linguistic complexity as an indicator of the older language, but also for the sharing of what might be called semantic primitives in terms of the Swadesh 1955 list of basic terms for sun, moon, body parts, and processes, etc.

Whichever language has the more complex grammar is the more unmixed, the more original, older and closer to the source; for grammatical inflections and endings are constantly worn off when new languages emerge. […]

A language, however mixed, belongs to the same language class as another, when the most essential, most concrete, most indispensable and very first words, the foundations of language, are common to both. [Rask gives as examples, English heaven, earth, sea, land, man, head, hair, eye, hand, foot, horse, cow, calf, ill, good, great, little, whole, half, I, thou, he, to make, love, go, see, stand, of, out, from, together, and numerals.] In contrast nothing can be inferred about original kinship of languages from technical terms, words of courtesy and commerce, i.e. that part of language which association with others, social intercourse, culture, and scholarly activity have rendered it necessary to add onto the oldest vocabulary; for it depends on many circumstances, which can be known only from history, whether a people has simply borrowed these words from the tongues of others or developed them out of their own. (ibid. 34f[50])

Rask established the correspondences in Table 9.2, commenting ‘from this we see that Gr. $η$ [ö] in Latin often becomes a and o often u’ (Rask 1993: 35 [51]). He lists 352 cognates for Greek and/or Latin and Icelandic, e.g. mētēr–mater–módir; patēr–fadir, etc., showing that Greek $p$ becomes f, $t$ becomes $p$, $k$ becomes $h$, $h$ becomes s, and so forth (Rask 1993: 161f). However, according to Jankowsky 1972: 71f, about two thirds of the correspondences had already been made in print.

<table>
<thead>
<tr>
<th>GREEK</th>
<th>phênē</th>
<th>mētēr</th>
<th>phēgos</th>
<th>holkos</th>
<th>bolbos</th>
<th>amorgē</th>
<th>olkhos (Aeolian)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LATIN</td>
<td>fama</td>
<td>mater</td>
<td>fagus</td>
<td>sulcus</td>
<td>bulbos</td>
<td>amurca</td>
<td>vulgus</td>
</tr>
</tbody>
</table>

Rask was the first to base his argument on phonetics (phonology) instead of orthography – which he dismissed as misleading (Rask 1993: 23 [38]). It is significant that, in 1818, Rask was the first publisher of the twelfth century First Grammatical Treatise discussed earlier in this chapter. Clearly, Rask was the founder of the comparative method; and, as the beginner, he made mistakes – partly because he did not try to explain exceptions to his rules. He never revised his analysis. It was Rask’s principles that Jakob Grimm (1785–1863) adopted and expanded into the explanatory process that became known as Grimm’s Law, of which Rask’s fellow Dane writes: ‘If any one man is to give his name to this law, a better name would be “Rask’s Law”’ (Jespersen 1969: 43). Unlike Rask, Grimm did identify exceptions to his rules.

The work of both Rask and Grimm was firmly rooted on the phonological categories used by the ancient Greeks and handed down through the Western Classical Tradition. Since both men were dealing with the relationship of Germanic to Greek and Latin, it is not surprising that they should have done this. They were describing sound changes yet both
wrote about letters; and Rask was the better phonetician. Grimm’s lack of insight into phonetics led Jespersen to comment

Grimm was anything but a phonetician, and sometimes says things which nowadays cannot but produce a smile, as when he says [Grimm 1822: 3] ‘in our word schrift, for instance, we express eight sounds through seven signs, for f stands for ph’; thus he earnestly believes that sch contains three sounds, s and the ‘aspirate’ ch = c + h! (Jespersen 1969: 46)

Grimm thought of Greek φ as consisting of the two letters ph which appear in the transliteration, but as being pronounced /f/ instead of an aspirated p in the modern sense of [pʰ] (as in pea for most English dialects). Both Rask and Grimm used the traditional Latin terms tenuis (voiceless unaspirated – for p, t, k), aspirata (voiceless aspirated – for φ/ ph/f, θ/θ/ th, χ/χ/h), and media (voiced b, d, g) originally applied to the Greek triads. This terminology causes problems when confronted with the Sanskrit phonemes /b/, /bʱ/, /p/, /pʰ/ because they cannot be contrasted within the system. It was the inadequacy of the classical Greek terminology to the wider purpose of IE comparative philology, and indeed to the lesser problem of contrasts in Germanic languages, that led to advances in phonetics later in the nineteenth century.

Grimm wrote, ‘The sound shift [Lautverschiebung] is a general tendency; it is not followed in every case’ (Grimm 1822: 590). In other words, he did not claim to have discerned a law, merely a tendency, because there were exceptions to the correspondences he described that were not explained for the next fifty years. Grimm was writing a grammar of Germanic (Deutsche Grammatik). His sound shift was admittedly inspired by Rask (1818). He was looking at sound change in Germanic languages and relating Germanic to IE languages. Grimm’s Kreislauf “cycle” arises from the notion that two shifts separated by several centuries represent one direction of movement. The direction of change in IE is

T (tenues p, t, k) ⇒ A (aspiratae ph, th, kh) ⇒ M (mediae b, d, g) ⇒ T ... etc.

<table>
<thead>
<tr>
<th>INDO-EUROPEAN</th>
<th>T</th>
<th>M</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOTHIC</td>
<td>A</td>
<td>T</td>
<td>M</td>
</tr>
<tr>
<td>OLD HIGH GERMAN</td>
<td>M</td>
<td>A</td>
<td>T</td>
</tr>
</tbody>
</table>

**Figure 9.3.** Grimm’s ‘cycle’ (Kreislauf).

The correspondences Grimm discovered are shown in Figure 9.3; Gothic is the earliest Germanic language for which there are substantial records. There is an example in Table 9.3 and additional correspondences (all found in Rask) in Table 9.4.

**Table 9.3.** Examples of Grimm’s law.

<table>
<thead>
<tr>
<th>GREEK</th>
<th>T: phraōr</th>
<th>M: deka</th>
<th>A: thugatēr</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOTHIC</td>
<td>A: brōpar</td>
<td>T: tawīhun</td>
<td>M: dawīhar</td>
</tr>
<tr>
<td>O.H.G.</td>
<td>M: brōder</td>
<td>A: zaẉer</td>
<td>T: rohter</td>
</tr>
</tbody>
</table>

9. Grimm’s study of sound change is in a chapter called ‘Die Lehre von den Buchstaben’ “The study of letters” (Grimm 1822).
Table 9.4. Consonant correspondences under Grimm's law.

<table>
<thead>
<tr>
<th></th>
<th>Gothic</th>
<th>O.H.G.</th>
<th>Latin</th>
<th>Greek</th>
<th>Sanskrit</th>
</tr>
</thead>
<tbody>
<tr>
<td>f</td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>π</td>
<td>p</td>
</tr>
<tr>
<td>p</td>
<td>b</td>
<td>b</td>
<td>b</td>
<td>β</td>
<td>b</td>
</tr>
<tr>
<td>b</td>
<td>þ</td>
<td>þ</td>
<td>þ</td>
<td>φ</td>
<td>bh</td>
</tr>
<tr>
<td>þ</td>
<td>t</td>
<td>t</td>
<td>t</td>
<td>τ</td>
<td>t</td>
</tr>
<tr>
<td>t</td>
<td>d</td>
<td>d</td>
<td>d</td>
<td>δ</td>
<td>d</td>
</tr>
<tr>
<td>d</td>
<td>g, h</td>
<td>z</td>
<td>f, th</td>
<td>θ</td>
<td>dh</td>
</tr>
<tr>
<td>g</td>
<td>k</td>
<td>g</td>
<td>c</td>
<td>κ</td>
<td>s</td>
</tr>
<tr>
<td>h</td>
<td>k</td>
<td>ch</td>
<td>g</td>
<td>γ</td>
<td>j</td>
</tr>
</tbody>
</table>

Whereas Rask was a rationalist bent on systematic description, Grimm was ‘hostile to general logical notions in grammar; they [...] hamper observation’ (quoted from the Preface to Grimm 1822 by Jespersen 1969: 42). Grimm was a nationalistic Romantic champion of folk dialects and popular culture who noted the significance of the mystical number three in philology: three subcategories in language demonstrated by the consonant triads T, A, M, but also three persons, numbers, genders, tenses, voices, and what he regarded as the three original vowels a, i, u (the vowels in Sanskrit and, he thought, Gothic and Hebrew). He never actually mentioned a sound law, merely the recursive correspondences in his ‘cycle’. Nonetheless, his legacy is a sound law, along with the terms umlaut and ablaut, still widely used in morphology for vowel alternations such as English full–fill (umlaut, fronting), and ablaut series in strong verbs like drink, drank, drunk; drive, drove, driven; choose, chose, chosen.

It was Rudolf von Raumer (1815–76) who first distinguished aspirates from fricatives in Die Aspiration und die Lautverschiebung “Aspiration and the consonant shift” (Raumer 1837). He concludes that Greek φ, θ, χ were aspirated stops /pʰ, tʰ, kʰ/ corresponding to Sanskrit /bʱ, dʱ, gʱ/. He presents this finding in terms of sound change laws in Die sprachgeschichtliche Umwandlung und die naturgeschichtliche Bestimmung der Laute “Linguistic-historical change and the natural-historical definition of sounds” (Raumer 1856). Raumer was important because he insisted on a phonetic account of ‘letters’; and he may perhaps have been aware of the phonetic descriptions of Pāṇini. If so, this must be the first evidence of direct influence from the Sanskrit phonologists; but the evidence is no more than a mention of Pāṇini’s name and one or two quotes of remarks by him.

Wilhelm von Humboldt (1767–1835) knew a great deal about many modern and classical IE languages, including Sanskrit, but also Basque, Hungarian, Chinese, some Native American and Austronesian languages. Bloomfield 1933: 18 wrote of Humboldt’s Kawi-sprache (Humboldt 1836-39) as ‘The first great book on general linguistics’. Bloomfield would also have strongly approved the following, which was echoed in the early twentieth century by Franz Boas.

Since normally we come to the study of an unknown language from the point of view of another language, [...] we try to see the grammatical relationships of this language expressed in the new one [...] to avoid this mistake we must study each language in its own peculiarities, so that we may recognize through correct segmentation of its elements what special forms it employs, in terms of its own constitution, to indicate the grammatical relationships. (Humboldt 1903-36, IV: 288f).

Humboldt acquired languages from written sources and some field work (e.g. on Basque). His account of Javanese verbs shows them to derive from nouns; he hypothesizes that a
derivational prefix has disappeared, leaving a series of morphophonemic alternations between noun and verb. Comparison with Sanskrit shows that nouns keep the original form. Speakers are, of course, unaware of the former prefix, which is a grammarian’s explanation for the state of affairs and of little or no use to the language learner (Humboldt 1836-39, II: 86ff). This is a very sophisticated view of linguistic theory. The grounding of grammatical inquiry in connected discourse within actual speech events, i.e. E-language, is surprising from a scholar whom Chomsky 1966 personally approves as a predecessor.

For in the scattered chaos of words and rules that we are, indeed, accustomed to call a language, there is present only the particular brought forth by this speaking, and this never completely, and first calling for new work, so as to detect from it the nature of the living speech and to provide a true image of the living language. It is precisely the highest and most refined aspect that cannot be discerned from these disparate elements, and can only be perceived or divined in connected discourse; which is all the more proof that language proper lies in the act of its real production. It alone must in general always be thought of as the true and primary, in all investigations which are to penetrate into the living essentiality of language. The break-up into words and rules is only a dead makeshift of scientific analysis. (Humboldt 1999: 49)

Chomsky would certainly approve the first sentence in the following quotation.

So quite regardless of communication between man and man, speech is a necessary condition for the thinking of the individual in solitary seclusion. In appearance, however, language develops only socially, and man understands himself only when he has tested the intelligibility of his words by trial among others. For objectivity is heightened if the self-coined word is echoed from a stranger’s mouth. (ibid. 56)

In Chapter 12 I argue against Chomsky’s view that language is a system of thought; and I would also deny that thought is dependent upon language, while admitting that complex thinking may be facilitated by recourse to language. In Chapter 10 we discuss Humboldt’s views on the mutual conditioning of language and cultural context.

Like many nineteenth century linguists Humboldt classified languages on a Linnaean model. The plant metaphor had languages budding, flowering, and decaying (Schlegel 1808a). Over time ‘the language becomes worn down and simplified. […] Even in Greek, compared with Sanskrit, the process of simplification is already visible’ (Humboldt 1999: 166). Structural similarities identified languages of the same Classe; similar grammatical forms are shared among languages of the same Stamm “stock” and these, together with similar phonology, signal genetic relations (Humboldt 1903-36, IV: 12).

The concept of the form of languages extends far beyond the rules of word-order and even beyond those of word-formation, insofar as we mean by these the application of certain general logical categories, of active and passive, substance, attribute, etc. to the roots and basic words. (Humboldt 1999: 51)

Both the identity and the affinity of languages must rest on the identity and affinity of their forms, since the effect can only be equal to the cause. So the form alone decides what other tongues a language is affiliated to by family ties. […] The forms of several languages may unite into a yet more general form, and the forms of all actually do this, in that we everywhere set out simply from the most general: from the connections and relationships of the ideas required to designate concepts and order speech, from the similarity of vocal organs, whose scope and nature permit only a certain number of articulated sounds, and finally from the
relations obtaining between particular consonant and vowel sounds and certain sensory impressions, which then give rise to similarity of designation, without family relationship. (ibid. 53)

Note the reference to general grammar and to the common human cognitive and physical capabilities that enable communication among people from different language backgrounds. Humboldt’s ideal programme was to have a description of every language and cross-linguistic studies of grammatical categories; with such data in hand, language classification and kinship relations could be more certainly established. Such aims are prevalent among many typologists in the twenty-first century. In a probably unconscious preference for the characteristics of IE languages, Humboldt believed inflecting languages to be superior to agglutinating (e.g. Turkish) or incorporating or polysynthetic (e.g. Delaware) languages. Inflection is the combining of concepts: ‘a designation of the concept, and an indication of the category to which it is assigned’ (Humboldt 1999: 102) – which is comparable with compounding. Affixing ‘transforms compounding into accretion’ (ibid. 103).

The method of inflection appears as a principle of genius, born of a true intuition of language. For in that such languages earnestly endeavour to unite every particular into the sentence, or to present the latter all in one piece, inflection immediately stamps the parts of every thought-sequence accordingly, and is by nature quite incapable of detaching from the part its verbal relation to the whole. (Humboldt 1999: 145)

In other words, inflection directly mirrors the thought process. By contrast, agglutination is ‘not a truly organic accretion’ (ibid. 106) but ‘This way of annexing specificatory bye-concepts arises […] invariably from weakness of the inwardly organizing sense of language’ (107). Noted for obscurity in expression, Humboldt writes:

these so-called agglutinating languages do not differ in type from the inflectional ones, as do those which reject all indication by means of inflection; they deviate only to the extent that their obscure endeavour in the same direction is more or less of a failure. (ibid. 107)

Humboldt appears to conclude that agglutinating languages are not so advanced as inflecting languages. And yet he also says, ‘The difference of character among languages need not necessarily consist, therefore, in any absolute advantages of one over another’ (ibid. 156). Isolating (analytic) languages like Chinese and incorporating (polysynthetic) languages like Delaware also have advantages: ‘The true advantage of a language is simply that of developing from a principle, and with a freedom, which enable it to maintain all the intellectual capacities of man in busy activity’ (ibid. 146). This expresses a liberal and also Romantic view of language that is to be found again in the following quotation.

No one can deny that Chinese of the old style carries an impressive dignity through the fact that only weighty concepts join one another directly, and in this way it attains a simple greatness by seeming to escape to pure thought through speech in discarding all unnecessary secondary relationships. The real Malay is not unjustly praised because of its ease and the great simplicity of its constructions. The Semitic languages preserve an admirable art of fine distinctions of meaning through many vowel gradations. Basque possesses in its word

10. These terms are variously used. Analytic is sometimes used as subcategory of inflectional languages (English would be an example), in contrast with synthetic languages like Latin. These terms, along with polysynthetic, are found in Sapir 1949a: 123, 142f.
formation and in its constructions a special strength which proceeds from brevity and boldness of expression. Delaware and other American languages combine into a single word a number of concepts, for the expression of which we would need many. But all of these examples only prove that the human intellect, however unbalanced the course it may take, can always produce something great and productive of fruitfulness and enthusiasm. These individual points do not decide the preeminence of languages to one another. The true preeminence of a language is simply to develop from a principle and in a freedom which make it possible for it to maintain all the intellectual capabilities of man in vigorous activity, to serve them as a satisfactory organ, and to stimulate them constantly through the sensuous fullness and intellectual regularity which it preserves. (Humboldt 1836, Chapter 19, quoted in Lehmann 1967: 66)

Humboldt recognized that everything can be expressed in every language if need arises; although the effects on hearers may differ because of different Weltansichten “world views” (Humboldt 1903-36, IV: 17, 287).

In 1810 Wilhelm von Humboldt founded the University of Berlin (which in 1949 became Humboldt-Universität zu Berlin) and in 1825 appointed Franz Bopp (1791–1867) to a Lehrstuhl in Allgemeine Sprachkunde, the first Chair in what would today be called linguistics (Sprachwissenschaft). Bopp wrote a monumental work Vergleichende Grammatik des Sanskrit, Zend, Griechischen, Latenischen, Litthauischen, Gothischen und Deutschen. “Comparative grammar of Sanskrit, Zend, Greek, Latin, Lithuanian, Gothic, and German” (Bopp 1833); he later added Armenian and Old Slavic for good measure. He also worked on Celtic, Albanian, and Caucasian languages. Bopp analysed the composition of words and reconstructed their original forms and meanings. He maintained the eighteenth century notion that inflectional and derivational elements in words are fragments of earlier independent words agglutinated to the root word. For example, John Horne Tooke (1736–1812) in Epea Pteroenta or The Diversions of Purley (Tooke 1786) had suggested that beautiful derives from beauty + full; and Latin ibo “I shall go” from i (“go”) + b (Greek boulē “wish”) + (eg)ō (“I”); and audiam “I shall hear” from audi(re) (“hear”) + am(o) (“I love”). Bopp’s morphological reconstructions were no more convincing to the modern eye than this; most are now rejected. Bopp took the traditional line that a sentence consists of a subject and predicate and that the latter contains a copula: an Aristotelian view that passed through modistic grammar and rational grammar into the nineteenth century. It then goes underground for 150 years and briefly returned in late 1960s generative semantics with the notion that the verb be is a semantically empty place-holder for the verbal categories of tense, mood, and aspect. Bopp paid particular attention to verbs, and being a Sanskritist by training, apparently believed that the copula was integrated into verbs by something like sandhi rules (that assimilate word-final or stem-final phones to the initial phone of the following suffix or word). His use of Sanskrit in reconstructions, comparing it with other IE languages, first showed the potential of Sanskrit grammar in the comparison of forms. Bopp, however, assumed that a form of the copula is present in every verb. He wrote: ‘Languages are to be regarded as natural bodies, which are constructed according to set laws, bear within them an inner principle of life, and again and again die out’ (Bopp 1836: 1). This was an idea taken up by August Schleicher (1821–68), to be later rejected by the neogrammarians.
It was not Bopp, but Schleicher who established the relationships among IE languages in his *Compendium der vergleichenden Grammatik der indogermanischen Sprachen* “Compendium of comparative grammar of Indo-European languages” (Schleicher 1861-62). He compared cognates from languages one with another as a means of establishing parent forms, and hence parent languages. Schleicher believed that language is a natural organism; languages are ordered under genera, species, and subspecies (Schleicher 1848: 27f).

_The rules now, which Darwin lays down with regard to the species of animals and plants, are equally applicable to the organisms of languages, that is to say, as far as the main features are concerned._ (Schleicher 1863 [sic, 1983: 30])

He likens variation in languages to variations among individual organisms that lead to evolutionary change.

Such languages as we would call in the terminology of the botanist or zoologist, the species of a genus, are for us the daughters of one stock-language [*Grundsprache*], whence they proceeded by gradual variation. Where we are sufficiently familiar with any particular family of speech we draw up a genealogical table similar to the one which Darwin attempted for the species of animals and plants. (*ibid.* 33f)

This way he could posit the IE family tree, within what is sometimes called the *Stammbaumtheorie*. At the root of the tree was the *Ursprache* – the parent language, PIE. The methodology works quite well, despite the fact that it grossly oversimplifies the true relationships among related languages – for instance, by assuming that they split at a certain point in time and do not mutually influence one another thereafter. Another objection frequently raised against the theory is that it has no place for dialects.

Schleicher favoured the notion that the earliest languages are isolating (analytic). These develop into agglutinating languages, which in turn develop into inflectional languages. Whether or not he was influenced by ethnic prejudice, Schleicher was happy that Sanskrit and its forebears were more highly inflected than any daughters. There is much controversy over whether there is any such natural order at all; and certainly there is little evidence that Schleicher’s sequence is correct. The discovery in 1906 of 10,000 Hittite tablets – Hittite flourished in Anatolia and Mesopotamia between 1600 and 1200 BCE – and the decoding of the script by Bedřich Hrozný in *The Language of the Hittites: Its Structure and Its Membership in the Indo-European Linguistic Family* (Hrozný 1917) showed Hittite to be somewhat analytic, which is quite different from what an IE language of the period was supposed to be.

Until the mid-nineteenth century most philologists wrote as if Sanskrit was the earliest IE language, and European forms were compared with Sanskrit on that basis. But Hermann Grassmann (1809–77) in ‘Concerning the aspirates and their simultaneous presence in the initial and final of roots’ (Grassmann 1863) showed that in one respect Germanic maintained an older form than Sanskrit, and this firmly established the need to reconstruct PIE. That is, Germanic maintained the first of two originally aspirated consonants in root forms where both Sanskrit and Greek have lost the aspiration of one (mostly the first). This proved that there must have been a language older than Sanskrit to be the ancestor of Germanic. It also disposed of a set of exceptions to Grimm’s Law.
The exceptions to Grimm’s Law were cleared up by Karl Verner (1849–96) in ‘Eine Ausnahme der ersten Lautverschiebung’ “An exception to the first consonant shift” (Verner 1877). He wrote:

[T]he three identically formed Indo-European relationship terms bhrâtar, mâtâr, patar correspond to the Germanic correlatives brôþar, môdar, fadar, though there is no apparent reason why môdar and fadar do not follow the regularly shifted brôþar. One cannot however persist in the hypothesis that this was a chance occurrence. Comparative linguistics cannot, to be sure, completely deny the element of chance; but chance occurrence en masse as here, where the instances of irregular shifting are nearly as frequent as those of regular shifting, it cannot and may not admit. That is to say, in such a case there must be a rule for the irregularity; it only remains to discover this. (Verner 1877: 101, transl. by Lehmann 1967: 138. The circumflex marks a long vowel.)

Before Verner, the only explanation given for exceptions to the sound changes was based on frequency of use, but Verner showed that this was untenable. Examining regular and irregular changes within the conjugation of the same verb, he showed that stress shift in Sanskrit accounted for voicing or lack of voicing on the root. Whenever the stress fell on the root of the Sanskrit cognate, the Germanic correspondent has f, þ, or h; when the stress in Sanskrit falls elsewhere, the Germanic has b, d, or g instead (see Table 9.5). Verner’s importance was to generate interest in phonology and not just phonetics; so that following him, scholars attended to the phonetic (phonological) environment, and prosodic features like stress.

<table>
<thead>
<tr>
<th>Sanskrit</th>
<th>Old English</th>
<th>PDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>várâmi</td>
<td>weârhe</td>
<td>I become</td>
</tr>
<tr>
<td>vâvârta</td>
<td>weârp</td>
<td>I became</td>
</tr>
<tr>
<td>vâvrómoa</td>
<td>wården</td>
<td>became root+ ⇒ d</td>
</tr>
<tr>
<td>vâvrânâ</td>
<td>worden</td>
<td>become [Pp]</td>
</tr>
</tbody>
</table>

In Leipzig during the mid-1870s, the neogrammarians (Junggrammatiker) August Leskien (1840–1916), Berthold Delbrück (1842–1922), Hermann Paul (1846–1921), Hermann Osthoff (1847–1909), Karl Brugmann (1849–1919), and Eduard Sievers (1850–1932) studied spoken rather than written language. Leipzig was the centre for linguistics; both Karl Verner and Ferdinand de Saussure were in Leipzig in the late 1870s. The neogrammarians claimed that it is necessary to base the comparative method on sound law change and they confirmed the rules of comparative philology by applying them to contemporary spoken dialects. They decided that sound laws admit of no exceptions (Osthoff and Brugmann 1878: xiii). Analogical forms arise throughout the history of a language; they are not connected with ‘degeneration’, as Schleicher believed, because there is no such thing. The neogrammarians rejected the enlightenment view that languages improve in rationality, and the Romantic view that languages decay from an original perfection.
Part of Schleicher’s legacy, along with Osthoff, Brugmann, and other neogrammarians, was an assumption that PIE and its daughters had the phones shown in Table 9.6 (cf. Pedersen 1931: 288). ř, ɿ, ɻ, ɱ are ‘sonants’, i.e. sonorants such that /ř/ is pronounced something like the –er in the North American pronunciation of butter, and /ɱ/ is nasalization of the preceding vowel. The subscript œ does not indicate unvoicing, but rather lack of obstruction. The s column was not discussed. The question is: Which row is earlier? Is derivation from bottom to top through deletion; or from top to bottom through epenthesis?

Table 9.6. Correspondences between PIE and its daughters (vertical axis).

<table>
<thead>
<tr>
<th></th>
<th>i</th>
<th>u</th>
<th>ř</th>
<th>ɿ</th>
<th>ŋ</th>
<th>m</th>
<th>s</th>
<th>a</th>
<th>ŏ</th>
</tr>
</thead>
<tbody>
<tr>
<td>ei, oi</td>
<td>eu, ou</td>
<td>er, or</td>
<td>el, ol</td>
<td>en, on</td>
<td>em, om</td>
<td>es, os</td>
<td>č, ō</td>
<td>ā, ū</td>
<td></td>
</tr>
</tbody>
</table>

Before Ferdinand de Saussure published his Mémoire sur le système primitif des voyelles dans les langues Indo-européennes (“Essay on the primitive vowel system of Indo-European languages”; Saussure 1879) it was generally assumed that the top row was the older system of IE; the bottom row came down to daughter languages. However, Saussure demonstrated, via discussion of just the two rightmost columns, that the bottom row in fact reflects the older system. The ablaut series in European languages represented by the Greek verbs in Table 9.7 shows change in vowel quality and vowel omission (deletion) in the third column, fourth row. It is notable that the characteristic vowel of the present tense is e, of the perfect, o. Going back to Table 9.6: the initial vowel in the bottom row of the leftmost seven columns of the table is lost (deleted) to create the sonants in the top row; e.g. ei ⇒ i; ou ⇒ u; etc. This generates the data in Table 9.7. But there are other ablaut relations to account for, too, as shown in Table 9.8.


<table>
<thead>
<tr>
<th>PRESENT</th>
<th>PERFECT</th>
<th>AORIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>ei</td>
<td>oi</td>
<td>i</td>
</tr>
<tr>
<td>eu</td>
<td>ou</td>
<td>u</td>
</tr>
<tr>
<td>e</td>
<td>o</td>
<td></td>
</tr>
<tr>
<td>péřhô</td>
<td>pópǒ́la</td>
<td>épithốn</td>
</tr>
<tr>
<td>éleúsomai</td>
<td>eilé̂louθa</td>
<td>élûθon</td>
</tr>
<tr>
<td>pé̂tómai</td>
<td>pepú̂têmai</td>
<td>épê̂mên</td>
</tr>
</tbody>
</table>

Table 9.8. Ablaut series in the stems of lexically related words (Waterman 1970: 45).

<table>
<thead>
<tr>
<th>ā</th>
<th>ŏ</th>
<th>a</th>
</tr>
</thead>
<tbody>
<tr>
<td>phá̆mi</td>
<td>phōnē</td>
<td>pható̆s</td>
</tr>
<tr>
<td>“I say”</td>
<td>“voice”</td>
<td>“said”</td>
</tr>
</tbody>
</table>

Saussure hypothesized that every normally stressed long vowel arose through assimilation and contraction of a short vowel with an unknown pair of sonants, one a-coloured, the other o-coloured, and therefore symbolized A and O. The phonemes in the top row of Table 9.8, repeated in Table 9.9 (next page) are generated from those in the bottom row of Table 9.9: eA ⇒ ā; eO ⇒ ō; and A ⇒ a. Vowel length in the daughter languages is nicely accounted for by the diphthongs of the parent language.
The same year that Saussure’s Mémoire was published, Hermann Møller (1850–1923) suggested correspondence between PIE and Proto-Hamito-Semitic (PHS); because PHS has laryngeals, Møller identified them with A and \(\ddot{o}\) (in a footnote in Englische Studien 3: 157).

In fact, there is no relation between IE and Hamito-Semitic languages, but Jerzy Kuryłowicz (1895–1978) suggested that in the IE language Hittite \(\dddot{h}\) is a reflex of the early IE laryngeal sonant, perhaps with the quality \([x]\) (Kuryłowicz 1927). Waterman 1970: 47 compares the Hittite and other IE cognates to show that Hittite \(\dddot{a}h\) occurs where the other languages have \(\ddot{a}\) (Table 9.10).

### Table 9.9. The primitive vowel system in PIE (Saussure 1879: 135).

<table>
<thead>
<tr>
<th>á</th>
<th>eA</th>
<th>ò</th>
<th>eΩ</th>
<th>a</th>
<th>A</th>
</tr>
</thead>
</table>

Although referred to as ‘laryngeal sonants’, the phonemes were probably spirants and may have been \([h]\), \([\dddot{i}]\), \([\dddot{u}]\), or possibly \([\dddot{\dddot{h}}]\). It is now thought that there were in fact three of them and they are usually referred to as \(H_1\), \(H_2\), and \(H_3\). When they disappeared, the effects were vowel lengthening or backing or vowel introduction between consonants.

The comparative philology of the nineteenth century was a new direction in the study of language, a break with the tradition in which morphological, syntactic, and semantic categories dominated grammar. Instead of defining language universals on human categorization of nature, which must be based on either the intrinsic nature of things or the character of human reason – both nonobservable, the comparative philologists dealt primarily with observable constituents. They compared the functions of these language items across languages and sought to account for correspondences in related languages principally by abduction and induction.\(^{11}\) Their natural heirs are historical linguists and language typologists. Historical linguistics seeks to explain the causes and processes of language change (and the constraints on these) from all levels of language: phonological, lexical, morphological, syntactic, semantic, and pragmatic. It must have an eye to language variation as an indicator of change. It must be wary of metaphors such as the plant metaphor in the history of languages and their taxonomic structure. It must attend to the accuracy of

11. Abductive reasoning is used in figuring out classes, categories, and functions of observed phenomena – i.e. arriving at a hypothesis. With abductive reasoning the conclusions are based on a best guess; once predictions are built on the results of abduction, we have induction based on sampling the data. Induction uncovers tendencies, but not certainties; market research is one practical use of induction. See Chapter 12.
and gaps in records. If Roger Lass is right, there has been no notable theoretical
breakthrough in historical linguistics since the nineteenth century:

I don’t think that anything in post-Neogrammian historical linguistics except perhaps the
recognition of orderly heterogeneity and variation and diffusion have added a great deal to our
understanding of or ability to describe linguistic change and language history. We still work
with the old archival philological procedures, and we still reconstruct (if we are responsible)
in Neogrammian modes. (Lass 1997: 386)

While this may be true, there has been extensive research of relationships among the
world’s languages, and a great deal has been learned. Certain classes of language change
have been identified such as the tendency of spatial locatives to take on temporal senses,
human body-part terms metaphorically extended to locations and regions of animate and
inanimate objects and even direction, root modals to be extended to epistemic meanings, the
physical often extended to the mental or metaphysical, and so forth (see e.g. Campbell 2004;
Heine, Claudi and Hünnemeyer 1991; Hopper and Traugott 2003; Traugott and Dasher
2002; Traugott and Heine (eds) 1991). There is some attention paid to possible reasons for
change, which in such cases are necessarily speculative, but in others such as the intrusion
of b in words like thimble, nimble, humble (from þymel, nymyl,¹² humil–) is phonotactic: the
opening of the lips when passing from /m/ to /l/. Although the conditions under which
change may occur can be identified, predicting that a particular change will occur is not
feasible (a car driven by a drunk may not crash). The genetic classification of languages
tends to be of more interest to historical linguists than to typologists. Language typologists
share a particular interest in searching out, classifying, and interpreting cross-linguistic
differences and similarities that hold between human languages, e.g. Comrie 1981; tense
systems in Comrie 1985; Bybee, Perkins and Pagliuca 1994; modality in Bybee and
Fleischman (eds) 1995; classifier systems in Aikhenvald 2000 – to mention but a tiny
sample. Typology is the classification of languages by semantic, phonological, or
grammatical features – but particularly the latter. Research into language typology often
overlaps with research in linguistic universals.

Linguistics at the end of the nineteenth century

During the nineteenth century great strides were made in phonetics and phonology. The
study of sound systems pre-dates writing and in ancient times sound systems were discussed
in works on orthography, a tradition in which the long-lost work of the First Grammarian
was created, and one which continues even today as orthographies are developed for
unwritten languages, or new orthographies created to replace old ones felt to be inadequate
for one or another reason. The vast majority of such new orthographies are alphabetic and
seek to represent the phonemes of the language. They presuppose at least some degree of
phonemic analysis of the language, which in turn demands some prior scholarly interest in
how best to create symbols for the phones to be found in human languages. In the
seventeenth century there were several attempts to create ‘real characters’ – ideographic

¹². Various vowels: næmel, nemylle, numol, etc.
symbols that directly represent concepts in a logographic system such as was believed to be used in Chinese. But, by and large, ideographs and logographs are as conventional as alphabetic symbols\textsuperscript{13} and with linguistic inquiry being principally Europe-based, an alphabetic script for international use in phonetics was almost inevitable. Phonetics was immediately advanced by technological developments that permitted the recording of sounds, filming of articulation, and precise measurement of acoustic properties of sounds, together with a graphic display of these properties. Audio-recording technology was launched when Thomas Edison invented a way to record sound on tinfoil-coated cylinders in 1877; in 1889 Emile Berliner started marketing disc records. For the first time, spoken language could be captured in a semi-permanent medium that permitted recurrent playing of an utterance and enabled it to be more closely studied. An early speech synthesizer, a vocoder, was demonstrated in 1937 and the first acoustic spectrograph about five years later.

The distinction between phonetics and phonology is modern, following the work of Sweet and the Prague school. An appreciation grew up towards the end of the nineteenth century of a distinction between the systematic nature of linguistic constituents (in this case speech sounds) within any one language, and the physical substance of language from among which any one language employs a proper subset. It was Saussure’s insistence on language as a self-contained system that came to characterize modern linguistics in the early part of the twentieth century (see Chapter 11).

The comparative philologists were innovative in putting aside the Christian dogma on the relationships among languages that had infiltrated the Western Classical Tradition in late antiquity and thrived during the early middle ages. Instead they were empiricists who sought rational explanations for what they found in the languages about which more information regularly became available. The Church no longer suppressed novel ideas. Much of the world was travelled by Europeans during the sixteenth to nineteenth centuries. Books were ever more readily available in the mother tongues of Europeans, though a good many were still written in Latin as the international language of scholarship. Yet at the same time the Romantic movement was under way, championing the exotic, the national past, and the dialects of ordinary people. The eight volume work on English dialects compiled by Joseph Wright 1898-1905 showed that corpus data are very difficult to analyse because of variation between individuals even of the same generation and locality. All this fed an interest in the history and relationships among European people and then, by extension, the relationships among other human groups. Rask’s historical morphology was innovative, but founded on learning that constitutes part of the Western Classical Tradition in linguistics, a tradition that furnished the Greek consonant triads which were a crucial constituent of Grimm’s Kreislauf that owed so much to Rask. Extensive examination of sound laws fed into the development

\textsuperscript{13} Our digit for one is a single stroke 1, in Arabic script \(\text{١}\), Ancient Greek I, Roman I, Chinese \(\text{一}\); but in Devanāgarī it is \(\text{१}\), in Thai \(\text{๑}\), and so forth. Our two is 2 like Devanāgarī \(\text{॥}\), the source for Arabic \(\text{٢}\); Ancient Greek used two strokes \(\text{||}\), so too the Roman II and Chinese \(\text{二}\); the Thai is \(\text{๒}\). There is obviously an ideographic element in some of these systems of digits; but at the same time there is the vertical convention in Greek, Roman, and Arabic that contrasts with the horizontal convention in Chinese, cf. Roman III, Chinese \(\text{☰}\).
of phonology (e.g. Sievers 1881). The importance of the Leipzig Junggrammatiker was such that

by the end of the century there was no linguistic theory which could afford to ignore the neogrammarians – even if that meant to attack them. (Morpurgo Davies 1998: 230)

The last great phonological work in comparative linguistics in the nineteenth century was Saussure’s 1879 Mémoire. Saussure’s lectures on general linguistics, which marked the beginning of twentieth century linguistics in Europe, were a reaction to the neogrammarians. Before we turn to the fate of the Western Classical Tradition during the twentieth century, we turn back to the history of speculations about the origin of languages and the relationship between language and thought.
Chapter 10  Language and thought: from Epicurus until after Whorf

Speculations on the origin of language and linguistic relativity

This chapter takes an anthropological turn by reviewing opinions on the origin of human language. Did it arise from social interaction? If so, what part did human rationality play? Did it arise as the result of human reasoning ability? Or is it a prerequisite to complex reasoning? In almost all accounts there is a nexus of language, society, and thought. So what are the consequences of there being so many different languages on this planet? Aristotle wrote:

all men do not have the same speech sounds; but the mental experiences, which these directly symbolize, are the same for all, as also are those things of which our experiences are images.  
(Int. 16’3)

Was he right? Are the conceptions all humans have the same no matter what their culture and language? This raises the question of linguistic relativity: what part does language play in people’s perceptions of reality? The answer takes us into the fields of psycholinguistics and cognition.

From the beginning of the Christian era until well into the nineteenth century people used biblical chronology (e.g. genealogies) to calculate the age of the Earth. That put the date of Creation at 4174 BCE; and according to Genesis 1:26f, humans have been on Earth since day six. From the end of the eighteenth century geologists were speculating that the Earth is very much older than this. Darwin 1859: 141 estimated the Earth’s age at 306,662,400 years, though this was deleted from the 1861 third and subsequent editions. By today’s estimate, the Earth is approximately 4.6 billion years old. So before the second half of the nineteenth century, the time frame for human development was very different indeed from what it is for enlightened people today. Consequently, there were no grounds for wondering how it was that early hominids developed the biological capacity for speaking that is lacking among other primates.

Speculations on the origin of language

It is probable that human beings have speculated on the origin of language since prehistoric times. Of the speculations available to the Western Classical Tradition in linguistics, Socrates in Plato’s Cratylus attributes the creation of language to a wordsmith, nomothetēs, or name-maker, onomatourgos, on the basis of sound symbolism; but he concludes by throwing doubt upon the plausibility of such a hypothesis (see Chapter 2). Epicurus

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1. I take culture to be a set of dispositions to act according to a set of tacit conventions and behaviours accepted and acceptable within a given community that are as a rule inculcated into community members from childhood. This definition does not appear to be inconsistent with the views of anyone discussed in this chapter.
(Επικούρος 341–270 BCE) seems to have rejected the idea of the name-maker, suggesting instead that humans at first uttered cries as other animals do in reaction to their experiences of the world; later, social pressures coerced humans to communicate purposefully with each other by distinguishing referents using conventional symbols, but they also had recourse to analogy and onomatopoeia. This enabled them to speak of absent entities.

Hence even the names of things were not originally due to convention, but in the several tribes under the impulse of special feelings and special presentations of sense, primitive man uttered special cries. The air thus emitted was moulded by their individual feelings or sense-presentations, and differently according to the difference of the regions which the tribes inhabited. Subsequently whole tribes adopted their own special names, in order that their communications might be less ambiguous to each other and more briefly expressed. And as for things not visible, so far as those who were conscious of them tried to introduce any such notion, they put in circulation certain names for them, either sounds which they were instinctively compelled to utter or which they selected by reason or analogy according to the most general cause there can be for expressing oneself in such a way. (http://www.epicurus.net/en/herodotus.html; Epicurus 1926: iii.1488)

Similar ideas were expressed by the Epicurean philosopher-poet Titus Lucretius Carus (c. 95–55 BCE) in Book V of his De Rerum Natura “On the nature of the universe”, ll. 1028–90 (Lucretius 1984; Lucretius 1951: 202–4). It is in the nature of humans to vocalize in order to achieve some goal; just look at the behaviour of human babies and other (non-human) creatures.

As for the sounds of spoken language, it was nature that drove men to utter these, and practical convenience that gave a form to the names of objects. We see a similar process at work when babies are led by their speechless plight to employ gestures, such as pointing with a finger at objects in view. For every creature has a sense of purpose for which he can use his own powers. [Lucretius gives several examples.] (Lucretius 1951: 202; Lucretius 1984, ll. 1028–40).

Lucretius convincingly scorns the notion of a name-maker.

To suppose that someone on some particular occasion allotted names to objects, and that by this means men learned their first words, is stark madness. Why should we suppose that one man had this power of indicating everything by vocal utterances and emitting the various sounds of speech when others could not do it? Besides, if others had not used such utterances among themselves, from what source was the mental image of its use implanted in him? Whence did this one man derive the power in the first instance of seeing in his mind what he wanted to do? One man could not subdue a greater number and induce them by force to learn his names for things. (ibid. 203; II. 1041–58)

He goes on to point out that it is not at all surprising that humans differentiate things using different ‘vocal utterances’, because even ‘dumb cattle and wild beasts’ do that (ibid. 203f; ll. 1062–86).

If the animals, dumb though they be, are impelled by different feelings to utter different cries, how much the more reason to suppose that men in those days had the power of distinguishing between one thing and another by distinctive utterances! (ibid. 204; II. 1087–90).

Like Epicurus, Lucretius believed that humans are naturally predisposed to use language; unlike Epicurus he explicitly denies that language was invented by a single person (neither
philosopher had much time for gods). Lucretius explains the conventions of language usage within society as a variant on animal communication; but, unlike Epicurus, he says nothing about the symbolic character of word forms (admittedly, Epicurus offers no convincing explanation for how this could have come about).

Jumping forward to the seventeenth century, inquiry into the nature and origin of human language grew from two principal sources: interest in the nature of human reason; and the search for a scientific explanation for the accrued facts about human language. Many interested people recognized that the languages of different nations, even of the markedly different cultures within Europe, Persia, India, and Armenia seemed to be – as they were soon proved to be – related to one another. It was also appreciated that all human languages are remarkably similar, even though one is used by a highly sophisticated people and the other by what Jean-Jacques Rousseau called ‘Nations Sauvages’. Although belief in God remained strong throughout the period, the Genesis 11 story of the tower of Babel was less and less taken at face value. The doctrine that ‘God gave man languages’ was altered to ‘God made man, and man invented language’.

All human communities have language that has, throughout history, been recognized as qualitatively different from the language of any animal. Presumably, therefore, human languages had a common origin, as does mankind itself. Language internal facts point the same way. You do not have to believe in universal grammar to see that, like siblings, although languages differ superficially, they have many characteristics in common. Furthermore, for the rationalist, language is a key to the processes of the mind. Descartes had remarked that man was not merely the only rational being on earth, but also the only one with language (Descartes 1968: 74f). Both claims need hedging. There seems little doubt that some animals are capable of limited reasoning, and a few even have communication systems that may warrant the label language. However, human reasoning abilities and human language are undoubtedly far more complex than anything found among animals. Descartes did not, of course, have access to all the twentieth century research on animals that demonstrates their abilities; see Cheney and Seyfarth 1990; Byrne 1995; Dunbar 1996; Whiten and Byrne (eds) 1997.

From ancient times it has been obvious that the capacity to reason correlates with the possession and use of language. To identify the origin of language must throw light on the origin of rationality and at the same time advance epistemology and psychology. But whereas the diversity of languages is open to empirical investigation, the question of how language originated has always been pure guesswork. Enquiry into the origin of language is not a matter of history but of hypothesis, a quest into human understanding and knowledge.

In his Essay Concerning Humane Understanding, Locke presents the motivation for language as arising from the sociable nature of humans; but what characterizes human language is that it is used to communicate ideas, and not merely to indicate objects in the situation of utterance. Continuing to improve on Epicurus, Locke suggests that part of the evidence for this is the human ability to use general (generic) terms and universals; but also to speak of what does not exist or is absent.
§1. God, having designed Man for a sociable Creature, made him not only with an inclination, and under a necessity to have fellowship with those of his own kind; but furnished him also with Language, which was to be the great Instrument and common Tye of Society. Man, therefore, had by Nature his Organs so fashioned, as to be fit to frame articulate Sounds, which we call Words. But this was not enough to produce Language; for Parrots, and several other Birds, will be taught to make articulate Sounds distinct enough, which yet, by no means, are capable of Language.

§2. Besides articulate Sounds, therefore, it was farther necessary that he should be able to use these Sounds, as signs of internal Conceptions; and to make them stand as marks for the Ideas within his own Mind, whereby they might be made known to others, and the Thoughts of Men’s Minds be conveyed from one to another.

§3. […] Language had yet a farther improvement in the use of general Terms, whereby one word was made to mark a multitude of particular existences. […]

§4. Besides these Names which stand for Ideas, there be other words which Men make use of, not to signify any Idea, but the want or absence of some Ideas simple or complex, or all Ideas together; such as Nihil [“nothing”] and in English Ignorance and Barrenness. […] (Locke 1700: III.i)

Étienne Bonnot de Condillac (1715–80) became instantly famous on the appearance of his first book Essai Sur l’Origine des Connoissances Humaines “Essay on the origin of human knowledge” (Condillac 1746). Despite being ordained, Condillac denied that human language was a direct gift from God. He was deeply influenced by Locke: ‘in Condillac as in Locke, reflection is a powerful, active, creative, innate faculty’ (Aarsleff 1974: 102). The force that generates language also generates thought. Humans share with beasts the ability to make utterances; the difference is that human reason has assigned functions to certain forms of utterance and so humans have developed artificial vocal gestures as signes d’institution “conventional symbols”.

The use of language [signes] extends little by little the operations of the mind [ame]; and in their turn the latter, with greater use perfect the language, rendering their usage more common [familier]. Our experience proves that these two things help each other along. (Condillac 1746: II.i.4 [p.8]).

Man’s ability to reflect and reason developed using language (ibid. I.ii.49 [pp. 80–82]). The origin of human language marched in step with the development of ideas. According to antiquity, poetry preceded prose and the primitive languages were very poetical. Condillac adopts the same Romantic view:

It is to Poets that we have the first and perhaps greatest obligations. (ibid. II.i.153 [p.211])

Condillac’s good friend Jean-Jacques Rousseau in Discours sur l’Origine et les Fondemens de l’Inégalité Parmi les Hommes “On the origin and fundamentals of inequality among men” was of a similar mind:

Inarticulate cries, many gestures, and some imitative sounds, must have for a long time been the stuff of universal language. In each region these were joined with conventional articulated sounds whose establishment […] is not very difficult to explain; and so one has particular languages, but unsophisticated, imperfect and quite similar to those found today among various Savage Nations. (Rousseau 1755: 104)
Rousseau returned to the theme in *Les Rêveries du Promeneur Solitaire* “Reveries of the solitary walker” (Rousseau 1782). He believes communal animals have language: ‘Still the speech of beavers and ants is apparently by gestures; i.e. it is only visual. If so, such languages are natural and not acquired.’ Human language could derive from similar visual signs: ‘While visible signs can render a more exact imitation, sounds more effectively arouse interest’, so humans prefer to use sounds.

Johann Gottfried von Herder (1744–1803) read Condillac’s *Essai* and, like Condillac, denied that human language is simply a gift from God. As we shall see, despite being critical of both Condillac and Rousseau, Herder’s argument in his prize-winning *Abhandlung über den Ursprung der Sprache* “Essay on the origin of language” (Herder 1772; 1953) owes a huge debt to Condillac. And in emphasizing the particular salience of sounds in the creation of language, he echoes Rousseau.

As everything in nature utters sounds, nothing is more natural to man as a sensitive being than to assume that nature is alive, able to speak and to act. (Herder 1953: 767)

Any animal will react to a sound made by another creature.

The plucked chord cannot but vibrate. It invites the echo of sympathetic vibrations even when these are unlikely to be forthcoming, expected or hoped for. [...] A sentient being cannot confine any of its vivid sensations within itself; it must give utterance to all of them at the first moment of surprise, without deliberation or intention. [...] These sighs, these sounds, are language. (ibid. 733f)

Remnants of such emotive cries are found in all languages (but to a greater extent among ‘savages’); they are the sap that vitalizes human language (ibid. 736).

If we then call these spontaneous expressions of feeling ‘language’, then I do indeed find its origin very natural. It is not only not superhuman but evidently of animal origin. (ibid. 742)

Human language is a gift of Nature, not of God. There are echoes here of Epicurus and Lucretius.

There is the usual reference to the uniqueness of human language:

All animals, down to mute fish, give expression to their sensations. But this does not alter the fact that no animal, not even the most perfect, has so much as the faintest beginning of a truly human language. (ibid. 742)

As men are the only creatures known to possess language, and since it is precisely through language that they distinguish themselves from all animals, where could the investigation more properly begin than from the experiences we have concerning the differences between animals and men? (ibid. 745)

The topic of the origin of language therefore promises rewarding insights into the psychology of the human race. Humans developed language in response to the extent and complexity of human activity:

The sensitivity, aptitudes, and instincts of animals increase in power and intensity in an inverse ratio to the size and multiplicity of their sphere of activity. (ibid. 747)

This is also an idea found in Epicurus and Locke.

Like Locke and Condillac, Herder believed language arose through reflection (ibid. 754).
From the very first moment of his existence, man was not an animal but a human being, he possessed a creative and reflective mind even if at his entry into the universe he was as yet not a creature endowed with conscious awareness. (ibid. 795)

Reflection allows humans to distinguish one object from another by identifying its peculiar characteristics.

Man exhibits reflection not only by recognizing clearly or vividly the characteristics of what is in front of him, but also by discerning one or more of its distinguishing characteristics. The first act of apperception gives rise to a clear concept. It is the first judgment of the soul. [...] This first token of consciousness was the word of the soul. With it, human language was invented! (ibid. 755)

The lamb, for instance, is identified by its most characteristic feature as das Blöckende “the bleater”.

[The sheep bleats! The soul has found its distinguishing characteristic. [...] White, soft, woolly – the soul sees, touches, remembers, seeks the distinctive characteristic – it bleats, and the soul recognizes it. “Aha!, you are the bleater!” it feels intuitively. [...] The sound of bleating perceived by a human soul as the distinguishing mark of sheep became, by virtue of this reflection, the name for sheep, even if the tongue never tried to get around the word. [The soul] recognized the sheep by its bleating: this was the sign through which it captured the idea – and what is that other than a word? And what is the whole of human language other than a collection of such words? (ibid. 755f)

As with Epicurus, Lucretius, Locke, and Condillac, it was for Herder the nature of the human mind that gave rise to language. Plato had described thought as ‘the conversation of the soul with itself’ in Sophist 264a–b or as talking to oneself in Theatetus 189e–190a. Herder apparently believed that thought needs language, as did Leibniz and the German Romantic Johann G. Hamman (1730–88) (Brown 1967: 58–61); subsequently Chomsky 1975b: 56f and Chomsky 1980 229f, 239 reached a similar conclusion. In Verstand und Erfahrung, Eine Metakritik zur Kritik der reinen Vernunft “Understanding and experience: a meta-critique of [Kant’s] critique of pure reason” of 1799, Herder wrote that thinking is innere Sprache “inner speech”; and talking is thinking aloud. There is something of this in the twelfth century remark of Peter Abelard: ‘sermo generatur ab intellectu et generat intellectum’ “language is generated by the mind and creates understanding.”

Echoing Rousseau, Herder found that vocal symbolization of auditory stimulus caused language to be invented.

The sheep bleats! [...] The turtledove coos! The dog barks! Three words exist because he tried out three distinct ideas. The ideas go into his logic as the words go into his vocabulary. Reason and language together took a timid step and nature came to meet them halfway – through the power of hearing. (Herder 1953: 765)

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2. ‘The word of the soul’ implicitly contrasts with the word of God; see below.
3. By way of contrast, Humboldt, Sapir, and Whorf all believed that thought is shaped by language – as we shall see later in this chapter; Saussure 1931: 155f, too.
4. I haven’t been able to find the source in any work of Abelard. This sentence is quoted in Müller 1861: 41 and Joseph 1996: 365.
Thus in Herder’s view ‘man is a listening, a noting creature, naturally formed for language’ (ibid.) and ‘without language man can have no reason, and without reason no language’ (ibid. 758f). Because of man’s social nature, language is spread across groups and transmitted through generations (ibid. 806–12). These ideas are part of the long tradition stretching back to Epicurus in the fourth century BCE. But for Herder, notice, it is actions and not things that are named.

Onomatopoeic verbs [törende Verba] are the first elements of power. Onomatopoeic verbs? Actions and not yet anything that acts? […] The sound had to denote the thing as the thing gave rise to the sound. From verbs it was that nouns derived and not verbs from nouns. The child names the sheep not as a sheep, but as a bleating creature, and hence makes of the interjection [Interjektion] a verb. (ibid. 767)

One is reminded of the language that adults use to children in naming creatures: baa-lamb, moo-cow, woof woof (for which there are German counterparts). Perhaps that was partly what led Herder to such a hypothesis; but he was almost certainly influenced by Giambattista Vico (1668–1744).

[A]rticulate language began to take shape in onomatopoeia, which children will happily use to express themselves. (Vico 1999: 184 [447])

‘Interjektion’ does not refer to the participle blökende as a part of speech; Herder was thinking of the bleating in terms of an emotive cry – which is not altogether consistent with the rest of his story. Once again, however, he seems to have been echoing Vico:

Next, human words were formed by interjections or exclamations, which are articulate sounds caused by the stimulus of violent emotion, and which are monosyllabic in all languages. (Vico 1999: 184 [448])

Herder is arguing from ontogeny (child development) to phylogeny (species development). But Herder’s supposition is incorrect, because children do not learn verbs first. In part, his motivation is to show that God could not have invented human language because, as the Western Classical Tradition affirms, the logical order is to name entities first and then predicate acts and attributes of them, and – to a committed Christian like Herder – God would not and could not have been illogical. Several times in his Essay Herder argues against the divine origin of human language (e.g. Herder 1953: 755). To receive the word of God, man would already have had to have language (ibid. 758), so language cannot be God-given. Responding to the claim of Süßmilch 1766: 21 that (part of the) proof for the divine origin of language is that the sounds of all known languages can be reduced to about twenty letters, Herder perceptively notes (following Lambert 1764) that there are far fewer letters than sounds even for German alone (ibid. 737). Later he says that no two human beings speak exactly the same language (ibid. 814).

Herder assigned verbs priority over nouns in a consciously illogical act (at least in terms of the Western Classical Tradition). Being a Romantic, he finds that God gave humans passion and sensibility and these, not reason, led to the development of human language (ibid. 829). Like Vico, Condillac, Rousseau, and Hamman, Herder thought the earliest language was poetry and song.
What was said by so many of the Ancients and has more recently been often repeated without understanding, derives from the following truth: “Poetry is older than prose!” For what was this first language other than a collection of elements of poetry? (ibid. 770)

There is a nice counterpoint between realism and Romanticism in Herder’s view that ‘the formation of diverse national languages is a corollary of human diversity’ (ibid. 814) and the Tower of Babel was just an oriental poem (ibid. 820). Again like Condillac, Herder believed in monogenesis:

So as it is likely that all mankind stem from a common source, so too do all languages, and with them the whole chain of human development. (ibid. 821)

Eighteenth century views on the origin of language differ but little from one another and they reveal a strand of the Western Classical Tradition going back to ancient Greece. However, to the Epicurean belief that language is part of a human being’s natural endowment was added a Romantic emphasis on the part played by human passion and sensitivity to Nature. And at the same time greater emphasis was laid on the correlation between the creation of language and the rational, reflective nature of the human mind.

Language is more than naming, and the great weakness in all those early accounts of language origin is that there was no discussion of how rules for combining names evolved. It is not sufficient to relegate propositions about entities and their acts or attributes to a human mind that can merely name these propositional constituents: syntactic relations between language constituents cannot be captured in a list with no conventional ordering. Yet, until the late twentieth century, no one proposed a hypothesis for the origin of syntax.

For most of the twentieth century, linguists eschewed speculation on the origin of language. Interest revived with the interchange of information among the fields of linguistics, primatology, palaeoanthropology, evolutionary biology, neurology, and psychology at the end of the century. Human language is certainly different in kind from animal communication in its complexity, its media (speech, writing, signing), and perhaps its cooperative constraints. There is little doubt that animals are cognizant and store information about the world around them. The evolutionary foundations of semantics and pragmatics lie in the internal mental representations that animals have of the things, events, and situations in their environment. […] Rudimentary concepts, ideas, and situations in the world, can reasonably be said to exist in animals’ minds, even though they may not ever be publicly expressed in language, or indeed in any kind of communication whatsoever. (Hurford 2007: 5).

Judging from areas of brain activity, animals re-run episodes from past experience in REM sleep, just as humans do. There is also the fact that they hide and later retrieve food. Like humans older than three, some higher animals are able to reason their way through the invisible displacement task: what happens is that an object in sight of the animal is placed inside a box, which is then moved behind an obstacle, at which time the object is removed; the animal is shown the empty box, which causes it to look behind the obstacle for the
missing object. Furthermore, animals ‘are capable of proposition-like cognition’ (Hurford 2007: 88). They not only recognize different kinds of predators but have different alarm calls for them; and even chickens are smart enough not to bother making alarm calls when there are no conspecifics around! There is some evidence that individual animals modify the sounds and gestures they make to differentiate themselves from others (ibid. 181). ‘[I]t is probable that uniquely complex human language could not have evolved without the social ritualized doing-things-to-each-other scaffolding found in many other social species, including our nearest relatives, the primates’ (ibid. 185). Despite Chomsky’s belief that language is primarily a system for the expression of thought (Chomsky 1975b: 56f), all evidence points to its primary function being a medium for the establishment and maintenance of social interactive behaviour among members of large communities. Human society demands long-term cooperation and communication which is partly motivated by the difficulties of human childbirth and the long childhood dependence to allow for brain development and skills learning. Cooperation requires trust; consequently, gossip about who is trustworthy is valuable within the community. ‘The integration of deixis and symbols is the basis of declarative information-giving. The growth of symbolic vocabulary, and the increase in deictic/symbolic integration, can only take off if the animals concerned are disposed to give each other information.’ Which is what must have happened among our remote ancestors (Hurford 2007: 242). The meaningful aspect of human language had firm foundations before Homo sapiens developed.

Primates display many pre-language capabilities which would presumably have been present in early hominids. They vocalize and use gestures that invite reciprocation – but do not vocalize in the absence of emotional stimulus (Corballis 2003: 202). Chimpanzees seem to have a ‘theory of mind’; that is, they can recognize three or even four levels of intentionality such as “X is trying to deceive me into believing that p” or “X is trying to deceive me into believing that X believes that p” – which is about what a four-year-old human can manage (Dunbar 1996: 83–101). In captivity primates can be taught to associate abstract symbols with entities or actions, but don’t do so in the wild. In experimental situations they are capable of simple syntactic structuring (see Savage-Rumbaugh, Shanker and Taylor 1998). Primates certainly recognize social relationships (Worden 1998: 152) and know how to establish joint attention (Hurford 2003: 47) – which is a prerequisite for language use (Clark 1996: 274–82). Importantly, they display cooperative behaviour (such as reconciliation and peacemaking) for the maintenance of group cohesion; and group bonding is achieved through grooming. Primate social groups that devote too little time to grooming fragment and are liable to dissolve (Dunbar 1996; 1998). Non-human primates do not, however, have the respiratory, phonatory, and articulatory ability to speak; nor do they have the cognitive specialization for language. The consensus seems to be that from c. 500,000–400,000 BP, Homo erectus and Homo sapiens neanderthalensis could probably

5. It is thought that children logically deduce the answer whereas animals associate the last seeing with a certain location and go looking in that location. This is a task that must use mental representation of relative location/space in memory rather the scene directly perceived.

6. A function of the narrow birth-canal that results from bipedality.
speak after a fashion, using what Bickerton 1998 calls ‘protolanguage’, in which ‘there might have existed only two types of linguistic entities: one denoting thing-like time stable entities (i.e. nouns), and another one for non-time stable concepts such as events (i.e. verbs)’ (Heine and Kuteva 2002: 394). As early as 170,000 BP *Homo sapiens* or as late as 50,000 BP *Homo sapiens sapiens* would have had linguistic abilities similar to those of today’s human beings.

There is much controversy over the part that gesture plays in language; McNeill and Levy 1982 show that gestures used when speaking are precisely synchronized with speech, suggesting that speech and gesture form an integrated system. This leaves to be explained why human language is primarily vocal. The most convincing explanation is that of Dunbar 1996: hominid language replaced the kind of grooming found among other primates. Primates spend 10 to 20% of their time grooming one another. It is usually one-on-one, occasionally two or more on one. What it cannot be is one groomer to several groomees. There is a link between neocortex size and social group size that applies to humans as well as to other primates: a human neocortex correlates with a group of about 150 members, which turns out to be the normal size of communities that share good knowledge of all group members in both traditional and post-industrial societies (Dunbar 1998: 94f). Social understanding seems to be an innate predisposition: ‘whilst our genes do not determine our ability to understand and interact with other people, they play a strong role in the development of social understanding, and, via this, may ultimately exert a long term and pervasive influence on many aspects of our social lives’ (Hughes and Plomin 2000: 61). A cross-cultural comparison shows that, like other primates, humans spend on average about 20% of their waking hours in social interaction. In order to maintain the bonds that our fellow primates maintain through grooming, humans use language; this enables one-to-many bonding as a speaker addresses a number of hearers. So the grooming hypothesis is a very plausible motivation and explanation for the development of spoken language. There is added plausibility in the fact that the primary functions of language are social interactive. Reviewing situations in which children create a language where there was none before, Jackendoff 2002: 100 concludes: ‘Evidently a community is necessary for language creation, but a common stock of pre-existing raw material is not.’ Exchange of information is secondary, though extremely valuable. And information exchange normally has social interactive accompaniment and modifiers. Whereas other species depend on direct personal observation for information about their fellows, by using language ‘humans can find out very rapidly about the reliability of an ally or about a friend’s good or bad behaviour via third parties’ (Dunbar 1998: 96).

The persistent tradition that the earliest language was song probably stems from the fact that song, dance, and ritual are social bonding mechanisms that also serve to differentiate the group from others.7 These identity-defining characteristics are shared with language.

There is continual controversy over the monogenesis hypothesis (one common ancestor for all human languages) versus plurigenesis (languages developed independently in several

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7. This is quintessential in the *haka*, the Maori song and dance performed by the New Zealand All Blacks rugby team. See http://folksong.org.nz/ka_mate/
different regions). Until someone invents a time machine, we can only speculate on the origin or origins of language on the basis of inconclusive circumstantial evidence.8

**Humboldt on the mutual influence of language and culture**

The differences between languages are not those of sounds and signs but those of differing world views. (Humboldt 1963: 246)9

In Chapter 7 we saw that, throughout the eighteenth century, language was conceived to have a ‘genius’ that links it to the culture of its speakers. Although ‘genius’ was mostly used to mean something like a grammarian’s opinion of what best matched the grammatical norms of the language, this derives from the classical sense of *genius* as a tutelary god or controlling spirit of the language which determines its distinctive character. Its genius attached the language to its speakers and their culture.

Nations, like single Men, have their peculiar Ideas, […] these peculiar Ideas become THE GENIUS OF THEIR LANGUAGE. (James Harris 1786: 407)

It was certainly this correlation that Condillac had in mind in his *Essai* when he wrote ‘Everything confirms that each language expresses the character of the people who speak it’ (Condillac 1746: II.i.143 [p. 198]); and later in the last chapter of Book III of his *Cours d’études pour l’instruction du Prince de Parme*, he talks about the mutual influence of languages on opinions (world-view) and opinions on languages (Condillac 1947-51, II: 90). Better known for an interest in the mutual influences of language and culture is Wilhelm von Humboldt’s *Introduction to Über die Kawi-Sprache auf der Insel Java, nebst einer Einleitung über die Verschiedenheit des menschlichen Sprachbaues und ihren Einfluss auf die geistige Entwicklung des Menschengeschlechts* “On the Kawi language of the island of Java, with an Introduction concerning the variety of human language and its influence on the intellectual development of mankind” (Humboldt 1836-39).10

Humboldt (1767–1835) is more concerned with the nature of language than its origin. Unlike Locke, Condillac, and Herder 1772, for Humboldt language does not spring from reflection. Instead, like Leibniz, Johann Hamann, and Herder 1799 (Brown 1967: 58–61), Humboldt believed that language is prior to or at least simultaneous with thought, such that thought is aided by language.

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8. There is a very comprehensive and enlightening survey of the origins of language in Johansson 2005.
10. The Introduction, Humboldt 1836, is translated in Humboldt 1999, which often recreates the convoluted language of the original text; so I sometimes use the Cowan translation in Humboldt 1963.
The real matter of language is, on the one hand, the sound as such, and on the other the totality of sense-impressions and spontaneous mental activities which precede the creation of the concept with the aid of language. (Humboldt 1999: 52; Humboldt 1836: LXI)

Humboldt believed, like the Epicureans, Condillac, and Herder, that language arose from the nature of humanity without divine intervention (Humboldt 1999: 24). Language emanates from the collective activity of men, and not from some individual – a view similar to that of Epicurus, Lucretius, and Locke, but dissimilar from Plato or Herder. In Humboldt it reflects Romantic notions of the collective origin of literature: folk-tales and Homer’s epics reputedly derive from multiple authors (Brown 1967: 83).

As a result of the connection between the individual and the collectivity surrounding him, every significant spiritual activity of the individual belongs also – but only indirectly and in a certain special sense – to the collectivity. The existence of languages proves, however, that there are also spiritual creations which by no means originate in any one individual, to be handed on to other individuals, but which come forth out of the simultaneous, spontaneous activity of all. In languages, in other words, the nations (since a language is that which defines a nation) as such are true and direct creators. (Humboldt 1963: 273; Humboldt 1836: XLVIII)

Like Lucretius and Herder, Humboldt finds that language fulfils a need. And there is a notion that may owe something to Immanuel Kant (1724–1804; Kant 1799) and Friedrich von Schlegel (1772–1829; Schlegel 1808b) that languages form organic structured wholes.

The production of language is an inner need of mankind, not merely an external vehicle for the maintenance of communication, but an indispensable one which lies in human nature, necessary for the development of its spiritual energies and for the growth of a Weltanschauung ("world-view") which man can attain only by bringing his thinking to clarity and definition by communal contact with the thinking of others. If one now looks upon each language as an attempt to do this – and it is difficult to look at it otherwise – and upon all languages together as a contribution to the fulfilment of this basic human need, it may well be assumed that the language-creating energy in mankind will not rest until it has brought forth, whether in one place or everywhere, whatever accords most perfectly with its demands. (Humboldt 1963: 258; Humboldt 1836: XXVI)

There is a slight echo of Herder’s view that activity is salient for language creation:

To describe languages as a work of the spirit is a perfectly correct and adequate terminology, if only because the existence of spirit as such can be thought of only in and as activity. (Humboldt 1999: 49; Humboldt 1836: LVII)

As I’ve said, Humboldt was a Romantic: ‘For man, as a species, is a singing creature, though the notes, in his case, are also coupled with thought’ (ibid. 60). But he is more sophisticated than most Romantics in recognizing that language use is goal-directed behaviour and this is reflected in the functional motivations for language structures.

The analysis essential to the study of linguistic structure compels us, in fact, to look upon language as a method which pursues certain aims by certain means, and hence to consider it truly a creative formation of a given nation. (Humboldt 1963: 281; Humboldt 1836: LVIII)

The final clause in this quote echoes an earlier statement ‘that languages are bound to and dependent on the national groups which speak them’ (Humboldt 1963: 255 [Humboldt 1999: 24]). That is, languages reflect the culture and mentality of their speakers. Because language and thought are intimately connected, and the grammars of different languages are
The Western Classical Tradition in Linguistics

structurally different, it follows that grammatical differences between languages indicate different ways of thinking and perceiving.

The persistent *work of the mind* in using language has a definite and continuing influence even on the true structure of the language and the actual pattern of its forms; but it is a subtle influence, and sometimes escapes notice at first sight. (Humboldt 1999: 148)

Speaking and understanding are two sides of the same coin:

Conversing together is never comparable with the transfer of material. In the understander as in the speaker, the same things must be evolved from the inner power of each; and what the former receives is merely the harmoniously attuning stimulus. (Humboldt 1999: 57; Humboldt 1836: LXX)

This suggests the remarkably modern observation that understanding proceeds via analysis-by-synthesis (see Allan 2001; Sperber and Wilson 1995).

There was no great novelty in Humboldt recognizing that children do not inherit a language but learn whichever is (or are) in their linguistic environment. Nor was it novel to observe that adults find it difficult to learn a second language because they are hampered by adherence to the characteristics of their mother-tongue.

If children are transplanted before they learn their native tongue, they develop their linguistic capacity in the foreign one. This undeniable fact, it might be said, clearly shows that language is the mere reproduction of what is heard, depending entirely on social intercourse without consideration of the unity and diversity of the people involved. In the first place, however, it has by no means been determined by exact tests that the inclination towards such children’s native speech did not have to be overcome at some cost to the finest nuance of skill in the adopted language. But even disregarding this possibility, the most natural explanation is simply that human beings are everywhere human and the development of linguistic capacity may therefore take place with the aid of any given individual. That does not mean that it comes any less from the individual’s innate nature; only, since it also needs outer stimulus as well, it must become analogous to whatever stimulus it receives. This it can do since all human languages are interrelated in some sense. (Humboldt 1963: 292f; Humboldt 1836: LXXIIf)

Yet there is a commonality among languages; what others refer to as ‘general’ or ‘universal’ grammar Humboldt refers to as ‘the congruence of all human tongues’. The human predisposition to use language needs an external stimulus for the individual to learn the language spoken in their particular environment.

For Humboldt, as for many in the Western Classical Tradition, language is a reflection of the individual’s subjective perception of the world – there is no direct correlation between the forms of language and the speaker’s referent; it is the speaker’s cognitive awareness of the referent that is indicated by the language expression.

Just as no concept is possible without language, so no object is possible without it for the psyche, since even external ones receive their intrinsic substance only through language. For words are born of the subjective perception of objects; they are not a copy of the object itself but of the image of it produced in the psyche by its perception. And since subjectivity is unavoidably mingled with all objective perception, one may – quite independently of language – look upon each human individuality as a singular unique standpoint for a world-view. (Humboldt 1963: 293f; Humboldt 1836: LXXIV)
Although Humboldt does not explicitly say so, it is clear that individual subjectivity is culturally endowed because different languages incorporate different world-views.

Now everyone uses language to express his most particular individuality; for it always proceeds from the individual, and each uses it primarily for himself alone. Yet it suffices everyone, insofar as words, however inadequate, fulfill the urge to express one’s innermost feelings [Herder would have approved this]. Nor can it be claimed that language, as a universal medium, reduces these differences to a common level. It does indeed build bridges from one individuality to another, and is a means of mutual understanding; but in fact it enlarges the difference itself, since by clarifying and refining concepts it produces a sharper awareness of how such difference is rooted in the original cast of mind. The possibility of serving to express such diverse individualities seems, therefore, to presuppose in language itself a perfect lack of character, with which, however, it can by no means be reproached. It actually combines the two opposing properties of dividing itself, as one language in the same nation, into an infinity of parts, and as such an infinity, of uniting itself, as one language of a particular character, against those of other nations.  

(Humboldt 1999: 151; Humboldt 1836: CCXII)

Language is the external manifestation, as it were, of the spirit of a nation. Its language is its spirit and its spirit is its language.  

(Humboldt 1963: 277; Humboldt 1836: LIII)

Every language receives a specific originality through that of the nation, and has on the latter a uniformly determining reverse effect.  

(Humboldt 1999: 152; Humboldt 1836: CCXIV)

Humboldt is saying that languages unite speakers because each language has its ‘genius’ (Sprachgefühl) that differentiates it and its speakers from the languages and peoples of other nations; but, at the same time, every individual uses language in a different way that ‘is rooted in the original cast of mind’ – a very Herder-like remark. The ‘genius’ of a language captures a world-view that makes it difficult for the non-native speaker to engage with.

Every language sets certain limits to the spirit of those who speak it; it assumes a certain direction and, by doing so, excludes many others.  

(Humboldt 1963: 245)

Die Sprache ist das bildende Organ des Gedanken [“Language is the formative organ of thought”]  

(Humboldt 1836: LXVI; Humboldt 1999: 54)

[E]ach language draws a circle around the people to whom it adheres which it is possible for the individual to escape only by stepping into a different one. The learning of a foreign language should therefore mean the gaining of a new standpoint toward one’s world-view, and it does this in fact to a considerable degree, because each language contains the entire conceptual web and mental images of a part of humanity. If it is not always purely felt as such, the reason is only that one so frequently projects one’s own world-view, in fact one’s own speech habits, onto a foreign language.  

(Humboldt 1963: 294; Humboldt 1836: LXXV)

Here we see that Humboldt is truly an originator of the so-called ‘Sapir-Whorf’, ‘Whorfian’ or ‘linguistic relativity’ hypothesis.

Humboldt judged that because language and thought are intimately connected, the grammatical differences between languages are manifestations of different ways of thinking and perceiving. The structure of language affects perceptual processes and also the thought processes of speakers. Language mediates world-view such that different world-views

11. This is a quote from Einleitung in das gesamte Sprachstudium “Introduction to general linguistics” (1810–11).
correlate with different language structures that no sole individual can change; consequently languages are stable organic wholes. These views arose in part from German Romanticism in which the individual is only significant as part of a nation and furthermore is powerless to alter it as an individual (Brown 1967: 116).

Humboldt enthused Heymann (aka Hermann) Steinthal (1823–99; see Steinthal 1848), who in turn inspired William Whitney (1827–94) to write in *The Life and Growth of Language*:

> Every single language has thus its own peculiar framework of established distinctions, its shapes and forms of thought, into which, for the human being who learns that language as his “mother-tongue”, is cast the content and product of his mind, his store of impressions, however acquired, his experience and knowledge of the world. This is what is sometimes called the “inner form” of language – the shape and cast of thought, as fitted to a certain body of expression. But it comes as the result of external influence; it is an accompaniment of the process by which the individual acquires the body of expression itself. [...] It amounts simply to this: that the mind which was capable of doing otherwise has been led to view things in this particular way, to group them in a certain manner, to contemplate them consciously in these and those relations. (Whitney 1875b: 21f)

Whitney was the link to Franz Boas (and, as we shall see in Chapter 11, to Ferdinand de Saussure, too).

**Boas**

German-born Franz Boas (1858–1942) studied Eskimos on Baffin Island in 1883 and emigrated to the United States in 1886, when he began studying the Kwakiutl in the Pacific Northwest. In 1895 he began working with the American Museum of Natural History and in 1896 joined Columbia University, where he became foundation Professor of Anthropology in 1899. He encouraged cross-fertilization between the fields of human evolution, archaeology, language, and culture. At the time, racism was rife as Americans from north-European backgrounds were alarmed by the influx of ‘inferior races’ such as Jews and south Europeans. Perhaps because of his own liberal Jewish background, Boas was an early critic of racial superiority claims and of race being used as an explanation for physical types. Using a biometric measurement, the cephalic index (relation of skull length to width), long held to be a primary indicator of race, Boas showed that the index changed radically within a generation; the only explanation for it were changes in physical environment, diet, and the social environment. Thus the cephalic index is no sure indicator of race.

Entirely harmonious with this background sketch is Boas’ legacy to twentieth century linguistics: concern that all languages and cultures should be treated equally, each being explained in its own terms, and that languages should be investigated with systematic rigour and without prejudiced preconceptions about their linguistic structure. In this Boas may been inspired by Whitney:

> In judging other languages, then, we have to try to rid ourselves of the prejudices generated by our own acquired habits of expression, and to be prepared to find other peoples making a very different selection from our own of those qualifications and relations of the more material
substance of expression which they shall distinctly represent in speech, and also sharing these out very differently among the different modes of formal expression. (Whitney 1875b: 222)

Boas’ work on Native American languages may well have been at least indirectly and partially inspired by Humboldt, who was not only ‘among the earliest linguists to extend systematic comparative research into non-Indo-European languages’ (Drechsel 1988: 236) but also one of the first to write about Native American languages (e.g. in Humboldt 1836, and also in letters). Boas would have been familiar with the work of American ethnologist Daniel G. Brinton (1837–99) and most probably Brinton’s The Philosphic Grammar of American Languages, as Set Forth by Wilhelm von Humboldt: With the Translation of an Unpublished Memoir by him on the American Verb (Brinton 1885).

The Western Classical Tradition in linguistics from Plato to Whitney would have confirmed Boas’ view that languages classify experience, and that experience has to be expressed using the forms of language at the speaker’s disposal.

Since the total range of personal experience which language serves to express is infinitely varied, and its whole scope must be expressed by a limited number of phonetic groups [= morphemes12], it is obvious that an extended classification of experiences must underlie all articulate speech. (Boas 1911: 24)

For Boas, then, experience and culture are reflected in language. So the principles of classification will often differ from language to language.

The groups of ideas expressed by specific phonetic groups show very material differences in different languages, and do not conform by any means to the same principle of classification. To take again the example of English, we find that the idea of WATER is expressed by a great variety of forms: one term serves to express water as a LIQUID; another one, water in the form of a large expanse (LAKE); others, water as running in a large body or in a small body (RIVER and BROOK); still other terms express water in the form of RAIN, DEW, WAVE, and FOAM. It is perfectly conceivable that this variety of ideas, each of which is expressed by a single independent term in English, might be expressed in other languages by derivations from the same term.

Another example of the same kind, the words for SNOW in Eskimo, may be given. Here we find one word, aput, expressing SNOW ON THE GROUND; another one, qana, FALLING SNOW [this is incorrect, the word means “snowflake”]; a third one, piqsiroq, DRIFTING SNOW; and a fourth one, qimuqsuq, A SNOWDRIFT. […]

As an example of the manner in which terms that we express by independent words are grouped under one concept, the Dakota language may be selected. The terms naxta’ka TO KICK, paxta’ka TO BIND IN BUNDLES, yaxta’ka TO BITE, ic’a’xtaka TO BE NEAR TO, boxta’ka TO POUND, are all derived from the common element xtaka TO GRIP, which holds them together, while we use distinct words for expressing the various ideas.

It seems fairly evident that the selection of such simple terms must to a certain extent depend upon the chief interests of a people; and where it is necessary to distinguish a certain phenomenon in many aspects, which in the life of the people play each an entirely independent role, many independent words may develop, while in other cases modifications of a single term may suffice.

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12. See Chapter 12 for confirmation of this.
Thus it happens that each language, from the point of view of another language, may be arbitrary in its classifications; that what appears as a single simple idea in one language may be characterized by a series of distinct phonetic groups in another. (ibid. 25f)

In late 1994 there was much discussion on the LINGUIST List (http://www.linguistlist.org) about the number of Yup’ik words for snow and ice; it was suggested that there is a problem determining what counts as a word in Yup’ik because many of the ‘words’ correspond to compounds or phrases in English. When this is taken into account, the difference between the two languages is by no means so stark. There is also the fact that English has slush, sleet, blizzard, avalanche, powder, flurry, drift and so forth. Benjamin Lee Whorf wrote:

> We have the same word [snow] for falling snow, snow on the ground, snow packed hard like ice, slushy snow, wind-driven flying snow – whatever the situation may be. To an Eskimo, this all-inclusive word would be almost unthinkable. (Whorf 1956: 216 [Whorf 1940b]).

Jerry Sadock (p.c.) disagrees: the all-inclusive thinkable word in Eskimo is aput. John Lucy criticizes Brown and Lenneberg 1954 for expressing a view that both English and Eskimo speakers can talk equally well about snow and types of snow. Lucy says that in English snow, good-packing snow and bad-packing snow are ‘varieties of snow, whereas there is no evidence at all that the Eskimo regard these three referents as varieties of the same thing’ (Lucy 1992b: 149). If Sadock is right about aput it is likely that Lucy is wrong.

The usual explanation for differences such as that between English and Eskimo is the principle of least effort (Zipf 1949): there is a tendency for the length of a language expression to correlate with its significance in the everyday life of the speech community, and hence frequency of occurrence; the Eskimo environment makes it significant for Eskimos to distinguish various kinds of snow by simple nouns (if that is really what they are), whereas the environment in which the English language developed presents little need for such nouns. As foreshadowed by Boas 1911: 26 (quoted above), the point to be taken is that phenomena are normally linguistically categorized according to those of their characteristics that are perceived or conceived of as being significant within a given context or set of contexts. Lucy misses the point: ‘to say that the Eskimo have lexicalized what for us are complex noun phrases (because they use them so frequently) essentially presupposes that they originally had complex noun phrases of the same type as we have, that is, with the unified conceptual content [...] “snow”’ (Lucy 1992b: 161). No such presupposition is warranted. On a naïve and radically oversimplified account, the prehistoric Eskimo frequently encountered bits of environment which were named aput, qana, piqsirpoq, qimuqsuq, etc.; the prehistoric Anglo-Saxon (or the Germanic predecessor) didn’t. It is not irrelevant that an expert almost always has a more extensive vocabulary (neologisms and abbreviations) in their area of expertise than a lay person as part of the jargon that enables them to make finer distinctions. Expert and layman may see and even speak about the same referent, but they have different conceptions of it (Allan 2001: 88, 333); and these different

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13. The evidence for this is overwhelming, see Allan 2001 for many examples. Lucy dismisses Zipf’s principle of least effort as grounded in form and frequency rather than structure and content; this is a narrow view of the letter rather than the spirit of Zipf’s principle.
conceptions will be reflected in the language used. Language expressions evolve in direct response to their usefulness and usability in the community that employs them.

**Sapir**

When it comes to linguistic form, Plato walks with the Macedonian swineherd, Confucius with the head-hunting savage of Assam. (Sapir 1949a: 219 [Sapir 1921])

It would be possible to go on indefinitely with such examples of the incommensurable analyses of experience in different languages. The upshot of it all would be to make very real to us a kind of relativity that is generally hidden from us by our naïve acceptance of fixed habits of speech as guides to an objective understanding of the nature of experience. This is the relativity of concepts or, as it might be called, the relativity of the form of thought. (Sapir 1949b: 159 [Sapir 1924])

Edward Sapir (1884–1939) was born in Germany but moved to America aged five. His 1905 MA was a critique of Herder’s *Ursprung*, from which he published Sapir 1907. He was already a student of Boas, who inspired him to record endangered Native American languages before they were lost forever. Sapir’s 1909 PhD dissertation was on Takelma (a language isolate); and during his lifetime he worked on thirty-nine different Native American languages. During the late 1920s at the University of Chicago, Sapir was teaching and thinking a great deal about culture, psychology, and social science methodology, drawing on Jung’s writings on personality (Jung 1953) and Koffka’s gestalt psychology (Koffka 1935). It was during this period that he began to write about linguistic relativity. In 1931 Sapir became Sterling Professor of Anthropology and Linguistics at Yale University. There his conception of grammatical process and his interest in the study of meaning as integral to the theory of grammar contrasted sharply with the views of his younger colleague Leonard Bloomfield, whose dismissal of semantics adversely affected linguistics in North America until the later 1960s (see Chapter 12). Sapir carefully distinguished collective conventional patterns of behaviour from the personality patterns of actual individuals. Late in life he collaborated with Harry Sullivan (Sullivan 1955) in looking at social interaction as the locus of cultural dynamics.

Sapir adopted Boas’ views on unprejudiced egalitarian treatment of languages and the concern that endangered Native American languages should be rigorously investigated. It has been alleged by Sampson 1980 and Joseph 1996 that Sapir’s book *Language* (Sapir 1921) says little about linguistic relativity; but Chapter V ‘Form in Language: Grammatical Concepts’ counters that claim. Sapir takes the Leibniz-Herder-Hamman-Humboldt line that thought and language are interrelated, with thought dependent on language.

Language is primarily a pre-rational function. It humbly works up to the thought that is latent in, that may eventually be read into, its classifications and its forms; it is not, as is generally but naively assumed, the final label put upon the finished thought.

Most people, asked if they can think without speech, would probably answer, “Yes, but it is not easy for me to do so. Still I know it can be done.” Language is but a garment! But what if language is not so much a garment as a prepared road or groove? (Sapir 1949a: 15 [Sapir 1921])
Language and our thought grooves are inextricably interrelated, are, in a sense, one and the same. [...] Language is a particular how of thought. (ibid. 217f)

Sapir’s fullest statement on linguistic relativity appeared in ‘The status of linguistics as a science’.

Human beings do not live in the objective world alone, nor alone in the world of social activity as ordinarily understood, but are very much at the mercy of the particular language which has become the medium of expression for their society. It is quite an illusion to imagine that one adjusts to reality essentially without the use of language and that language is merely an incidental means of solving specific problems of communication or reflection. The fact of the matter is that the ‘real world’ is to a large extent unconsciously built up on the language habits of the group. No two languages are ever sufficiently similar to be considered as representing the same social reality. The worlds in which different societies live are distinct worlds, not merely the same worlds with different labels attached. [...] We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretation. (Sapir 1929: 209f)

This is very Humboldtian and pre-dates Sapir’s association with Whorf at Yale. We don’t know to what extent Sapir was familiar with Humboldt’s work. As a Germanist he could have read the Gesammelte Schriften “Collected writings” (Humboldt 1903-36), because by 1908 the first seven volumes had been published, and these contain most of the linguistically relevant works. It is notable that Sapir’s discourses on typology (Sapir 1921, Chapter VI; Sapir 1933b) rework Humboldt’s classifications (in e.g. Humboldt 1999: 102ff, which I discussed in Chapter 9) – although Sapir does not mention Humboldt. Also reminiscent of Humboldt is the following.

The relation between language and experience is often misunderstood. Language is not merely a more or less systematic inventory of the various items of experience which seem relevant to the individual, as is so often naively assumed, but is also a self-contained, creative symbolic organization, which not only refers to experience largely acquired without its help but actually defines experience for us by reason of its formal completeness and because of our unconscious projection of its implicit expectations into the field of experience. [...] Such categories as number, gender, case, [etc. …] are systematically elaborated in language and are not so much discovered in experience as imposed upon it because of the tyrannical hold that linguistic form has upon our orientation in the world. Inasmuch as languages differ very widely in their systematization of fundamental concepts, they tend to be only loosely equivalent to each other as symbolic devices and are, as a matter of fact, incommensurable. (Sapir 1931: 578)

There is evidence too of the influence of gestalt psychology (in this context German Gestalt is possibly best translated “a single mental image”). Sapir and (later) Whorf were familiar with the work of Kurt Koffka (1886–1941). Both would certainly have been aware of such gestaltist notions as the ‘Law of Proximity’ that proximal elements tend to be grouped by the mind and seen as belonging together; the ‘Law of Symmetry’ – the mind seeks symmetry; the ‘Law of Continuity’, that the mind extends a pattern, even when it is broken.

14. The statement by Gumperz and Levinson 1996: 4 that ‘Sapir wrote a master’s thesis on a comparison between Herder and Humboldt’ is misleading, if not false.
and finally the ‘Law of Common Fate’, that elements apparently moving in the same
direction form a unit. These laws apply not only to images, but to thought processes,
memories, and our understanding of time and motion. An important aspect of gestalt theory
is the differentiation of figure from ground: in Figure 10.1.A one can see either a black vase
on a white ground or a pair of white faces on a black ground; but not both at the same time.
In Figure 10.1.B there are several different ways to perceive the figure: Is it a set of
interconnected squares, triangles, and trapeziums; or is it a cube, and if so which face is to
the front? The Sapir-Whorf hypothesis was that different language communities select
different gestalts, different figures and grounds in a manner analogous to the different
potentials of Figure 10.1. The importance of such figure–ground distinctions have more
recently been employed in cognitive linguistics, especially the work of Leonard Talmy (see
Talmy 2000, Volume I).

Perhaps because Sapir 1931: 578 (quoted above p.242) is the abstract of a paper and not
its body (which no longer exists), the words ‘the tyrannical hold that linguistic form has
upon our orientation in the world’ constitute a much stronger statement of linguistic
determinism than is found elsewhere in the writings of either Sapir or Whorf. There is also
an explication of how language shapes thought: ‘Language […] defines experience for us by
reason of its formal completeness.’ Boas, Sapir, and Whorf all believed that language
systems need to be investigated as wholes in which each linguistic element has a function.
This is heir to the German Romantic tradition stemming from Leibniz that languages are
organic wholes (Humboldt and Whitney’s ‘inner form’). Like Humboldt, Sapir adds that
‘languages differ very widely in their systematization of fundamental concepts, they tend to
be only loosely equivalent to each other as symbolic devices’: a view confirmed earlier by
Boas and later by Whorf.16 Sapir 1949a: 82–93 (Sapir 1921) made a detailed and instructive

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15. For instance, one never sees a chair in its entirety, but one can supplement what is seen by what
one knows must be there. One rarely hears everything that another person says, but fills the
gaps to make sense of what has been heard.

16. In an attempt to explain such notions to the outside world, Sapir 1949b: 153 [Sapir 1924] wrote:
‘To pass from one language to another is psychologically parallel to passing from one
geometrical system of reference to another’ (e.g. from Euclidean geometry in which parallel
lines are always equidistant to hyperbolic geometry in which they curve away from each other
or elliptical geometry in which they curve towards each other. Non-Euclidean forms are nicely
demonstrated by the Möbius band; see http://mathworld.wolfram.com/MoebiusStrip.html). It is
notable that Whorf 1956: 58, in a paper written in 1936, makes a similar analogy between
different languages and different geometries.
comparison of the grammatical and semantic differences among English, German, Yana, Chinese, and Kwakiutl translation equivalents of “The farmer killed the duckling”.

Boas taught respect for Native American languages and cultures; his student Sapir shared this respect and adopted Boas’ teaching that different cultural groups conceptualize the ‘same’ denotata in different ways and that their languages will reflect these differences. Sapir’s point of view was in part motivated by his special interest in culture. ‘Culture may be defined as what a society does and thinks’ he wrote (Sapir 1949a: 218 [Sapir 1921]); and later ‘Language is primarily a cultural or social product and must be understood as such’ (Sapir 1929: 214). Four years after that, he was describing language as ‘a culture-preserving instrument’ (Sapir 1949b: 17 [Sapir 1933b]). Perhaps under influence from the eighteenth and nineteenth century German Romantics, Sapir came to believe that language may not be the reflection of thought that Boas perceived, but the groove that guides the direction of thought. To what extent Sapir truly believed that linguistic form has a ‘tyrannical hold […] upon our orientation in the world’ we shall never know; one suspects this statement may have been hyperbole. But the mind behind it mentored Ben Whorf, whose work displays many evidences of Sapir’s influence.

**Whorf**

[T]he “linguistic relativity principle” […] means, in informal terms, that users of markedly different grammars are pointed by their grammars toward different types of observations and different evaluations of externally similar acts of observation, and hence are not equivalent as observers but must arrive at somewhat different views of the world. (Whorf 1956: 221 [Whorf 1940a])

Benjamin Lee Whorf (1897–1941) graduated from MIT in 1918 as a chemical engineer and was employed for the rest of his life as a fire prevention engineer (inspector) for the Hartford Fire Insurance Company. He was highly regarded and often given leave to pursue his interest in linguistics and anthropology. In the mid-1920s, perceiving a conflict between science and religion, he studied Hebrew. He soon took up Nahuatl and Maya, and published a paper on the Aztecs in 1928. In 1930 the Social Science Research Council funded a trip to Mexico to work on Nahuatl and while there he uncovered ‘definite, clearly demonstrable rapport between Nahuatl hieroglyphs and early Maya ones’ (Whorf 1956: 50 [Whorf 1932]). By this time he had met Sapir a couple of times, but only became a close associate after Sapir moved to Yale in 1931. Enrolling in a PhD programme at Yale, Whorf interacted with many linguists and anthropologists, though he never completed the degree. Nonetheless, in 1936, he was appointed Honorary Research Fellow in Anthropology at Yale; and in 1937 the university awarded him the Sterling Fellowship. He was a Lecturer in Anthropology from 1937 to 38 when he was diagnosed with the cancer that killed him in 1941.

Sapir encouraged Whorf to further study Uto-Aztecan languages, and Whorf worked on Hopi from 1932 until his death. Probably under influence from Sapir and gestalt psychology (Whorf was familiar with Koffka’s work and often mentioned gestalts), he came to believe that the Hopi interpretation of time, events, and space was a function of Hopi grammar (see Whorf 1936; 1938; 1953). For instance, Whorf reviews aspectual forms in Hopi verbs that
denote ‘vibratory phenomena and the punctual events to which they are related’, concluding that

The Hopi aspect-contrast which we have observed, being obligatory upon their verb forms, practically forces the Hopi to notice and observe vibratory phenomena, and furthermore encourages them to find names for and classify such phenomena. (Whorf 1956: 55f [Whorf 1936])

This is perhaps Whorf’s earliest statement about linguistic relativity and it takes a very reasonable and arguably incontrovertible position with respect to the effect of language on the conceptualizing of phenomena. In order to speak a language correctly one has to cut the denotata in certain ways.

The effect of language on thinking was brought home to Whorf in his work as a fire insurance assessor. In ‘The relation of habitual thought and behavior to language’ he gave several examples, such as the unrecognized fire hazard from empty gasoline drums arising from interpreting ‘empty’ as “void of any danger from gasoline” – when in fact the vapour remaining in the drum is highly flammable. Another example was from a wood distillation plant in which metal stills had been painted with spun limestone.

After a period of use, the fire below one of the stills spread to the “limestone”, which to everyone’s great surprise burned vigorously. Exposure to acetic acid fumes from the stills had converted part of the limestone (calcium carbonate) to calcium acetate. This when heated in a fire decomposes, forming inflammable acetone. Behavior that tolerated fire close to the covering was induced by the use of the name “limestone,” which because it ends in “-stone” implies non-combustibility. […] Such examples, which could be greatly multiplied, will suffice to show how the cue to a certain line of behavior is often given by the analogies of the linguistic formula in which the situation is spoken of, and by which to some degree it is analysed, classified, and allotted its place in that world which is “to a large extent unconsciously built up on the language habits of the group.”17 And we always assume that the linguistic analysis made by our group reflects reality better than it does. (Whorf 1956: 136f [Whorf 1941b])

Such practical experience of the effects of labelling on conceptualization is here explicitly combined with the tradition of linguistic relativity that stretches back through Sapir and Boas to Humboldt. This was what Whorf applied in his investigations of Native American languages.

There is no doubt about Whorf’s debt to Sapir and Boas. For instance, there are echoes of Sapir in the following:

The investigator of culture should hold an ideal of linguistics as that of a heuristic approach to problems of psychology. (‘A linguistic consideration of thinking in primitive communities’ Whorf 1956: 73)

Which was first: the language patterns or the cultural norms? In the main they have grown up together, constantly influencing each other. But in this partnership the nature of the language is the factor that limits free plasticity and rigidifies channels of development in the more autocratic way. This is so because a language is a system, not just an assemblage of norms. (Whorf 1956: 156 [Whorf 1941b])

17. Quote from Sapir 1929: 209.
Against the view expressed here, there is evidence that cultural needs give rise to new habits: for instance, the borrowing of new colour terms to expand the indigenous stock, e.g. in Mesoamerica; and grammatical borrowing is not rare among languages in contact.

Whorf echoes Boas when he says that investigation of ‘man’s knowledge of his own intellectual makeup’ requires surveying a very large number of languages of different types and ‘a grammar of each language worked out scientifically and on the basis of the language’s own patterns and classes, and as free as possible from any general presuppositions about grammatical logic’ (‘A linguistic consideration of thinking in primitive communities’; Whorf 1956: 77). Whorf believed that the investigation of many languages would concomitantly be an investigation of many ways of thinking and so illuminate human cognitive capabilities. To study an exotic language is the best way to jar us out of our habitual way of thinking (Whorf 1956: 138 [Whorf 1941b]).

The so-called ‘Whorfian hypothesis’ is a considered restatement of the Boas and Sapir take on the linguistic relativity hypothesis. Perhaps the briefest statement of it is ‘Facts are unlike to speakers whose language background provides for unlike formulation of them’ (Whorf 1956: 235 [Whorf 1941a]). The definitive statement is from ‘Science and linguistics’, written for non-linguists.

[T]he background linguistic system (in other words the grammar) of each language is not merely a reproducing instrument for voicing ideas but rather is itself the shaper of ideas, the program and guide for the individual’s mental activity, for his analysis of impressions, for his synthesis of his mental stock in trade. Formulation of ideas is not an independent process, strictly rational in the old sense, but is part of a particular grammar, and differs, from slightly to greatly, between different grammars. We dissect nature along lines laid down by our native languages. The categories and types that we isolate from the world of phenomena we do not find there because they stare every observer in the face; on the contrary, the world is presented in a kaleidoscopic flux of impressions which has to be organized by our minds – this means largely by the linguistic systems in our minds. We cut nature up, organize it into concepts, and ascribe significances as we do, largely because we are parties to an agreement to organize it in this way – an agreement that holds throughout our speech community and is codified in the patterns of our language. The agreement is, of course, an implicit and unstated one, but its terms are absolutely obligatory; we cannot talk at all except by subscribing to the organization and classification of data which the agreement decrees.

[…] We are thus introduced to a new principle of relativity, which holds that all observers are not led by the same physical evidence to the same picture of the universe, unless their linguistic backgrounds are similar. Or can in some way be calibrated. (Whorf 1956: 212–14 [Whorf 1940b])

It is generally agreed by all but the most bigoted that a language necessarily requires us to pay attention to certain aspects of phenomena. For instance, English forces its speakers to pay attention to definiteness and countability of objects, but doesn’t force us to identify the relative position or location of an object; other languages are different in these respects. Perhaps Whorf was overstating the case in saying ‘we cannot talk at all except by subscribing to the organization and classification of data which [the grammar of the language] decrees’; but we cannot speak grammatically and felicitously unless we do so comply. As confirmed throughout the Western Classical Tradition in linguistics, an individual can only properly communicate when abiding (for the most part) by the
grammatical rules and conventions for language usage in their community. And note the last two sentences quoted above p. 246: Whorf is claiming that people from different language backgrounds can ‘calibrate’ their pictures of the universe. This explains why Whorf could be confident he understood Hopi, Shawnee, and Nootka well enough to explicate the meanings of expressions within those languages. Whorf did not deem that all conceptual activity is linguistically determined. Those who claim that Whorf believed language determines thought should take heed of the following:

The statement that “thinking is a matter of LANGUAGE” is an incorrect generalization of the more nearly correct idea that “thinking is a matter of different tongues.” (Whorf 1956: 239 [Whorf 1941a])

This clearly allows for an individual to accommodate different ways of thinking by learning different languages and the world-views of their speakers (so far as this is possible). It is not even necessary to speak the other person’s language, simply to know about its structure (Whorf 1956: 263 [Whorf 1942]) – a view which Black 1959: 235f rejects as special pleading from the theory’s own promulgator, but which can alternatively be interpreted as evidence that Whorf himself believed in only a weak form of the ‘Whorfian hypothesis’.

A weak version of the ‘Whorfian hypothesis’ is that a language directs its speakers toward certain aspects of perceived phenomena – but, because perception is independent of language, other aspects of phenomena can be commented upon, if desired, by circumlocution, or by the novel use of a language expression. A speaker may use an unusual classification (ranking on a scale between dead metaphor and innovation) to get some particular point across. For example, tall people can be classified by the “long” classifier instead of the “people” classifier in some Bantu languages and in the Mayan language Yucatec. This suggests that the basis for classification is the characteristic perceived or believed to be salient in the referent (the figure against the (back)ground).

Any study of colour terms across languages shows that people name colours according to the conventions of their language. Colour naming is systematic, governed by a combination of neurophysiological response to the sense data (Kay and McDaniel 1978) and choice of what to focus on within the colour spectrum. Rosch 1973 showed that the Dani (Papuan, Irian Jaya), who have two basic colour terms, can readily distinguish and refer to all the colours that have distinct names in English – but their language doesn’t make it so easy for them as it is for English speakers. The way they do it is to compare the colour to something in the environment e.g. the colour of mud. The presumption is that the Dani speech community has not hitherto had any great need to make frequent reference to the same number of colours as the English speech community. The conclusion to be drawn is that, although the sensory data in the colour spectrum is the same for all human beings, languages name parts of the field differently. Western Dani laambu divides the spectrum in half. Its differential value (see Chapter 11) is very different from English yellow, even though laambu is a possible translation for English yellow. The value of yellow is only one-eleventh of the colour spectrum: thus, laambu implies not-mili “not cool-dark”, whereas yellow implies “not-white, not-red, not-green, not-blue, not-black, not-brown, not-pink, not-
purple, not-orange, not-grey".\(^{18}\) On a strong version of the ‘Whorfian hypothesis’, the Dani would be unable to see all the hues that exist for us; but that is simply not the case. They can not only see but also refer to all the colours that an English speaker can refer to. It might be countered that Whorf was concerned with the concepts people habitually use in interpreting their experience and not the potential modes of expression open to them. This of course is exactly because he never postulated the strong version of the ‘Whorfian hypothesis’.

Whorf wrote (as quoted previously)

users of markedly different grammars are pointed by the grammars toward different types of observations and different evaluations of externally similar acts of observation, and hence are not equivalent as observers but must arrive at somewhat different views of the world. (Whorf 1956: 221)

By ‘externally similar acts of observation’ he meant “what (external to the observer) is observed”, leaving “what (internal to the observer) the observer conceives of as being perceived” to be elaborated under consideration of the observers with markedly different grammars and their views of the world. In Whorf’s view, the perception and conception will be different for two people using markedly different grammars; in fact, this is the very crux of the Whorfian hypothesis. Given this interpretation there is an enormous amount of evidence consistent with Whorf’s view. Essentially, no two people will necessarily see the “same thing” in the same way, and the wider their psycho-social divergence, the more likely it is that their conceptions and consequently their perceptions\(^{19}\) will diverge. Loftus 1979 showed conclusively that eyewitnesses typically differ in reporting an event that they have seen (so we must presume they have ‘somewhat different views of the world’). Tannen 1990 has popularized the view that misunderstanding between men and women arises because cultural and lectal differences between the genders lead them to perceive language and behaviour and events differently. Given that there are different views of the world within a single language community, a fortiori they exist between different language communities; which brings us right back to Whorf’s concern with the degree to which the structure of one’s language contributes to one’s view of the world.

**From linguistic relativity to cognitive grammar**

Humboldt’s comparative studies of unrelated languages led him to extend traditional ideas about language and thought to create the hypothesis that came to be known as ‘linguistic relativity’. Whorf went beyond Boas and Sapir by demonstrating how the relationship between language and thought can be investigated. He argued that covert patterns in language are more significant than overt ones because people are unaware of them. For Whorf, the conceptual systematization of data is what constitutes a science. Curiously, what we have been calling – using Whorf’s own phrase – ‘linguistic relativity’, namely ‘the

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\(^{18}\) This assumes these colour terms are ‘basic’ in the sense of Berlin and Kay 1969, which is not uncontroversial; see MacLaury 1997.

\(^{19}\) Perception is the categorizing of sensory data according to both biological and cultural criteria that involves conceptualization.
study of the relation of habitual thought and behavior to language patterns studied successively and contrastingly in culturally different linguistic communities’, Whorf gives as the definition of psycholinguistics in a 1939 letter to Leslie Spier (Penny Lee 1996: 2). This surely shows the influence on his thinking of gestalt psychology and is a sharp reminder that linguistic relativity is as much a topic for psycholinguistics and cognitive linguistics as for anthropological linguistics.

Leonard Bloomfield was not untouched by the linguistic relativity favoured by his colleague Sapir and their acquaintance Whorf.

[A] good deal of what passes for “logic” or “metaphysics” is merely an incompetent restating of the chief categories of the philosopher’s language. (Bloomfield 1933: 270)

Whorf was not the only person to be influenced by Sapir. Dorothy Demetracopolou Lee from Pomona College in California was obviously describing linguistic relativity when she wrote the following in ‘Conceptual implications of an Indian language’, though she makes no reference to Sapir (or anyone else).

It has been said that a language will delineate and limit the logical concepts of the individual who speaks it. Conversely, a language is an organ for the expression of thought, of concepts and principles of classification. True enough, the thought of the individual must run along its grooves; but these grooves, themselves, are a heritage from individuals who laid them down in an unconscious effort to express their attitude toward the world. Grammar contains in crystallized form the accumulated and accumulating experience, the Weltanschaung of a people. (Dorothy Lee 1938: 89)

Her paper concludes

Whether [the Wintu] invented or used material at hand, they have integrated a number of discrete grammatical phenomena into one consistent morphological system, to express their fundamental categories: subjectivity versus objectivity, knowledge versus belief, freedom versus natural necessity. (ibid. 102)

Sadly, Whorf did not solve the problem of how to identify concepts except through language or the observed responses of individuals. For an example of the latter, MacLaury 1997 describes the investigation of colour terms in Mesoamerica: a researcher took 330 randomly ordered Munsell colour chips and asked a consultant to identify the best example (or focus) for each colour name in their language. The consultant was next asked to place a rice grain on every chip a name could apply to; then to repeat that process over and over until it was impossible to do any more. This results in a ranked sequence of mappings. For example, where two colour names, say R and Y, are more or less co-extensive (i.e. either term is used for almost the same set of chips), mapping of R usually begins from focal red (because of red’s primacy), and yellows will be mapped on a second or subsequent attempt. Mapping of Y begins in focal yellow, and reds will be mapped in subsequent trials. This seems as objective a method as any for discovering the denotation of colour terms in different communities, but it hardly reveals a world-view. And it is difficult to see how any experimental method can do more than evince fragmentary evidence for the link between language and conception. From the 1950s to the 1980s there was a lot of rather inconclusive research within the fields of anthropological linguistics and comparative psycholinguistics.
into what Harry Hoijer dubbed the ‘Sapir-Whorf hypothesis’ (Hoijer 1954). This research is critically summarized in Lucy 1992b.

Linguistic relativity has frequently been dismissed as ‘outlandish’ (to use the term in Pinker 1994: 63). The causes were several. First, Bloomfieldian linguistics dismissed the study of meaning as unscientific and then Chomsky steadfastly ignored it (see Chapter 12). By contrast, meaning was central for both Sapir and Whorf. Furthermore, for them, semantics is socio-cognitive – which was also unfashionable during the hegemony of autonomous syntax.

The very essence of linguistics is the quest for meaning, and, as the science refines its procedure, it inevitably becomes, as a matter of this quest, more psychological and cultural, while retaining that almost mathematical precision of statement, which it gets from the highly systematic nature of the linguistic realm of fact. (‘A linguistic consideration of thinking in primitive communities’; Whorf 1956: 79)

Second, while Lucy 1992b: 25 writes ‘despite his “amateur” status, Whorf’s work in linguistics was and still is recognized as being of superb professional quality by linguists’, there is undoubtedly a prejudice, particularly amongst syntactically focused theoretical linguists, against Whorf’s amateur status. Third, there was Whorf’s adoption by the ‘general semantics’ movement led by Alfred Korzybski (1879–1950). ‘General semantics’ has a mission to educate people against the dangers of being bamboozled by propaganda, euphemism, gobbledygook, and even ordinary everyday language. In part, the movement was a response to the affective and all too effective jargon of twentieth century European totalitarianism (both fascism and communism) and of McCarthyism in the United States. ‘General semantics’ was (and is) supposed to have therapeutic value. ‘In general semantics’, wrote Korzybski 1958: xlvii, ‘we utilize what I call “neuro-semantic relaxation”, which, as attested by physicians, usually brings about “normal” blood pressure – but no attestations are in fact supplied. The heir to semantics-as-therapy is Neuro-Linguistic Programming. This is not the place to discuss ‘general semantics’ (see Allan 2006c), suffice to say that, with good reason, it is not taken seriously by professional linguists. Bolinger 1980: vii blames ‘general semantics’ for giving rise to the jibe That’s just semantics, in which ‘semantics’ has the sense “pettifogging”. Unfortunately, Whorf held the view that knowledge of the grammars and characteristics of other languages and their users not only leads to enlightenment but is therapeutic:

Such understandings have even a therapeutic value. Many neuroses are simply the compulsive working over and over of word systems, from which the patient can be freed by showing him the process and the pattern. (Whorf 1956: 269 [Whorf 1942])

This could have been written by Korzybski, who was a Whorfian:

We do not realize what tremendous power the structure of an habitual language has. It is not an exaggeration to say that it enslaves us through the mechanism of [semantic reaction] and that the structure which a language exhibits, and impresses upon us unconsciously, is automatically projected upon the world around us. (Korzybski 1958: 90)

The Foreword to Whorf 1956 is written by ‘general semantics’ buff Stuart Chase (see Chase 1938; 1954). Although Whorf allegedly disavowed any connection with ‘general semantics’, his reputation is stained by the association.
Since the 1990s linguistic relativity has been revalued (see Cooper and Spolsky (eds) 1991; Lucy 1992a; b; Gumperz and Levinson (eds) 1996; Lee 1996; Nuyts and Pederson (eds) 1997; Niemeier and Dirven (eds) 2000; Pütz and Verspoor (eds) 2000). Gestalt psychology and cultural studies are no longer rejected among professional linguists. The methods of ‘general semantics’ may be disapproved, but therapeutic language propagandizing proceeds apace alongside dire warnings from proponents of critical discourse analysis. The intention of advertisers and propagandists of whatever cause, and also of crusaders against discriminatory language, is that by changing the language used, thinking and behaviour will be changed: substitute chairperson for chairman and police officer for policeman and we recognize equal access for women and men to these jobs. There is a lot of experimental evidence that generic masculines (as in Every schoolchild should do his homework regularly if he wants to do well in life) do in fact favour male reference and male images over females – for both male and female language users; this bias disappears when gender-neutral terms are used. Unbiased generics also improve females’ recall of texts they have read. So there is experimental evidence that language shapes thinking.

From among dozens, a few recent examples of Whorfian analysis can be given. Lucy 1992a compared countability recognition and usage in English and Yucatec using pictures and groups of objects. He found that ‘the pattern of mention for each group followed the general pattern of frequency for plural marking in the languages’ (ibid. 157). To oversimplify: it is obligatory to mark plurals in English, but not in Yucatec; so ‘English speakers were more likely to mention number (in one way or another) than were Yucatec speakers’ (ibid. 156). Consequently, ‘it is safe to conclude that there is good preliminary evidence that diverse language forms bear some relationship to characteristic cognitive responses in speakers’ (ibid. 148). Slobin demonstrates that by the age of three or four children are differentially influenced by the obligatory grammatical categories of their language when verbalizing events depicted in a series of pictures. ‘I am convinced […] that the events of this little picture book are experienced differently by speakers of different languages – in the process of making a verbalized story out of them’ (Slobin 1996: 88, his bolding).

Our data – across a number of story episodes and languages – suggest that categories that are not grammaticized in the native language are generally ignored, whereas those that are grammaticized are all expressed by children as young as three. (ibid. 83)

In sum, we can only talk and understand one another in terms of a particular language. The language or languages we learn in childhood are not neutral coding systems of an objective reality. Rather, each one is a subjective orientation to the world of human experience, and this orientation affects the ways in which we think while we are speaking. (ibid. 91 [sic])

20. There is an excellent comprehensive survey in Henley 1989. She wrote: ‘in no referential studies known to me has the masculine been found to reference females as readily as males’ p.65 [her italics].

21. See also Slobin 2000.
Bowerman compared the acquisition of a variety of spatial configurations among Korean and English children; she concludes:

[C]hildren are not simply mapping morphemes directly onto non-linguistic contexts of containment, support, vertical motion, and the like. From the beginning, they are paying close attention to the way adults use spatial words: across contexts the word serves as a “lure to cognition” [...] which draw[s] the learner’s attention to properties the referents share. […] It is striking how quickly and easily children adopted language-specific principles of semantic categorization. There was little evidence that they had strong prelinguistic biases for classifying space differently from the way introduced by their language. (Bowerman 1996: 168, 169f)

Levinson writes of reports of spatial orientation in an Australian Aboriginal language being incommensurate with reports of spatial orientation in English.

Instead of notions like ‘in front of,’ ‘behind,’ ‘to the left of,’ ‘opposite,’ etc., which concepts are uncoded in the language, Guugu Yimithirr speakers must specify locations as (in rough English gloss) ‘to the North of,’ ‘to the South of,’ ‘to the East of,’ etc. The system is used at every level of scale, from millimetres to miles, for there is (effectively) no other system available in the language; there is simply no analogue of the Indo-European prepositional concepts. […] Thus Guugu Yimithirr speakers appear to think about space in a fundamentally different way than we do. (Levinson 1996: 180, 181)

As he elsewhere points out,

There’s no simple conversion algorithm, like 1 foot = 30 centimetres, relating [say] ‘left’ and ‘north’. The notion ‘the boy is north of the tree’ crucially involves ancillary information: the bearings of the boy and the tree. In the same way, ‘the boy is left of the tree’ encodes ancillary information missing from the cardinal-direction conceptualization of the scene – namely the viewpoint of the observer and his orientation with regard to boy and tree. From one coding of the scene, you cannot reconstruct the other. (Levinson 1997: 33)

In short, Guugu Yimithirr and English require speakers to think (i.e. (re)construct experience) in different ways. Wally Chafe was surprised when a Seneca (Northern Iroquoian) man talked about cutting off the notches when speaking of a serration (Chafe 2000: 114). Now notches are V-shaped cuts, which can’t be sawn off; whereas the Seneca ‘translation’ o:nóʔsgæ:ʔ (deriving from the verb “stand upright”) refers to the peaks of the serrations, which can be cut off. Obviously, ‘the same’ referent is conceived differently, as one person might see a black vase on a white ground in Figure 10.1.A and another might see two white faces on a black ground. Chafe’s example is something of an echo of Whorf’s contrast between English and Shawnee conceptions of cleaning a gun. Whorf 1956: 208 [Whorf 1940b] wrote, ‘Languages dissect nature differently. The different isolates of meaning (thoughts) used by English and Shawnee in reporting the same experience, that of cleaning the gun by running the ramrod through it’, are: the three isolates clean with ramrod from experience or nature used in English ‘I clean it (gun) with the ramrod.’ The three corresponding isolates used in Shawnee are pēkw ālak h [dry.space interior.of.hole by.motion.of.tool/instrument] to say ‘nipēkwālakha’, meaning “I [ni-] clean it [-a] with the ramrod.” Are these differences comparable with the different aspects of the tool captured in the morphology of French tournevis “turn.screw”, the English screwdriver (driving in the
Language and thought: from Epicurus until after Whorf

screw), and the German Schraubenzieher “screws.drawer” (unscrewing)? I doubt that speakers of these three languages ‘feel’ differently about screwdrivers. This is not a systematic distinction across the three languages, but a unique instance. Other differences discussed above are systematic, categorial differences, and these are what linguistic relativity is all about.

For Sapir, Whorf, and gestalt psychologists, humans are pattern-processing beings. This is a trait taken up by the connectionists in the 1980s and then by cognitive linguistics. Cognitive linguistics holds that language is constrained and informed by the relations that (a) human beings perceive in nature – particularly in relation to themselves; (b) experience in the world they inhabit; and/or (c) conceive of in abstract and metaphysical domains. This obviously links back to the tradition of linguistic relativity and the longer tradition hypothesizing the relations of language to thought.

Let me briefly sum up this chapter. People have speculated that language arose through emotively expressive cries, by virtue of human rationality, and from our need to interact socially and maintain advantageous social relations with our fellows. But whichever of these speculations is correct, they all required the biological development for the production of language in speech and its management in the brain. Humboldt seems to have conceived the idea that the interdependence of language and thought was affected by the cultural environment of language speakers (itself responsive to the physical environment) such that different languages reflect the different world-views of their language communities. Whereas there is evidence that one’s language necessarily influences the way entities in the (physical and metaphysical) world are spoken of, and this must reflect cognitive processes, it would seem that these different ways of thinking in different language communities have little effect except on the language used. In the words of Slobin 1996: 91, it ‘affects the ways in which we think while we are speaking’ but is by no means a mental strait-jacket: the human mind can and does go anywhere.

22. The example is from Kay 1996: 97.
Chapter 11  Saussurean and functionalist linguistics: the study of language as human communication

Saussure and functionalism

Saussurean and functionalist linguistics start from the assumption that the primary function of human language is social interactive communication. Language is not merely a vehicle for thought; nor is it independent of other human behaviour. Functionalism looks to the functions of language within society as the motivation for language structure and the motivation for the meaningfulness of linguistic elements. We begin by examining the work of Ferdinand de Saussure and then sketch Michael Halliday’s Systemic Functional Grammar, which has many post-Saussurean traits. The chapter finishes with a brief review of Van Valin’s Role and Reference Grammar, which is strongly functionalist while being less obviously Saussurean.

Saussurean linguistics

Twentieth century European linguistics was greatly influenced by the work of Ferdinand de Saussure (1857–1913). In Chapter 9 we reviewed the only book he ever published (aged twenty-one), his Mémoire on the vowel system of Proto-Indo-European (Saussure 1879). Saussure was introduced to linguistic palaeontology by a family friend, Adolphe Pictet for whom, in 1872 aged fourteen (Saussure 1960: 17), he wrote a remarkably mature (if wrong-headed) essay claiming that Indo-European roots have a Consonant-Vowel-Consonant structure (Morpurgo Davies 2004: 14). Saussure studied among the neogrammarians in Leipzig and received his doctorate from there in 1881. But whereas the neogrammarians were rigidly inductive, the Mémoire – as we saw – is based on abstract morphophonemic analysis in which the postulated abstract elements are defined on structural function rather than phonetic shape. Emphasis on the function of an element within a linguistic system remained characteristic of Saussurean linguistics throughout his life. Saussure’s approach to linguistics in the Mémoire is more like Chomsky’s in the later twentieth century than like that of the neogrammarians before him or the Bloomfieldians of the first half of the twentieth century (see Chapter 12). But Saussure never lost sight of the social and cognitive aspects (domaines psychiques) of language as a system for communication among people; and in that respect he has more in common with functionalists than with Chomsky. The emphasis on language as a structured system makes it appropriate to label Saussure a structuralist, although the term was not in use during his lifetime.

1. Pictet was author of Les Origines Indo-européennes, ou, Les Aryas Primitifs: Essai de Paléontologie Linguistique (Pictet 1859-63).
In 1880 Saussure went to Paris, where he taught Gothic, Old High German, Sanskrit, Latin, Farsi, and Lithuanian. Returning to Switzerland in 1891, he became Professor of Comparative Linguistics at Geneva University. There he lectured on historical and comparative Indo-European linguistics and famously gave three courses in general linguistics in the sessions 1906–7, 1908–9, and 1910–11. Saussure mostly destroyed his notes as he went along, but after his death in 1913 Charles Bally (1865–1947) and Charles Albert Sechehaye (1870–1946), assisted by Albert Riedlinger (1883–1978), collated what remained of Saussure’s notes and those of several members of his audience under the title *Cours de Linguistique Générale* (Saussure 1916). References here are to the third edition of *CLG*, Saussure 1931; *CLG* is known in English as *A Course in General Linguistics* (Saussure 1974). Because of its construction, and because the lecture notes were taken from three different periods during which Saussure developed his ideas, the book is not a definitive account of his theories about language. *CLG* has been augmented by the publication of a handful of Saussure’s own jottings discovered in 1996 (Saussure 2002), and additional notes from members of his audience, e.g. in Godel 1957 and Engler 1968-74. Nevertheless it is on *CLG* that Saussure’s reputation rests.

Saussure was familiar with and sympathetic towards the work of contemporary neurologists and psychologists Paul Broca (1824–80), Carl Wernicke (1848–1904), and Carl Jung (1875–1961), as well as sociologists Émile Durkheim (1858–1917) and Max Weber (1864–1920). There are traces of these sympathies in *CLG*.

*CLG* is permeated by Saussure’s belief that linguistics is just a part of ‘semiology’, ‘a science that studies the life of signs within society [au sein de la vie sociale]’ (Saussure 1931: 33 [16]). Semiology, better known as *semiotics* (a term first used by John Locke3), studies how signs make meaning. Crucial to linguistics is the double articulation, a dyadic relation between signifier (signifiant) and signified (signifié) – which goes back to the Stoic distinction between sēmainon and sēmainomenon (see Chapter 4, p. 60f). Saussure very probably took the idea directly from *La Vie du Langage* (Whitney 1875a, a French translation of *The Life and Growth of Language*, Whitney 1875b). We shall see other Saussurean borrowings from ‘The American Whitney, whom I revere’ (Godel 1957: 51) and who is mentioned three times in *CLG*. Saussure wrote:

Signs and their relations are what linguistics studies; you could call them the concrete entities in this science. [...] The linguistic entity only exists through the association of the signifier with what is signified [...] if one includes only one of these, the linguistic entity evaporates; instead of a concrete object, one is faced with a mere abstraction. (Saussure 1931: 144 [102])

By ‘concrete’ Saussure means psychologically real to ordinary speakers (Joseph 2004: 65).

As a contrast, parts of speech such as nouns, adjectives, etc. exist as ‘abstract entities’; that is, constructs of the linguistic theory that nonetheless have an empirical basis:

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2. The translations are mine, but numbers in square brackets identify the relevant page in Saussure 1974, in this instance p.16.
3. ‘σημιωτικὴ, or the Doctrine of Signs; the most usual whereof being Words’ (Locke 1700: IV.xxi.4 [sic]).
The important thing is that, in the last resort, abstract entities derive from concrete entities. No grammatical abstraction is possible without being based on a series of underlying material elements, and in the end one always has to come back to these. (Saussure 1931: 190 [138])

Saussure 1931: 100f recognized the arbitrariness of the sign. He could have been taking his cue from Plato in *Letter VII* or Aristotle in *On Interpretation*, but in fact he mentions Whitney (Saussure 1931: 110):

> [E]very word handed down in every human language is an arbitrary and conventional sign: arbitrary, because any one of the thousand other words current among men, or of the tens of thousands which might be fabricated, could have been equally well learned and applied to this particular purpose; conventional, because the reason for the use of this rather than another lies solely in the fact that it is already used in the community to which the speaker belongs. (Whitney 1875b: 19)

Saussure also recognized degrees of arbitrariness. In this he was not thinking of the aspects of sound symbolism to be found in all languages, but of morphological analogy such as is found in the names for numerals in French and, as it happens, English. For instance, French *vingt* "20" is ‘unmotivated’ (as is English *eleven*) but *dix-neuf* [10+9] "19" is not (nor English *nineteen* [9+10]); nor are French *soixante-dix* [60+10] “70” (English *seventy* [7*10]), French *quatre-vingts* [4*20] “80” (English *eighty* [8*10]), and 200 in both languages [2*100] *deux cents, two hundred*. Derivational morphemes like English *–er*, as in *farmer, trader, and carpenter*, are relatively motivated.

The notion of relative motivation implies attention to both syntagmatic and associative (paradigmatic\(^4\)) relations. Speech is a string of linear segments; syntagmatic relations are those which hold ‘horizontally’ along the chain of speech (*chaine parlée*), between constituents in a string, e.g. between *dix* and *neuf* in *dix-neuf*, between *farm* and *–er* in *farmer* (but also between *Pavarotti, sing* and *–s* in *Pavaroti sings*). Associative relations are ‘vertical’, i.e. relations between linguistic elements that can operate at one constituent place in the syntagm (see Table 11.1). Analysis of language structure is made in terms of the relationship of segments along the string and the replacing of individual segments by other members of the same class of segment. The place of each constituent in the language system is determined by comparison and contrast with other constituents. For instance, *dix-six* and *I sings* are not acceptable syntagms, but *vingt-six* and *Pavaroti sings* are.

### Table 11.1. Associative and syntagmatic relations.

<table>
<thead>
<tr>
<th>ASSOCIATIVE</th>
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<th>N</th>
<th>T</th>
<th>A</th>
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<th>I</th>
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<td>dix</td>
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<td>You sing Ø</td>
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<td>neuf</td>
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<td></td>
<td>Pavarotti sing s</td>
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</tr>
</tbody>
</table>

Saussure’s associative and syntagmatic relations were very possibly conceived under influence from Hermann Paul’s (1846–1921) *stoffliche und formale Gruppen* “material and formal groups” (*Prinzipien der Sprachgeschichte* Paul 1880 §75 [Principles of the History

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4. It was Hjelmslev 1938: 140 who introduced *paradigmatic* as an alternative to the (for him) psychologically tainted *associative*. 
of Language Paul 1891 §131), Paul’s Proportionengruppen “proportion groups” and syntaktischen Verbindungen “syntactic connections” (ibid. §76 [§§137, 140]) and his discussion of kombinatorische Tätigkeit “combinatory activity” (ibid. §78 [§143]). Saussure’s associative and syntagmatic relations were carried over into American descriptivist linguistics as ‘constituent analysis’, ‘immediate constituent analysis’, ‘slot and filler analysis’, ‘distributional analysis’, etc. They apply to phonological, morphological, and syntactic data.

Following the lead of Henry Sweet (e.g. Sweet 1899), and in concert with Sechehaye 1908, Saussure champions the priority of spoken over written language; it is one of the ways in which he leads linguistics out of the nineteenth century. For him the signifier is not pure physical phonological form but an ‘acoustic/auditory image [image acoustique]’.

Many phonologists concentrate exclusively on the act of phonation, i.e. the production of sounds by the organs of speech (larynx, mouth, etc), and ignore the auditory side. Such a method is incorrect: not only is the impression on the ear given as directly as the image of the vocal organs in action [l’image motrice des organes], but moreover it is the natural basis for any linguistic theory. (Saussure 1931: 63 [38])

Saussure’s view of the acoustic/auditory image was probably influenced by Wernicke, who said that it activates the ‘unconscious monitoring of the imagery of the spoken word’ (Wernicke 1977: 107, quoted by Thibault 1997: 147 [his italics]). We may compare Saussure’s auditory image to the cognitive (psychological) counterparts of a phoneme or the combination of phonemes into a morpheme: it is an abstract categorization. He excluded phonetics from the main concern of linguistics because ‘phonetics is foreign to the essential nature of the language system’ (le phénomène phonétique [le son] est étranger à l’essence de la langue, Saussure 1957: 27f) and the physiology of speech, the mechanism for producing sound, is not part of linguistics (il y a une étude qui ne rentre pas dans la linguistique: c’est la physiologie de la parole, le manière dont se produisent les sons, Saussure 1957: 30). Like the signifier, ‘the signified’ – counterpart to the Stoic sēmainomenon – is never a real-world object. It is a cognitive representation (concept) of the referent, as we may judge from Saussure’s description of la langue:

Language [la langue …] is a system of signs where the most essential thing is the union of sense (meaning) with the acoustic/auditory image, and where the two parts of the sign [signifier and signified] are both psychological entities [sont également psychiques].

(Saussure 1931: 32 [15])

If both signifier and signified are psychological categories, how is the signifier of signified \(X\) different from the signifier of signified \(Y\)? The answer lies in the differential value [valeur] of each within the system of langue: ‘each signifier and signified consists of nothing but difference from every other signifier and signified in the system’ (Joseph 2004: 60). A differential value is defined negatively within a system. To reintroduce an example used in Chapter 10, choosing any one basic colour term in the West Papuan language Dani, which has a two term system, mili (green-blue-black) and laambu (white-red-yellow), is to disfavour the other term: thus the differential value of laambu is “not-mili”. English has eleven basic colour terms, so yellow has the differential value “not-white, not-red, not-green, not-blue, not-black, not-brown, not-pink, not-purple, not-orange, not-grey”. So the
The Western Classical Tradition in Linguistics

differential value of the Dani and English ‘translation equivalents’ is not in fact equivalent across the two languages. Although the notion of differential value is precise in a closed term system like the semantic field of colour or kinship, in an open semantic field it is nebulous if not useless: consider the differential value of *swim* in the field of Movement (“not-run, not-climb, not-fly, … *ad infinitum*”) and *tuna* in the field of Fish (“not-perch, not-marlin, …, etc.”). Koerner 1973: 90f points out that *valeur* is another borrowing from Whitney 1875a: 79, 175; but although Saussure borrowed the term, he extended and defined the concept, because Whitney uses it in a looser sense – e.g. speaking of the plural morpheme as having the ‘value’ of turning a singular into a plural (Whitney 1875b: 214, the English version).

The linguistic sign, a morpheme or other listeme, is arbitrary in the sense that there is no rational correlation between its content and its form. A large part of its significance derives from it being a constituent in the language system. Here, Saussure’s celebrated analogy of the chess game is relevant. Chess is a game for a certain number of pieces having given signification conveyed by terms like *pawn, bishop, king*, etc. (cf. the meanings of different listemes) and it is governed by well-defined rules (cf. grammar). However, it does not matter what material the chess set is made of, nor the shape of the pieces (cf. the form that words have; the fact that they differ in different languages). What matters is the signification of each one, the value of its place in the system relative to all the other pieces, and the requirement that players abide by the rules of the game.

Saussure is famous for his distinction between *langue*, a system of signs (which I will therefore render into English as “language system”), and *parole* “speech”, which together constitute *langage* “language”. Once again there is influence from elsewhere, this time from Hermann Paul’s *Prinzipien*. Paul distinguished between the pair *Sprachusus* “linguistic usage”, an abstraction over idiolects (Paul 1880 §22 [Paul 1891 §§32, 35]) and *individuelle Sprechätigkeit* “individual linguistic activity” (*ibid.* §17 [§22]) and also the pair *Gemeinsprache* “common-language” “the collection of current usages […] an ideal norm prescribing rules for speech” (*ibid.* §286 [§724]) and *individuelle Sprachen* “idiolects” (§293 [§741]). These pairs can be reasonably translated into Saussure’s *langue* and *parole* (respectively).

The study of language [*langage*] has two parts: one, the most important, has for its object the language system [*langue*] which is fundamentally social and independent of individual speakers; its study is exclusively psychological. The other is secondary; the focus of *la parole* is the individual speaker’s part in language; it consists of speaking [*phonation*] and is psychophysical. (Saussure 1931: 37 [18])

Taken as a whole, language [*langage*] is complex [*multiforme*] and heterogeneous; straddling several fields simultaneously – physical, physiological, and psychological – it belongs to both

5. The notion of semantic field can be found in Humboldt 1836 and it was later developed by Trier 1931; Porzig 1950; Weisgerber 1950; and Geckeler 1971. See Chapter 13.

6. Listemes are language expressions whose meaning is not determinable from the meanings (if any) of their constituent forms and which, therefore, a language user must memorize as a combination of form and meaning.
the individual and social domains; it cannot be placed within any single category of facts about human beings, because its unity cannot be discerned.

The language system, by contrast, is self-contained and readily open to classification. (Saussure 1931: 25 [9])

Here we have the individual domain of parole contrasted with the social domain of langue. The notion that the language system is characteristically an expression of social interaction among humans, Saussure picked up directly from Whitney 1875b as the fount of a tradition stretching back through Humboldt, Herder, and Locke to Lucretius and Epicurus.7

[The language system [langue]] is at the same time the social outcome of the language faculty [faculté de langage] and necessarily an ensemble of conventions, adopted by the social group to allow for the exercise of this faculty among individuals. (Saussure 1931: 25 [9])

[The language system] is the social part of language [langage], external to the individual who can neither create nor modify it single-handedly; it only exists by virtue of a sort of social contract among the members of its speech community. (Saussure 1931: 31 [14])

This last is a somewhat similar idea to that of Paul 1880 that language changes cumulatively through everyday variations in speech as individuals interact with each other. The notion of a tacit ‘social contract’ is a version of the more refined notion of ‘convention’ found in Lewis 1969, described earlier as a regularity of behaviour to which, in a given situation, almost everyone within a population conforms and expects almost everyone else to conform.

The language system [langue] is a data store created by members of the same speech community through the practice of speaking [parole]; a grammatical system potentially existing within each brain, or more exactly in the brains of the individuals as a group, because the language system is incomplete in any one speaker, and only exists in its entirety [parfaitement] within the group as a whole [dans la masse]. (Saussure 1931: 30 [13f])

Given Saussure’s familiarity with the work of Broca and Wernicke, he was most likely thinking in neurological terms when using the term cerveaux “brains” rather than using it as a metonym for the mind.8 So where Chomsky would make grammar a study of the idealized speaker-hearer’s knowledge of the language, which is an abstraction to a superhuman individual, Saussure makes grammar the study of langue ‘dans les cerveaux d’un ensemble d’individus’; that is, the knowledge of the language system in the brains of individuals who make up the language community. However, he contends:

The language system [langue] is no less concrete in character than speech [parole], which is a great advantage for studying it. Linguistic signs are basically psychological and are not abstractions; associations [associations] that bear the stamp of collective consent and which taken together constitute the language system are real entities that have their seat in the brain. Moreover signs of the language system can thus be said to be tangible; they can be captured as

7. Saussure’s references to collectivité, conscience collective, usage/esprit/consentement collectif could have been influenced by Durkheim 1895 who referred to ‘conscience collective’. But similar terms are also found in Sechehay 1908.

8. As in Zola’s Son père tout cerveau, sa mère toute foi “His father all intellect, his mother all spirituality” (Zola 1894: 290).
conventional written symbols, whilst it would be impossible to photograph acts of speaking in exhaustive detail.\(^9\) (Saussure 1931: 32 [15])

Within langue a concept is made concrete in an acoustic image; within parole a concept is made concrete by an act of signifying. I am not convinced that langue is not an abstraction just because the conventional signs within the language system are tangible. Paul 1880 §286 says that Gemeinsprache is an abstraction: ‘The common-language is naturally an abstraction, and one of the first order. It is not a complex of real facts, real forces, but merely an ideal norm prescribing rules for speech’ (Paul 1891 §724). According to Joseph 2000a: 42, Saussure ‘says repeatedly that langue is not an abstraction […]'. Abstractions were not in vogue in positivistic turn-of-the-century Europe.’ But this seems contradicted by Saussure 1931: 190, quoted above p. 256. Roy Harris 1987: 136–8 suggests that Saussure’s thinking on abstract entities is confused. Whatever euphemism Saussure might have preferred, his notion of langue as a social fact with a collective life (Joseph 2000a: 41) and something ‘qui est sociale dans son essence et indépendante de l’individu’ (Saussure 1931: 37) is what I would call an abstract entity. The language system is emic – an analyst’s theoretical construct; the signs are etic and have physical reality as manifestations of the language system. In other words, langue is embodied in parole (Engler 2004: 57).

The language system [la langue] is not a creation of the speaker, it is something that the individual passively assimilates. […] Speech [parole] is, by contrast, an act of individual will and intellect. (Saussure 1931: 30 [14])

The relationship between langue and parole is comparable with that of chicken and egg: no one knows how many tens of thousands of years langue has pre-existed as a resource for individual speakers; yet it must have originated from the parole of individual speakers. Parole is the contextually relevant application of langue.

The language system is necessary so that speech can be intelligible and effective; but speech is necessary for the language system to develop and get established. Speech always comes first. […] In short it is speech that gives rise to the language system. […] There is therefore interdependence between langue and parole: the former is simultaneously the instrumental cause and the product of the latter. (Saussure 1931: 37 [18f])

Langue is learned from the parole of others, and it is parole that causes language to evolve and gives rise to langue. Hence they, like chicken and egg, are interdependent.

Another aspect of the interdependence of langue and parole is that changes to the language system arise in the speech of individuals and yet, as Humboldt had noted (Paul 1880 and Bloomfield 1914, too) no individual has the power to change language single-handedly.

Everything diachronic in language stems from speech [parole]. It is in speech that one finds the germ of all language change: every change is launched by a certain number of individuals before entering into common usage. […] There are two distinct events to be found in every innovation: first when it springs forth amongst a few individuals; second when it becomes established in the language system, outwardly identical, but now adopted by the language community. (Saussure 1931: 138f [98])

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9. The first decade of the twentieth century predates the use of movies and videos for such tasks, of course.
And there we have another reference to the social aspect of language. Language changes only from the point of view of someone for whom it is stable at some point in time. It is often said that Saussure was the first to emerge from nineteenth century comparative philology distinguishing between synchronic and diachronic linguistics; but the distinction was already to be found in Herman Paul’s *Prinzipien der Sprachgeschichte* (Paul 1880) and was independently asserted by Boas 1911 before the publication of CLG in 1916. Koerner 1973: 110 plausibly suggests a parallel between Paul’s *allgemeine Prinzipienwissenschaft* = *deskriptive Grammatik* + *historische Grammatik* (or *Sprachgeschichte*) and Saussure’s *linguistique générale* = *linguistique statique* + *linguistique évolutive*. Paul says (1880 §15 [§13]) that historical grammar is just the study of a sequence of ‘descriptive’ grammars. Saussure suggests much the same in *CLG*: 115–17; he taught that descriptive linguistics should study the state of a language at some particular point in history, which he likened to describing the state of the chessboard at some point within a game of chess, noting that reference to earlier states of the board may be necessary to account for the current state. In the same way, the description of a language at any one time is often enlightened by reference to its history – a position that was disregarded during much of the twentieth century.

Saussure says that language gives structure to thought:

> [O]ur thought is merely an amorphous indistinct mess. […] Without the help of [linguistic] signs [words] we would be unable to clearly and consistently distinguish between two ideas. […] There are no pre-existing ideas, and nothing is distinctive without the intercession of language. […] The characteristic role of language […] is to mediate between thought and sound. […] Chaotic by nature, thought is forced to become precise as it is resolved into its component parts [to be expressed in language]. (Saussure 1931: 155f [111f])

This is at least as strong a position as Leibniz, Humboldt, Hamman, and Herder before him and Sapir and Chomsky afterwards. One can argue that it commits Saussure to the linguistic relativity hypothesis, discussed in Chapter 10; but he never wrote anything to confirm this, perhaps partly because he did not engage with exotic languages.

Saussure was not as innovative as one would expect for someone dubbed the father of modern linguistics (see Chapter 1, p. 9) and whose *CLG* was described by Roman Jakobson 1990: 84f as ‘a point of departure for our discussions of the basic questions of linguistics’ such that ‘[n]o other book of our [twentieth] century has exerted such a vast and profound influence on international linguistics’. Saussure’s greatest innovation was the deduction concerning Proto-Indo-European vowels in his *Mémoire* of 1879. His insistence on the primacy of the spoken language is found earlier in Sweet; the arbitrariness of the sign, the differentiation of signifier from signified, the germ of the concept of *valeur*, and the import of the social aspect of language are all found in Whitney; the notion of associative versus syntagmatic relations and the differentiation of synchronic from diachronic linguistics are found in Paul. Engler 2004: 51 writes, ‘There is no doubt that four of Sechehaye’s […] theses anticipate certain Saussurean theorems’. Certainly, Sechehaye 1908 published several ideas in his *Programme et Méthodes de la Linguistique Théorique* that recur in Saussure’s work; but the difficulty is to determine whether Sechehaye got them from *maître* Saussure to whom his book is dedicated, or Saussure took them from Sechehaye. For instance,
Sechehaye 1908: 1 begins by defining linguistics as ‘the science of language’, more precisely, ‘the scientific theory of states of the language system’ (la science théorique des états du langage organisé; ibid. 109). Linguistics needs to distinguish between studying states of the language (états du langage, which have relevant historical causes) and language change which is brought about by individuals (ibid. 106–8). Spoken language is the data source for linguistic inquiry but is not important in terms of its constituent concrete and fleeting signs; it is the idea behind the sign (? the signified) that the linguist studies (ibid. 120). Sechehaye specifically attributes distinguishing between the sound system of a language and sound change to ‘M. le Prof. F. de Saussure’ (ibid. 128, footnote). Grammar, which is relatively fixed, conventional, and systematic, emerges from collective psychology, whereas individual variations of speech are a function of individual psychology (ibid. 47–54). Grammar (i.e. collective psychology) is an exclusively deductive science (ibid. x, 97) – a rational explanation on the basis of the particular characteristics of the language that pays constant attention to the data (sous le contrôle constant des faits; ibid. 100). Sechehaye also uses the term valeur in a very similar way to Saussure. Of course, Whitney and Paul may well have been sources for both Saussure and Sechehaye.

I am not seeking to belittle Saussure. Dell Hymes has pungently written:

Just as the comparative historical approach has its mythical founder in Sir William Jones, so the structural approach has had its mythical founder in Ferdinand de Saussure. The great respect one must have for both men does not bar inquiry into the actual part they played; in both cases, it was, most dramatically, in the symbolic use made posthumously of each.

(Hymes 1983: 375)

American descriptivist linguistics barely noticed Saussure until after Roulon Wells’ positive account in ‘De Saussure’s system of linguistics’ (Wells 1947), despite a generally favourable review of the second edition of CLG by Bloomfield 1924.

So why is it that Saussurean linguistics was paradigmatic in the sense that for a time it provided model problems and solutions to a community of practitioners (Kuhn 1970: viii)? It was that Saussure brought together in the lectures which gave rise to CLG the various ideas of his illustrious contemporaries and immediate predecessors, fashioning them into what was thought to be a workable theory. Saussure’s insistence that linguistics is an independent science that should study language (langue) as a self-contained structured system came to characterize twentieth century linguistics. His discussion of syntagmatic and associative relations was influential. His explications of the distinction between langue and parole as different manifestations of langage were better articulated that what we find in Hermann Paul. Chomsky’s discussions of ‘competence’ and ‘performance’ (Chomsky 1965) owe much to Saussure (Chomsky 1964a: 10f). Whether Chomsky’s belief that language exists for the service of thought owes any debt to Saussure it is impossible to say. Today Saussure’s semiology is influential in fields outside of linguistics; but his vision of language as a socially shared, psychologically real structured system is shared by today’s functionalists.

10. There is discussion of Thomas Kuhn’s (1922–96) notion of ‘paradigm’ in Chapter 12.
Functionalist linguistics

Functionalist linguistics\(^{11}\) aspires to such tenets as the following, though no single functionalist theory achieves the full set of ideals.

- Functionalist linguistics holds that linguistic structures can only be understood and explained with reference to the semantic and communicative functions of language, whose primary function is to be a vehicle for social interaction among human beings.
- Functionalism presupposes that communication influences, but does not necessarily determine, the forms that language takes.
- Cognitive and socio-cultural factors explain linguistic phenomena.
- Language acquisition is part of general cognitive learning ability.
- Syntax exists for people to combine elements of meaning in a variety of ways; it is semantically and pragmatically motivated.
- The social significance of language makes discourse more relevant to functionalist theorizing than decontextualized sentences.
- Linguistic corpora are a better source for language data than sentences contrived by the analyst in the course of modelling language.
- A functionalist theory should comprehensively model language, incorporating discourse, morphology, phonology, pragmatics, semantics, and syntax.
- A functionalist theory should apply to the complete spectrum of typologically distinct languages.

Saussure undoubtedly held some of the same aims as the functionalists. But, according to André Martinet (1908–99), Saussure could not have been a functionalist because functionalism entails the study of *parole* instead of *langue* (Martinet 1962; 1964; 1973). However, Martinet’s conclusion is incorrect: it is perfectly possible for functional grammar to be an account of *langue* as well as, in part, an account of phenomena that some analysts classify as *parole* (the boundaries between *langue* and *parole* or Chomsky’s ‘competence’ and ‘performance’ are always going to be controversial). Vilém Mathesius (1882–1945) wrote, in 1936, the very Saussurean:

> The relative importance of a linguistic fact within the grammatical system of a given language can be ascertained only from the point of view of the whole system, that is by considering its real function within the system, and may well be set off by a well considered use of foreign comparative material. (Mathesius 1964b: 307)

The reference to ‘the grammatical system of a given language’ is surely Saussure’s *langue*; and Saussurean, too, is requiring the essence of linguistic analysis to depend on the function of linguistic elements within the grammatical system. However, the last clause is pure Prague school – of which Mathesius was a founding member. Members of the Prague Linguistic Circle developed phonological theory, functionalist linguistics, methods of structuralist literary analysis, text linguistics, and semiotics which were publicized through the journal *Travaux du Cercle Linguistique de Prague*. In the article quoted above Mathesius also said:

\(^{11}\) I will refer to *functional grammar* but *functionalist linguistics*. 
If we are to apply analytical comparison with profit, the only way of approach to different languages as strictly comparable systems is the functional point of view, since general needs of expression and communication, common to all mankind, are the only common denominators to which means of expression and communication, varying from language to language, can reasonably be brought. (Mathesius 1964b: 306)

Functionalists believe that, as a check on the naturalness of the descriptive categories, a language can only be analysed effectively in comparison with other languages. Most linguistic categories that are to be found in one language will also be found in others; so when choosing between two models of grammar with equal descriptive power, the model applicable to more than one language is to be preferred. Thus, a functional grammar includes aspects of universal grammar, but for very different reasons from Chomsky’s UG, which, as we saw in Chapter 8, is heir to the rationalist tradition on universal grammar. The functionalists base their universalism on the assumption that because all human communities use language for social interaction, all languages must serve the same kinds of functions. This notion stretches back through the Western Classical Tradition to Epicurus (see Chapter 10). It is an idea that associates culture with language:

[A] study of culture-language correlation is one of the major tasks of linguistics. (Trnka and others 1964: 478 [first published 1958])

Humboldt, Boas, proponents of linguistic relativity, and today’s cognitive linguists would all agree.

Mathesius 1964b: 308 also distinguishes the utterance, constituting (part of) a ‘communicative act of speech’, from sentence, which is part of the language system used in utterance. The Saussurean notion of associative and syntagmatic relations appears reinterpreted as ‘functional onomatology’ and ‘functional syntax’.

Every communicative act of speech [...] involves [...] two different processes [...] that of the ways and means of calling selected elements of reality by names, and that of the ways and means of organizing these names as applied to an actual situation, in sentences. In each case the starting point of the investigation will be the communicative needs of the speaker, and from this fact two consequences will of necessity follow: the way will lead from speech, as something which is immediately given, to language, as a system having an ideal reality only, and from the functional necessities to the formal means by which they are satisfied. We may then rightly call these respective sections of linguistics functional onomatology and functional syntax. (Mathesius 1964b: 308f)

What Mathesius called ‘functional onomatology’ gives rise to Martinet’s notion that language is a temporal sequence of ‘monemes’, the minimal units of communication. The moneme seems to be what is called a morpheme under the description ‘the smallest meaningful unit of syntactic structure’ (rather than ‘recurrent sequences of phonemes’ – which was the motive for Martinet rejecting the term morpheme). To prove the point: an example that Martinet uses (Martinet 1964: 114) is French couriez /kurie/ which, by the usual method of distributional (commutative) analysis, can be analysed into the three monemes /kur/ “run”, /i/ “imperfect”, and /e/ “2.PLURAL”. Surely these are simply morphemes.

The Prague school find linguistic communication to be goal-oriented (Vachek 1964: 33) and look to the link between syntax and what came to be called ‘communicative dynamism’,
‘functional sentence perspective’, and later ‘information structure’, i.e. the distribution of theme and rheme, given and new, topic and focus. In a paper written in 1928, Mathesius 1964a drew attention to the different clause constituent orders and grammatical choices that are used in Czech, English, and German as the result of different norms for information structures in these languages. Post-war Prague school work on ‘functional sentence perspective’ within texts by Daneš (ed.) 1974; Firbas 1992; Cmejrková and Štícha (eds) 1994 complements work on transitivity, theme–rheme, and given–new within Systemic Functional Grammar (e.g. Halliday 1967b; 1968; Halliday and Matthiessen 2004) and also by Prince 1981 (her ‘assumed familiarity hierarchy’) and Tomlin 1986 (his ‘theme first principle’). The choice between (1) and (2), or (3) to (5), is a matter of functional sentence perspective in the light of the discourse context.

(1) Harry took the dog for a walk.
(2) The dog was taken for a walk by Harry.
(3) Max bought the car from Sally.
(4) Sally sold the car to Max.
(5) The car was bought from Sally.

Functional sentence perspective also has prosodic effects: compare the different nuances of (6) to (8) in which **BOLD SMALL CAPITALS** indicate stressed syllables.

(6) Maisie **SHOT** her lover [she didn’t knife him].
(7) Maisie shot **HER** lover [not mine].
(8) Maisie shot her **LOVER** [not her husband].

Prague school phonology, discussed in Chapter 9, studies the function of speech sounds: distinctive feature analysis concentrates on the functional differences that contribute to difference in meaning. Out of it came markedness theory. Originally, it was applied to privative differences between phonemes; e.g. French /a/ and /ã/ can be distinguished by saying the former is unmarked and the latter marked by nasalization. Markedness is now recognized in all fields of linguistics and the criterion is that the unmarked form is ‘more natural’—in other words, usually the default (citation) form, typically more frequent, and acquired earlier by children learning the language as a mother tongue. In many languages a singular noun is unmarked, the plural marked, cf. English cat–cats. The active is usually unmarked by comparison with the passive *I washed the car*–*The car was washed by me*. Topicalization is marked; compare *Poodles I abhor*–*I abhor poodles*. The standard interrogative *Has John gone to New York?* is unmarked compared with *John’s gone to New York?*

The Prague school functionalists influenced John Rupert Firth (1890–1960), Professor of General Linguistics at London University 1944–56, who perhaps was the most famous British linguist until shortly after his death. Firth believed that linguists should study language in use and emphasized the importance of studying meaning in context, taking into account prosodic meaning (Firth 1957; 1968). His own work in these areas is less significant than the effect it had on one of his students, Michael Alexander Kirkwood Halliday (b. 1925), who worked on prosody (Halliday 1967a; 1970; 1989) and also developed a
polysystemic grammatical theory on Firthian lines, originally called System-Structure Grammar, then Scale and Category Grammar, and now Systemic Functional Grammar (SFG): Halliday 1973; 1978; 1994; Halliday, Fawcett and Young (eds) 1987-88; Martin, Matthiessen and Painter 1997; Halliday and Matthiessen 2004. It is favoured by applied linguists and members of the teaching profession following outreach to them (in, e.g. Halliday, McIntosh and Strevens 1964; Halliday and Martin (eds) 1981; Hasan and Martin (eds) 1989). Perhaps Halliday’s investigations into the development of language in the child (Halliday 1975) was an additional influence. Halliday and his school have always been interested in the grammatical analysis of text and discourse (see Halliday and Hasan 1976; 1989; Halliday and Martin 1993; Fries and Gregory (eds) 1995); and the Hallidayan approach has been taken up in Rhetorical Structure Theory by analysts such as William Mann and Sandra Thompson and text generation enthusiasts such as Christian Matthiessen (see Mann, Matthiessen and Thompson 1992; Mann and Thompson 1986; Matthiessen and Thompson 1988). Hallidayan theory has also been adopted by critical discourse analysts (such as Hodge and Kress 1988; Kress and Leeuwen 2001). *The Collected Works of M.A.K. Halliday* have recently been published (Halliday 2002-2009).

Hallidayan grammar was first called System-Structure Grammar, using Firth’s interpretation of Saussure’s associative relations as paradigmatic systems realized through syntagmatic structures. A grammatical system (there are said to be around 1000) offers a number of choices, e.g. the mood system in Figure 11.1. The choices do not always have a single ‘entry condition’ as they do in Figure 11.1, and in fact form ‘lattices’ rather than trees. For example, part of the ‘verbal group complex’ is shown in Figure 11.2 (based on part of Halliday and Matthiessen 2004: 520). Each option has a realization statement identifying constraints such as ‘conflate subject with theme’ (which applies in *I abhor poodles* but not *Poodles I abhor*); ‘order finite auxiliary before subject’ (as in both *Is he?* and *Where are you??*); ‘expand mood into subject + finite’ (e.g. in *He’s left* and *Where are you??*); ‘lexify the subject to it’ (as in *It’s raining*). The path of selected choices gives a grammatical description of the language expression and at the same time relates it with respect to the whole system.

The name ‘Scale and Category Grammar’ has long been dropped, but categories and scales are incorporated into SFG. They are illustrated in Table 11.2, where ‘rank’ refers to the grammatical function of a language expression as a constituent in the ‘lexicogrammar’ of a text. The term *lexicogrammar* denotes the combination of grammar and vocabulary. Predictably, a clause ranks higher than a group, etc. A notion of ‘rank-shift’ allows for a clause to function at word rank within a group, e.g. the relative clause in *The girl who lives*
next door was arrested is rank-shifted. Rank shift also allows for the morpheme in Rain! to function as a clause. The notion of scale is applied in ‘scale of delicacy’, meaning the degree of analytical detail.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>RANK</th>
<th>SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>clause</td>
<td>group</td>
<td>word</td>
</tr>
<tr>
<td></td>
<td></td>
<td>morpheme</td>
</tr>
</tbody>
</table>

The major clause constituents in SFG are Subject and Finite which ‘combine to form one constituent we call the Mood’ (Halliday and Matthiessen 2004: 113); the rest of the clause is referred to as the Residue. The Residue consists of a Predicator (present in all major clauses) and perhaps a Complement, ‘an element within the Residue that has the potential of being Subject but is not’ (ibid. 122); there may also be an Adjunct, ‘an element that has not got the potential of being Subject’ (ibid. 123) and typically identifies the circumstances relevant to the state of affairs (realized by e.g. adverbials and prepositional phrases) – but also what are in other grammars referred to as Indirect Objects. The syntactic analysis at group level is very traditional, as may be seen from Table 11.3 (from ibid. 362). Most of the terms used in Table 11.3 are readily interpretable, but ‘Deictic’ refers to any determiner; ‘the post-Deictic identifies a subset of the class of “thing” by referring to its fame or familiarity, its status in the text, or its similarity/dissimilarity to some other designated subset’ (e.g. typical, same, whole, necessary); an ‘Epithet’ indicates a property (such as length, colour) or speaker attitude (such as cute, splendid, horrendous); ‘Classifier’ indicates a subclass (e.g. toy [train]). In fast train meaning “express train”, ‘fast’ is a Classifier; when referring to the train’s speed it is an Epithet (ibid. 312–20).
An important Hallidayan contribution to linguistic terminology is the labelling of *metafunctions*. The idea is that languages reflect the speakers’ construal of experience in terms of an ‘ideational metafunction’, which expresses experiential and ‘logical’ aspects of meaning (*logical* refers to functional and constituency relations within and between categories). Essentially it captures the propositional content of a text. Second is the ‘interpersonal metafunction’, which captures aspects of illocutionary and perlocutionary force and generally responds to pragmatic matters such as politeness and cooperation in social interaction. Third, there is the ‘textual metafunction’, which deals with the informational structure (theme–rheme, given–new, topic–focus aspects) of the text and so is the way that texts are constructed to accommodate the other two metafunctions.

SFG is strong on prosody but weak on other aspects of phonology. There has been little study of morphology within SFG. It explains lexicogrammar in terms of a configuration of the functions that language has evolved; by fleshing out the functions of constituent elements, this does more than provide a mere structural skeleton in rooted labelled trees. SFG developed through practical application in language acquisition studies and teaching; and it gained a wide database and broad scope through the textual analysis of language varieties. It is used in both text generation and parsing (e.g. Matthiessen and Bateman 1991; Bateman, Matthiessen and Zeng 1999; Matthiessen, Zeng, Cross et al. 1998). With Halliday’s focus on language as ‘a social semiotic’ (Halliday 1978) that expresses the culture and social life of its speakers, SFG harks back to Saussure. To establish context for a given text, in addition to the part played by participants, there is attention to the nature of the social activity in which the text occurs and the function of the text as part of that

### Table 11.3. Word classes and their typical functions in groups.

<table>
<thead>
<tr>
<th>Nominal Group</th>
<th>Verbal Group</th>
<th>Adverbial Group</th>
<th>Conjunction Group</th>
<th>Preposition Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal noun</td>
<td>common Thing, Classifier</td>
<td>Thing, Classifier</td>
<td>Thing, Classifier</td>
<td>Thing, Classifier</td>
</tr>
<tr>
<td>Proper</td>
<td>Thing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pronoun</td>
<td>Thing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjective</td>
<td>Post-Deictic</td>
<td>Epithet, Classifier</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numeral</td>
<td>Numerative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Determiner</td>
<td>Deictic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal verb</td>
<td>lexical Epithet, Classifier [V-ing, V-en]</td>
<td>Event</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auxiliary</td>
<td>Auxiliary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operator</td>
<td>Finite</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adverbial</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adverb</td>
<td>(Sub-Modifier)</td>
<td>Head, Modifier</td>
<td>(Sub-Modifier)</td>
<td>Modifier</td>
</tr>
<tr>
<td>Conjunction</td>
<td>linker Head</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>binder Head</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>continuative Head</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
activity. In recent years, SFG has been tested on a growing number of languages.

There are many other branches of functionalist linguistics, including: Tagmemics (Pike 1967; 1982); Functional Grammar (e.g. Dik 1978; 1997; Siewierska 1991; http://www.functionalgrammar.com) which has expanded into Functional Discourse Grammar (Anstey and Mackenzie (eds) 2005); so-called West Coast Functionalism (e.g. Haiman 1985; Givón 1979; 1984-90; 1993; 1995; Goldberg 1995; 2006); Lexical Functional Grammar (e.g. Bresnan 2001; Dalrymple 2001; Kroeger 2004); and Role and Reference Grammar (RRG; Van Valin 2001; 2005; (ed.) 1993; Van Valin and LaPolla 1997; Foley and Valin 1984; http://linguistics.buffalo.edu/people/faculty/vanvalin/rrg.html). There is a useful review of functional theories in Butler 2003. I will briefly sketch some aspects of RRG.

RRG has in common with SFG that it is a monostratal theory that does not posit underlying and surface representations as different strata but integrates morphology, syntax, semantics, pragmatics, and information structure in a readily accessible monostratal representation. RRG has been specifically developed to apply to any natural language and seeks to show how language expressions are used to communicate effectively. The basic clause structure is shown in Figure 11.3. In a well-formed clause, the Core is necessarily present, but the Periphery can be omitted. A little more detail is given in Figures 11.4 and 11.5. The abbreviations should need no explanation. The two figures demonstrate that the Periphery may be located in different places in different languages; but, like the Core, it has

Figure 11.3. Components of the layered structure of a clause in RRG.

Figure 11.4. An English sentence.
the same function across languages. Notice in Figure 11.5 how the Periphery is located within the boundaries of the surface realization of the Core, but not within the structure of the Core. As in SFG, RRG structures are more like lattices than like trees.

Next, compare the structure of an English clause, Figure 11.6, and its Dyirbal translation in Figure 11.7 (ABS = absolutive; LOC = locative; DET = determiner; ERG = ergative). Once again the Periphery is located within the boundaries of the surface realization of the Core, but not within the structure of the Core.

**Figure 11.5.** A Japanese question.

**Figure 11.6.** English translation of the Dyirbal in Figure 11.7.

**Figure 11.7.** Dyirbal translation of the English in Figure 11.6.
Secondary grammatical categories and other 'Operator Projections' are represented in the model in a sort of reflection of the sentence categories and vertically below them as in the abbreviated Figure 11.8. Figure 11.9 exemplifies some of these.

Note that the IF (illocutionary force) operator marks the interrogative. Some of the operator projections in the Japanese question from Figure 11.5 are shown in Figure 11.10 for comparison with Figure 11.9.
Finally, compare the structures of the English NP *these three big kangaroos* and its translation into the Australian Aboriginal language Mparntwe Arrernte *kere aherre kngerre urrpetye nhenhe itne* in Figure 11.11 (REF = referring expression; NASP = ‘nominal aspect’, i.e. individuation, classification). Mparntwe Arrernte has a meat classifier (CL.meat) which English does not, but in other respects the structural relations are alike despite the different word orders.

Figure 11.10. Operator projection in a Japanese question.

Figure 11.11. An English NP compared with its Arrernte translation.
Figures 11.3 to 11.11 demonstrate the application of RRG across unrelated languages of different types, showing the functional similarities that explain translation equivalency. Of course, the rules for the sequencing of constituents in utterances are different in each of the languages and have not been described here.

In RRG verbs are semantically classified according to aspect. Vendler 1967, Ch.4 identified the first four classes of verbs listed in Table 11.4 on the basis of the restrictions on their co-occurrence with adverbials and aspects, and certain of their conventional implicatures and entailments. Vendler’s grammatical tests were further refined by Dowty 1979 in the context of Montague semantics, and later by Van Valin and co-workers in the context of RRG – which was when causatives were included. Van Valin claims, citing studies from eight language families, that the classification ‘has proved to be of great cross-linguistic validity’ (Van Valin (ed.) 1993: 34). It underlies the ‘logical’, i.e. semantic, structures of verbs in Table 11.5, where \((x \text{ or } x,y)\) indicates either one or two arguments; \(\text{PRED}\) is a variable to be replaced by the particular name of the predicate. The differences are as follows: only causatives contain the \(\text{CAUSE}\) operator; activities, achievements, and accomplishments are all dynamic, states are not; accomplishments and achievements involve change of state or activity, activities do not; achievements are inherently punctual, accomplishments are not.

<table>
<thead>
<tr>
<th>Verb class</th>
<th>Logical structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>activity</td>
<td>do(\langle x, [\text{PRED}(x \text{ or } x,y)]\rangle)</td>
</tr>
<tr>
<td>state</td>
<td>(\text{PRED}(x \text{ or } x,y))</td>
</tr>
<tr>
<td>achievement</td>
<td>(\text{INGR PRED}(x \text{ or } x,y) \text{ or })</td>
</tr>
<tr>
<td></td>
<td>(\text{INGR do}'\langle x, [\text{PRED}(x \text{ or } x,y)]\rangle\rangle)</td>
</tr>
<tr>
<td>accomplishment</td>
<td>(\text{BECOME PRED}(x \text{ or } x,y) \text{ or })</td>
</tr>
<tr>
<td></td>
<td>(\text{BECOME do}'\langle x, [\text{PRED}(x \text{ or } x,y)]\rangle\rangle)</td>
</tr>
<tr>
<td>causative</td>
<td>(\Phi \text{ CAUSE } \Psi)</td>
</tr>
</tbody>
</table>

RRG escapes most of the problems that arise with the management of thematic roles. The original motivation for identifying thematic roles was to indicate in the syntactic frame of a predicate which surface cases, prepositional, or postpositional phrases it governs – all of which typically identify the roles of participants (people, objects, places, events) within...
The Western Classical Tradition in Linguistics

The states of affairs. Thematic roles are referred to by many terms, e.g. ‘valencies’, ‘(deep) cases’, and ‘θ-/theta roles’. Each such term is theory-dependent and the definition of a particular role in one theory is likely to be different in at least some respects from its definition in another theory, despite the same label (e.g. agent, patient) being used in both. Even trying to define each role in terms of a common set of entailments or implicatures leaves many problems unresolved. There is probably a boundless number of thematic roles; for instance, roles such as effector and locative have a number of subcategories, and it is possible that ever finer distinctions can be drawn among them; so it is hardly surprising that no one has satisfactorily identified a full set of roles for any language. The following are among those that have been identified (see Cruse 1973; Dowty 1991; Goldberg 1995; Van Valin and LaPolla 1997; Allan 2001):

- attributant, attribute, cognizer, consumed, consumer, creation, creator, creator-theme, createe-way, desiror, effector (which includes agent, force, instrument, and means), emitter, emoter, existant, experiencer (which includes cognizers and perceivers of various kinds), hander, handee, handed, implement, indicator, judge, a host of spatial and temporal locations, lurcher, mover, object of knowledge/belief, observer, patient, perceiver, performance, performer, possessed, possessor, recipient, sensation, sneezer, speaker, stimulus, target of emotion/desire, theme (moved or static), user.

Chomskyan theories propose a θ-criterion (Chomsky 1981, based on an earlier criterion in Fillmore’s case grammar, Fillmore 1968) that there is one thematic role per clause and no NP can hold more than one thematic role. The criterion has been shown to be incorrect: there are many occasions when a given NP seems to satisfy the conditions for more than one thematic role; sometimes two NPs (apparently) have the same thematic role. For instance, there is no doubt that goals and sources can be agents with verbs like give, buy, sell. And symmetric predicates and resumptive pronouns in sentences like The door, has a wreath on it, show that more than one instance of a thematic role can occur in a simple sentence. The definition of thematic roles in grammar is unsatisfactory and there is no sign that the situation is about to improve. Better definition is possible if we admit just two macroroles ‘actor’ and ‘undergoer’ in the grammar.

Macroroles (MRs), which are similar to the proto-roles in Dowty 1991, are defined on the logical structures of verbs. The maximum number of MRs is 2, the minimum is 0 (in sentences like Latin pluit and English It’s raining). The two MRs are ‘actor’ and ‘undergoer’, which roughly correspond to what is sometimes called ‘logical subject’ and ‘logical object’ respectively. They are called macroroles because they subsume a number of thematic roles (see Table 11.6) but they are properly dependent on the hierarchies in Table 11.7, where A ≺ B means “A outranks B in the hierarchy”. DO (Table 11.7) only appears in the few logical structures that necessarily take an agent; for instance, in (9), DO indicates that murder necessarily takes an agent, whereas kill in (10) does not.

(9)  [DO(xA,[do(x,O)])] CAUSE [BECOME dead′(y_U)] ← Jo, murdered Sam,
(10)  [do′(x_A,O)] CAUSE [BECOME dead′(y_U)] ← Jo, killed Sam,

In contrast to the uncertainty of assigning thematic roles, assigning MRs to a clause predicate is well-defined.
To sum up: the RRG analysis of the sentence *What did Dana give to Pat yesterday?* is shown diagrammatically in Figure 11.12. The whole monostratal analysis is as close to psychologically real as any linguistic analysis can be.

![Diagram of sentence analysis](image)

**Figure 11.12.** The syntax, semantics, and pragmatics of *What did Dana give to Pat yesterday?*
The foregoing sketch of RRG illustrates the characteristic monostratal character of functional grammars and their cross-language applicability. Functionalists seek to show that the motivation for language structures is their communicative potential; so the analysis is meaning-based and compatible with what is known about psychological mechanisms used in language processing. As well as the propositional content, participant functions (roles) need to be captured, but also all semantic and pragmatic information (such as speech act characteristics and information structure) needs to be directly represented along with the syntactic structure.

The study of language as human communication

We have seen that what is common to Saussurean and functionalist linguistics is the initial assumption that the primary function of human language is social interactive communication and that linguistic elements can be explained by reference to their functions within the structural system of a language. Saussure’s focus on the structural aspects of language, which was part of a wider contemporary recognition of structures within human behaviour, society, and cognition, gave credence and support to the growth of structuralist linguistics in the twentieth century. As Matthews 2001: 142 says, ‘The structuralist bible is, by long consent, Saussure’s *Cours*.’ Structuralist linguists, anthropologists, psychologists, sociologists, and postmodernist theoreticians all genuflect to Saussure. If Saussure was a structuralist, then all the major grammatical theories of the twentieth century are structuralist because all of them focus on the systematic structure of language.

Structuralism may be defined as the trend of linguistics which is concerned with analysing relations between the segments of a language, conceived as a hierarchically arranged whole.

(Trnka and others 1964: 468)

This is applicable to virtually all kinds of linguistics. If linguists reject the label ‘structuralist’ it is (for reasons discussed in the next chapter) because of its connotations; and/or because language is not seen as ‘a hierarchically arranged whole’ but a system of networked hierarchical structures.

Saussure sought to establish linguistics as an independent science. From among the many lessons he taught, four stand out for their influence on the subsequent linguistic tradition: the *langue–parole* dichotomy with the requirement that a grammar must be a grammar of *langue*; the psycho-social nature of language; the priority of speech as the source for language data; and the snapshot of a language at some particular point in time as providing object-language data, often bowdlerized as a dichotomy between synchrony and diachrony. The twenty-first century still values the establishment of linguistics as an independent science. Many would dispute a *langue–parole* dichotomy (and Chomsky’s revised version of it), seeing it as a cline like the related difference between emic and etic: the more detailed the analysis of emic data gets, the closer to etic it becomes; the more abstract the description of etic phenomena gets, the closer to emic it becomes. Nonetheless, it is useful to differentiate *langue* from *parole*. 
Saussure expressed an intention to investigate *parole*, but he failed to achieve it before his death. It is arguable that studies of conversation and discourse, and investigations into linguistic pragmatics look into *parole*. In fact, functionalists generally find corpora of linguistic data the preferred source, and these are instantiations of *parole*. Although the priority of spoken language is generally recognized, there has been much close analysis of written texts since the 1970s. This is variously motivated by literary analysis, the growth of stylistics, pedagogical instruction of written text construction, and also developments in the fields of artificial intelligence and computer generated texts. Finally, although a broad distinction needs to be made between synchronic and diachronic studies of language, it has to be recognized (and it seems that Saussure himself did recognize) that the study of language change must refer to sequential synchronic stages of the language; and that the particular state under observation is the product of diachronic processes; contemporaneously, at any given moment in time, the language is undergoing a process of change.

Saussure, like Chomsky, insists that language is a psychological and not an abstract entity; perhaps this is true, but the models of *langue*, competence or I-language are necessarily abstract, as I shall argue at length in Chapter 12. This was a fact already recognized by Mathesius in 1936 (Mathesius 1964b), as we have seen. Saussure’s distinction between *langue* and *parole* and the relationship between them, along with his view that a grammar must describe *langue*, has direct relevance to Chomsky’s later contrast of ‘competence’ and ‘performance’, ‘I-language’ and ‘E-language’. Although both Saussure and Chomsky view language as a cognitive entity, they diverge when Saussure gives equal weight to the social function of language as communication among human beings – a position adopted by the functionalists.

Functionalism looks to the functions of language within society as the motivation for language. Cognitive and socio-cultural factors are presumed to explain linguistic phenomena. Like Saussure, functionalists find language to be a branch of semiotic behaviour and not something completely separate from other human capabilities and behaviour. Halliday’s Systemic Functional Grammar has roots in Firthian linguistics, which was very strongly influenced by Saussure. In dealing with written language, language acquisition, prosody, and a number of typologically distinct languages SFG shows a considerable advance on Saussure’s own work. Dik’s Functional Grammar, its successor Functional Discourse Grammar, Lexical Functional Grammar, and Role and Reference Grammar are all strongly influenced by the hegemony of Chomskyan grammar, and are to some extent reactive to it. Unlike Chomskyan grammars, the typical functional grammar represents syntax, semantics, and pragmatics (including information structure) in one monostratal description. Functionalists all recognize that it is important for linguists to describe *parole*, performance, and E-language as well as *langue*, competence, and I-language; and they all adopt a universalist stance.
Chapter 12  Paradigms for linguistic analysis: Bloomfieldian linguistics and the Chomsky revolution

The problem of classifying and categorizing data

In order to survive, all animate creatures must either be born with or acquire models of the world around them and of the things they encounter (or imagine) within it. To illustrate preconscious modelling of natural phenomena, take vision. In the first of his lectures on The Origins of Knowledge and Imagination, Jacob Bronowski (1908–74) reports that, despite the clarity with which we seem to see, our eyes do not in fact form a picture with continuous lines and so forth, but an image similar to the coarse pixelated texture of an old-fashioned newspaper photo. This coarse and grainy image is determined by the properties of the receptor rods and cones within the eye, as well as “noise” in the system. However, the rods and cones are wired up in such a way that the eye – not the brain, note – actually seeks out linear boundaries and colour contrasts.

One of the things that the eye is not able to do is to look at nature with a fresh, open vision as if it were not looking for straight edges and contrasts of colour. Exactly because search mechanisms for these things are built into the eye, we are constantly deceived about the nature of the outside world because we interpret it in terms of the built in search mechanism.

(Bronowski 1978: 18)

The lesson is that, to some extent, our sensory receptors structure natural phenomena deterministically, and perhaps our brains do too. Consequently, we can only expect to perceive reality through the constraints, and perhaps the distortions, imposed by our physical and cognitive structures.

In trying to perceive the reality of a natural phenomenon there is an additional hazard: once we look at the given phenomenon within the framework of some familiar model it is difficult, and sometimes perhaps impossible, to see it any other way (Kuhn 1970, Ch. 10). One result of this is the different interpretations that may be given of a single text, whether a play by Shakespeare or Saussure’s Cours de Linguistique Générale – of which Joseph 1990b: 53 wrote, ‘no linguist has undergone as many ideologically-driven readings as Saussure.’ Another example can be found in Bruner and Postman 1949. Experimenting with the recognition of incongruous playing cards such as red spades and black hearts, they discovered that 96% of subjects made

a ‘perceptual denial’ of the incongruous elements in the stimulus pattern. Faced with a red six of spades, for example, a subject may report with considerable assurance, ‘the six of spades’

or ‘the six of hearts’ depending on whether he is color or form bound. [...] In both instances the perceptual resultant conforms with past expectations about the ‘normal’ nature of playing cards. (Bruner and Postman 1949: 212)

Human groups come to tacit group-internal agreement on certain conventional categorizations of natural phenomena into taxonomies; these conventional taxonomies function as practical working models for the group. A particular taxonomy or model becomes conventional within its particular context of use because it is regarded as the best one available by a majority of the people who use it (Lewis 1969: 78). Scientific theories are just more self-consciously contrived models than these.

For the linguist as observer, the starting point for language observation is a set of acoustic or visual sensory data external to him or her. Such a linguist can interpret the language data in two ways: first, the same way as any other language user – pretheoretically; and second, as a linguist applying specialist skills in analysing the sense data. In this second endeavour s/he is like any other scientist (Kuhn 1970: 197). Compare linguistics with another discipline: a biologist has presumably categorized the organisms s/he encounters according to a pretheoretical folk taxonomy before becoming a biologist, and sometimes subsequently too, I would guess. After becoming a biologist s/he is in a position to perceive the organisms encountered in terms of the conventional taxa of biological science.

The linguist’s special skills in language analysis are really no more than a refinement on the layman’s skills, as Albert Einstein (1879–1955) confirms:

The whole of science is nothing more than a refinement of everyday thinking. (‘Physics and reality’ [1936] Einstein 1973: 283)

The scientific way of forming concepts differs from that which we use in our daily life, not basically, but in the more precise definitions of concepts and conclusions; more painstaking and systematic choice of experimental material; and greater logical economy. (‘The fundamentals of theoretical physics’ [1940] Einstein 1973: 315)

This link between the thinking of the specialist and the commonplace thinking of a lay person gets downplayed because most specialists believe that their own models of natural phenomena are more valuable and less ordinary than a dispassionate, objective (but knowledgeable) outsider would allow.

It is well known that folk taxonomies differ from scientific taxonomies (see Conklin 1967; Tyler (ed.) 1969: 28–90; Berlin, Breedlove and Raven 1974); but it is not often recognized that both are conventional and that they merely satisfy different conventions. There are no rational grounds for any human being to claim by right that only one of the possible models or taxonomies of a natural phenomenon is the true one. There may be reasons for preferring one model to any other in a given context, but these reasons will be based upon the perception of its consistency, coherence, efficacy, and practical value within that context; in a different context some of these advantages may vanish. Such criteria apply to linguistic models, that is, linguistic theories or theories of language. Different models satisfy different sets of conventions and must be evaluated for their superiority in a given context.
If we accept that folk models are as valid for the folk for whom they are conventional as the scientific models are valid among scientists, then there are no rational grounds for putting an upper bound on the number of models of a natural phenomenon that there can be. Philosophers of science have repeatedly demonstrated that more than one theoretical construction can always be placed upon a given collection of data. (Kuhn 1970: 76)

Robert Pirsig overstates the case when he writes:

The number of rational hypotheses that can explain any given phenomenon is infinite. (Pirsig 1974: 107)

Though Einstein too said that, theoretically, there is any number of possible systems [= models] of theoretical physics, all equally well justified. (‘Principles of research’ [1934] Einstein 1973:221)

Obviously, if there are several competing theories of a natural phenomenon, we require some means of comparing and evaluating them. This need for an evaluation procedure recurs when we consider how data are to be handled by linguistic theory.

**On kinds of inference applicable to linguistic theorizing**

A methodology which looks to sensory data from natural phenomena (like language) as the source for primary categorization of these phenomena is initially abductive. Abductive reasoning is used in figuring out classes, categories, and functions of observed phenomena – i.e. arriving at a hypothesis. According to Peirce 1940: 151, it proceeds as follows: fact or set of facts $F$ is observed; if assumption $A$ were true, then $F$ would be accounted for; so there is reason to suspect that $A$ is true. Abductive inferences lead to testable hypotheses about states of affairs. Data are correlated on the basis of their similarity or by analogy with some known system, usually with an eye to their apparent function or relevance within the emerging general description. For instance, consider the following set of facts, $F$:

In the ancient Indic language Sanskrit, words for numbers 2–7 are *dvā*, *tri*, *catur*, *pañca*, *ṣaṣ*, *sapta*. These are similar to number words in European languages known to be related to one another: e.g. Slovak *dvā*, Latin *duo* “2”; Slovak *tri*, Italian *tre* “3”; Latin *quattuor* “4”; Welsh *pump*, German *fünf* “5”; Spanish *seis*, English *six* “6”; Latin *septem* “7”.

**Assumption, $A$:**

If Sanskrit were related to these European languages (i.e. if there is a common ancestor), the similarity would be accounted for.

**Abduced conclusion:**

There is a reason to suspect that Sanskrit is related to European languages.

Assumption $A$ makes an imaginative leap because Sanskrit was separated by time and thousands of kilometres from the European languages, and it was spoken by a different race. The assumption expresses the intuition that underlies the creation of a hypothesis, the one stated in the conclusion.

It is widely recognized among philosophers of science that intuition is an essential ingredient in scientific theory; deductive logic is insufficient.
Pure logic could never lead us to anything but tautologies; it could create nothing new; not from it alone can any science issue. [...] To make arithmetic, as to make geometry, or to make any science, something else than pure logic is necessary. To designate this something else we have no word other than intuition. [...] Logic and intuition have each their necessary role. Each is indispensable. Logic, which alone can give certainty, is the instrument of demonstration; intuition is the instrument of invention. (Poincaré 1946: 214f, 219)

Similar conclusions were reached by Bronowski 1978, Ch.4; Katz 1981a, Ch.6; Kuhn 1970: 122f; Pirsig 1974; and, of course, Einstein:

The supreme task of the physicist is to arrive at those elementary laws from which the cosmos can be built up by pure deduction. There is no logical path to these laws, only intuition resting on sympathetic understanding of experience can reach them. (‘Principles of research’ [1934]; Einstein 1973: 221)

With abductive reasoning the conclusions are based on a best guess; once a part of the system is recognized and predictions about the whole system begin to be made, the investigator moves from abduction – hypothesizing – to hypothesis testing and induction. Before Peirce, abduction was included within induction; post-Peirce, induction is based on samples of the data. If the sampling technique is good, the prediction will probably be verified. For instance, if you are told that almost all French nouns ending in –ion are feminine then you can inductively infer that the next French noun you encounter that ends in –ion will most probably be feminine. On inductivism, see Francis Bacon (1561–1626) in Novum Organum (Bacon 1620) I.xix; John Stuart Mill (1806–73) A System of Logic, Ratiocinative and Inductive (Mill 1843 I, III.iii) argues from patterns and structures found among particular instances to a model for the universal set of instances. The inductive method assumes that there is an intrinsic structure to natural phenomena which can be discovered by inspection. If this underlying assumption were correct, the inductivist model would be the only model possible, because it is determined by the laws of Nature. Inductivist models, sometimes described as ‘bottom-up’ models, can be illustrated by Newtonian physics (Isaac Newton 1643–1727) and, because language is a natural phenomenon, Bloomfieldian linguistics, named for Leonard Bloomfield (1887–1949), who wrote: ‘The only useful generalizations about language are inductive generalizations’ (Bloomfield 1933: 20). In linguistics a bottom-up, inductivist analysis proceeds from phones to phonemes to morphs to morphemes to syntax. In 1951 Noam Chomsky still believed that he ‘would be able to derive mechanically the grammar of any language, given an adequate corpus’ (Chomsky 1975a: 30). An example from Charles Hockett’s (1916–2000) A Course in Modern Linguistics is the analysis in Figure 12.1, which is equivalent to an unlabelled tree structure. We might draw the analogy of a two-dimensional exploded diagram of the parts of a car engine with added information on the relationship of the parts to each other such that the engine may be dismantled and reassembled. Even assuming the information is correct, the diagram does not explain how and why the engine works.
The Western Classical Tradition in Linguistics

There is no inductive method which would lead to the fundamental concepts of physics [or
linguistics]. Failure to understand this fact constituted the basic philosophical error of so many
investigators of the nineteenth century. [...] Logical thinking is necessarily deductive; it is
based upon hypothetical concepts and axioms.  (*Physics and reality* [1936] Einstein 1973:
299)

Induction uncovers tendencies, but not certainties, and so is open to dispute. Inductive
reasoning identifies conclusions in which we have some degree of confidence (given the
assumptions) but not the kind of confidence that is given to deductions.

A hypothetico-deductive model is the inverse of the inductivist model; it is ‘top-down’:
in language analysis, start with the sentence and analyse it into its successive constituent
structures until its phonological form is resolved.

The essential thing is the aim to represent the multitude of concepts and propositions, close to
experience, as propositions, logically deduced from a basis, as narrow as possible, of
fundamental concepts and fundamental relations.  (*ibid.* 287)

Ideally, hypothetico-deductiveism postulates an abstract general theory of the phenomena in
question in terms of a defined vocabulary consisting of a specified set of symbols with an
interpretation specified for each vocabulary item; there will also be an explicit syntax
consisting of a set of axioms and rules for combining the vocabulary items; and a set of
axioms and rules for interpreting theorems (i.e. sentences) of the metalanguage. Such
machinery expresses the fundamental theoretical concepts and relations to be used in
modelling the phenomenon, and is the means for deducing the characteristics of particular
instances to be found in the data. These ideal criteria explain the preference for
mathematical models of natural phenomena.

Deductive inference is the move from assumptions to valid conclusions by observing
strict rules of procedure (identified in systems of logic) that guarantee a valid conclusion
from the assumptions. The assumptions must be correct if the conclusions are to accord with
the facts. Taken together, the two assumptions *Snow is black* and *Snow is hot and dry* entail
the deduction that *Snow is hot, dry, and black*. The conclusion validly follows from the
assumptions because the reasoning is sound. What this clearly demonstrates is that false
assumptions will lead to valid but probably false conclusions. It is not necessarily the case
that false assumptions lead to false conclusions, as the following piece of nonsense shows: *If
‘women are cats’ and ‘cats are human’ then ‘women are human’*. We must get our
assumptions right if we are to use deductive inference in natural language analysis to seek
true as well as valid conclusions.

| the son- -s and daughter- -s of a man a- -re hi -s child- -ren |
| sons  | daughters  | a man  |
| sons and daughters of a man are his children |
| sons and daughters of a man are his children |
| the sons and daughters of a man are his children |

**Figure 12.1.** Hockett’s bottom-up analysis of an English sentence (Hockett 1958: 152).
Unlike inductivism, hypothetico-deductive paradigm sanctions an unbounded number of theories for a given phenomenon that is viewed from different perspectives. So there needs to be an evaluation procedure for choosing the best model. The criteria for evaluation were expressed in lay terms by Stephen Hawking (b. 1942) in *A Brief History of Time*:

> a theory is just a model of the universe, or a restricted part of it, and a set of rules that relate quantities in the model to observations that we make. It exists only in our minds and does not have any other reality (whatever that might mean). A theory is a good theory if it satisfies two requirements: It must accurately describe a large class of observations on the basis of a model that contains only a few arbitrary elements, and it must make definite predictions about the results of future observations. (Hawking 1988: 9)

The theorems, well-formed formulae, or sentences which output from the model should correspond with real world data, such as utterances in the object-language. However, the correspondences will have to be evaluated intuitively because there is no alternative. Furthermore, there is no way of ensuring that the linguist’s intuitions are good, because it is not known quite what intuition is. So model construction is as much art as it is science.

In the coming together of all three kinds of inference, it is reasonable to suppose that the kind of data gathering enterprise carried out by inductivists (which relies on abduction) creates a corpus that ought to provide the best opportunity for the linguist’s intuitions to work on. The corpus will also offer data against which to check the products of any hypothetico-deductive theory a linguist creates. Few, if any, linguistic theories match the ideal for the metalanguage of hypothetico-deductivism but several do propose an abstract general theory of language: the Stoics possibly; the general grammarians of the middle ages and the rationalist grammarians of the seventeenth and eighteenth centuries probably; in the twentieth century, Chomsky most certainly.

Linguistic theorizing needs the bottom-up data-gathering and preliminary classification from phenomenological inductivism, and the top-down hypothesis construction from hypothetico-deductivism. These two methods of proceeding cannot be neatly segregated from one another. Experience tells us that the linguistic researcher must expect to go to and fro between them; reviewing the data to abduce (intuit) hypotheses; and then using evaluation procedures to check the hypotheses against the data. Data need to be classified using inductivist principles; yet classification and taxonomy deal with abstractions that are essentially similar to the theoretical constructs of a hypothetico-deductive system (as we shall see). It follows that the inductivist’s choice of data, indeed the very perception of the data, involves a categorial process which cannot, in the end, be satisfactorily distinguished from hypothetico-deductivism. We are into a chicken and egg argument if we try to rigidly determine which is prior. The significant lesson is that abductivism, inductivism, and deductivism are complementary, and all are essential to the advancement of linguistic science. Any thorough account of natural language understanding uses all three kinds of inference.2

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2. A proper account of natural language will also need to recognize defeasible pragmatic inferences of the Gricean kind; see Harman 1999; Levinson 2000; Sperber and Wilson 1995.
The rest of this chapter examines two twentieth century paradigms in linguistics: Bloomfieldian inductivism and Chomsky’s hypothetico-deductivism. Boas established the inductivist, bottom-up, approach to linguistic analysis and the Bloomfieldians adopted it, applying to it what they took to be the methods of the physical sciences, treating language as a physical object whose phones could be grouped into phonemes, phonemes grouped into morphs, morphs into morphemes, morphemes into sentences. For the Bloomfieldians linguistics was a classificatory science in which the classes were related to one another within hierarchies. In order to be ‘scientific’, strict rules of procedure were supposedly observed when undertaking analysis so as to ensure that the analysis would be replicable. There was an insistence that each language be studied as an independent entity without reference to any grammatical or other linguistic insights drawn from analyses of other languages. It was an anti-universalist position established to counter subjective prejudice in linguistic analysis. The so-called ‘Chomsky revolution’ brought back universal grammar into the Western Classical Tradition. It also brought back rationalism and a hypothetico-deductive approach to linguistic analysis. Chomsky refurbished the Saussurean distinction between *langue* and *parole* and established ‘competence’, later ‘I-language’, as the internalized knowledge of the language located with the idealized speaker-hearer. So whereas Saussure’s *langue* has a social basis, Chomsky’s ‘competence’ or ‘I-language’ is individualized. Chomsky himself has never thrown off the anti-mentalistic Bloomfieldianism of his early training, and for him syntax is autonomous: that is, the syntactic component of a grammar is prior to and independent of the interpretive semantic and phonological components. But some of his former students such as George Lakoff (b. 1941) and James D. McCawley (1938–99) broke away to prefer semantically based grammars; and Ray S. Jackendoff (b. 1945) has also recognized that language categories have close links with other cognitive categories, which is the position of cognitive linguists who also believe in a semantic basis for grammar.

**Bloomfieldian linguistics**

With the growing status of ‘science’ in the early twentieth century, the human sciences, including linguistics, began seeking to change their image of subjective speculativeness to assume an objective empiricism thought to be characteristic of the natural sciences. At a time when its limitations in the field of physics were causing concern within the scientific community, inductivism dominated American linguistics. Its motto was Isaac Newton’s *hypotheses non fingo* “hypotheses I don’t make” from the *General Scholium* appended to the 1726 (third edition) of his *Principia Mathematica* (Newton 1726) – despite the fact that any kind of classification involves some kind of hypothesizing on class identity and

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3. Jerrold J. Katz misleadingly dubbed this inductivist methodology ‘nominalism’ (Katz (ed.) 1985). Nominalism holds that every entity is a particular, i.e. unique, and that there are no categories in nature; consequently, the only basis for categorizing phenomena, classifying entities, and imputing universals is that some particulars are given the same name. This is not what Bloomfieldians believed.
boundaries. In Newton’s day *hypothesizing* was interpreted the same somewhat pejorative way that *speculating* is today. There is a terminological problem because, strictly speaking, the method of Bloomfieldians, like all linguistic inductivists, starts with abduction and moves on to induction; so I will take it for granted that these ‘inductivists’ all proceed from abduction to induction and, for simplicity’s sake, just call them *inductivists*.

There was a good, practical reason for the focus on abduction to induction in late nineteenth to early twentieth century American anthropological linguistics. As remarked in Chapter 10, impetus was given to the study of Native American cultures and languages by the realization that many were on the verge of dying out; in consequence, they needed to be studied promptly and intensively, or information about them would be forever lost. Most Native American languages were still unwritten; and they are typologically distinct from Indo-European. The data gathering and classificatory practices of abductivists and inductivists are necessary precursors to the construction of a hypothetico-deductive theory; so the task of writing grammars for Native American languages precluded immediate adoption of the hypothetico-deductive paradigm in any case.

When analysing an unwritten language, the linguist must start by paying particular attention to the phones uttered in order to discover the systematic phonological contrasts. It was for this reason that Boas wrote in his ‘Introduction’ to the *Handbook of American Indian Languages:*

> in an objective discussion of languages three points have to be considered: first the constituent phonetic elements of the language; second, the groups of ideas expressed by phonetic groups; third, the methods of combining and modifying the phonetic groups.  

(Boas 1911: 35)

Two generations of American descriptivists adopted this method of paying careful attention to the phones uttered; reducing classes of phones to the set of phonemes for the language; then recognizing recurrent sequences of phonemes as morphs, and so on; such that the process of bottom-up segmentation and classification ultimately characterized sentences in terms of their constituents.

A second Boas legacy is the importance of the sentence as a grammatical unit in twentieth century linguistics. It arises from his belief that languages exist to express ideas and that ‘ideas must be expressed by being reduced to a number of related ideas’ expressed by independent phonetic groups that

occur in speech only in combinations which are the equivalent of definite concepts.

Since all speech is intended to serve for the communication of ideas, the natural unit of expression is the sentence; that is to say a group of sounds which convey a complete idea.  

(Boas 1911: 27)

The reference to a sentence expressing a complete idea is a tradition going back to the *Technē Grammatikē* attributed to Dionysius Thrax, and it was dropped by Bloomfield in favour of the formal definition ‘an independent linguistic form, not included by virtue of any grammatical construction in any larger linguistic form’ (Bloomfield 1933: 170), a definition that ignores text and discourse. The importance that Boas gave to language as the expression of ideas was not blind to the difficulties that would arise from trying to somehow capture those of the speaker in a linguistic description, but insisted linguists ‘consider only
those parts of the sentence which, according to the morphology of the language, must be expressed’ (Boas 1911: 43 [sic]).

Another Boas legacy was that every language must be analysed only in terms of its intrinsic categories, the linguist scrupulously resisting any temptation to impose the grammatical categories and systems found in language X onto another language, Y. Boas insisted on this procedure lest the typological differences between the grammars of familiar Indo-European languages and the unfamiliar Native American grammars led to aspects of the latter being improperly categorized or even overlooked. It was the catechism of American descriptivist linguistics.

The only useful generalizations about language are inductive generalizations. Features which we think ought to be universal may be absent from the very next language that becomes accessible. (Bloomfield 1933: 20)

The doctrine that made linguists wary of pre-investigative hypotheses about the nature of language structure was utterly consonant with Newton’s hypotheses non fingo. One extreme result was when Charles Fries (1887–1967) refused to use traditional labels like noun and verb for parts of speech in The Structure of English (Fries 1952), replacing them with alphanumeric symbols; for example, the four word classes in The concert was good are A, 1, 2, 3 (ibid. 89).

In 1913–14 Leonard Bloomfield was studying under the neogrammarians Brugmann and Leskien in Leipzig, and the Sanskritist Hermann Oldenberg (1854–1920) in Göttingen. From 1927 to 1940 Bloomfield was Professor of Germanic Philology at the University of Chicago; after which he went to Yale as Professor of Linguistics, retiring after a stroke in 1946. In 1925 Bloomfield was one of the founders of the Linguistic Society of America. His interest in less nineteenth century aspects of linguistics are demonstrated in An Introduction to the Study of Language (Bloomfield 1914), which referred to a wide range of languages, including among many others Bantu, Chinese, Malay, Native American, and Turkish. He published Tagalog Texts with Grammatical Analysis (Bloomfield 1917) and in 1919 began a life-long study of Algonquian languages. In 1924 he reviewed the second edition of Saussure’s Cours de Linguistique Générale. He praises Saussure for breaking with the nineteenth century focus on ‘the history of one family of languages’ to discuss general linguistics in a ‘clear and rigorous demonstration of [its] fundamental principles’ most of which have ‘long been “in the air”’ (Bloomfield 1924: 317f). However, he castigates Saussure for ‘a desperate attempt to give a psychologic interpretation to the facts of language’ and welcomes Saussure proving ‘that psychology and phonetics do not matter at all and are, in principle, irrelevant to the study of language’ (ibid. 318). ‘All psychology will ever be able to do is to provide the general background which makes the thing [? human language] possible.’ Bloomfield’s anti-mentalistic stance had a profound effect on American linguistics for nearly 40 years and we shall examine it later. The dismissal of phonetics is discombobulating; he elaborates:

4. In Chapter 11 we saw evidence that many of Saussure’s ideas had also been in print.
Needless to say, a person who goes out to write down an unknown language or one who undertakes to teach people a foreign language, must have a knowledge of phonetics, just as he must possess tact, patience, and many other virtues; in principle, however, these things are all on a par, and do not form part of linguistic theory. (ibid.)

So phonetics is just a tool:

the physiology of the thing (phonetics) does not matter: instead of the thirty-five or so sounds of English, any thirty-five distinct symbols, of whatever nature, would suffice to reproduce the system of the English language. (ibid.)

This appears to conflict with what Twadell 1935: 23 reports Bloomfield saying a decade later (see Chapter 9, p. 198) about the acoustic reality of the ‘features of sound’ from which phonemes are composed. Bloomfield 1924 appears to dismiss articulatory phonetics in favour of an abstract conception of phonemics; but perhaps what Bloomfield is really doing there is adopting the Saussurean notion of the contrastive value of each phoneme within the language system,\(^5\) *langue*. The latter, says Bloomfield, is ‘the subject-matter of “descriptive linguistics”’. Bloomfield approves Saussure’s differentiation of *langue* and *parole* along with that between synchronic and diachronic linguistics. However, Saussure had written, ‘The sentence is the ideal type of syntagm; but it belongs to *parole* not *langue*’ (nevertheless other syntagms are part of *langue*; Saussure 1931: 172 [124]), which led Bloomfield to comment: ‘I should differ from de Saussure chiefly in basing my analysis on the sentence rather than on the word’ – taking his cue from Boas and showing himself a truly twentieth century linguist.

The charter for Bloomfieldian linguistics is ‘A set of postulates for the science of language’ (Bloomfield 1926). It sets out the linguist’s assumptions explicitly, defines the terms for linguistic analysis, determines the primitive units for description and the hierarchy of relationships into which they enter. As in his review of Saussure’s *CLG*, Bloomfield seems to admit the relevance of the cognitive and social-interactive aspects of language but expels them to psychology and anthropology. Phonetics is also banished: ‘the psychologic and acoustic description of acts of speech belongs to other sciences than ours’ (Bloomfield 1926: 154). He does, however, invoke behaviourist psychology, referring to ‘the stimuli (A) which cause the act of speech and the reactions (C) which result from it’, the ‘vocal features or *sounds* (B) and [the] stimulus-reaction features (A–C) of speech’ (ibid.). Many of his postulates are worthy of comment. His rigour is captured in ‘5. Def. That which is alike will be called *same*. That which is not same is *different*.’ The definition of language is social, but there is no mention of Saussure’s ‘social contract’: ‘4. Def. The totality of utterances that can be made in a speech-community is the *language* of that speech-community.’ He has disallowed the notion of a multilingual speech-community in definitions 2 and 3; in his view multilingualism would involve several speech-communities. ‘6. Def. The vocal features common to same or partly same utterances are *forms*; the corresponding stimulus-reaction

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5. Roy Harris 2003: 68 suggests that Bloomfield doesn’t understand Saussure’s differential value; but it seems clear that Bloomfield has understood the idea when he writes: ‘added to other signals [the signal *s* in English] gives plural meaning (*hats*), added to certain others, it gives third-person present verb form (*puts*)’ (Bloomfield 1924: 318).
features are \textit{meanings}. [...] 9. \textbf{Def.} A minimum form is a \textit{morpheme} [...] 11. \textbf{Def.} A minimum free form is a \textit{word}. [...] 12. \textbf{Def.} A non-minimum free form is a \textit{phrase}’ (ibid. 154–56). Bloomfield’s definition of \textit{word} is similar to that of Boas:

a phonetic group which, owing to its permanence of form, clearness of significance, and phonetic independence, is readily separated from the whole sentence. \hspace{1em} (Boas 1911: 28)

The definition of a sentence comes in ‘27. \textbf{Def.} A maximum construction in any utterance is a \textit{sentence}’ (p. 156, cf. Bloomfield 1933: 170) – the difference from Boas has already been commented on. Phonemes, morphemes, and forms are related as follows: ‘16. \textbf{Def.} A minimum same of vocal features is a \textit{phoneme} or \textit{distinctive sound}. [...] 18. \textbf{Assumption 6.} Every form is made up wholly of phonemes. [...] The morphemes of a language can thus be analysed into a small number of meaningless phonemes’ (ibid. 157). Boas 1911 hadn’t used the word \textit{phoneme}; and Bloomfield’s definition of the phoneme is barely adequate: he should have added that if there is any phonetic similarity between two phonemes they will contrast in at least one environment. In definition 23 we find ‘recurrent sames of order are \textit{constructions}’, which raises problems for the subsequent definition of sentence unless ‘sames’ refers not to forms but to the yet-to-be-defined form classes that have certain functions associated with their position in the construction. \hspace{1em} 30. \textbf{Assumption 10.} Each position in a construction can be filled only by certain forms. [...] 31. \textbf{Def.} The meaning of a position is a \textit{functional meaning}. [...] 33. \textbf{Def.} All forms having the same functions constitute a \textit{form-class}. [...] 37. \textbf{Def.} A form-class of words is a \textit{word-class}. 38. \textbf{Def.} The maximum word-classes of a language are the \textit{parts of speech} of that language’ (ibid. 158–60).

Bloomfield is proclaiming linguistics an empirical science, seeking to establish that objectivity in examining linguistic data can be safeguarded by

- delimitation of the aims of enquiry,
- a description of the procedures for analysis, followed by
- a statement of the results.

All statements about language should be open to verification or disproof. This mechanistic view of linguistics (Bloomfield 1933: 32, 142ff) found behaviourist psychology congenial. The theory holds that behaviour is the result of learned responses to the environment; if we knew enough about the external stimuli on a person, we could predict their language and behaviour for any given occasion.

[H]uman conduct, including speech, […] is part of cause and effect sequences exactly like those which we observe, say in the study of physics or chemistry. […] We could foretell a person’s actions (for instance, whether a certain stimulus will lead him to speak, and if so, the exact words he will utter), only if we knew the exact structure of his body at the moment, or what comes to the same thing, if we knew the exact structure of his organism at some early

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6. Stimulus–response theory arose from analogy with Ivan Pavlov’s ‘classical conditioning’ of dogs (in the 1890s) to salivate when hearing bells or whistles, just as they would immediately before being handed food. This automatic learning through ‘conditioning’ was the foundation of behaviourist psychology. Bloomfield was introduced to behaviourism by his colleague at Ohio State University, Albert Weiss (see Weiss 1925).
stage – say at birth or before – and then had a record of every change in that organism, including every stimulus that had ever affected the organism.  (ibid. 33)

Bloomfield’s account of meaning is perhaps the weakest part of his linguistic theory. For him,

the meaning of a linguistic form [is] the situation in which the speaker utters it and the response it calls forth in the hearer.  (ibid. 139)

Bloomfield 1933: 26 characterizes the speech act as in (1).

(1) \[ \text{speaker’s situation } \rightarrow S \rightarrow r \rightarrow s \rightarrow R \rightarrow \text{hearer’s response} \]

The speaker’s situation is the non-verbal stimulus $S$ which results in the utterance $r$ which in turn is a stimulus $s$ on the hearer whose observable non-verbal response is $R$. The process is illustrated in the following story (ibid. 22), into which I have inserted Bloomfield’s analytical structure.

(2) [Speaker’s situation: $S \rightarrow$ ] Jill is hungry. She sees an apple in a tree. [This results in utterance $r$ ] She makes a noise with her larynx, tongue and lips. [This stimulates Jack to non-verbal response, $s \rightarrow R$ ] Jack vaults the fence, climbs the tree, takes the apple, brings it to Jill, and places it in her hand.

At first (2) looks plausible, if a little rough-hewn; but closer inspection reveals fatal flaws. Bloomfield offers no method for itemizing the conditioning stimulus $S$ and so (1) achieves only the uncontroversial observation that something motivates people to say what they say. What is needed here is an account of the speaker’s stored knowledge, their psychological and physiological states, the setting, discourse context, and other aspects of common ground. In addition there should be some way of assessing whether the stimulus is real or illusory. With all the possible external variables and speaker-internal imponderables, the stimulus condition $S$ is as much a theoretical chimera today as it was in 1933.

Bloomfield does not supply Jill’s utterance in (2) and, if his theory were correct, any set of contextually appropriate utterances would be possible.

(3) Look, there’s an apple. I’m so hungry. Would you fetch it for me?
(4) I’m hungry.
(5) I could just eat one of those apples!
(6) You know I love apples, Jack.
(7) I don’t really like apples, but I’m so hungry. And I can’t get one myself.
(8) Hey honey, steal me an apple.
(9) Bet you can’t get me an apple with that wooden leg!
(10) Ula ula ula ula. [Jill has a severe speech defect.]

These sentences do not have the same meaning; indeed, (10) has no linguistic meaning at all. Of course, Bloomfield could claim that each utterance has a stimulus condition distinct from the others; but he can only do so on the basis of the different meanings that we can readily assign to all of (3)–(9). In short, (3)–(10) manifest $r$ in (1)–(2) without there being
any need to consider the speaker’s situation. Moreover, Jack’s response to Jill’s utterance (the hearer’s response, $R$, to what is said) is unpredictable. One must conclude that Bloomfield’s definition of meaning in terms of ‘the situation in which the speaker utters it and the response it calls forth in the hearer’ is completely unsatisfactory. No wonder he concluded that

The statement of meanings is […] the weak point in language-study and will remain so until human knowledge advances very far beyond its present state. In practice we define the meaning of a linguistic form, whenever we can, in terms of some other science. \textit{(ibid. 140)}

Bloomfield was aware that the meaning of an expression should not be defined on just one instance of use, and he recommended distinguishing those features common to all occasions on which an expression is used; it was a recommendation adopted by other American descriptivists, e.g. Bernard Bloch (1907–65) and George Trager (1906–92):

The meaning of a linguistic form (a word, part of a word, or combination of words) is the feature common to all situations in which it used. \textit{(Bloch and Trager 1942: 6)}

This predates Ludwig Wittgenstein (1889–1951) saying ‘the meaning of a word is its use in the language’ (Wittgenstein 1953: 43); and it is more vulnerable. Because we can never gain access to all the potentially infinite number of situations in which a linguistic form is used, it would be necessary to sample them, raising the question: What counts as a valid sample of all the situations in which a form is used? There is a worse problem, though: the only constant element common to all the situations in which a linguistic form occurs is the form itself. Hence Bloch and Trager’s definition reduces to “The meaning of a linguistic form is the form itself”; which gets us precisely nowhere.

One of the main tenets of mechanistic linguistics was that a linguist should have no preconceptions about the grammatical categories that might be found in the object-language lest this should lead to the postulation of grammatical categories not warranted by the data. Utterances in a language were examined for recurrent patterns, or ‘regularities’, as Zellig Harris (1909–92) called them.

Descriptive linguistics […] deals not with the whole of speech activities, but with the regularities in certain features of speech. These regularities are in the distributional relations among the features of speech in question, i.e. the occurrence of these features relatively to each other within utterances. \textit{(Harris 1960: 5)}

These regularities are to be discovered by examining a corpus of language data in the way indicated by Boas 1911: 35 (quoted above p. 285), beginning with regularities among phones that can be classified into a phoneme inventory for the object-language; next, the regularities among sequences of phonemes which reveal the morphs that give rise to the morpheme inventory; and then the regularities in the distribution of morphemes which will reveal syntactic classes. This was accomplished by commutation, using – so far as is feasible – ‘minimal pairs’ in which segment $j$ is substituted for segment $i$ in a given environment or set of environments to establish the similarities and differences between $i$ and $f$. For example, in Australian English, [pʰæ] and [ba:] distinguish the words \textit{par} and \textit{bar};
but [pʰaː] and [paː] are non-distinctive.\(^7\) Thus in (Australian) English /p/ is a phoneme distinct from /b/, but there is no phonemic distinction between [pʰ] and [p] – unlike in Thai where /pʰ/ is a phoneme distinct from /p/ such that /pʰâː/ means “split” and /pàː/ means “forest”. I will not pursue the lesson in contrastive analysis. Instead we move on to the significance of ‘discovery procedures’ in mechanistic linguistics.

To ensure that language data were correctly described and the analysis replicable, it was presumed essential to make an explicit statement of the analytical method and to rigorously observe the analytical procedures thus set out. The linguist was supposed to proceed one step at a time from phones to phonemes to morphs to morphemes to syntax. A full description of phonology was supposed to precede any discovery of morphemes; a full description of morphology was supposed to precede any description of syntax. This goal was never achieved in practice, and there was a great deal of double-talk (or blatant hypocrisy) as a result. For example:

grammatical [= syntactic] considerations can serve as CLUES for phonological analysis without implying the latter is LOGICALLY built on the former. (Hockett 1950a: 70 (n.10))

Morphological and syntactic criteria must not be used to influence the basic analysis leading to the discovery of distinctive [phonetic] qualities and their distribution; but they are often helpful in deciding how to group these qualities, once they have been discovered, into combinations defining phonemes. (Bloch 1950: 92f (n.16))

Henry Gleason (1882–1975) in his *Introduction to Descriptive Linguistics* admitted the impossibility of analysing phonology without making reference to morphology or syntax (Gleason 1961). Although this particular problem of rigid discovery procedures was peculiar to American mechanistic linguistics, it exemplifies a common problem in the history of science, namely, ‘the immense difficulties often encountered in developing points of contact between a theory and nature’ (Kuhn 1970: 30).

Cracks in inductivist linguistics appeared when Bloomfield had to account for the fact that

the constituent form in the plural [of knives, mouths and houses] differs phonetically from the underlying singular noun. [...] We can describe the peculiarity of these plurals by saying that the final [f,θ,s] of the underlying singular is replaced by [v,ð,z] before the bound form is added. [...] The actual sequence of constituents, and their structural order [...] are a part of the language, but the descriptive order of grammatical features is a fiction and results simply from our method of describing the forms; it goes without saying, for instance, that the speaker who says knives, does not “first” replace [f] by [v] and “then” add [-z]. (Bloomfield 1933: 212f)

As we saw in Chapter 9 pp. 204f, Sapir and Twaddell showed that a phoneme cannot be defined on a class of phones. Sapir wrote: ‘no entity in human experience can be adequately defined as the mechanical sum or product of its physical properties’ (Sapir 1933a). Twaddell was disquieted by the same inescapable quandary: although there is no inductive basis for recognizing the phoneme as a concrete entity, there is no problem recognizing it on an intuitive basis as an abstractional fiction, i.e. a hypothetical construct. A similar problem

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7. Though [paː] might sound like the speaker is South African.
beset the definition of the morpheme. Morphs are identifiable because recurring sequences\(^8\) of phonemes create morphs; but there is no comparable inductive process to group morphs into morphemes. Consequently, in ‘Problems in morphemic analysis’, Hockett 1947: 339f in effect created an abstract morpheme \{s\} to function as the English plural. He could just as well have called it \{PLURAL\} in view of the wide variety of morphs that manifest the morpheme; in fact, it would have been preferable had he taken the plunge, because he employs the same \{s\} for the English possessive morpheme and creates an unnecessary classificatory ambiguity that is rooted in the homophony of two of the morphs – or perhaps the polysemy of the one morph – instantiating what ought to be distinct morphemes. Hockett was probably constrained by the notion that morphemes are defined on phoneme sequences – or in this instance a single phoneme. Harris recognized that it is necessary to analyse the ‘flow of speech’ into ‘linguistic elements’ which it is convenient to consider [...] as purely logical symbols, upon which various operations of mathematical logic can be performed. At the start of our work we translate the flow of speech into a combination of these elements, and at the end we translate the combinations of our final and fundamental elements back into the flow of speech. (Harris 1960: 18)

The fact that language is a practical means of communication among human beings was largely ignored by American descriptivist linguistics. Because the form-meaning correlation is fundamentally arbitrary,\(^9\) it is impossible to project the meaning of an expression from its phones or from the grammatical categories discovered via distributional analysis. It is true that Boas wrote of ‘the groups of ideas expressed by phonetic groups’ and did not use the term ‘morpheme’; but the mechanists who followed him defined a morpheme as a recurrent sequence of phonemes showing certain distributional regularities (Trager and Smith 1951: 53). The dreadful irony is that meaning was always implicitly relied upon, because it is exactly the meaningfulness of the sequences of phones which contrasts phonemes.

In order to recognize the distinctive features of forms [i.e. phonemes] in our own language, we need only determine which features of sound are “different” for purposes of communication. (Bloomfield 1933: 78)

Harris 1960 talks of sameness or difference between segments within the same ‘neighbourhood’. For example, a cat and a pat would have the same neighbourhood for [k] and [p]; these two phones are not in ‘free variation’, therefore they are (allophones of) distinct phonemes (ibid. 16, 29–35). But Harris merely invokes Bloomfield’s notion of ‘different for the purposes of communication’ implicitly instead of explicitly. Furthermore, as Boas 1911 and Hockett 1947 recognized, it is the meaningfulness of sequences of phonemes which distinguishes morphemes. In Boas’ words:

It must, however, be remembered that the single sound as such has no independent existence, that it never enters into the consciousness of the speaker,\(^10\) but that it exists only as a part of a sound-complex which conveys a definite meaning. (Boas 1911: 23)

\(^8\) What Zellig Harris 1960: 5 referred to as ‘regularities […] in the distributional relations.’

\(^9\) Some apparently non-arbitrary cases are examined in Allan 2001: 132–41.

\(^10\) The existence of alphabets casts doubt on the surmise that phonemes never enter the consciousness of the speaker; though it may well be true that alphabets are the creation of
In addition, until *colorless green ideas sleep furiously* (Chomsky 1957: 15) muddied the issue, it was covertly supposed that meaningfulness determines the grammaticality of morpheme sequences, too. Within American mechanistic descriptivism – which became ‘structural linguistics’ at the publication of Harris’ *Methods in Structural Linguistics* in 1951 – meaning remained the uninvestigated ghost in the machine. Such problems with inductivist linguistics, and the solutions that Bloomfieldians were forced to propose to circumvent them, led Chomsky to propose a new paradigm for linguistics.

The term ‘paradigm’ refers to
universally recognized scientific achievements that for a time provide model problems and solutions to a community of practitioners. (Kuhn 1970: viii; and cf. pp.174–210)

A paradigm will direct the manner in which data are perceived: for instance, Kuhn (1970: 50) reports an eminent chemist claiming that an atom of helium is a molecule while an eminent physicist claims, to the contrary, that a helium atom is not a molecule. It is the different paradigms for chemistry and physics that lead to these contrary perceptions. A paradigm determines the methodology for matching data with the theory, as well as directing the way in which the theory or model is articulated. After the middle of the twentieth century there was a shift from a phenomenological inductivist paradigm in American linguistics to a hypothetico-deductivist paradigm: a shift known as ‘the Chomsky revolution’ because it came about through Chomsky’s work. It is chronicled by Chomsky 1975a in his ‘Introduction’ to *The Logical Structure of Linguistic Theory*.

**Chomsky’s disillusionment with the inductivist paradigm**

It was while working on his master’s thesis *Morphophonemics in Modern Hebrew* [*MMH*] that Noam Chomsky became frustrated by the impossibility of deriving phonemes from phones, morphemes from morphs, etc. Being Zellig Harris’ student, Chomsky was steeped in inductivist linguistics – which may be the reason for his continuing lack of enthusiasm for semantics (particularly obvious in *Syntactic Structures*, Chomsky 1957). In 1951, when Chomsky set about revising *MMH* for publication, he still clung to the belief that a grammar could be derived by applying the inductive method of distributional analysis in the manner of Harris 1951; 1954. He wanted to present the simplest possible set of rules for deriving phonemic forms from morphophonemic forms (what in Chomsky and Halle 1968 is referred to as the derivation of ‘systematic phonetic forms’ from ‘phonological representations’). Trying to accomplish this, Chomsky was gravely discomforted by the fact that he found himself led to propose representations that looked less and less like the phonemic representations customarily used in inductivist linguistics. In chronicling this period, Chomsky has written:11

(avant la lettre) linguists and that the run of the mill speaker does not have any consciousness of a phoneme.

11. For our purposes it does not matter that Chomsky may have rewritten history, as suggested by e.g. Randy Harris 1993: 269 and Koerner 2003. History relies on the interpretation of assembled ‘facts’; and, as is well known from studies of eyewitness testimony (cf. Loftus
as the grammar [in MMH] was improved in terms of its explanatory force and degree of
generalization, it became more and more difficult to isolate anything approximating a
phonemic representation, and I took for granted that phonemic analysis was the
unchallengeable core of linguistic theory. More generally, I was firmly committed to the belief
that the procedural analysis of Harris’ Methods [Harris 1951] and similar work should really
provide complete and accurate grammars if properly refined and elaborated. But the elements
I was led to postulate in studying the generative grammar of Hebrew were plainly not within
the range of such procedures. However refined, these were essentially procedures of
segmentation and classification. They were designed to isolate classes of phones, sequences of
these classes, classes of these sequences, etc., until, ultimately, sentences are characterized in
terms of their constituents. But the elements that were needed in the optimal generative
grammar simply did not have this character. They were not classes, sequences of classes, or
anything of the sort, but were simply abstract elements forming strings that could be mapped
into phonetic representation by deeply ordered rules of considerable generality. I therefore
assumed that whatever I was doing, it was not real scientific linguistics, but something else,
obscure in status. This feeling was reinforced by the almost total lack of interest in MMH on
the part of linguists whose work I respected.

[...] My own work on Hebrew, though only rudimentary beyond the morphophonemic level,
sufficed to suggest to me that something central was missing. The failure of inductive, data-
processing procedures at the syntactic level became more obvious the more I worked on the
problem.

[... A]lthough there is frequent reference in the literature of linguistics, psychology, and the
philosophy of language to inductive procedures, methods of abstraction, analogy and
analogical synthesis, generalization and the like, the fundamental inadequacy of these
suggestions is obscured only by the unclarity. The same is true of the substitution procedures
developed by linguists in an effort to come to grips with these problems.

It became increasingly clear to me that the methodological limitation to procedures based
on substitution, matching, and similar “taxonomic” operations was arbitrary and unwarranted.
[...] The problem of defining syntactic categories was only a special case. The taxonomic
approach, which encompassed all theoretical studies of language known to me that were
concerned with the fundamental problem of projection and with the precise characterization of
the general concepts of linguistics, sought to define such concepts as “phoneme,”
“morpheme,” “category,” etc., by procedures of segmentation and classification applied at
successive levels of generality, providing what might reasonably be called “a grammar of
lists.” (Chomsky 1975a: 30–32)

Chomsky thoroughly confirmed something that Bloomfield, Sapir, Twaddell, Hockett,
and Zellig Harris (among others) had discovered earlier: that the emic categories of
phoneme and morpheme cannot be induced from the corresponding etic categories of phone
and morph. The latter are natural phenomena: they are spatio-temporally located objects
within the object-language (because out of our mouths come phones, morphs, etc.); in
Saussure’s terms, they are elements of parole. The corresponding emic categories are
hypothetical constructs of the metalanguage, as Saussure 1931: 144 [102] recognized.
Einstein wrote of the correlation between what I am calling the emic and the etic in terms of

1979), so-called facts are themselves determined by interpretations of sensory data, memories
of events, the experience and honesty of the reporter, and other phenomena that are open to
dispute. For my purposes, Chomsky’s account is as good as any other.
the logical independence of the [emic] concept from the [etic] sense experiences. The relation is not analogous to that of soup to beef but rather of check number and overcoat. (‘Physics and reality’ [1936] Einstein 1973: 294)

In other words, the correlation is essentially arbitrary even though it is conventional; which is exactly analogous to the correlation between meaning and form in language. It is as absurd to try to induce emic from etic categories as it is to try to determine the meaning “canine quadruped” from the concatenation of letters in the form *dog*. The only way to establish hypothetical constructs is by postulation or axiomatization within the metalanguage. They are necessarily products of a hypothetico-deductive system.

**The Chomsky revolution**

In the history of scholarship the first person to light on an idea is not necessarily the person who gets history’s tribute. As we saw in Chapter 9, the phonemic analysis of the so-called First Grammarian was more than seven centuries before its time; and Rasmus Rask had worked out by 1811 most of Jacob Grimm’s law of 1822. Darwinism was already identified by Alfred Wallace before Charles Darwin gave his name to it. The ‘Whorfian hypothesis’ has roots in the work of Humboldt 1836, as we saw in Chapter 10. There is little doubt that Chomsky’s early ideas were influenced (consciously or not, see Koerner 2003) by the work of Bloomfield 1939 on morphophonemics, Hockett 1950b and Zellig Harris on morphology and syntax. Moreover his early work was generally well-received by Gleason, Zellig Harris, Hockett, Householder, and Nida (see Randy Harris 1993). Perhaps history was waiting for Chomsky. The comparative philology of the nineteenth century had been a new direction in the study of language within the Western Classical Tradition that stretches back through the rationalists of the seventeenth and eighteenth centuries, the modistae, Priscian, the Stoics, the Alexandrians, to Aristotle and earlier; in the Tradition morphological, syntactic, and semantic categories had dominated grammar. Instead of treating language universals based on human categorization of nature, categories determined by either the intrinsic nature of things or by the nature of human reason (both non-observables), the comparative philologists dealt primarily with observable constituents. They compared the functions of language items in related languages and sought to account for correspondences principally inductively. In the twentieth century this combined with logical positivism into the extreme philosophy of mechanistic linguistics with its rejection of semantics as a proper study for linguists on the ground that it is not directly observable. By 1962 (see Chomsky 1964b) Chomsky was championing the universalism and cognitivism of traditional grammar against its rejection by Bloomfieldians and he was already, in the 1950s, reanalysing the traditional concerns with the new tools of mathematical logic and transformational grammar under the tutelage of Zellig Harris (see Harris 1970). The true revolution that Chomsky bequeathed was the shift from discovering grammars inductively to axiomatizing them in a top-down hypothetico-deductive process and setting up adequacy conditions for evaluating them.

In the history of science, flaws in a paradigm do not in themselves lead to a rejection of the paradigm; rejection is always preceded by last-ditch attempts to modify the theory in
order to preserve it. Chomsky’s attempts to make inductivism achieve his end, his admitted discomfort with and disparagement of his linguistic enterprise as ‘not real scientific linguistics’, and the reported lack of interest in his novel work by other linguists, all demonstrate the typical reaction of those who have accepted the tenets of one paradigm and see it being abandoned and replaced by another (see Kuhn 1970). A shift from one paradigm to another always meets with initial resistance and uncertainty of this kind, because adherence to a particular paradigm is not primarily a matter of reason, but a rationalization based on belief in the validity of the paradigm (Kuhn 1970: 151). So the reaction to the undermining of a paradigm is similar to the reaction provoked when any one faith or ideology is under threat from another. So it was with American descriptive linguistics. A majority of linguists only put it aside after Chomsky had articulated the new hypothetico-deductive paradigm.

What Chomsky was describing in the passages quoted earlier (Chomsky 1975a: 29–32) was his disillusion with the inductive paradigm in linguistics; and he goes on to chronicle the beginnings of its replacement by the hypothetico-deductive paradigm as a result of work he published in the late 1950s.

It became increasingly clear to me that the methodological limitation of procedures based on substitution, matching, and similar “taxonomic” operations was arbitrary and unwarranted. One might approach the problem of projecting a corpus to a language of grammatical sentences in an entirely different way, with a procedure for evaluating a completed system of categories rather than a procedure for constructing these categories step by step by taxonomic methods. [...] Two approaches to the specific problem of defining syntactic categories were thus counterposed: a constructive, taxonomic approach and an alternative, no less rigorous or formalizable, that was concerned essentially with the properties of a completed solution.

[...] In the alternative paradigm] one might try to define the notion “grammar” directly in terms of a set of primitive notions applicable to a corpus of data; the phonemes, morphemes, categories, etc., would then be the elements that appear in the highest valued grammar of the appropriate form meeting the empirical conditions determined by the application of the primitive notions to a corpus of data. There would now be no reason to regard phonemes, morphemes, categories, and other elements to be segments, classes of segments, sequences of classes, sets of phenomenal properties (e.g. phonetic distinctive features), and so on. Rather they would be elements in various abstract systems of representation.

[...] I gradually came to believe one might not only solve the “inductive problem” (now abandoning all inductive methods, in a strict sense), but also, more important, develop and justify grammars with a range of explanatory power that clearly escaped the limits of taxonomic theory. (Chomsky 1975a: 31f)

Chomsky had found that the inductive method cannot deliver the fundamental concepts of language. As we saw earlier in this chapter, Einstein had much earlier made a similar observation about physical theory in ‘Physics and reality’ (Einstein 1973: 299). Both Einstein and Chomsky in their different fields of interest remarked on the necessity for a hypothetico-deductive paradigm in science. The difference between them is that Einstein was a realist, whereas Chomsky very soon became a conceptualist. Einstein also wrote:

The structure of the system [the theoretical system of physics] is the work of reason; the empirical contents and their mutual relations must find their representation in the conclusions of the theory. In the possibility of such a representation lie the sole value and justification of
the whole system, and especially of the concepts and fundamental principles which underlie it.

This is exactly the point of view which Chomsky embraced and which brought about the so-called Chomsky revolution. Although facing the same data, the new paradigm would require linguists to look at their task anew; they were like someone becoming accustomed to wearing inverted lenses who has to learn to function with the way things look under these new conditions (Kuhn 1970: 122).

**Correlating theoretical constructs with the reality they purport to represent**

As we have seen, even when it is constructed to map human behaviour, a hypothetico-deductive model is essentially an abstraction. Both Hittite and English exist (in some sense of this verb) independently of speakers of these languages; that is abstraction. A linguist’s model of Hittite, English, or any other language, therefore models an abstract entity. Saussure’s notion of *langue* as a social contract presupposes that a language exists independently of an individual speaker; that is abstraction. Chomsky’s notion that a grammar of language L should model the ideal speaker-hearer’s internalized knowledge of L presupposes that L is the object of the speaker-hearer’s knowledge and therefore it exists independently of the speaker-hearer (see Katz 1981a); that is abstraction. It is barely controversial that emic categories and other such theoretical constructs are abstract. Inductivist linguistics foundered on the impossible task of deriving emic from etic categories using the approved distributional and classificatory criteria. So how are emic categories discovered? Einstein wrote:

> The concepts and fundamental principles which underlie [a scientific theory] are free inventions of the human intellect which cannot be justified either by the nature of that intellect or in any other fashion *a priori*. (‘On the method of theoretical physics’ [1934] Einstein 1973: 266)

The concepts and fundamental principles are not out there in Nature waiting to be discovered; they are invented by human intellect – as we have seen that the American descriptivists unwillingly discovered for themselves. Einstein’s description ‘free inventions of the human intellect’ needs qualifying; perhaps he is too anti-deterministic for some tastes, but he is not anarchic:

> The liberty of choice [...] is of a special kind; it is not in any way similar to the liberty of a writer of fiction. Rather, it is similar to that of a man engaged in solving a well-designed word puzzle. He may, it is true, propose any word as a solution; but there is only one word which really solves the puzzle in all its parts. It is a matter of faith that nature – as she is perceptible to our five senses – takes the character of such a well-formulated puzzle. The successes reaped up to now by science do, it is true, give a certain encouragement for this faith. (‘Physics and reality’ [1936] Einstein 1973: 287)

Within a given theory it is not the case that anything goes: theoretical constructs are constrained by the characteristics of the natural phenomenon being modelled. If the

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12. Because Chomsky has challenged this conclusion, I discuss it in some detail later.
Theoretician does a good job, we will recognize a harmony between the theoretical constructs and the natural phenomena they model.

There is no logical path to these laws [of the natural phenomena being modelled], only intuition resting on sympathetic understanding of experience can reach them. (‘Principles of research’ [1934] Einstein 1973: 221)

It is ‘intuition resting on sympathetic understanding of experience’ which guides the ‘free inventions of the human intellect.’

The theoretical idea [...] does not arise from and independent of experience; nor can it be derived from experience by a purely logical procedure. It is produced by a creative act. (‘On the generalized theory of gravitation’ [1950] Einstein 1973: 334)

So, constructs of a theory of a natural phenomenon such as language arise by a creative act. The theory and its constructs are created by human intuition originating in a sympathetic understanding of our experiences of the natural phenomenon being investigated.

There are, of course, problems when claiming that the truth of a scientific theory consists in its correspondence to those facts that constitute its data:

- It is difficult to perceive the data without prejudice; it is not humanly possible to avoid taking a point of view.
- What limits are to be placed on the database before the theory is constructed? If the database keeps expanding, so might the theory.
- The so-called “truth” claims13 made by a theory are not necessarily exhausted by what it has to say about its database; for instance, a theory of grammar can use sentences of L as its input, but the theory may also make claims about the learnability of L.

Despite these problems, I assume that every constructor of a linguistic theory should seek to demonstrate that the constructs of the theory are in harmony with what is known about human language.

Willy-nilly, a model of language is constructed on the basis of the linguist’s intuitions about the structure of language; it is not derived directly from the language data. Nevertheless, the intuitions must be guided by scrupulous observation of the data. Thus the task of collecting and classifying language data is necessarily prior to the construction of a hypothetico-deductive model based upon it. But the process of classification will not serve as a source for satisfactory inductive generalizations about the nature of language, even though such generalizations will doubtless prove useful for all sorts of purposes: after all, Newtonian dynamics is still used by engineers; and Ptolemy’s astronomical charts could still be used for navigation. The contribution to linguistics of the inductivists was considerable, and a necessary precursor to hypothetico-deductivism. But a theory of language must, if it is to be consistent, coherent, and efficacious, be a hypothetico-deductive theory. Because such theories are constructed on the basis of a linguist’s scholarly intuition about the structure of language, there are potentially as many theories as there are

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13. I have put “truth” in quotes because proponents of the theory may claim that certain propositions are true, whereas opponents may claim the same propositions are false or indeterminably true or false. This is the case with recent Chomskyan theories, as we shall see.
Evaluation of linguistic hypotheses: what a theory of language should do

- Be a theory of language and not of something else, such as a theory of mind or human behaviour. This raises the dispute between the realists and the conceptualists, which will be examined below.
- Have ontologically determinate constructs in the sense of Botha 1980. (This will be discussed.)
- Have constructs that are independently motivated and predictive.
- Have the means to distinguish any genuine utterance in the object-language from any other thing.
- Be comprehensive and be applicable to every utterance, part of an utterance, or combination of utterances in the object-language.
- Be consistent and coherent: conclusions should follow from premises; all parts of the theory should be compatible with one another.
- Be concise and succinct in its metalanguage; and therefore readily interpretable by users. (This is a desirable, but not a necessary, criterion.)
- Be explanatory in the sense that the meaning and structural description it assigns to any expression of the object-language should accord with a native speaker’s intuitions about the reasonableness of such an ascription. (There are bound to be individual differences of opinion on this score.) Harvey J. Gold writes in *Mathematical Modeling of Biological Systems*:

The result of a mathematical development should be continually checked against one’s intuition about what constitutes reasonable biological behavior. When such a check reveals a disagreement, then the following possibilities must be considered:

a. A mistake has been made in the formal mathematical development;

b. The starting assumptions are incorrect and/or constitute a too drastic oversimplification;

c. One’s own intuition about the biological field is inadequately developed;

d. A penetrating new principle has been discovered.

Alternative d is, of course, what everyone roots for, but acute embarrassment lies in wait if the first three are not carefully checked. Agreement between intuition and the mathematics is certainly no guarantee of correctness, but disagreement should always be regarded as a danger signal. (Gold 1977: 15)

- Be explanatory in the sense that it shows (or can be caused to show) reasons for assigning a particular meaning and structural description to an expression in the object-language.
- Explain what is common to all languages.
- Be in harmony with an account for the learnability of languages.
- Explain how language functions as a practical means of communication.

I said in Chapter 1 that language can be viewed from at least four perspectives: as manifest in physical objects and physical events; as social behaviour; as the object of
knowledge; and as an abstract object. The last one mentioned is fundamental. My view is similar to, but not identical with, the ‘realist’ view of Katz 1981a; Katz and Postal 1991. For realists (Platonists), language and the theoretical constructs of a linguistic theory are abstract objects which exist independently of human beings. According to Katz and Postal 1991: 518, natural language sentences are ‘things which, like numbers in mathematics, are not located in space-time, involved in causal interaction, or dependent for their existence on the human mind/brain.’ Plato’s Ideas (Forms) are not sensible to mankind, but exist in an immortal world separate from ours, and humans can access them through their immortal souls:

They say that the soul of man is immortal, and at one time ends a life – what people call dying – and at another is born again, but never perishes. [...] So, since the soul is immortal and has been born again many times, and has seen both the things here on earth and those in the underworld and all things [including Ideas], there is nothing that it has not learned. \(\text{(Meno 81b,c)}\)

Judging Plato’s account by today’s criteria it is metaphysical; but for Plato the Ideas were ‘natural’, being categories of \textit{physis} which we humans have only imperfect and possibly illusory apprehension of. This doctrine of \textit{anamnesis} offers a solution to the perennial puzzle posed by universals (e.g. \textit{all circles}), or impossible objects (e.g. \textit{a perfect circle}), or even the lexeme \textit{circle}: how can we know the meanings of such expressions on the basis of just a few instances of necessarily imperfect circles? Yet we do. If we are loath to accept Plato’s metaphysical explanation, various updates on the machinery exist; but no one has offered a solution which is essentially different and at the same time satisfactory. Katz 1981a; Katz and Postal 1991 are at least as mysterious as Plato on where (Platonic) abstract objects exist (how they can “exist” is a mystery if they are atemporal and aspatial, but we will let that verb pass). Katz 1981a: 181ff flatly denies that they are human constructions. We apprehend abstract objects (all kinds) not through our immortal souls, but through intuition – which Katz distinguishes from introspection, perception, and reasoning (Katz 1981a, Ch.6). But Katz’s refurbishment of the immortal soul is unconvincing because language exists as a form of human behaviour; it exists in people’s heads.\(^{14}\) Therefore, if language and its constructs are abstract objects, it is because we human beings abstract them from physical language events. This is directly contrary to Katz 1981a, who regards the products of such abstraction as ‘idealizations’, and writes: ‘In contrast, abstract objects are not idealizations at all. They do not represent anything physical or psychological’ (\textit{ibid.} 56).

Although I argue that language and its constructs are abstract objects, I hold that they are abstracted from spatiotemporally located physical, psychological, and social manifestations of language events (contra Itkonen 1978, for example). I do not believe, as the conceptualists do, that linguistic theory is a theory of the mind/brain (see Botha 1992 for extensive discussion).

To know a language is to be in a certain mental state, which persists as a relatively steady component of transitory mental states. \(\text{(Chomsky 1980: 48)}\)

\(^{14}\) I do not wish to extend this argument to other abstract objects such as the constructs of mathematics and logic, about which I am agnostic.
Chomsky has long claimed that linguistic theory should model the ideal speaker’s knowledge of the language, $K_L$; consequently, a model of $K_L$, $\Psi$, will be a model of a mental state which purports to be a theory of language $L$. This cognitive aspect of language is what led Saussure to claim that language is concrete and not abstract; but I think he was wrong. Note that $\Psi$ is not directly a model of $L$; this is a point I will take up later. A theoretical construct, $\varphi$ of $\Psi$, would model some mental representation which is an element of this knowledge. Chomsky claims, ‘We attribute “psychological reality” to the postulated representations and mental computations’ (Chomsky 1976: 9); but Botha 1980; 1982 demonstrates that such claims are vacuous because the theoretical entities Chomsky postulates are ontologically indeterminable, and the theory unfalsifiable. So despite Chomsky’s claims to the contrary, $\varphi$ is not itself a psychological entity, i.e. it is not a construct of the mind which has knowledge of language. It is in fact a construct of the theory of knowledge of language, and therefore a construct of the theoretician’s mind. By parallel argument, it is no help to a Chomskyan to become more biologistic, and to argue that what were once regarded as mental states are now to be regarded as brain states (see Chomsky 1986). Gilbert Harman argues that we need to consider what aspects of a theory correspond to natural phenomena and which are theoretical constructs.

Geography contains true statements locating mountains and rivers in terms of longitude and latitude without implying that the equator has the sort of physical reality that the Mississippi River does. (Harman 1980: 21)

Latitude, longitude, and the equator are useful theoretical constructs. So are grammatical categories – or so they should be! They are concepts from a theory and they can be profitably employed in the analysis and in the conscious learning of languages; but they are not language (which is the object of the theory and its constructs). Nor are they concepts in the minds of the majority of language users (as Baker 1770: v recognized). Suppose scholar $\alpha$ claims that the grammatical structures assigned by a particular model of $K_L$, $\Psi^1$, have psychological reality; and scholar $\beta$ develops a notational variant of the same grammatical structures in another theory of $K_L$, $\Psi^2$; then, on the conceptualist theory, $\Psi^2$ manifests a different psychological reality from $\Psi^1$. This unwelcome (not to say absurd) consequence will not arise if we recognize that $\Psi^1,...,\Psi^n$ are abstract rational models of $K_L$, and each is independent of $K_L$. Chomsky appears to respect this independence:

When I use such terms as “mind”, “mental representation”, “mental computation”, and the like, I am keeping to the level of abstract characterization of the properties of certain physical mechanisms, as yet almost entirely unknown. (Chomsky 1980: 5; see also Chomsky 1975b: 32)

An abstract characterization necessarily utilizes theoretical constructs which are abstract objects, no matter what is being modelled – be it mentalistic, neurological, or inorganic. Chomsky’s hypothetico-deductive model is, like any other, an abstraction; it presents an abstract representation of $K_L$. By definition, neither a model of language processing ability nor a model of a cognitive state is a model of language. The problem with a mentalistic theory of language such as Chomsky’s is in relating the products of the theory to products of

15. As are the M[agritte]-representations of Burton-Roberts and Carr 1999.
the mind rather than with direct manifestations of language, because no $\Psi$ is directly a theory of language. This suggests that $\Psi$ should be evaluated by psychologists rather than linguists, and consequently that Chomskyan theory is psychology rather than linguistics.

This is not disciplinary chauvinism. The argument that the linguist should model $K_L$ is a strong one. Yet if every human science that involves cognition is to be subject only to mentalist theories, then philosophy, applied mathematics, and many other disciplines to a greater or lesser extent, will join Chomskyan linguistics as branches of psychology. *Pace* Jerry Fodor, but this is not the ‘Right View’ – even if he dubs it that. Fodor writes:

> an adequate linguistics should explain why it is that the intuitions of speaker/hearers constitute data relevant to the confirmation of grammars. The Right View meets this condition. It says ‘We can use intuitions to confirm grammars because grammars are internally represented and actually contribute to the etiology of the speaker/hearer’s native judgments.’ (*Fodor* 1985:152 [*sic*])

We do not presume that, within a theory of aesthetics, the intuitions of artists constitute data relevant to the confirmation of their aesthetic decisions; we examine the structure of their artistic products. If Fodor’s ‘Right View’ is indeed the right view, then – by parity of argument – we should expect a theory of aesthetics to be modelling the internal representations of aesthetes! Presumably the same argument could be extended to every phenomenon we have theories of. This is not a wise approach to theory construction.

The object of analysis for linguistic theory should be language, and although there is no doubt that Chomsky’s view of where language resides is one well justified view, it is not the only one. In *Reflections on Language*, Chomsky wrote:

> There is [...] a very respectable tradition [...] that regards as a vulgar distortion the “instrumental view” of language as “essentially” a means of communication, or a means to achieve given ends. Language, it is argued, is “essentially” a system for the expression of thought. (*Chomsky* 1975b: 56f)

The last sentence clearly reveals what lies behind Chomsky’s mentalism: his belief that language is essentially a system for the expression of thought (a view shared with Leibniz and Herder). But the objection to what he calls the ‘instrumental view’ of language is unsound. There is the trivial objection that Chomsky apparently contradicts himself here. For the sake of argument, let’s grant him that the function of language is the expression of thought: then for Chomsky this is the ‘given end’ which language achieves. But he says in the previous sentence that language should not be seen as achieving given ends! We might charitably conclude that this is an infelicity of expression, but we must doubt the clarity of Chomsky’s thinking here. When he writes, ‘Language [...] is “essentially” a system for expression of thought’, he implies that language is a vehicle for the expression of thought – that is, the communication of thought to someone. Chomsky does, of course, recognize that thought is independent of language, and thoughts don’t have to utilize language or be communicated through language (*Chomsky* 1975b: 57). He also recognizes that language serves a communicative function, and that one can expect ‘significant connections between structure and function’ (*Chomsky* 1975b: 56). In his view language exists primarily for the expression of thought; human communication is a by-product. Yet if language is not primarily for the purpose of communication, it is hard to see why anyone should wish to
learn a foreign language except as a mental exercise, and it is puzzling what the evolutionary value of language to humans (and other species said to have language) could possibly be. My own view (Allan 1986; 2001) is that language conventions are a proper subset of the conventions governing social interactive behaviour and therefore that language should be approached within a communicative framework rather than a mentalistic one. Interestingly, Chomsky’s claim that ‘Actual investigation of language necessarily deals with performance, with what someone does under specific circumstances’ (Chomsky 1980: 225), taken together with other things said about ‘performance’, suggests that he himself recognizes that at least one source for language data is the speech act, in other words, language used for communication.

The point of this discussion about the essential function of language (which gives a reason for its existence) is that it offers an alternative point of view about the object of analysis for linguistic theory. Rather than modelling the idealized speaker-hearer’s knowledge of language, which is a mental state $K_L$, a linguistic theory should directly model a language $L$, which is the abstract object that $K_L$ is knowledge of. This same abstract object $L$ is what is used in the social contract between interlocutors that Saussure spoke of. The language data that form the object of analysis are public, whereas mentalistic data are not (even if their manifestations sometimes are). The language data, which are normally the product of communicative acts between language users, can be directly compared with products of the theory of language.

**An eclectic approach**

I conclude that the development of a linguistic theory requires a combination of inductivism and hypothetico-deductivism. It is the linguist’s intuitions about language data (etic phenomena), which lead him/her to create the corresponding hypothetical (emic) constructs. There may be no way of ensuring that the linguist’s intuitions are good, because it is not known quite what intuition is (and I believe Fodor is wrong in supposing it is part of a linguist’s brief to change that state of affairs). Nevertheless, it is reasonable to suppose that the kind of data gathering enterprise carried out by inductivists creates a corpus that ought to provide the best opportunity for the linguist’s intuitions to work on. The corpus will also offer data against which to check the products of any hypothetico-deductive theory a linguist generates.

Against the notion that inductivism supplies a necessary and adequate database for theory construction is the Chomskyan view that a native speaker’s internalized grammar provides just such an adequate database. But note that we are not speaking here of $K_L$, which is a property of the idealized speaker-hearer, but of an actual speaker-hearer’s knowledge of the language – which is necessarily less than ideal. Furthermore, note that when hypothetico-deductivists use their own internalized grammar of $L$, they might be fulfilling the criterion for what I am calling the Chomskyan view of a proper database for theory construction; but that is not the case where the theory constructor uses a second party. When soliciting language data from a second party, the theory constructor is in a
similar position to the inductivist. The big difference is that the inductivist eschews investigation via a theory. But if the theory is to properly account for the natural phenomenon, then surely there should be as much data as possible available about that phenomenon. The danger inherent in collecting data to fit a theory is that other data might be either overlooked or ignored – and this is precisely the danger that Boas warned against. Here is the reason that inductivism is a proper precursor to hypothetico-deductivism.

Inductivism in linguistics is not dead and buried, even if mechanistic linguistics is. There is a current controversy over the nature of language universals. Inductivism is adopted by researchers like Bernard Comrie 1981; Talmy Givón (ed.) 1983; Joseph H. Greenberg (1915–2001) and others in the Stanford Universals Project; and Alexandra Y. Aikhenvald, who survey certain phenomena and draw conclusions based on the data gathered (with respect to, e.g., referent tracking strategies in discourse across a wide variety of languages in Givón (ed.) 1983; and classifiers or evidentiality in Aikhenvald 2000; 2004). These inductivists then construct hypotheses about universal tendencies, such as the NP accessibility theory of Keenan and Comrie 1977, or Givón’s theory of referent tracking phenomena. For these researchers, inductivist fieldwork yields generalizations about properties common to a majority of languages (perhaps all) that enable subsequent hypothetico-deductive hypothesis construction; consequently, it is inaccurate to dismiss them as mere inductivists. In the other camp are Chomsky and his co-workers, who make pronouncements about universal grammar which appear to have only a hypothetico-deductive basis. The reason for this is that Chomsky views language universals as being about the biologically necessary properties of language which constitute the ‘initial state’ of a first-language learner – i.e. the basis on which knowledge of language develops (Chomsky 1980: 29, 69). With this aim, it is difficult to see how cross-language data can be of much help in hypothesis construction, since the biologically necessary properties will be deducible from the intensive study of any one language. But even this project requires an adequate database from the one language that is the object of analysis; and that database presupposes inductive investigation. Where cross-language data become relevant is in checking the products of the hypothesis, since what is claimed to be biologically necessary must occur in every human language and should presumably not be found in some nonhuman languages. So, even for the Chomskyan endeavour, the problem of adequate data gathering arises.

Linguistic theorizing needs to apply both of the macro-paradigms of linguistics in order to achieve its proper end. The bottom-up data-gathering and preliminary classification from inductivism (preceded by abduction), and the top-down hypothesis construction from hypothetico-deductive cannot be related in neat temporal sequence: experience tells us that the linguistic researcher must expect to go to and fro between them, reviewing the data to intuit hypotheses, and then checking the hypotheses against the data using the evaluative procedures proposed earlier. Although it may seem from the discussion in this chapter that there is a clear separation between the two macro-paradigms, the reality is more complex. I have already emphasized that data need to be classified using principles that are essentially abductive and inductive; and I have also repeated what Einstein and Chomsky, among others, have said: that classification and taxonomy deal with abstract objects that are no less
than the theoretical constructs of a hypothetico-deductive system. It follows that inductivists’ choice of data, indeed their very perception of the data, involves a categorial process which cannot, in the end, be satisfactorily distinguished from hypothetico-deductivism. Neither paradigm is logically prior; they are complementary and as tightly integrated as the double helix of DNA. Linguistic science, like any other science, needs abduction, induction, and deductive approaches in order to model language.

A tale of two paradigms

This chapter has focused on linguistic metatheory, exemplifying it from twentieth century linguistics and drawing lessons for the modelling of language in the twenty-first century. The metatheoretical problems examined arise from strands of inquiry in the Western Classical Tradition of linguistics and form a fitting conclusion to the book. The inductivist paradigm of Bloomfieldian linguistics (aka American structuralism, descriptivist, or taxonomic linguistics) was presented as stemming from Bloomfield’s mechanistic approach, which was rooted in the teachings of Boas. Boas was also the inspiration for Sapir, who, as we saw in Chapter 10, shared the Boas view that language is embedded in the culture of a social group and whose approach to linguistic analysis was psychologistic; were he alive today he would be a cognitivist. Although Bloomfield was not unsympathetic to the cultural context of language, he came to exclude semantics from the Bloomfieldian tradition, because semantics is not directly observable in the way that phonemes, morphemes, and sentences are manifest in phones.

Zellig Harris took Bloomfieldian mechanism to its logical conclusion by embracing the use of mathematical formulae and procedures in the statement of linguistic units and relations. Along with Harris’ transformational procedures in grammar, Chomsky adopted mathematical devices like rewrite rules and introduced tree structures. These were tools well suited to the development of his hypothetico-deductive theory of transformational generative grammar, which took linguistics by storm with the publication of *Syntactic Structures* (Chomsky 1957). A few years short of a decade later, Chomsky had revised Saussure’s socially constructed *langue* into an idealized speaker-hearer’s competence, which – like *langue* – is the proper locus for grammar and for its study by the grammarian. Chomsky maintained his Bloomfieldian roots by making syntax the autonomous component of grammar, relegating semantics to an interpretive component – where it has stayed. He also harked back to the rationalist tradition of ‘general’ grammar, which by the time of Chomsky 1982 was reinterpreted as the set of rules, principles, and parameters from which the grammars of particular languages selected only a subset of parameters (see Chapter 8). This selection of parameters is the closest Chomsky comes to accepting that other strand of the Boas tradition, the relevance of the cultural context of language, and also that other important element of the Saussurean tradition, the relevance of social interactive context as a constraint on the nature of language.
Chapter 13  Linguistic semantics and pragmatics from earliest times

Overview

Semantics is the study and representation of the meaning of every kind of constituent and expression (from morph to discourse) in human languages, and also of the meaning relationships among them. Twenty-first century semantics has roots that stretch back to the Pre-Socratics of Greece in fifth century BCE.

Pragmatics deals with the context dependent assignment of meaning to language expressions used in acts of speaking and writing; in other words, it focuses on language as the instrument of social interaction that enables communication between people (see Carnap 1959). Pragmatics tends to be neglected by those (such as Chomsky) who believe that language is primarily a reflection of thought and, conversely, tends to be the principal focus of those for whom the primary function of language is communication that fosters social interaction; for such people (e.g. cognitivists and functionalists) pragmatics explains both semantics and syntax.

This chapter concentrates on developments in semantics and pragmatics not covered elsewhere in the book. Today’s research into semantics and pragmatics is founded on the Western Classical Tradition; no other linguistic traditions have contributed to them. Contributions to semantics and pragmatics by Plato and Aristotle were discussed in Chapters 2 and 3, those of the Stoics in Chapter 4. In Chapter 5, I discussed the observations of Apollonius Dyscolus on illocutionary force – ideas that were probably inspired by the Stoic recognition of illocutionary types. St Augustine in the early fifth century, Peter Abelard in the twelfth, Thomas Reid in the eighteenth, Michel Bréal in the nineteenth, Bronislaw Malinowski in the early twentieth, also recognized different illocutionary types; and they resurfaced in the speech acts theories of the second half of the twentieth century. In Chapters 2, 4, and 7, I discussed ancient ‘etymology’ which is once again taken up in the section on ‘Names’ below. Following that, this chapter discusses attitudes over time to linguistic signs and their meanings, aspects of meaning such as sense and intension, denotation and reference, and the cognitive counterparts to meaning: ideas and concepts. Almost all the scholars whose works are discussed were philosophers. Next there is a section on lexical semantics that begins with a discussion of lexicography which spans its origins in ancient Greece to the use of computational techniques today. I turn to various componential approaches to lexical semantics, then to prototype and stereotype semantics and frame semantics. From 1963 Jerrold J. Katz tried to marry semantics with Chomskyan autonomous syntax and blazed a path for others to follow. A survey of alternatives to Katzian semantics that also seek to couple semantics with syntax (mostly not believers in autonomous syntax) is followed by a section outlining the importance of truth conditions to anyone’s account of meaning. This serves as an introduction to a sketch of formal semantics. A look at anaphora leads naturally to the importance of context to linguistic
meaning and the concomitant rise of pragmatics since the late nineteenth century to the very strong position it holds today.

Names

As we saw when discussing Plato’s *Cratylus* in Chapter 2 and Aristotle’s *On Interpretation* in Chapter 3, for a long period there was considerable interest in whether what the ancient Greeks referred to as *onó mata* “names” are natural or conventional, that is, whether the form of a listeme derives directly from its meaning or else the form–meaning correlation is arbitrary and the listeme is a symbol. Before Plato, Heraclitus of Ephesus (c. 535–475 BCE) used language to present his model of the world. According to Hussey 1972: 59 his metalanguage is not ‘formal logic, but etymologies, puns, antitheses and portmanteau-words’ that display the sometimes confusing correlations between language expressions (*logoi*) and what is denoted (see Frs. [Fragments] 1 and 2, http://www.heraclitusfragments.com; DK B1, B2 Diels 1959-60; Robinson 1987). For instance, Heraclitus comments on the apparent contrariness between two Ionian homographs:

The name of the bow [*biós*] is life [*biós*], but its work [*ergon*] is death. (Fr. 48)

*Biós* “bow” and *bios* “life” are not homophonous, they have different stress location. And since Heraclitus loved word-play, he may have been implicating that the bow maintains the life of its user against an enemy and it also helps feed him when he kills game with it. That is, Fr. 48 is more aphorism than linguistic statement, though it does hint at the contemporary interest in the naturalness of names. As further evidence of Heraclitus’ aphoristic style conjoining opposites:

\[
\text{sullápsies. hóla kai ouch hóla, sumpherómenon diapherómenon, sunnádon diádon kai ek pán tôn hen kai ex henos pánta “Conjunctions: wholes and not wholes, the converging the diverging, the consonant the dissonant, from all things one and from one all things.”} \quad \text{(Fr. 10)}
\]

The sea is the purest [*katharótaon*] and the impurest [*miarótaon*] water. Fish can drink it, and it is good for them; to men it is undrinkable and destructive. (Fr. 61)

It is sickness that makes health pleasant and good; [and so with] hunger, plenty; weariness, rest. (Fr.111)

Heraclitus was more of a wit than a linguist.

Parmenides of Elea (c. 515–450) broaches the problem of how we can talk about non-existent and impossible entities (such as *unicorns* and *round squares*).

What is there to be spoken of and thought, must be, because it is there to be. (Fr. 6)

In other words, you cannot refer to anything that is not there to refer to – perhaps in an imaginary or impossible world.\(^1\) Also in frs. 6–7, Parmenides rebuked people for being misled by appearances into irrationally believing contradictory things.

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1. A world that can be spoken of is referred to here as a **possible world**, defined as one that is known (factual), or imagined, desired or supposed (all nonfactual). Worlds that can be spoken of overlap with logically possible worlds. Occasionally people speak of logical impossibilities such as the **largest prime number**; and there may be logically possible worlds no speaker conceives of.
As pointed out in Chapters 2 and 3, we are more certainly into linguistics with Protagoras (c. 485–420 BCE) who commented on the naturalness of gender, and on tense and mood. These observations are precursors to the semantics and pragmatics of grammar. Protagoras also supplies a slogan for modern cognitive linguistics: ‘Man is the measure of all things’ (DK80 B1, Diels 1959-60).

Democritus (c. 460–365 BCE) wrote *On Words* and the *Onomasticon*. He discussed the naturalness of names, preferring the conventionalist position because there are homonyms with different denotations (he could have cited Heraclitus’ example of *bios*, but he didn’t). Democritus observed that the existence of synonyms should not be possible if names were natural; also, names can change over time (e.g. *Byzantion* ⇒ *Kōnstantinopolis* ⇒ *Kostantiniyye* ⇒ *İstanbul*); and something may lack a name, e.g. there is a verb analogous to the noun *understanding* but none analogous to *justice* (DK68 B214, Diels 1959-60).

A generation later, Plato (429–348 BCE) broached the naturalness of names in *Cratylus* and elsewhere. Several Platonic dialogues figure Protagoras, Prodicus (c. 465–415 BCE), and Hippias of Elis (c. 460–399 BCE). Prodicus discusses the importance to education of the correct use of names and shows distinctions in meaning between such words as *enjoyment* and *pleasure*, *esteem* and *praise*, *fearlessness* and *courage* (see *Charmides* 163d, *Protagoras* 337a–c, 340b–d, 357e–359a in Plato 1997). We saw that Aristotle (384–322 BCE) wrote in *On Interpretation* (16a30; 17a1) that every sentence has meaning, not as an instrument of nature, but by convention. Diodorus Siculus (fl. 60–30 BCE) gives a history of human kind in which he too implies that the form–meaning correlation is arbitrary and conventional:

> And though the sounds which they [humans] made were at first unintelligible and indistinct, yet gradually they came to give articulation to their speech, and by agreeing with one another upon symbols for each thing which presented itself to them, made known among themselves the significance which was to be attached to each term. But since groups of this kind arose over every part of the inhabited world, not all men had the same language, inasmuch as every group organized the elements of its speech by mere chance. This is the explanation of the present existence of every conceivable kind of language.  (Diodorus Siculus 1933: I.8)

In Chapters 2, 4, and 7, I discussed ancient ‘etymology’ which sought to explain the meaning of a word in terms of its perceived component forms in order to reveal lexical networks. There was a significant naturalistic motivation for this because of the assumption that knowledge is embodied in word meanings and can be elucidated by reference to the original meaning (cf. Isidore 1850, *Etym.* I.xxix.2). Hence the original forms and meanings of words in what would today be called the proto-language were, supposedly, finessed. There was a morphological aspect and some interest in word history but a wider concern with lexical relations. Between the second and fifth centuries CE, patristic onomasts such as Origen, St Jerome, and Cassiodorus sought to interpret the ‘true meaning’ of biblical names using the three *linguae sacrae* of the *titulus crucis* (see p. 133 n.7). The first language was Hebrew, which spawned Greek that in turn gave rise to Latin. Ironically, the conclusions of the Church Fathers justify Jerome’s comment on the evils of paganism: *omnis parvae superstitionis religio servaretur* “all religion is protected by vicious superstition” (Jerome 1865: 982b). For example:
Origen explains that the Septuagint placename *Epauleus* means “winding ascent,” because the way that God shows is upward and difficult [...]. The Septuagint word translates the Hebrew *haserot* (‘enclosures’), but Origen divides the Greek form and etymologizes backwards from *aul* to the Hebrew *atlah* (‘ascend’). In this way, the Greek form of God’s word determines the etymological understanding of the archaic Hebrew form. (Amsler 1989: 95)

In *De aliquot Palaestinae locis* (Jerome 1865: 982b) Thophet(h) is identified as the valley of Ennom (Hinnom), called in Hebrew *ge Ennom*, which became a euphemism for hell (*Gehenna*) because it was there that the Canaanites offended God by burning children alive as a sacrifice to Moloch. Jerome incorrectly identifies Hebrew *ge* as the source for the Greek intensifier *ge* and also Latin *valem* “strength”; and he says that *Ennom* is *hominis nomen* “man’s name” (perhaps having in mind *Adam*, which stands for “mankind”). He also claims, with no perceivable justification, that *Ennom* sounds like Latin *gratiam* “grace”. See Amsler 1989: 82–118 for more examples of wildly imaginative proposed sources and meanings for proper names that shift to and fro among the three *linguae sacrae* in patristic tracts.

Later we shall look at some medieval and modern attitudes to naming, but next we look at hypotheses concerning the linking of form to meaning.

**Signs and symbols, signification, ideas or concepts, and what in the world is referred to**

In this section we examine ways in which *signs* or *symbols*, that is, the forms of names or words (on the one hand) and sentences or propositions (on the other) are supposedly linked with their *meanings* or *significations*. For the most part, the meaning of at least some expressions is mediated through *ideas* or *concepts* in the mind; for some scholars, this cognitive activity is the signification of the expression; but the term *signification* may also apply to the referent or thing in the real or hypothetical world that is being spoken of. This is more or less the picture presented in Figure 4.1 (p. 61) of the Stoic semiotic triangle and that of Ogden and Richards 1923: 11. An alternative set of meaning relations holds between the form of the language expression (typically a listeme) and its *sense(s)*, the decontextualized meaning(s) such as are found in a dictionary. Loosely speaking, senses describe the salient properties of a typical denotatum (for example, *spider* and *insect*: among the properties of a typical spider are four pairs of legs, a cephalothorax, and an abdomen; those of an insect include three pairs of legs, a head, thorax, and abdomen). These different properties presumably correspond to (parts of) different ideas or concepts. The *denotation* of a language expression *e* is what *e* is normally used to refer to in some possible world. The *reference* of a language expression is what the speaker or writer is using the language expression to talk about; for instance, a language user refers to particular entities, events, places, and times within the world being spoken of. In short, referring is something that a speaker or writer does with a language expression. Two other terms used in this chapter are

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2. The sense of the sentence *I crashed my car yesterday* is something like “the speaker did something which caused severe damage to his or her automobile the day before the utterance
intension and extension. Intension is sometimes said to be identical with sense, though Allan 2001 distinguishes them such that, very roughly, sense describes intension, i.e. the characteristic property or set of properties of a typical denotatum. The extension of a language expression is similar to reference, but designates something that exists in a particular world (usually the world being spoken of). Now that the metalinguistic terminology has been explained, we can more easily talk about people’s approaches to the linking of form and meaning in language.

St Augustine of Hippo (354–430) wrote on language mostly in order to elucidate theological doctrine; De dialectica (c. 385, Augustine 1975; 2003) is a treatise on rhetoric in which Augustine discusses matters that are today subsumed to pragmatics. For instance, he adopts the Stoic tradition in recognizing illocutionary types (though not so many of them):

There are two species: 1. either they are made into sentences subject to affirmation or denial, e.g. omnis homo ambulat (all men walk) or omnis homo non ambulat (no man walks), or 2. a sentence is formed which, though it presents a proposal to the mind, can neither be affirmed nor denied, as when we command, wish, curse, etc. E.g., if someone says perge ad villam (Go to the town) or utinam pergat ad villam (I wish he would go to the town) or Dii illum perduint (May the gods damn him), it cannot be argued that he is lying or believed that he is telling the truth. For he is affirming or denying nothing. (Augustine 2003, II; Augustine 1975: 84f)

What follows is only unusual in invoking the hearer as well as the speaker.

A word [verbum] is the sign of some thing which can be understood by the hearer when pronounced by the speaker. A thing [res] is whatever is sensed [sentitur] or understood or inapprehensible [latet, e.g. God]. A sign [signum] is something which presents itself to the senses and something other than itself to the mind. To speak is to give a sign in articulate voice. I call that articulate which is capable of being comprised in letters. (Augustine 2003, V adapted; Augustine 1975: 86f)

Augustine distinguishes the word itself (verbum) from the word as an expressible (dicibile) ‘the word which is not sensed by the ears but by the mind’ which is (a part of) the Stoic notion of lekton and is akin to sense or intension, which, when voiced to refer to a res (“thing”), he calls the dictio (see also Augustine 2006b; 2008 IX.10, XV.11). The res ‘is neither a word nor the conception of a word in the mind’.

What I have called verbum is both a word and signifies “word” [e.g. What part of speech is the word ‘arma’?]. What I have called dicibile is a word, but it doesn’t signify “word”, but that which is understood in the word and contained in the mind. What I have called dictio is a word, but it signifies something similar to both the other two, namely, the word itself and what happens in the mind through the word. When I say res, it is a word which signifies that which is left over after those three which have just been mentioned. (Augustine 2003, V; p.90f)

Chapter 7 of De dialectica is about the force (vis) of words, their efficacy in affecting a hearer. Augustine takes into account the phonetic effects (sound symbolism, stress), how

was made”. ‘I’ denotes the speaker; ‘my car’ denotes some kind of automobile driven by the speaker, etc. If, on Monday 3 May 2010, Max says I crashed my car yesterday and his car is a BMW, then Max is referring to himself, his BMW, and the event of his crashing the BMW on Sunday 2 May 2010.
familiar the hearer is with the word, its (pragmatic) connotations (see p. 331), its metrical and syntactic properties. He continues by writing about reference through naming.

The word *verbum* moves our knowledge not only by itself, but by that which it signifies, when, the sign having been agreed upon, the mind intuits nothing other than the thing itself of which that sign is perceived. For example, when Augustine is named nothing else than I myself am thought by the one to whom I am known, or some other man comes to mind if someone perchance hears this name and doesn’t know me or knows someone else who is named Augustine. For when at the same time the word moves the listener by itself and by that which it means, both that which is enunciated and that which is referred to by it [*id quod ab ea (e)muntiatur*] are attended to. (Augustine 2003, VII; Augustine 1975: 100-3)

Augustine makes many observations similar to those found in Aristotle’s *Rhetoric* (see above p.55f) and the Stoics (p. 67): arguments should be truthful and persuasive; obscurity and ambiguity should be avoided; common ground should be exploited; an appropriate level of amplitude should be used when speaking; referents should be readily identifiable and ideas elucidated. Today, all these are matters of interest to pragmatics.

In *De magistro* (Augustine 1995; 2007), a dialogue with Augustine’s son Adeodatus, it is shown that human beings have to use words to teach others about reality, but learners need to know the things words denote in order to understand what is taught. The resolution to the paradox is that what is meant is known courtesy of Christ, the inner teacher – a patristic counterpart to Plato’s apprehension of the Idea (see also Augustine 2006b; 2008 XV.10). In *Confessions* (Augustine 1907; 2006a), he writes of this language-learning ability, attributed to ‘the understanding which Thou, my God, gavest me’:

When [my elders] named any thing, and as they spoke turned towards it, I saw and remembered that they called what they would point out by the name they uttered. And that they meant this thing and no other was plain from the motion of their body, the natural language, as it were, of all nations, expressed by the countenance, glances of the eye, gestures of the limbs, and tones of the voice, indicating the affections of the mind, as it pursues, possesses, rejects, or shuns. And thus by constantly hearing words, as they occurred in various sentences, I collected gradually for what they stood; and having broken in my mouth to these signs, I thereby gave utterance to my will. Thus I exchanged with those about me these current signs of our wills, and so launched deeper into the stormy intercourse of human life, yet depending on parental authority and the beck of elders. (Augustine 1907 I.8)

Along with Augustine and Aristotle, the Roman Anicius Manlius Severinus Boethius (c. 480–524) is the major fundamental philosophical and theological influence on the medieval Latin tradition. From the ninth to twelfth centuries, Boethius’ translations of Aristotle’s logic, along with his commentaries on *Categories*, *On Interpretation* and Porphyry’s *Isagoge* (Boethius 1860), were mainstays of scholars and students of logic who did not have access to the original texts. These had previously been translated into Latin by the neo-Platonist Gaius Marius Victorinus (c. 300–70), praised by Boethius as ‘the most learned orator of his time’ and who perhaps inspired him (see Bruce 1946 for a review of Victorinus’ work). Porphyry (c. 234–305), a Phoenician, wrote commentaries on Aristotle’s

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3. Cited throughout the middle ages using its transliterated Greek title *Perihermeneias.*
The Western Classical Tradition in Linguistics

*Categories* (Porphyry 1992)\(^4\) and also the *Isagoge*, an introduction to Aristotelian logic (Porphyry 2003). These works greatly influenced Byzantine and Arabic scholarship and were known in the west through Boethius’ translations. Boethius’ commentaries, his books on syllogisms, classifications into genera, species, difference, property, etc., and his comparison of Aristotle’s and Cicero’s *Topica*, together constituted the *logica vetus* (old logic) of the middle ages. Boethius sticks close to Porphyry, but he confuses Aristotle’s distinction between *symbolon* (“symbol”, 16\(^{4}\)) and *sēmeion* (“sign, basis for inference”, 16\(^{6}\)) by translating both as *nota* (“mark, sign”). Around 200 CE Alexander of Aphrodisias had asked whether Aristotle mediated the relation between words and things through the mind (*On Interpretation* 16\(^{3}\)). Boethius cites Alexander’s conclusion that

although spoken words are names [imposed on] things, nevertheless we use spoken words not in order to signify things, but in order to signify those mental modifications that are produced in us as a result of the things. Therefore, since spoken words are uttered for the purpose of signifying those entities, [Aristotle] was right to say that they are primarily the signs of those entities. (Boethius 1860: 413A–B5).

Another contention of Alexander is that universals do not exist in reality but only in the mind. Some thoughts derive from real entities, but universals don’t, they are mental abstractions; here’s a controversy that echoes through the middle ages into the modern era. Boethius added a twist of his own by claiming that the mental abstractions derive from reality. This may be anticipating the ‘principle of modes of cognition’ proposed in his last work *Consolation of Philosophy*: knowledge is always relativized to intelligence, reason, imagination, or the senses.

From Porphyry, Boethius took the distinction between the first and second imposition (*positio*) of a name (*nomen*). The first is its signification, e.g. *man* means “man”. The second is essentially metalinguistic: *man* is a noun. For Boethius the logician (today we would say semanticist) is concerned with first imposition, whereas the grammarian is concerned with the second.

A question about the direction of derivation arises from Aristotle’s *Categories* 10\(^{0}\)29: ‘the names of the qualified things are derived from the names of the qualities. From *whiteness*, from *grammar*, from *justice*, we have *white*, *grammatical*, *just*. And so on.’\(^6\) Earlier I quoted from St Anselm’s *De grammatico* (c. 1060): ‘white is something-having-whiteness, or what-has-whiteness’. Anselm also discusses the relations of the noun and adjective *grammaticus* “[an] expert-in-grammar; [to be] expert-in-grammar” to *grammatica* “expertise-in-grammar”, concluding:

> it is not the case that the name *expert-in-grammar* signifies as a single thing man and expertise-in-grammar; rather, of and by itself it signifies expertise-in-grammar, and on the basis of something else it signifies man. Moreover, although the name *expert-in-grammar* is appellative of (a) man, nevertheless it is not proper to say that it signifies man; and although

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\(^4\) According to Porphyry, *Categories* is a work about the expressions used to refer to the categories rather than the categories themselves.

\(^5\) The translation is from Kretzmann 2006: 761.

\(^6\) See above p. 44.
expert-in-grammar signifies expertise-in-grammar, nevertheless it is not appellative of expertise-in-grammar. Now, I term the name of any given thing appellative of it if this thing is called by this name in the customary course of speaking. For example, it does not accord with the customary way of speaking to say Expertise-in-grammar is (an) expert-in-grammar or (An) expert-in-grammar is expertise-in-grammar. But [it does accord with the customary way of speaking to say] A man is (an) expert-in-grammar and An expert-in-grammar is a man. (Anselm 2000: 147f)

In Logica ingredientibus (“Logic for beginners”), Peter Abelard (Abaelardus, Abailard, 1079–1142) commented on Aristotle’s Categories and On Interpretation, on Porphyry’s Isagoge, and Boethius’ De topicis differentiis. Abelard’s Dialectica is a major work in the development of logic; much of what is described below comes from this and the Logica ingredientibus. Lost works include his Grammatica and Rhetorica. So far as developments in semantics go, Abelard is most famous for promulgating the doctrine that universals are mere words (nomina), i.e. he is a nominalist.  

For Abelard mere utterance (vox) is a physical event that is of marginal interest to logic or semantics; the sermo is an utterance together with its signification. He distinguishes nominatio (reference) from significatio, which is cognitive: it is what is caused to be understood as the informational content (doctrina) of a word. A signification is an abstraction from the properties of the referent and therefore secondary to it; the informational content, which we might think of as the concept or cognitive counterpart of the meaning, is not part of the meaning itself. Significatio is very similar to our notion of intension. The colour white (album) is informed by whiteness (formatum albedine) and attributed to something that is white according to some form inhering in it (secundum quandam formam sui) but not to what that thing substantially is (id quod ipsa est). ‘To define a word is to reveal its signification by way of definition; to define a thing, on the other hand, is to designate it (ipsam demonstrare)’ (Rijk 1981: 17f).

Sentences (propositiones) refer to the world and not to someone’s understanding of the world, thus If something is human it is animal is a truth (dictum) about the world such that an individual can understand the concept human without entertaining the concept that the human is animal. Language is not a medium for the transmission of ideas from one human to another, but conveys information about the world. This seems to be the position taken up

7. I am indebted to King 2004 for much of the information on Abelard. There are Latin texts at http://individual.utoronto.ca/pking/resources.html.
later by Leibniz and Chomsky. Abelard recognized (in *Logica nostrorum petitioni sociorum*) the intensional context created by verbs like *desidero cappam [novam]* “I want a [new] (clerical) cape”. Is it a particular cape or will any such cape do?

Either as part of the Stoic tradition or that stemming from Augustine, Abelard recognizes the different illocutionary forces of a proposition common to assertions, questions, subjunctives, conditionals, etc. and, like the Stoics, he seems to recognize negation as what today would be called an operator. He recognized that true entailments (*inferentia*) necessarily follow from premises. *If Socrates is a human being then Socrates is an animal* is necessarily true since ‘whatever the species is predicated of, so too is the genus’ (Rijk 1970: 323).

In his *Dialectica*, Abelard conceives of naming in a way quite similar to the notion of ‘baptism’ in Saul Kripke’s *Naming and Necessity* (Kripke 1972) except that it is based on Adam’s naming of every living creature in Genesis 2:19f. Because the naming is under God’s guidance it reflects the essential nature of the referent, even though this may not be recognized by the human baptizer. If Abelard were alive today, he would be among those who believe in direct reference: proper names and indexicals make direct reference, whereas common names refer distributively to individuals, while collectives (*herd, pair*) and, presumably, quantified nominals (*three ducks*) pick out distributively a contingently determined set of individuals. The same ideas on reference recur in succeeding centuries.

In the thirteenth century, logicians ‘thought of their subject as the science of language (*scientia sermocinalis*)’ (Kretzmann 2006: 765). Authors such as Peter of Spain (fl. 1230–45), William of Sherwood (fl. 1240–50), Lambert of Auxerre (fl. 1253–76), and Roger Bacon (c. 1220–92) produced compendia on logic known as *Summae* (“Essentials”) or its diminutive *Summulae* (“Basics”) (see Spade 2002: 49). Bacon’s *De signis* (c. 1267, Bacon 1978) deserves special mention. According to Bacon, a word is the sign of a concept and it signifies an entity to which the concept conforms. Although the word is normally coined for a contextually present entity for which a concept exists, the existence of a concept allows for non-existent entities to be named, thus instantiating the concept. Bacon identifies fragments of semantic networks, for example: God implies creation; essential parts imply each other, as do relative terms; any word invokes its own grammatical category; contraries are implied such that privations and non-existent imply corresponding existents, accidents imply substances, and universals imply the particulars on which they are based.

William of Ockham (c. 1285–1349) wrote on Aristotle’s *Categories*, *On Interpretation* and *Sophistic Refutations*, Porphyry’s *Isagoge*, and composed a *Summa of Logic*, a systematic treatment of logic and semantics. He regarded logic as the most fundamental tool of scientific enquiry. The *Summa* covers Porphyry’s *Isagoge* and Aristotle’s *Categories* in Part I (on terms); Part II discusses *On Interpretation* and propositions (sentences) made up of terms; Part III, on arguments composed from propositions, discusses Aristotle’s *Prior
Analytics, Posterior Analytics, Topics and Sophistic Refutations, syllogisms, paradoxes, and fallacies. The content of Part III constitutes the logica nova (new logic) of the middle ages.

To oversimplify, Ockham identified two kinds of signification: ‘primary’ which allows for correct reference, and ‘secondary’ which applies to predicates that (supposedly) denote their nominal counterparts, for instance, brave denotes bravery. There was also suppositio “supposition”, which identifies the capacity of a term to pick out a referent in context. Suppositio can be seen as a function of propositions that identifies what kinds of reference are made by the speaker using the nominals within a proposition. Suppositions figure in the statement of truth conditions. There are three kinds of proper supposition: ‘personal’ where the term refers directly to what it signifies, e.g. ‘Socrates’ in Socrates is a man; ‘material’ where the reference is a reification, e.g. ‘man’ in ‘Man’ has three letters; and ‘simple’ where the reference is to some shared characteristic, e.g. ‘man’ in Man is a species. The ‘simple’ supposits for a concept in the mind but not for any of the individual men it ultimately refers to. For Ockham, as for Abelard, mental language is primary, spoken language secondary, written language tertiary. Mental language is natural because it is essentially the same for all humanity; spoken language is conventional. An illiterate person will use and understand the spoken language but not the tertiary, written, form. True synonymy is defined only for mental language. Mental language has those features of spoken language that affect the truth values of propositions (Spade 2002: 112).

On universals Ockham was a nominalist who began with ideas similar to Abelard, but came to believe that universals simply predicate something of many individuals; thus he recast the universal all men are animal in terms of a particular: if something is a man, it is animal. The medieval view was that intellectus est universalium, sensus autem particularium “understanding is of universals, but sense-data derive from particulars” (Spade 2002: 162). For Abelard and Aquinas, knowledge is the effect of sense-data (species) transmitted from entity to mind, but Ockham rejects this on the ground that universals would necessarily have to exist in the entities, and that is impossible because everything but God is contingent.

In Ockham’s work the closest we find to ‘Occam’s Razor’ is Numquam ponenda est pluralitas sine necessitate “Plurality should never be posited without necessity” (Ordinatio Distinctio 27, Quaestio 2, Ockham 1967-88: I, K) and Nihil debet poni sine ratione assignata nisi sit per se notum vel per experienciam scitum vel per auctoritatem scripturae probatum “Nothing should be posited without a reason given unless it is self-evident or known from experience or proved by scriptural authority” (Ordinatio Dist. 30, Q.1, Ockham 1967-88: III, E, 208).

Walter Burley or Burleigh (c. 1275–1345) was a realist who responded critically to Ockham’s nominalism. Names denote different kinds of entities; semantic distinctions derive from ontological differences between the entities signified. Individuals are the significata of singular names and universals are the significata of general names – which name types among the set of individuals that instantiate them. Man applies as a general term to all men because it denotes the universal humanity that is present in and essential to each man in the real world. Humanity is the intension of man and it has no extension distinct
from that of *man*. After 1324, Burley claimed that universals are no longer actual constitutive parts of the individuals of which they are predicated, though they do reveal the substantial nature of the particular. Each particular (primary substance) is the token for a universal (secondary substance) which exists in reality; thus the extension of a general name is a set of such tokens. Together, the intension and extension (or, perhaps, sense and denotation) of the general term constitute its *significatum*. Proper names, indexicals, and demonstrative expressions make what today is called ‘direct reference’, i.e. they name individuals and have no intension (or sense).

The linguistic distinction between simple and complex expressions reflects that between objects and states of affairs. Propositions are the creation of cognitive acts but relate to the real world by combining the things to which their constituents refer; the latter are the *significata* of true sentences that apply to the real world. In a sentence like *homo est animal* “man is animal” the *significata* of *homo* and *animal* exist in the real world and the fact that *homo* and *animal* share the same substance is a fact about the real world. Burley writes of congruity between thought and reality: the *veritas in intellectu* corresponds to the *veritas rei* in the real world such that the identity relation ‘man is animal’ exists in the mind – otherwise, of course, falsity ensues. The extension of the proposition is an understanding of (part of) the real world.

In *De puritate artis logicae* (tractatus longior) 1324–8 Burley discusses the difference between *Twice you ate a loaf of bread* in which ‘loaf of bread’ is a ‘confused’ supposition (i.e. refers to two loaves fused for this mode of expression) and the fallacious *A loaf of bread you ate twice*, where the supposition is determinate, i.e. specific to a particular loaf that cannot be eaten twice (Burley 2000 §93). Today, the first of these would be dealt with in event-based semantics (see below p. 345). Burley was also the inventor of ‘donkey sentences’ (Geach 1968; Kamp 1981; Groenendijk and Stokhof 1991). He notes that in *Omnis homo habens asinum videt illum* “every man who has a donkey sees it” the antecedent of *illum* “it” is in the subordinate clause *habens asinum* and not the *propositio categorica* (Burley 2000 §130–32; Seuren 2006a). We might contrast the donkey sentence with *Every man has a body and sees it daily*, noting that all men have a body to see but not all men have a donkey to see. Furthermore, as Burley points out, a man who owns two donkeys might see only one of them, thus allowing for the truth of *aliaque homo habens asinum non videt illum* “some man who has a donkey doesn’t see it” leading to the contradictory consequence *ergo aliquis homo habens asinum non est homo habens asinum* “therefore some man who has a donkey is not a man who has a donkey”. Quite clearly something is amiss, because there is nothing wrong with *every man who has a donkey sees it*. I return to the modern treatment of the semantics of donkey sentences later (p. 348).

Frenchman John (Jean) Buridan (c. 1295–60), though a cleric, was not a theologian. He never appeals to the mystical claims of Scripture and doctrine but views philosophy as a secular enterprise based on what is evident to the senses and the intellect. He was a prolific writer who commented (often more than once) on all the familiar works of Aristotle, and wrote treatises on, among other things, universals, relations, and consequences. His masterwork is the *Summulae de dialectica* (“The basics of dialectic”), which developed
through revisions into a very comprehensive and original textbook on logic. In it Buridan
develops a revised term logic that spread from Paris all over Europe. It introduces
propositional structure and the significative functions of propositional components; and it
examines complex patterns of reasoning, syllogism, dialectical topics, fallacies,
demonstrations and solutions to a number of puzzles and paradoxes. For neither Buridan nor
Ockham do sentences (*propositiones*) refer to states of affairs: only terms (expressed
through NPs) refer, and it requires the mind (*intellectus*) to put them together into an
affirmation or denial (thus *homo est animal* refers to man and animal, but not the fact that
man is animal).

At the beginning of the *Summulae* Buridan affirms that knowledge of grammar is an
essential learning tool for analysing the structure and modes of dialectic, literary texts, and
even the physical world and metaphysics. Grammatical congruence goes together with
logical argument and the pursuit of truth. Context and form are among the relevant
discourse considerations when ascertaining meaning so that novel expressions, and
figurative and ironic language need to be allowed for; what matters is that the author speaks
truthfully. This is very different from Ockham, for whom spoken and written utterance have
what Chomsky 1965 called performance errors, and for whom (again like Chomsky) the
internalized proposition is the ideal. Buridan is happy to work with utterances (*voces*) which
signify things to hearers using the cognitive counterparts to language. The speaker’s
intention should be attended to when interpreting human discourse.

Buridan is more nominalist than realist, but supported no particular doctrine concerning
universals. He is very commonsensical with respect to questions of ultimate cause and the
understanding of notions like *infinity* and (mathematical) *point*. Terms refer to what they
ordinarily signify, and thus supposit personally; otherwise they supposit materially – and
this includes when speaking figuratively or ironically. *Man is a species* is not (for Buridan)
literally true because it is not true of any individual man, but it is nonetheless true because
‘species and genera are universals according to predication’ (Buridan 2001 4.3.2: 254), i.e.
the term ‘man’ supposit for the universal.

In Chapter 8 of this book, the grammars of the medieval scholastics were said to be studies of the formulation of concepts and their expressibility in well-formed sentences and component structures. Modes of being, understanding, signifying, consignifying, and signalling were identified. Two centuries later, Juan Luis Vives y March (1493–1540) wrote about so-called synonyms being functionally different because they are used in different referential functions:

Someone may ask whether words signifying the same thing *[idem significantes]* in diverse
languages, like *homo* [Latin] and *anthropos* [Greek], may be called synonyms. It seems not,
for they do not signify the same thing to each nation *[gens]*, except perhaps where it uses both
its own word and a loaned word, as for example, *Zephyrus* and *Favonius* [west wind], *phlegm*
and *catarrh*, *Pallas* and *Minerva*. For we have said that signifying is not simply what is
spoken, but what is spoken of *[non simpliciter dici, sed secundum respectum]*. (Vives 1964:
III: 145)

The seventeenth and eighteenth centuries also saw the development of ‘rational’
grammar based on somewhat idealistic conceptions of human and divine reason. Arnauld
and Nicole 1996, Chapter VI, distinguish comprehension from extension; ‘comprehension’ would later be called intension by Sir William Hamilton 1876: 101; a term used in post-Fregean semantics (and somewhat anachronistically in this book).

Now in these universal ideas there are two things which it is very important accurately to distinguish clearly, the comprehension and the extension.

I call the comprehension of an idea the attributes that it contains in itself, and that cannot be removed without destroying the idea. For example, the comprehension of the idea of a triangle contains extension, shape, three lines, three angles, and the equality of these three angles to two right angles, etc.

I call the extension of an idea the subjects to which this idea applies. These are also called the inferiors of a general term, which is superior with respect to them. For example, the idea of triangle in general extends to all the different species of triangles. (Arnauld and Nicole 1996: 39f)

The significant contribution to the history of semantics by John Locke (1632–1704) was discussed on pp. 151f above. I also noted elsewhere that he was the first person to use the term semiotics (Locke 1700: IV.xxi.4). Book III of his Essay Concerning Humane Understanding (Locke 1700) was very influential because it connected semantic inquiry with his theory of knowledge; Locke had concluded (ibid. II.xxxiii.19) that he could not discuss ideas (concepts, knowledge) without first considering the nature, use, and signification of language.

But when […] I began to examine the Extent and Certainty of our Knowledge, I found it so near a connexion with Words, that unless their force and manner of Signification were first well observed, there could be very little said clearly and pertinently concerning Knowledge: which being conversant about Truth, had constantly to do with Propositions. And though it terminated in Things, yet it was for the most part so much by the intervention of Words, that they seem’d scarce separable from our general Knowledge. (ibid. III.ix.21)

One practical aim of his investigation of language was to make more precise his philosophical language.

Those, who pretend seriously to search after, or maintain Truth, should think themselves obliged to study, how they might deliver themselves without Obscurity, Doubtfulness, or Equivocation, to which Men’s Words are naturally liable, if care be not taken. (ibid. III.xi.3)

He rightly finds that language may be a limited resource for all the things that a speaker may wish to express:

But after all, the provision of Words is so scanty in respect of that infinite variety of Thoughts, that Men, wanting Terms to suit their precise Notions, will, notwithstanding their utmost caution, be forced often to use the same Word, in somewhat different Senses. (ibid. III.xi.27)

Therefore:

[I]t is sometimes necessary for the ascertaining the signification of Words, to declare their Meaning (ibid. III.xi.12)

Locke was well aware, however, that although words represent our idea of a thing (something shared with other speakers of the language (ibid. III.ii.4–9)), the nature and properties of the referent need also to be studied and known because language uses symbols and is not in itself a guide to the nature of the referent (ibid. III.xi.24). Like Alexander of Aphrodisias, Abelard, Ockham, Buridan, and Thomas Hobbes (1588–1679) before him
Linguistic semantics and pragmatics from earliest times

(Hobbes 1839: 20), Locke was a nominalist: ‘universality belongs not to things themselves, which are all of them particular in their Existence’ but ‘are the Inventions and Creatures of Understanding […] a general term is] a sign of an abstract Idea in the mind’ (Locke 1700: III.i.11f).

Locke’s views on universals (and many other things) were challenged in Leibniz’s Nouveaux Essais sur l’entendement humain (Leibniz 1981 [1765]). For instance, Leibniz claimed (ibid. 288ff) that Locke’s position allows for reference to particulars only by proper names; that common names are already universals, founded on similitude. In Chapter 8 I mentioned Leibniz’s interest in ‘philosophical language’ and ‘real character’. He believed that the mind is a computational device utilizing a system of symbolic representations with a language-like structure. Although the symbols in this system are fundamentally arbitrary, the relations among them are not, but reflect reality. Partly for this reason, he believed that because German constructs words from Germanic roots, e.g. unabhängigkeit vs ‘independence’, Fernsprecher vs ‘telephone’ it must be closer to a philosophical language than, say, English. In various papers written after 1679 Leibniz identified a law of referential substitutivity. In modern terms this has two parts: (i) If $a$ and $b$ are terms, then $a$ is extensionally identical to $b$ if for any formula $\Phi$ containing $a$, $b$ is substituted for $a$ without changing the truth value of $\Phi$: Cicero was a Roman orator $\leftrightarrow$ Tully was a Roman orator therefore Cicero $=$ Tully. (ii) For every $x$, if predicate $A$ of $x$ is logically equivalent to predicate $B$ of $x$, then $B$ can substitute for $A$ in formula $\Phi$, preserving truth: $[\text{BE_ALIVE}(x) \leftrightarrow \text{NOT_BE_DEAD}(x)]$, be alive $=$ not be dead. The intensions are, of course, different. Leibniz was well aware that there may be contextual constraints on substitution (Leibniz 1981: 287).

George Berkeley (1685–1753) was antimaterialist; he questioned the existence of objects in the world corresponding to Locke’s ideas. He argued that whereas we know we have ideas of things like mountains or the colour blue, we cannot assume the existence of objects not perceived or conceived of: in other words, ideas are not representations of material objects (Berkeley 1734). However, it was pointed out by Pitcher 1999: 113 that Berkeley confuses what we conceive with and what we conceive of: there could be things that exist without being conceived of (Berkeley would have been unaware of the existence of black holes, for instance). According to Bishop Berkeley, it is God’s will that things appear to continue to exist when no one is present; a similar explanation accounts for why any two people can perceive ‘the same’ object when they have diverse ideas of it.

Condillac’s Essai sur l’origine des connoissances humaines (Condillac 1746) founded his theory of knowledge on signification and the role of language in developing cognitive powers. He hypothesized that language was invented by observing the effect of pre-linguistic (natural) responses of fear, pain, happiness, etc. and employing these cries to symbolize their effects in a ‘language of action’ learned through stimulus and response (ibid. II.i.1–8). This necessarily led to the development of memory and allowed for complex ideas like large numbers, universals, and genera as well as reflection on aspects of the world that are not being directly experienced. Language developed as new names were needed for newly perceived phenomena. Thus, language and our reflective capacities interact to extend our cognitive abilities.
Thomas Reid (1710–96) maintained that the creation of a language using conventional symbols presupposes some innately understood predecessor. For Reid, ordinary language mirrors the thought of ordinary people (a view that may have inspired twentieth century philosophers like Wittgenstein, Austin, Grice, and Strawson). Syntactic features common to many languages (such as active and passive voice) reflect the 'common sense' conception of the world. For Locke, Berkeley, and Hume (1751) conceptions are perceptions of ideas; Reid 1846 believed that philosophy had failed to link these ideas to real world referents: How do mental entities attach to real world referents? It must either be that we infer the properties of referents (real world objects) from those of perceived ideas; or else Berkeley was right and external objects are ideas. In Section 8 Chapter 1 of Essays on the Intellectual Powers of Man Reid discussed the importance of the social functions of language:

> All languages are fitted to express the social as well as the solitary operations of the mind. It may indeed be affirmed, that, to express the former, is the primary and direct intention of language. (Reid 1785: 73)

Like the Stoics, Apollonius, Augustine, and Abelard, Reid discussed differences among what would later be called illocutions: assertions, questions, commands, supplications, promises, contracts, prayers, and wishes as 'acts of social intercourse between intelligent beings' (ibid. 72–4) – thus presaging speech act theory.

Jeremy Bentham (1748–1832) developed a radically empiricist theory of word meaning on the basis of his utilitarianism and applied it to the reformation of legal theory. The law is a set of utterances to be explained by reference to empirical phenomena. Legal philosophers hold the law to be a set of norms for behaviour, not a set of linguistic acts. But Bentham argued that the meanings of legal utterances need to be defined: words such as (legal) right should denote real world perceptions of the pain or pleasure that the superior party offers as motivation for compliance. Bentham believed that the pursuit of pleasure and the avoidance of pain are the twin aims of all human action and that legislation should promote the greatest happiness of the greatest number. There are legal rights, but no 'natural rights', a notion Bentham dismissed as canting prejudiced nonsense. He recognized that language underspecifies: a single word brings ‘to view other words […] of which, though not pronounced, the import was meant to be conveyed by the word which was pronounced’; it follows that ‘no word is of itself the complete sign of any thought’ but is dependent on the proposition of which it is a constituent (Bentham 1843 8: 322). ‘[B]y anything less than an entire proposition, i.e. the import of an entire proposition, no communication can have place’ (ibid. 188). This echoes the idea of James Harris 1786 that the sentence is the significant unit of linguistic analysis.

John Stuart Mill (1806–73) in his System of Logic retained a very Aristotelian notion of the structure of a proposition as two names joined by a copula, either affirmative or negative. Names are singular or general; they either ‘denote’ or ‘connote’:

> The word white, denotes all white things, as snow, paper, the foam of the sea, etc., and implies, or as it was termed by the schoolmen, connotes, the attribute of whiteness. (Mill 1843, I.ii.5)
The medieval schoolmen John Duns Scotus (c. 1266–1308) and William of Ockham (among others) used the term *significatum* to refer to what today we call a denotatum or referent and *connotatum* for the inherent attributes of the denotatum. The *significatum* corresponds to the Stoic *tunchanon*; the *connotatum* to the Stoic *sēmainomenon* (see above p. 61). Thus Mill’s term *connotation* is more or less synonymous with ‘intension’ or what many linguists call ‘sense’ (e.g. Lyons 1977: 174). Like Abelard and Burley before him, Mill believed that many singular names only denote and do not ‘connote’: they include proper names like *Julius Caesar* that make what has come to be called direct reference. Other definite descriptions such as *the conqueror of Gaul* both denote and ‘connote’ (Mill 1843: I.ii.5). A proposition has ‘import’ constructed from the ‘connotations’ (i.e. senses or intensions, hence the quotation marks) of its constituents (Mill 1843: I.v.2). Its truth value is determined by its denotation (extension). Mill’s assumption that proper names do not ‘connote’ extinguishes the semantic difference between *Cicero is Cicero* and *Cicero is Tully* which have the same truth value and make identical reference. Mill’s system is binary: every proposition is either true or else false. For Mill, truth is evaluated against the world of our ordinary sense experience or inner awareness. Knowing the meaning of names and the import of propositions is to know the individuals and attributes which they ‘connote’ and denote. Experience of the world is the test for logic. He complained that logicians ‘think more of having a clear than of having a comprehensive meaning’; they fail to exploit the strengths of natural language –

the depository of the accumulated body of experience to which all former ages have contributed […] Who seeks to introduce a more correct use of a term with which important associations are connected, should be required to possess an accurate acquaintance with the history the particular word, and of the opinions which in different stages of its progress it served to express. To be qualified to define the name, we must know all that has ever been known of the class of objects which are, or originally were, denoted by it. (Mill 1843: IV.iv.6)

Mill’s attitude to natural language was picked up a century later by the ordinary language philosophers, Ludwig Wittgenstein (his later work), Gilbert Ryle, John L. Austin, Peter Strawson, and Paul Grice. Proponents of Natural Semantic Metalanguage (see below p. 328) can also be seen as heirs to Mill.

Friedrich Ludwig Gottlob Frege (1848–1925) was a German mathematician, logician, and philosopher. In ‘Über Sinn und Bedeutung’ ‘On sense and reference’, Frege claimed that a proper name has sense(s):

The sense of a proper name is grasped by everybody who is sufficiently familiar with the language or totality of designations to which it belongs. [Footnote] 2: In the case of an actual proper name such as ‘Aristotle’ opinions as to the sense may differ. It might, for instance, be taken to be the following: the pupil of Plato and teacher of Alexander the Great. Anybody who does this will attach another sense to the sentence ‘Aristotle was born in Stagira’ than will a man who takes as the sense of the name: the teacher of Alexander the Great who was born in Stagira. So long as the reference remains the same, such variations of sense may be tolerated.

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10. In later editions of Mill’s work he recognized this in a footnote, e.g. on page I: 109 of the ninth edition of 1875 (London: Longmans, Green, Reader and Dyer) he likens *connotation* to (Hamilton’s) ‘intension’ and *denotation* to ‘extension’. 
Although they are to be avoided in the theoretical structure of a demonstrative science and ought not to occur in a perfect language. (Frege 1892: 27)

This is the checklist or cluster theory of proper names that lists a bundle of qualities, at least one of which is supposedly necessary in order to correctly identify the referent (see Russell 1905; Searle 1958; Strawson 1959). The sense of a listeme is a description of the attributes of the typical denotatum, not a description of the attributes of a particular referent; so, Frege has not in fact given the sense of the name Aristotle (Kripke 1972: 272, 277); instead, he gives part of an encyclopedia entry for one bearer of the name Aristotle. Kripke objected:

If ‘Aristotle’ meant the man who taught Alexander the Great, then saying ‘Aristotle was a teacher of Alexander the Great’ would be a mere tautology. But surely it isn’t; it expresses the fact that Aristotle taught Alexander the Great, something we could discover to be false. So, being the teacher of Alexander the Great cannot be part of the sense of the name. (Kripke 1972: 258)

Kripke’s solution is that the name Aristotle referring to the Stagirite, the philosopher, the teacher of Alexander the Great, is a ‘rigid designator’ that ‘in any possible world […] designates the same object’ (ibid. 269). Allan 2001 argued that proper names do have senses of a peculiar kind, which reflect facts such as that in most languages a majority of personal names are sex differentiated and almost as closely tied to language communities as the rest of its vocabulary (compare the names Agyeman, Chen, Cohen, Françoise, Giancarlo, Kwame, Lyudmila, Mei, Nguyen, Papadopoulos, Scheverndadze, Tomiko, Wojciech11); furthermore, topographical names like Mount Disappointment and River Thames have lexical links to topographical common nouns that are incorporated into the name, which makes them inappropriate for human beings; and so forth.

By comparison with other works discussed, The Meaning of Meaning (Ogden and Richards 1923) was a populist book. The celebrated semiotic triangle (ibid. 11), a pruned version of which was reproduced in Figure 4.1 (above p. 61), demonstrated the relations between the symbol, the thought or reference in the mind, and the referent.

It is Thought (or, as we shall usually say, reference) which is directed [to the hearer] and organized, and it is also Thought which is recorded and communicated […]. Words […] “mean” nothing by themselves […]. It is only when a thinker makes use of them that they stand for anything, or, in one sense, have “meaning”. (Ogden and Richards 1923: 9f).

The symbol causes a thought (and vice versa) and the thought is sufficient to make it possible to identify a referent (and vice versa). ‘[A] symbol becomes when uttered […] a sign to a hearer of an act of reference’ (ibid. 205). Ogden and Richards rightly insist (ibid. 103) that ‘a symbol refers to what it is actually used to refer to; not necessarily to what it

11. These are respectively an Akan family name, Chinese family name (陈, also Romanized to Chan and Tan), Jewish family name, French name for a female, Italian name for a male, Akan name for a boy born on Saturday, Russian or Ukrainian name for a female (людмила), Chinese name for a female (méi 美 “beautiful” [most common], méi 梅 “plum blossom”, méi 玫 “rose”, méi 媚 “charming”, also méi 妹 “sister”), Vietnamese family name (Nguyêt), Greek family name (Παπαδόπουλος), Georgian family name (შევერდნაძე), Japanese name for a female (富子), Polish name for a male.
ought in good usage, or is intended by the interpreter, or is intended by the user to refer to.’ One must distinguish between what a user actually refers to and what they intend to refer to (ibid. 192). Speakers not only use language to symbolize references but also to promote purposes (ibid. 16); in terms of Bach and Harnish 1979, speakers have illocutionary intentions. Ogden and Richards never really do say what the meaning of meaning is (in the following quote ‘connotation’ is used in the sense of Mill 1843).

The relation of denotation to connotation has been conveniently summed up as follows: The connotation of a word determines its denotation which in turn determines its comprehension, i.e., the properties common to the things to which it can be applied. [...] No word has any denotation apart from some reference which it symbolizes. [...] Connotations are not to be found by themselves anywhere; they are fictitious or nominal entities. (Ogden and Richards 1923: 188)

They quote with approbation (ibid. 193): ‘The meaning of any sentence is what the speaker intends to be understood from it by the listener’ (Gardiner 1922: 360 [sic]). This, of course, is the Humpty-Dumpty argument and hopelessly inept: ‘When I use a word,” Humpty Dumpty said in rather a scornful tone, “it means just what I choose it to mean – neither more nor less.” ’ (Carroll 1965: 174). As Alice told Humpty, “glory” doesn’t mean “a nice knock-down argument”, whatever he intends it to mean. ‘Besides symbolizing a reference, our words also are signs of emotions, attitudes, moods, the temper, interest or set of the mind in which the references occur’ (Ogden and Richards 1923: 223). Ogden and Richards argue that situational context helps give meaning to sentences whose constituents gain meaning from co-text and situational context – which includes cultural assumptions (ibid. 209ff). We shall look at contextual considerations later (pp. 349ff), but next I review developments in lexicography and lexical semantics.

**From lexicography to lexical semantics**

Until the late nineteenth century, semantics and pragmatics were the province of philosophers. The only attention paid to these topics by grammarians and philologists focused on etymology; otherwise it was left to lexicographers to complement the work of philosophers. In the Western Classical Tradition, like the rest of linguistic endeavour, professional lexicography began in ancient Greece during the fifth century BCE with glossaries on the language of Homer. Aristophanes of Byzantium (c. 257–180 BCE), librarian at Alexandria and the man credited with introducing punctuation, wrote Lexeis ("Glossary") which offered glosses of poets and dramatists (Aristophanes of Byzantium 1986). Ioulios Poludeukes (Julius Pollux, c. 180–238 CE), an Alexandrian who taught in Athens, is celebrated for his Onomasticon (Pollux 1846) which was a ten book dictionary of Attic synonyms and phrases arranged according to subject matter (like a thesaurus). It gives interesting insights into contemporary life and quotes numerous lost works. In the tenth century the Suidae Lexicon (Suidas 1928-38) was an encyclopaedic Greek lexicon of 30,000 alphabetic entries offering meanings with explanations. The tenth book of Isidore of Seville’s Etymologiae (early seventh century; Isidore 1850; see above pp. 132ff) is a Latin lexicon. The Liber Glossarum was composed in eighth century France; it borrowed from
Isidore and elsewhere and became the source for later Latin dictionaries such as the tenth century French *Glossarium Salomanis*. A celebrated Renaissance Latin dictionary was Ambrogio Calepino’s (*c.* 1450–1510) *Cornucopiea*, first published in 1502; there is a Basle edition of 1590 giving translations into Hebrew, Greek, Galician, Italian, German, Belgian (?Dutch), Spanish, Polish, Hungarian, and English. Perhaps the most celebrated publication of this period was Robert Estienne’s *Dictionarium seu Latinae linguae thesaurus* (*Estienne* 1531) which he followed with a Latin–French dictionary. The first true bilingual dictionary published in Britain was John Palsgrave’s 1530 *Lesclarcissement de la langue françoyse* which had almost 19,000 entries. Robert Cawdrey 1604 wrote *A Table Alphabeticall, Conteyning and Teaching the True Writing and Vnderstanding of Hard Vsuall English Words Borrowed from the Hebrew, Greeke, Latine or French &c., gathered for the Helpe of Ladies, Gentlewomen, or any Other Unskilfull Persons*. In Chapter 8 pp. 181f, I discussed William Lloyd’s *Alphabetical Dictionary* appended to *Wilkins* 1668 and commented on its innovative lexicographical method. Another great innovator was Samuel Johnson 1755, *A Dictionary of the English Language: in which the words are deduced from their originals, and illustrated by examples from the best writers. To which are prefixed, a history of the language, and an English grammar*. In the preface Johnson touches on nearly all the major issues for lexicography; he differs from modern lexicographers in making value judgments and using citations as models of good style as well as good usage. Johnson was followed by Noah Webster 1828 in America; the amazingly comprehensive *English Dialect Dictionary* of Joseph Wright 1898-1905; and, of course, *The New English Dictionary* (see pp. 157f) which became, in 1933, *The Oxford English Dictionary*.

The next innovation was the application of computers to lexicography. Computers are good for recognizing strings of symbols for the purposes of counting the instances of a word or phrase in a document. Lexicography relies on access to data about usage and this is greatly facilitated by machine reading of large corpora which can identify how often an item occurs and its co-text. In 1980 the Cobuild dictionary project was launched as a cooperative effort between Collins publishers and Birmingham University. Developments in optical scanning enabled the corpus to expand to 20 million words by 1985. By 2002 the Collins Bank of English was up to 500 million words. Online dictionaries readily permit regular updates and hyperlinks to additional information; while the ubiquity of the World Wide Web makes them very easily accessible. One side-effect of corpora of spoken language was to draw attention to multiword idioms (*a stitch in time; ridgy-didge*), clichés (*bread and butter not butter and bread*), formulaic expressions (*many happy returns*), expletives (*uh, huh; shit*) and phonethemes like the onsets to *flee, flicker, flare*, etc. Serious proposals for incorporating these into dictionaries were discussed by Weinreich 1969; Makkai 1972; Jackendoff 1995; Allan 2001; Stubbs 2001; and most interestingly in Wray 2002. The place of proper names and the problematic relationship between the dictionary and encyclopedia are examined by e.g. Allan 2001; 2006b; Hanks (ed.) 1979.

Some aspects of lexicography directly engage with lexical semantics. The modern use of the term *semantics* stems from an article by Michel Bréal (1832–1915) ‘Les lois intellectuelles du langage: fragment de sémantique’ (Bréal 1883) in which he defined it as...
‘la science des significations’ (ibid. 133). The term gained much wider currency with the publication of *Essai de Sémantique: Science de Significations* (Bréal 1897) translated as *Semantics: Studies in the Science of Meaning* (Bréal 1900). He regarded semantics as an essential part of language study that had hitherto been largely neglected by linguists – which was true, semantics had been studied only by philosophers. He inveighed against the predominant contemporary treatment of language as if it were an organism, insisting that linguistics is a human not a natural science (Bréal 1897: 309, 249f). A hearer ‘goes straight to the thought behind a word’ modulating the sense so as to capture the intention of the speaker (ibid. 107). Bréal agreed with William Whitney 1875b: 87 that speakers understand language without recourse to etymology. Unlike the etymologists who believed that the original meanings of words should be a source of enlightenment, Bréal thought that current usage when compared with earlier uses is the best guide to changes in ideas or perceptions (ibid. 182). So, the search for mythical ‘true meaning’ gave way to a search for the patterns and causes of semantic change. ‘[L]anguage facts are […] inspired and guided by an intelligent will’ (Bréal 1897: 210); once again Whitney 1867: 50 had already said something similar: ‘Each single part [of a language expression] is conscious and intentional, the whole is instinctive and natural.’ Words are signs of thoughts, and meanings change in line with speakers’ needs to communicate. ‘Words are not exact models of ideas; they are merely signs for ideas, at whose significance we arrive as well as we can’, wrote Whitney 1867: 20. As Whitney 1875b also said, old words are used in new contexts, and thereby their meanings subtly change. It is the ‘customary office of a word to cover, not a point, but a territory, and a territory that is irregular, heterogeneous, and variable’ (ibid. 110). This opens the way for prototype and stereotype semantics (see below pp. 330ff). For Bréal, semantic change has to be studied with an eye to the contexts and reference of terms in former times. Bréal thinks that analogy in the creation of new terms and the extinction of redundant ones is the ‘logic of language’. The system operates through rational inference. He was unusual in looking not only at lexical meaning but at the functional meaning of prepositions – which made redundant the subject vs oblique case system of Old French (Bréal 1897: 189). Like Hermann Paul, whose *Prinzipien* Bréal (ibid. 307) praised for its contribution to semantics, Bréal sees the multiple meanings in decontextualized language reducing to one meaning or ‘valeur’ in reference. The use of *value* by Whitney and Bréal is tied to referential import, whereas Saussure uses the term to mean “differential value” within the semantic field as part of the language system (see above p. 257f). Language doesn’t merely describe or narrate; it is used in a variety of what today would be called illocutionary functions (Bréal refers to commanding, taking possession, persuading, pleasing, promising, questioning, and exclaiming).

In Chapter 8, I reported the failed seventeenth century searches for a ‘philosophical language’ common to all mankind which prefigures twentieth century proposals for

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12. He had used the term *la sémantique* in a letter to Angelo de Gubernatis back in 1879 (Nerlich 1992: 141).

13. *The Essai* is a compilation of essays. The translation was initiated by Lady Welby-Gregory, mother of the translator, Mrs Henry Cust (née Nina Welby-Gregory).
universally applicable semantic primitives and the notion of componential analysis echoed in the binary analysis of Thomas Hobbes 1839: 25:

Componential analysis seeks to identify the sense of a listeme in terms of one or more semantic components. The principal means of accomplishing this has been through the structuralist method of contrastive distributional analysis (see Chapter 12). Listemes that share semantic components are semantically related. There is no consistent one-to-one correlation between semantic components and either the morphs or the morphemes of any language. Being components of sense, semantic components reflect the characteristics of typical denotata, hence there is a hierarchy of semantic components which corresponds to perceived hierarchies among denotata. For instance, FELINE is a semantic component of cat and entails the semantic component ANIMAL which is also, therefore, a component of cat. This suggests a thesaurus-like structure for semantic components. It follows that the set of semantic components for a language can be discovered by identifying all the relationships that can be conceived of among the denotata of listemes. In practice, this could be everything in all worlds, actual and non-actual. There have been numerous attempts to carry out such a task; among the most successful of them was An Essay Toward a Real Character and a Philosophical Language (Wilkins 1668) discussed in Chapter 8, although this had no demonstrable influence on twentieth century componential analysis.

Leonard Bloomfield was sympathetic to the cultural context of language, but, as we saw in Chapter 12, he excluded semantics from the Bloomfieldian tradition in American linguistics on the ground that semantics is not directly observable in the way that phonemes, morphemes, and sentences manifest themselves in phones. So, from the 1940s until the 1960s, semantics was regarded by many American linguists as metaphysical and unfit for the kind of scientific enquiry into observable language structures that they believed linguistics should undertake. The advance towards semantic analysis was therefore made within morphosyntax, using as a model Roman Jakobson’s ‘Beitrag zur allgemeinen Kasuslehre’ “Contribution to the general theory of case”. Jakobson 1936 utilized distinctive feature analysis based on the methodology of Prague school phonology; for instance, the Latin case system can be specified in terms of distinctive features from the categories of case, gender, number, and declension. For instance, ABLATIVE \ MASCULINE \ SINGULAR \ SECOND_DECLENSION generates the suffix –ō as in puerō “by the boy”. In ‘Componential analysis of a Hebrew paradigm’, Zellig Harris 1948 analysed the verb paradigm using the categories of tense, person, and gender in a similar manner to that just described for case. It is a small step from the componential analysis of closed morphosyntactic systems like noun and verb affixes to the componential analysis of closed semantic fields like kinship systems. For decades, anthropologists had been comparing widely differing kinship systems in culturally distinct societies by interpreting them in terms of universal constituents that
Linguistic semantics and pragmatics from earliest times

equate to semantic components (see Kroeber 1909 ‘Classificatory systems of relationship’).
Two of the earliest articles in the componential analysis of meaning, Lounsbury 1956 and
Goodenough 1956, appeared consecutively in the same issue of the journal Language and
both were analyses of kin terms. Without stepping far outside the Bloomfieldian tradition,
these early writers on componential analysis were responsible for changing contemporary
linguistic opinion by showing that semantic analysis could be carried out using approved
methods of structural analysis, similar to those used to filter out the phonetic components of
the Sanskrit stop phonemes. For instance, Lounsbury’s paper begins with a comparison of
Spanish and English kin terms: ti-o, hij-o, abuel-o, herman-o (“uncle”, “son”, “grandfather”,
“brother”) vs ti-a, hij-a, abuel-a, herman-a (“aunt”, “daughter”, “grandmother”, “sister”).
He notes that English has no gender morphs corresponding to the Spanish suffixes -o and -a,
but gender is nonetheless a significant component in the meaning of the English kin terms.
Their covert gender must be compatible with the sex of the person denoted; consequently, it
is anomalous to call one’s uncle aunt, or one’s sister brother. Hence, too, the anomaly of
*My brother is pregnant. And when the terms aunt and uncle are extended as terms of
respect to an older generation, they are assigned on the basis of the sex of the referent. There
are grammatical consequences: the personal pronoun anaphoric to uncle is he/him; the one
for aunt is she/her. Father, uncle, and aunt have in common that they are
FIRST_ASCENDING_GENERATION. Father and uncle additionally have in common that both
are MALE, whereas aunt is FEMALE. Aunt and uncle are both COLLATERAL, whereas father is
LINEAL. The meaning relationships between father, uncle, and aunt can be seen from the
semantic components identified.

So, modern componential analysis grew out of Prague school distinctive feature analysis
of inflexional morphology, anthropological interest in kinship systems, and semantic field
theory. Semantic fields are constructed from the semantic relations among names for
categories. In effect this means that the semantic field of a listeme is determined from the
conceptual field in which its denotatum occurs; the structure of a semantic field mirrors the
structure of the conceptual field. The notion of semantic field can be found in Humboldt
1836 and it was later developed by Trier 1931; Porzig 1950; Weisgerber 1950; and Geckeler
examined the meanings that can be ascribed to words such as téchnē “skill”, epistémē
“knowledge”, sophía “wisdom”, aretē “virtue”, etc. in the semantic fields of knowledge and
skill in Plato’s works. Lyons was motivated by Trier’s survey of the shifting field of High
German wîsheit, kunst and list but unlike Trier’s subjective speculations, Lyons presents a
rigorous analysis using techniques derived from works such as Zellig Harris 1951 and
Chomsky 1957. Few scholars have undertaken extensive analysis of a semantic field, but
Bendix 1966 analysed the field of have and its counterparts in Hindi and Japanese, Lehrer
1974 analyses the fields of cooking and sound, and Backhouse 1994 is an extensive study of
taste terms in Japanese. A conceptual field such as colour, kinship, or cooking terms is

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14. Around 1200 these meant approximately: “knowledge” (which subsumed) “courty skill” and
“technical skill”. By 1300 wîsheit had narrowed to “mystical knowledge”; kunst shifted to
“artistic skill”, while list was effectively replaced by wizzen meaning “technical skill”.

covered by a number of listemes in a language, each denoting a part of the field. Different
languages, and at different times in history any one language, may divide the field
differently among listemes. Although the sensory data in the colour spectrum is the same for
all human beings, languages name parts of the field differently. As we have seen (pp. 247f,
257f), the differential value of a listeme is that part of the conceptual field that it denotes in
contrast with the part denoted by other listemes in the same semantic field. Unlike the field
of colour terms, the field of cooking terms is not neatly circumscribed; it is difficult to
decide whether the whole field is covered by the analysis in Lehrer 1974, and what effect
extensions or diminutions of the field can have. Since 1974, microwave ovens have become
ubiquitous and require the semantic field to be revised with the advent of this new form of
cooking. To generalize: when new objects and new ways of doing things come into
existence there is a change in the conceptual field that usually leads to a change in the
semantic field resulting from the adding of listemes or the semantic extension of existing
ones. Seemingly closed fields such as case inflexions or kin terms should permit exhaustive
componential analysis in which every term within the field is characterized by a unique
subset of the universal set of semantic components defining the field. However, these
systems invariably leak into other fields when meaning extensions and figurative usage are
considered. Furthermore an exhaustive componential analysis of the entire vocabulary of a
language is probably unachievable, because it proves impossible to define the boundaries –
and hence all the components – of every field.

Semantic primes are, with their interpretations, the primitive symbols that constitute the
vocabulary of the semantic metalanguage. We may suppose that semantic components are
composed from semantic primes, but what are these primes and how many are there?
Proponents of Natural Semantic Metalanguage (NSM) believe that semantic primes
(originally named primitives) and their elementary syntax exist as a minimal subset of
ordinary natural language (Goddard 1994: 10). As we saw in Chapter 8, a number of
seventeenth century seekers after a universal language including Dalgarno 1661; Lodwick
1652; and Wilkins 1668 proposed primitive semantic components. Their contemporary,
Antoine Arnauld, recognized that the meanings of most words can be defined in terms of
others, but that ultimately there are some undefinable semantically primitive words
(Arnauld and Nicole 1996 [1662]).

The NSM researchers’ quest for semantic primes recalls the Swadesh-list of basic
vocabulary created to plot diachronic relationships between unwritten languages in Africa,
the Americas, and elsewhere. Words in the Swadesh-list are basic in the sense that they
name things likely to be common to the experience of all human communities (the sun,
human body parts and functions, etc.). The purpose of the Swadesh-list was to take a pair of
languages and compare 100 to 215 basic lexemes to discover how many are cognates (see
Swadesh 1955); hence one name for the programme is lexico-statistics (see Embleton 1986).
In making the comparisons, literal meanings are preferred to semantic extensions; e.g. the
body-part sense of English tongue is preferred to the sense “language”. The scale of
vocabulary differentiation derives from studies of Indo-European languages for which there
are historical records. For related languages, the time of divergence from a common mother
language is estimated from the proportion of vocabulary common to both. This procedure is sometimes called glottochronology.

Uriel Weinreich 1962: 36 identified a discovery procedure for a semantic metalanguage built upon natural language. This was to stratify the language into (a) a central core of semantic primes whose members are definable only circularly and by ostensive definition such as “colour of the sky” in the entry for blue. (b) The next stratum out uses items whose definitions contain only core items without (further) circularity. (c) Each more peripheral stratum uses items from the preceding strata without circularity. Anna Wierzbicka has been carrying out this programme in a cross-language context since 1972, searching for a universal set of semantic primes expressed principally through the vocabulary of English. The number of semantic primes has grown from 14 in Wierzbicka 1972 to 63 in Goddard 2009. It is claimed (e.g. in Goddard 1994: 12) that ‘any simple proposition’ expressed in NSM using any one natural language (e.g. English) will be expressible in NSM using any other language (e.g. Japanese). There is an English NSM, French NSM, Mandarin NSM, etc. with about the same number of semantic primes in every language. Like predicate logic, NSM is supposedly linguistically and culturally unbiased and there is a heuristic or algorithm for translation. In fact, there is none. In many instances, primes are not isomorphic across languages as the figures 1, 2, 3 are. NSM primes are compositionally and often semantically different across languages; like most translated terms, the meanings show partial overlap rather than complete identity: English SOME = French IL Y A … QUI; English THERE IS = French IL Y A. There is a professed need for allolexes which makes the so-called ‘semantic primes’ far more like meaning clusters than true primes, for example: English I and ME; DO, DOES, DID; French TU, TOI, VOUS; Italian TU, VOI, LEI, etc. There is no satisfactory account of the syntax of NSM, though see Wierzbicka 1996: 19–22, Goddard 1998: 329–36. It is described as ‘elementary’ but it behaves the proponents of the theory to be more precise and to explain what differentiates a well-formed semantic definition or description from an ill-formed one.

The expressions used in a semantic representation in NSM are supposed to match those that children acquire early. They are deliberately anthropocentric and subjective, referring to the natural world of sensory experience rather than intellectualized abstractions. Thus, red is the colour of blood or fire, not an electromagnetic wave focally around 695 nanometres in length (Wierzbicka 1980; 1990; 1992a). Wierzbicka 1984: 207 commented that Labov’s denotation conditions for cup (Labov 1973: 366f) ‘need the help of a mathematician to understand’ them; but her own definition is 831 words long and extraordinarily detailed, so that many readers find it just as confusing as Labov’s denotation conditions. Much better than both is that of Katz 1977b: 49 (see Allan 2001: 280f for details). There are important questions about the payoff between the effectiveness of a semantic definition and its accuracy. What is the purpose of the semantic analysis? For whom or what is the resulting semantic specification designed? NSM semantic definitions are not designed to be used by machines that simulate language understanding, they are intended to be easily accessible to a non-native speaker of the language. But every such reader will already know what, say, a cup is, so a brief description would be sufficient. ‘For dictionary purposes, the concept has
only to be identified, not fully specified,’ wrote Cruse 1990: 396. This, of course, applies to the whole lexicographical endeavour and not just to NSM.

Componential semantics presupposes a checklist of properties to be satisfied for the correct use of the decomposed expression (Fillmore 1975: 123). For example, the default denotatum of *bird* is bipedal, has feathers, and is capable of flight. But there are several species of flightless birds (e.g. emus, penguins); a downy chick and a plucked chicken are featherless, but nonetheless birds; and a one-legged owl and a mutant three-legged hen are also birds. So the notion of a checklist of essential properties for the denotatum is problematical. **Prototype** and **stereotype** semantics are alternatives to checklist theories of meaning.

The prototype hypothesis is that some denotata are better exemplars of the meaning of a lexeme than others, therefore members of the category denoted by the lexeme are graded with respect to one another. For example, a bird that flies, such as a pigeon, is a better exemplar of the category Birds than a penguin, which doesn’t. How are prototypes discovered? Battig and Montague 1969 asked students to list as many Vegetables, or Fruits, or Diseases, or Toys, etc. as they could in 30 seconds. They hypothesized that the most salient members in each category would be (a) frequently listed and (b) high on the list. They found, for instance, that a carrot is the prototype for Vegetable, i.e. the best exemplar of the category because it was listed frequently and early. A tomato belongs to two categories: it is a Vegetable in folk belief and technically a Fruit. On the Battig and Montague scale, a tomato ranked 6th as a Vegetable and 15th as a Fruit. Using their figures for salience, the tomato’s degree of membership of the category Vegetable is 68 per cent and of the category Fruit only 14 per cent. George Lakoff 1972a interprets such rankings in terms of **fuzzy** sets of objects with a continuum of grades of category membership between 0.0 and 1.0. The carrot is the best instance with a value 1.0, a tomato has the value 0.68 (0.14 membership in the fuzzy set Fruit), and a pickle only 0.006. Any entity assigned a value greater than 0.0 is a member of the category, i.e. the pickle is a Vegetable no less than the carrot. What the fuzzy set membership value indicates is how good or bad an exemplar of the category a certain population of speakers perceives that entity to be. A tomato is vegetable-like because it is eaten, often with other vegetables, as part of an hors d’oeuvre or main course. It is not eaten, alone or with other fruits, for dessert. A tomato is fruit-like because it grows as a fruit well above the ground and not on or below it. Also, it is often eaten raw and the extracted juice is drunk like fruit juices. Tomatoes are cultivated for food (not, like flowers, for ornamentation); so it is our practice of eating tomatoes as if they are vegetables rather than fruit that explains the relative ranking in each category.

Eleanor Rosch carried out a series of experiments on prototype semantics summarized in Rosch 1978. Rosch 1973 found that the common cold is a very poor exemplar of Disease – which conflicts with the Battig and Montague finding. The discrepancy between the two findings is explained by the fact that Rosch only gave her subjects six diseases to rank (cancer, measles, malaria, muscular dystrophy, rheumatism, cold) and a cold is the mildest of them. The salience would also be affected by the number of people suffering from colds at the time of the experiment. Obviously, establishing the prototype depends upon the
experiences and beliefs of the population investigated. Consequently, the claimed prototypicality ranking is valid for the community surveyed, but not for all speakers of the language, or even the same subjects on a different occasion.

In his *Philosophical Investigations* (1953) Ludwig Wittgenstein wrote of ‘family resemblances’, which George Lakoff 1987 adopted into prototype theory identifying chains of similarities among members of a category. There are, for example, the various senses of *over* (e.g. directly above, covering, across from, down from); the range of Japanese nominals that take the classifier *hon* (e.g. stick, judo, rope, movie, scroll, phone call); the fact that the prototypical *mother* (the woman who produces the ovum, conceives, gestates, gives birth, and then nurtures the child) links to the *biological mother, donor mother, mother superior*, etc. Some extended meanings are figurative (e.g. *mother superior*), and a very important development in late twentieth century studies of meaning was the general acceptance, following Lakoff and Johnson 1980, that metaphor and metonymy are all pervasive in language and not clearly demarcated from ‘literal’ meaning (see Coulson 2001; Kövecses 2002; Sweetser 1990; Traugott and Dasher 2002).

In ‘The meaning of “meaning”’, Hilary Putnam 1975 proposed a stereotype semantics such that the meaning of a language expression *e* (typically a lexeme) is a minimum set of stereotypical facts constituting a mental image, mental construct, or Gestalt with the attributes of the typical denotatum, including connotations (pragmatic, not Millian). This is especially obvious with tabooed terms such as the difference between *nigger* and *African American* or between *shit* and *faeces*: the denotations of these pairs is identical, but their connotations are very different. Connotations of *e* arise from encyclopaedic knowledge about the denotation of *e* and also from experiences, beliefs and prejudices about the context in which *e* is typically used. Connotations vary between contexts and speech communities independently of sense and denotation: a male chauvinist and a radical feminist might have quite different stereotypes for *man* and *woman*, and yet have no difficulty picking the denotatum of one from the other. Putnam expressly allows for experts to have considerably more knowledge at their command than their fellows – which raises the interesting question: Do the words *elm* and *beech* have the same stereotype and meaning for a botanist as they do for an inner city dweller who can’t distinguish an elm from a beech? Presumably not. However, if the botanist were to point out and name an elm, the inner city dweller would know that referent is not a beech, even if s/he could still not recognize another elm thereafter.

How is ‘a (stereo-)typical denotatum of *e*’ distinguishable from ‘as-good-an-exemplar-as-can-be-found among the class of things denoted by *e*’? Presumably, the stereotype properly includes the prototype. For instance, whatever the stereotype of *vegetable* may be, it properly includes the prototype carrot and the peripheral onion. The stereotypical *vehicle* includes the prototypical car and/or bus together with the peripheral horse-drawn wagon. If this is correct, then we should favour the stereotype in giving the semantics of language expressions.

It can be seen that prototype and stereotype semantics embrace pragmatics.
Frames (Goffman 1974; Fillmore 1982; 2006; Fillmore and Atkins 1992) identify the characteristic features, attributes, and functions of a denotatum, and its characteristic interactions with things necessarily or typically associated with it. For example, a restaurant is a public eating-place; its attributes are: (1) business premises where, in exchange for payment, food is served to be eaten on the premises; consequently, (2) a restaurant has a kitchen for food preparation, and tables and chairs to accommodate customers during their meal. Barsalou 1992: 28 describes attributes as slots in the frame that are to be filled with the appropriate values. The frame for people registers the fact that, being living creatures, people have the attributes of age and sex. The attribute sex has the values male and female. It can be represented formally by a function BE_SEXED applied to the domain D={x:x is a person} to yield a value from the set {male, female}. The function BE_AGED applies to the same domain to yield a value from a much larger set. Frames interconnect in complicated ways. For instance, the social status and the appearance of a person are usually partly dependent upon their age and sex, but not necessarily so. Knowledge of frames is called upon in the proper use of language. Part of the frame for bird is that birds are FEATHERED, BEAKED and BIPEDAL. Most birds CAN_FLY; applied to an owl this is true, applied to a penguin it is false. Birds are sexed, and a (normal) female bird has the attribute CAN_LAY_EGGS. Attributes for events include participants, location, and time of occurrence, e.g. the verb buy has slots for the attributes buyer, seller, merchandise, payment: these give rise to the thematic structure (valencies, case frames) of the verb. An act of buying occurs in a certain place at a certain time (a world-time pair with values relevant to evaluation of truth, see p. 342). To sum up, frames provide a structured background derived from experience, beliefs, or practices, constituting a conceptual prerequisite for understanding meaning. The meaning of a language expression relies on the frames, and it is these that relate listemes one to another.

The ‘lexical semantic structures’ of Pustejovsky 1995 systematically describe semantic frames for every listeme, and may offer a solution to the problem of selection features, discussed earlier. Pustejovsky’s ‘generative lexicon’ entries potentially have four components. ‘Argument structure’ specifies the number and type of logical arguments and how they are realized syntactically. ‘Event structure’ defines the event type as state, process, or transition. For instance, the event structure of the verb open involves a process wherein X carries out the act of opening Y, creating a state where Y is open. ‘Qualia structure’ identifies the characteristics of the denotatum. There are four types, reminiscent of Aristotle’s four causes (see above pp. 39, 173): constitutive (material constitution, weight, parts and components); formal (orientation, magnitude, shape, dimension, colour, position); telic (purpose, function, goal); agentive (creator, artefact, natural kind, causal chain); lexical inheritance structure (identifies relations within what Pustejovsky calls the lexicon, but which is arguably encyclopaedic information\textsuperscript{15}). Figure 13.1 demonstrates that book and

\textsuperscript{15} An encyclopedia functions as a structured database containing exhaustive information on many (perhaps all) branches of knowledge; a dictionary (lexicon) is that part of an encyclopedia
Linguistic semantics and pragmatics from earliest times

newspaper have in common that they are print matter, and that newspaper can refer to both the readable product and the organization that produces it.

The entry for book (ibid. 101) is (1):

(1) \[
\begin{align*}
\text{book} & \\
\text{ARGSTR} = & \begin{cases}
\text{ARG1} = x: \text{information} \\
\text{ARG2} = y: \text{phys_obj}
\end{cases} \\
\text{QUALIA} = & \begin{cases}
\text{information.phys_obj_lcp} \\
\text{FORMAL} = \text{hold}(y,x) \\
\text{TELIC} = \text{read}(e,w,x,y) \\
\text{AGENT} = \text{write}(e',v,x,y)
\end{cases}
\end{align*}
\]

In the qualia, information.phys_obj_lcp is a ‘lexical conceptual paradigm’ represented in a type cluster that says book is a physical object that holds information, cf. ARG2 and ARG1 and hold(y,x) in the formal quale. The type cluster is:

\[
\text{information.phys_obj_lcp} = \{\text{information.phys_obj, phys_obj, information}\}
\]

All three members of the set are available for expression by book. In (1), the agent quale captures the fact that a book is written by someone (v); the event of writing is e'. The telic quale captures the fact that a book is for reading (e) by someone (w).

Semantics within syntactic structures: the work of Jerrold J. Katz

Most semantic relations extend beyond listemes to the syntactic structures into which the listemes combine. Although the semantics of propositions has been considered within philosophy since Plato, Aristotle, and more particularly the Stoics, the first step within linguistics was (ironically) undertaken by a philosopher and a cognitive scientist in Katz and Fodor 1963 ‘Structure of a semantic theory’. It was Jerry Katz who was largely responsible for establishing semantic theory as one component of a transformational grammar. Katz’s metalanguage was dubbed ‘semantic markerese’ by David Lewis 1970, because so-called ‘semantic markers’ are the principal kind of semantic component Katz uses. According to Katz 1967; 1972 a semantic marker names a concept that any human being can conceive of; hence, semantic markerese is applicable to all natural languages.

which stores information about the formal, morphosyntactic, and semantic specifications of listemes and their meaningful constituents; see Allan 2006b.

16. See below p. 345 on event-based semantics.
Katz sought to establish a theory of meaning that would do all the following.

- Define what meaning (i.e. sense) is.
- Define the form of lexical entries.
- Relate semantics to syntax and phonology (by postulating semantic theory as an integral component of a theory of grammar).
- Establish a metalanguage in which semantic representations, properties, and relations are expressed.
- Ensure the metalanguage is universal by correlating it with the human ability to conceptualize.
- Identify the components of meaning and show how they combine to project meaning onto structurally complex expressions.

Essentially, these are goals that should be met by any semantic theory – though what any two theories mean by ‘component of meaning’ and the integration of semantics with phonology and syntax might be radically different. Missing from Katz’s conditions is the requirement that the meaning of language expressions needs to be related to the real and imaginary worlds people speak and write of. Katz’s theory made no claim to account for utterance or speaker meaning because Katz eschewed pragmatics, although it cannot be completely avoided.

Katz’s semantic theory is interpretative: in its later versions it was designed to assign meanings to the output of autonomous syntactic rules of a transformational generative grammar of the kind described in Aspects of the Theory of Syntax by Chomsky 1965 and was not updated to accommodate later developments in transformational syntax. The earliest version of the theory, Katz and Fodor 1963, was geared to the syntactic model of Chomsky 1957 and was quickly abandoned when Bolinger 1965 and Weinreich 1966 showed that, by recursively conjoining meaning components, it destroyed input from syntactic structure. Katz never properly justified, evaluated, or even seriously discussed the vocabulary and syntax of semantic markerese. We can only learn to interpret his metalanguage by abduction from his examples. Unfortunately, there is little consistency among these examples, and semantic markerese remains only a partially comprehensible language. Compare (2), the semantics for chase given in Katz 1967: 169, with (3), given in Bierwisch 1969: 160.

(2) (((Activity of X) (Nature: (Physical)) (Motion) (Rate: (Fast)) (Character: (Following Y)) (Intention: (Trying to catch ((Y) (Motion)))))


It is only in the vocabulary that there is any interesting similarity between the two; there is a striking difference in structure. Bierwisch approximates the standard and conventional syntax of predicate logic, but the syntax of markerese is nonstandard and unconventional. The marker (Activity of X) classes chase with verbs such as eat, speak, walk, and remember as against state verbs like sleep or wait, and process verbs like grow or freeze. The marker (Rate: (Fast)) distinguishes chase from creep and walk. (Character: (Following Y)) distinguishes chase from flee or wander. The variables ‘X’ and ‘Y’ indicate where the
The rules for constructing semantic markers were never specified; there were at least five differently structured semantic readings for *chase* given by Katz himself (Katz 1966; 1967; 1972; 1977c; Katz and Nagel 1974) and an additional two in Janet Fodor 1977. A 1977c marker for *chase* is Figure 13.2. The 'categorized variable' $X$ is the location into which the reading for the relevant clause constituent is located: that for the actor (the catcher) goes into the subject position identified as $[\text{NP, } S]$, the NP dominated by $S$ in the syntactic phrase marker (PM, a rooted, labelled tree structure); the reading for the undergoer comes from whatever is the direct object, $[\text{NP, } \text{VP, } S]$. $<>$ marks the location for unspecified selection restrictions. The tree structure of the marker in Figure 13.2 cannot be compared with those of syntactic PMs for the following reasons: (1) the vocabulary of category symbols used in syntactic PMs is, by and large, conventional; most of those used in markerese are not; (2) the nature of rules for constructing syntactic PMs is generally agreed upon, but those for markerese are not; (3) PMs indicate a hierarchy of constituent relations in the transitive daughter-of relation, but there is no consistent set of relations in a semantic marker tree. Katz 1977c: 68 says that ‘the notation provides a domain for entailment definition’ but it is unclear what this can mean: (Activity) does not entail (Physical) nor vice versa. Although (Activity) is presented as a single component in Figure 13.2, Katz 1972: 167 offers the further analysis in (4).

(4) (Activity) = (Performs a sequence of related acts from $X$ to $X$) $< >$ $< >$

The categorization of the variables in (4) is to be ‘given in terms of grammatical relations between the tense constituents and the verb within the same predicate phrase and between temporal adverbials and the verb within the same predicate phrase’ (*ibid.*). Similarly (Movement) in Figure 13.2 is analysed in terms of ‘covers the distance between’ one
location and another. Katz and Postal 1964: 16 had proposed a set of semantic redundancy rules to reduce the number of semantic markers in a dictionary entry – all semantic theories propose some counterpart to this. For instance, from the rule in (5), for every occurrence of (Human) the redundancy rule adduces the entailed markers to give a full semantic specification.

(5) \((\text{Human}) \rightarrow (\text{Physical Object}) \land (\text{Sentient}) \land (\text{Capable of Movement})\)

Katz claimed that his theory directly captures all the subtleties of natural language and offers a natural logic which is a better instrument for semantic analysis than the metalanguages of standard logics because it is supposedly a formal language that maps knowledge of language without confusing it with use of language (Katz 1975a; b; 1977a; 1981b). In fact, we can only interpret Katz’s semantic markers for chase, for instance, because it uses English words whose meanings we combine to match up with our existing knowledge of the meaning of chase. In short, Katz’s metalanguage is a degenerate form of English. If we reword his various semantic markers for chase into more or less normal English, they will read something like \(X\) is quickly following the moving object \(Y\) with the intention of catching it. As a metalanguage this is superior to Katz’s unconventional, nonstandard, and ill-explained metalanguage; furthermore, it is no less revealing as a semantic analysis. Katz has claimed (as have other semanticists, too) that the English used in the semantic metalanguage is not English, which is used only as a mnemonic device. Such claims are dishonest because the only way to make any sense of the metalanguage is to translate it into a natural language. That is why to analyse bachelor into \{\(\text{Human}\), (Adult), (Male), (Single)\} as did Katz and Nagel 1974: 324 is a more enlightening semantic analysis than \{\(48\), (41), (4D), (53)\}.

Markerese was supposed to solve the ‘projection problem’, that is, the projection of the meanings of listemes (lexemes and grammatical morphemes such as tense and number) from the lexicon into a lexically specified underlying phrase marker and also into complex semantic markers like that in Figure 13.2. Informally, the projection rule proceeds from the terminal nodes of the rightmost S in the categorization, through its mother and each supersequent mother node until the highest S node is reached to provide a reading (interpretation) for the whole sentence (see Katz 1972: 114f).

Semantic markerese often lacks clarity and simplicity and it may be thought these are a consequence of it being a formal theory of semantics; yet formalism, especially unconventional formalism, can only be justified if it increases explicitness of statement, rigour of analysis, and promotes clarity of expression. Katz’s metalanguage has none of these virtues. I have discussed it at length because it was the first comprehensive theory of linguistic semantics. For reasons that have been given, it was not successful but it did identify the parameters that other theories needed to engage with. A major limitation was no proper treatment of pragmatics and no obvious extension beyond sentences to texts. These faults are also to be found in many of its rivals.

In Figure 13.2 there are unfilled symbols for **selection restrictions**. Language combines the meaning encapsulated in listemes into the complex meanings of phrases, sentences, and longer texts. Such combination is conditioned by the rules of syntax and at least four kinds
of selectional restrictions (see Chomsky 1965). There are category features (Noun, Verb, …), which determine different morphological and collocational possibilities, e.g. of fly<sub>Verb</sub> and fly<sub>Noun</sub> in His hand flew to his fly. Strict subcategorization identifies other syntactic categories that collocate with the listeme. Syntactically transitive verbs, for instance, are defined by some notational variant of the strict subcategorization feature [+ ___NP] “takes a direct object”; open (as in Fred opened the box) has this feature, whereas the intransitive verb in The door opened easily has the feature [– ___NP]. Supposedly syntactic inherent features such as [+ human, + female, …] for woman; or [+ active, …] for go in fact have a semantic basis. The selectional features of one listeme refer to the inherent features of collocated listemes (e.g. for a verb [+ [+ animate]___[+ abstract]] “has an animate subject NP and an abstract direct object NP”). So there are no grounds for the syntactic selectional features originally postulated to constrain a supposedly purely syntactic process of lexical insertion into syntactic phrase markers; in reality the procedure is semantically conditioned. It would otherwise be impossible to generate meaningful sentences like Shakespeare’s Grace me no grace, nor uncle me no uncle or Scott’s But me no buts.17 What governs the co-occurrence of listemes is that the collocation has some possible denotation (be it substance, object, state, event, process, quality, metalinguistic statement, or whatever). Consider an example marked anomalous in McCawley 1968a: 265.

(6) *That electron is green.

(6) is judged anomalous because electrons are theoretical constructs that cannot absorb or reflect light, and therefore cannot be felicitously predicated as green. But suppose an explanatory model of an atom were constructed in which an electron is represented by a green flash: there would be no anomaly in stating That electron is green with respect to such a model. Comparable explanations are possible for most apparent violations of selection restrictions, including the celebrated Colorless green ideas sleep furiously (Chomsky 1957: 15).18 Empirical evaluations of sequences of listemes for coherence and sensicalness depend upon what they denote; evaluations must be matched in the grammar by well-formedness conditions, in part expressed by selection restrictions. To describe the full set of well-formedness conditions for the occurrence of every listeme in a language entails trying every conceivable combination of listemes in every conceivable context, and such a task is at best impracticable and at worst impossible. Perhaps the best hope is to describe the semantic frames (see p. 332) for every listeme.

Alternatives to Katzian semantics

Noam Chomsky was educated in the Bloomfieldian school that eschewed semantic theory as speculative. For him semantics was at best an add-on for the syntactic base, a position affirmed by Katz and Fodor 1963, in subsequent work by Katz (opp. cit. supra), and a

17. Shakespeare Richard II II.iii.87; Scott The Antiquary Ch.XI.
The Western Classical Tradition in Linguistics

decade later by Jackendoff (see below p. 340f). The Aspects theory developed in Chomsky 1965 had a level of deep structure at which the meaning of each sentence constituent was specified and the meaning ‘projected’ upwards through nodes in the phrase marker to develop a reading for the sentence. Deep structure was separate from a level of surface structure at which the form of the sentence (as used in everyday utterance) was specified. This conception of grammar leads naturally to the view that pairs of formally distinct but semantically equivalent expressions such as the following arise from the same deep structure by different transformations: (a) *X caused Y to die* and *X killed Y* or (b) *X reminds me of Y* and *X strikes me as similar to Y* or (c) *my mother* and *the woman who bore me*. The next theoretical development, which became known as generative semantics19 was to propose that the initial structures in a grammar are semantic rather than solely syntactic. Despite its name, generative semantics was always primarily a theory of syntax in which there was little serious examination of any aspects of semantics other than the structuring of meaningful elements. It grew directly from the ground that had produced those stalwarts of what was dubbed standard theory, Katz and Postal 1964 and Chomsky 1965, whence the emphasis on syntactic justification derived. One of the earliest works in generative semantics was Lakoff 1965, originally conceived as an extension of standard theory. Lakoff postulates phrase markers that terminate in feature bundles like those in Aspects; he differs from Chomsky in proposing that listemes be inserted into only some of these terminal nodes, the rest functioning as well-formedness conditions on lexical insertion and semantic interpretation. For example, *kill* replaces the semantics of *dead* when it is c-commanded by an unlexicalized inchoative verb that in turn is c-commanded by an unlexicalized causative verb (see Lakoff 1965; Allan 1986 for details). In 1965 Lakoff believed that lexical insertion preceded other transformations. Gruber 1965 contains lexical structures that have most of the syntactic characteristics of standard theory trees, but some terminal nodes were semantic components. Gruber argued that some transformations must operate on prelexical syntax (prior to lexical insertion). For instance from the prelexical structure VP[V[MOTIONAL, POSITIONAL] PrepP[Prep[ACROSS] …]], lexical insertion will put either the verb *go* under the V node and the lexeme *across* under the Prep node, or alternatively map the single verb *cross* into a combination of both the V and Prep nodes. The latter was a radical innovation. Because semantic interpretation is made before transformations such as passive apply, semantics and syntax are interdependent. A similar conclusion was reached in Postal 1966; 1970; 1972 and Lakoff and Ross 1976 [1967]. Weinreich 1966 showed that lexical insertion is semantically governed and that syntactic structure is merely the skeleton for semantics. McCawley 1968b assumes that all natural language syntax can be represented by the symbols S(entence), V (predicate) and one or more NPs (arguments). In initial structure, V consists of a primitive semantic component or ‘atom’ and NP is either a recursive S node or a variable (an index) designating the referent. Thus, in generative semantics, initial symbols represent semantic components set into structures that are a hybrid of predicate logic and natural language syntax – both well-established conventional systems. These structures

19. The first use of the term was by Lakoff in 1963 (Lakoff 1976); the earliest published use of the term is in Bendix 1966: 12.
could be rearranged in various ways by transformations before lexical forms were mapped onto them. Additional transformations may rearrange or delete nodes until the final derived phrase marker gives a surface form for the sentence together with its structural description. Because the starting point is the meaning of the sentence, there is no projection problem (see p. 336) because meaning is determined directly from that initial semantic structure.

The aim for generative semanticists was to give consistent semantic descriptions for listemes, phrases, etc. as they occur in different sentence environments in such a way that the meaning of any sentence constituent could be determined from the initial sentence structure. The semantic metalanguage was based on a natural language, although both Lakoff 1972b and McCawley 1972 claim that a semantic component such as *CAUSE* is distinct from the English verb *cause*; however, they don’t identify the difference and, in fact, *CAUSE* is necessarily interpreted as meaning “cause”. No rules governing the insertion of semantic predicates under *V* were ever specified. Either selectional restrictions must apply to constrain insertion or there will be unrestricted insertion subject to output conditions such as the semantic evaluator of Weinreich 1966. Neither was satisfactorily identified, probably because no one has proved capable of fully specifying such devices in practice. There was also the problem identified by Fodor 1970: a simple sentence like *X killed Y* supposedly derives from the complex *X caused Y to die*. One line of defence is to claim that postlexical and not prelexical clauses denote events, but this is contrary to the spirit of generative semantics. In a sentence like (7) one might claim that the adverbial ‘on Sunday’ blocks the insertion of *kill*. However, the adverb in (8) has no such effect.

(7) X caused Y to die on Sunday by stabbing him on Saturday.

(8) X almost killed Y.

*Die* is supposedly based on *BECOME_NOT_ALIVE* or *cease to be alive*. The fact that (9) are acceptable but (10) are not suggests that *DIE* is a semantic component (atom, prime).

(9) X died in agony.
   X died emaciated.

(10) *X ceased to be alive in agony.*
    *X ceased to be alive emaciated.*

Allan 1986 argued against semantic decomposition of most listemes in favour of recognizing entailment relations such as those in (11) – which can be used to identify meaning postulates (a meaning postulate stipulates conditions under which logically valid relations are established among structures containing symbols for semantic primitives; see Carnap 1952).

(11) X dies → X ceases to be alive
X ceases to be alive → X dies
Y kills X → X dies

This certainly seems to be justified from a psycholinguistic point of view, cf. Fodor, Garrett, Walker, and Parkes 1980.
Like Katz’s markerese and generative semantics, the conceptual semantics of Ray Jackendoff, most succinctly collected in Jackendoff 1990, lacks a proper treatment of pragmatics and makes no obvious extension beyond sentences to texts. According to Jackendoff, semantics is a part of conceptual structure in which linguistic, sensory, and motor information are compatible (see Jackendoff 1983; 1987; 1992; 2002; 2007). This breadth of vision has a consequence that is unusual in semantic theories: Jackendoff believes that word meaning is a large, heterogeneous collection of typicality conditions with no sharp distinction between lexicon and encyclopedia. Conceptual structure includes a partial three-dimensional model structure based on visual perception such that the actions denoted by run, jog, and lope look different but have a common semantic base represented by the primitive verb GO. A partial model for such verbs represents the manner and stages of motion, but is unspecified so as to enable an individual to recognize different instances of running, jogging, etc. as the same kind of activity. The different manners of motion visible in each of run, jog, and lope on the one hand, and throw, toss, and lob on the other, Jackendoff refers to as differences in model structures. Along with visual differences are other sensory differences that would be perceived by the unsighted as well as the sighted person. No semanticist has discussed these, but if visual data are to be accounted for, so should other sensory data. All this information is encyclopaedic rather than lexical.

Every content-bearing major phrasal constituent of a sentence corresponds to a conceptual constituent. S expresses STATE or EVENT. NP can express almost any conceptual category. PP expresses PLACE, PATH, and PROPERTY. Jackendoff is principally interested in the semantic structure of verbs, with a secondary interest in ‘function-argument structures in the spatial domain’. He has made no attempt to semantically decompose nouns, treating them as semantic primitives. In his view, only kin terms and geometric figures admit of satisfactory semantic decomposition. By contrast, he finds that verbs decompose into comparatively few classes (as also in Role and Reference Grammar, see p. 273).

Jackendoff’s vocabulary of semantic primitives is very much larger than the set used by NSM researchers. The syntax of his lexical conceptual structure (LCS) is a configuration of functions ranging over arguments. For instance, (12) is a conceptual structure in which function F has two arguments [A] and [B]. Note that conceptual structures and primitives are bounded by square brackets, and the range of the function in parentheses. An example is (13).

(12) \[F([A],[B])]\)
(13) \[[\text{PLACE}] \rightarrow [\text{PLACE-FUNCTION}([\text{THING}])]\)

under the table \[\text{PLACE-UNDER}([\text{THING-TABLE}])\]

EVENT is exemplified in (14) and (15), STATE in (16), CAUSE in (17). There are no representations for definiteness or tense, etc.

(14) Bill went to Boston \[\text{Event GO}([\text{Thing BILL}], \text{Path TO}([\text{Thing BOSTON}]))\]

(15) The light changed from red to green \[\text{Event GO}([\text{Thing LIGHT}], \left[\text{Path TO}([\text{Property RED}])\right], \text{Path TO}([\text{Property GREEN}]))\]
(16) Bill is in Boston

\[ \text{StateBE([ ThingBILL], [ PlaceIN([ ThingBOSTON])])} \]

(17) Bill drank the beer

\[
\begin{align*}
\text{EventCAUSE([ ThingBILL], [ EventGO([ ThingBEER], [ PathTO([PlaceIN([ ThingMOUTH OF([ ThingBILL)])])])])])}
\end{align*}
\]

A preferred alternative to the double appearance of BILL in (17) is Argument Binding, symbolized ‘α’ in the lexicon entry for drink in (18) (Greek superscripts α, β, γ stipulate binding between argument positions).

(18)

\[
\begin{align*}
\text{drink} \\
\text{V} \\
\text{CAUSE([ Thing]}_\alpha^A, [ EventGO([ ThingLIQUID]_A^\text{<A>}, [ PathTO([ PlaceIN([ ThingMOUTH OF([ Thing]_\alpha^A)])])])])}
\end{align*}
\]

Subscript \( _A^\alpha \) marks an option: what is drunk must be liquid, but need not be mentioned, cf. *Bill drinks*. All arguments are indexed by subscript \( _A \). Thematic roles are assigned according to a thematic hierarchy by ‘argument linking’. In (18), \([ \text{Thing} ]^\alpha_A \) will be assigned what Jackendoff calls the actor role. \([ \text{Thing} ]^\alpha_A \) is co-indexed with \([ \text{Thing} ]^\alpha \) into whose mouth the liquid goes – namely ‘Bill’ in (17). The \( A \) in \([ \text{ThingLIQUID}]_A^\text{<A>>} \) indicates that it holds the role of theme. The theme NP is optional; syntactically intransitive *Bill drank* is nonetheless transitive in its semantic structure. The revised conceptual structure for *Bill drank the beer* is therefore (19).

(19)

\[
\begin{align*}
\text{EventCAUSE([ ThingBILL]_A^\text{<A>}, [ EventGO([ ThingLIQUID]_\text{<A>BEER}A^\text{<A>}, [ PathTO([ PlaceIN([ ThingMOUTH OF([ Thing]_\alpha)])])])])}
\end{align*}
\]

Conceptual semantics shows that a semantic decomposition of verbs making extensive use of just a few primitives is a feasible project. The syntax of LCS is a function-argument structure similar to that of predicate calculus, so that someone acquainted with predicate calculus can construct a lexical conceptual structure despite the fact that Jackendoff does not employ standard logical formulae. Although LCS makes no use of logical connectives, some of the more complex formulae imply conjunction between the function-argument structures in a lexical conceptual structure. There is a score of primitive verbs so far identified, so although the set of functions is restricted, the vocabulary of primitive arguments is unbounded. Conceptual semantics was designed to integrate with a dominant syntactic theory in late twentieth century linguistics: A-marking links the semantic interpretation to a node in the syntactic phrase marker. Jackendoff suggests that argument binding in LCS (using Greek superscripts) does away with the need for the level of logical form (LF) in syntax (logical form is, supposedly, the level of representation which fully determines the semantics of a sentence). LF has not yet been abandoned in favour of conceptual structure; but Jackendoff’s conceptual semantics has been a real force within the development of grammatical theory.

In *construction grammar* (Fillmore and Kay 1987; Goldberg 1995; 2006) meaning is not projected onto syntactic structures from listemes. A projection model (like that of Katz or Jackendoff) would require the italicized verbs in (20)–(23) to be distinct from default meanings: *pant* is not normally a motion verb; *bark* and *sneeze* are not normally causative; *knit* is not normally ditransitive (i.e. a three-place verb, like *give*).
The additional verb meanings result from the construction in which the verb occurs. Construction grammar proposes various integration types. For instance in (20) and (22) the adverbial construction indicates the motion, the verbs pant and sneeze the manner of motion; in (21) and (22) the constructions are causative, indicating a theme and result; in (23) the valence of knit is augmented to make it a verb of transfer by mentioning the recipient/beneficiary. The construction coerces an appropriate interpretation from its constituents. This is exactly what happens with apparent violations of selectional restrictions discussed earlier; also when interpreting variable countability constructions such as (24)–(26) (see Allan 1980).

(24) Have another potato. / Have some more potato.
(25) She bought sugar. / He put three sugars in his tea.
(26) The herd is/are getting restless and it is/they are beginning to move away.

The principal motivation for countability is to identify the individual from the mass; typically, uncountable referents are perceived as an undifferentiated unity, whereas countables are perceived as discrete but similar entities. Thus (24) offers as alternatives an individual potato or a quantity of, say, mashed potato; (25) compares an unspecified quantity (mass) of sugar with three individual spoonfuls or lumps of sugar. (26) compares the herd as a single collection of animals against the herd as a set of individual animals (not all dialects of English allow for this).

The importance of truth conditions

Donald Davidson 1967b: 310 was surely right when he wrote ‘to give truth conditions is a way of giving the meaning of a sentence.’ But truth is dependent on worlds and times: Marilyn Monroe would have been 74 on June 1, 2000 is true, because although MM died in 1962 we can imagine a possible world of June 1, 2000 at which she was still alive, and given that she was born on June 1, 1926, she would indeed have been 74 in 2000. McCawley (1968b; c) was one of the first linguists to adopt and adapt predicate logic into grammar, writing Everything that Linguists Have Always Wanted to Know about Logic (McCawley 1993 [1981]). The importance of truth conditions had often been overlooked by linguists. Hjelmslev 1943, Lyons 1968 and Lehrer 1974 suggest that the nine listemes bull, calf, cow, ewe, foal, lamb, mare, ram, stallion – which constitute a fragment of a semantic field – can be contrasted with one another in such a way as to reveal the semantic components in Table 13.1.
### Table 13.1. A componential table

<table>
<thead>
<tr>
<th>BOVINE</th>
<th>EQUINE</th>
<th>OVINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>bull</td>
<td>stallion</td>
<td>ram</td>
</tr>
<tr>
<td>cow</td>
<td>mare</td>
<td>ewe</td>
</tr>
<tr>
<td>calf</td>
<td>foal</td>
<td>lamb</td>
</tr>
<tr>
<td>MALE</td>
<td>FEMALE</td>
<td>YOUNG</td>
</tr>
<tr>
<td>ADULT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How can we determine that the analysis is correct? The basis for claiming that BOVINE or MALE is a semantic component of *bull* cannot be a matter of language pure and simple. It is a relation speakers believe exists between the denotata of the terms *bull* and *male* and *bovine* (i.e. things in a world that they may be felicitously used to refer to). Doing semantic analysis of listemes, it is not enough to claim that (27) is linguistic evidence for the claim that MALE is a semantic component of *bull*, because (28) is equally good until a basis for the semantic (and therefore grammatical) anomaly has been established that is independent of what we are seeking to establish – namely, the justification for the semantic components identified in Table 13.1.

(27) A bull is male.

(28) A bull is female.

The only language-independent device available is an appeal to truth conditions, and this takes us to the denotata of *bull* and *male*. In fact what we need to say is something like (29).

(29) In every admissible possible world and time an entity which is a bull is male and in no such world is an entity which is a bull a female.

Note that the semantic component MALE of Table 13.1 must be equivalent to the relevant sense of the English word *male*. Thus, on the assumption that semantic components reflect characteristics of typical denotata as revealed through their intentions across worlds and times, the justification for postulating the semantic components in Table 13.1 is a set of inferences such as those in (30).

(30) For any entity x that is properly called a *bull*, it is the case that x is adult ∧ x is male ∧ x is bovine.

In fact, it is no part of a general semantic characterization of *bull* that it typically denotes adults; one can, without contradiction, refer to a *bull calf*. Rather, it is part of the general naming practice for complementary sets of male and female animals. Nor is *bull* restricted to bovines; it is also used of male elephants, male whales, male seals, male alligators, etc. The initial plausibility of Table 13.1 and (30) is due to the fact that they describe the prototypical or stereotypical bull. The world of the English speaker is such that *bull* is much more likely to denote a bovine than any other species of animal, which is why *bull elephant* is usual, but *bull bovine* is not. This reduces (30) to something more like (31).

(31) For any entity x that is properly called a *bull*, it is the case that x is male and probably bovine.
What is uncovered here is that semantics is necessarily dependent on truth conditions and the probability conditions that are nonmonotonic inferences sometimes equated with implicature (see p. 358).

**The development of formal semantics**

Charles Sanders Peirce is celebrated for being a founder of pragmatics, but he also made extensive and highly original contributions to mathematical logic. He introduced into logic the material-conditional operator and operators like \( \uparrow (p \uparrow q \ \text{“not} [p \land q] \)”, NAND, the Sheffer stroke) and \( \downarrow (p \downarrow q \ \text{“not} [p \lor q] \)”, NOR, the Quine dagger); he also worked on algebra, topology, graphs, and invented the concept of a lattice. Peirce 1870 invented the notion of a variable and a syntax for the logic of relations of arbitrary adicity. By 1883 he had developed a syntax for quantificational logic. However, it is Gottlob Frege (1848–1925) who usually gets the credit for developing the first system of formal logic using a metalanguage modelled on the language of arithmetic in his *Begriffsschrift* (Frege 1879). His philosophical papers mostly deal with one or another aspect of systems of signs. The distinction made in Frege 1892 between *Sinn* ("sense") and *Bedeutung* ("denotation; reference") is comparable with Arnaud’s comprehension–extension, Hamilton’s intension–extension, or Mill’s connotation–denotation though it is uncertain whether he was directly influenced by any of these. He noted that \( a = a \) and \( a = b \) are obviously statements of different cognitive value, as we can see from the fact that although the morning star refers to Venus and the evening star also refers to Venus, the two phrases differ in sense and intension. Earlier I commented on his checklist theory of proper names (see above p. 321). Frege distinguished senses from ideas (concepts), which some of his followers have failed to do. Ideas are particular to individual language users, senses form ‘a common store of thoughts which is transmitted from one generation to another’. Although he doesn’t say so, this view is compatible with sense being a property of the language itself, which is, of course, transmitted across generations. The fact that truth is assigned to the reference of propositions led him to raise questions about what have come to be called opaque and intensional contexts.

In *Foundations of Arithmetic* Frege asserts (echoing James Harris and Jeremy Bentham, see p. 320) that words have meaning only in virtue of being constituents of sentences that have sense (Frege 1884: 70). In other words, meaning is a function of context. This context principle is the top-down counterpart to the bottom-up principle of compositionality often assigned to Frege, e.g.

\begin{quote}
Every sentence, no matter how complicated, can be seen as the result of a systematic construction process which adds logical words one by one. (Gamut 1991 I:15)
\end{quote}

And it is found in Frege 1963: 1, which states that we can ‘distinguish in the thought corresponding to parts of a sentence, so that the structure of the sentence serves as an image of the structure of the thought’. But it is a principle that goes back at least as far as Plato’s *Sophist*. 
It became clear during the twentieth century that an indefinite noun phrase requires the hearer to create a subset $x$ from a set $y$ such that $x \subseteq y$ as in *Two coffees, please* (a set of two from the set of all possible coffees relative to the context of discourse). Bertrand Russell 1905 presented a theory of definite descriptions in which a sentence such as (32) has the logical translation (33) for some $x$ such that $x$ is a lamb, and for every $y$ such that if $y$ is a lamb then $y$ is identical with $x$, such that $x$ is sick.

(32) The lamb is sick.

(33) $\exists x(Lx \land \forall y(Ly \rightarrow y=x) \land Sx)$

The definite indicates a readily identifiable referent by equating set $x$ with set $y$ (perhaps by naming it) such that a definite article is similar to a universal quantifier. This has become known as the quantificational reading of the definite article and some people believe that the referential use of a definite description rests on prior understanding of its quantificational meaning (Bach 2004a; Kripke 1977; Neale 2001; Salmon 1991). There is a contrary view, refuting the quantificational analysis in favour of (the previously mentioned) direct reference, that effectively sees the use of definites as analogous with pointing, thus rendering the definite unanalysable (Devitt 2007; Kaplan 1978; 1989; Reimer 1998; Wettstein 1983). The controversy shows no sign of abating.

Since about the time of Cresswell 1973 and Keenan (ed.) 1975, there have been many linguists working in formal semantics. Formal semantics interprets formal systems, in particular those that arise from the coalescence of set theory, model theory, and lambda calculus with philosophical logic – especially the work of Richard Montague (Montague 1974; Dowty, Wall and Peters 1981), and the tense logic and modal logic of such as Prior 1957 and Kripke 1963; 1972. By and large, formal semantics has ignored the semantics of listemes such as nouns, verbs, and adjectives – which are typically used as semantic primes (but see Dowty 1979). It does, however, offer insightful analyses of secondary grammatical categories like number and quantification, tense, and modals. When adverbs are investigated, it is primarily to examine their scope within a construction, e.g. establishing the similarities and differences in meaning among (34).

(34) a. Only Max voted for himself.
   b. Max only voted for himself.
   c. Max voted only for himself.

Event-based semantics was initiated by Davidson 1967a. The idea is to quantify over events, thus *Ed lifts the chair* would be (35), in which *lift* is a three place predicate in which $e$ is the event (of Ed lifting the chair).

(35) $\exists e \text{ lift}(Ed, \text{ the chair}, e)$

In *Ed hears Jo call out* there is a complex of two events as shown in (36), where there is the event $e$ of Jo’s calling out and the event $e'$ of Ed hearing $e$.

(36) $\exists e [\text{call out}(Jo, e) \land \exists e' \text{ hear}(Ed, e, e')]$
Following a suggestion of Parsons 1980; 1990 participant roles can be incorporated as in (37), Max drinks the beer.

(37) \( \exists e (\text{drink}(e) \land \text{agent}(e, \text{Max}) \land \text{patient}(e, \text{the beer})) \)

This facilitates the nonspecification of the characterizing statement Max drinks in (38).

(38) \( \exists e (\text{drink}(e) \land \text{agent}(e, \text{Max})) \).

Event-based semantics also renders it easier to capture the semantic difference between the togetherness sense of (39) versus the separate comings of (40).

(39) Max and Jo came to the party[, together].

(40) [Both] Max and Jo came to the party.

There is always the question of how the meanings of complex expressions are related to the simpler expressions they are constructed from: this aspect of composition is determined by model theory in Montague semantics, which is truth conditional with respect to possible worlds. Where traditional predicate and propositional logic was concerned only with extension (existence) in the (real) world, intensional logics allow for existence in a possible (hypothetical) world. Just as intensions are comparable with ‘sense’, extensions are comparable with ‘reference’ or, better, denoting something within a particular model (or set of models). In Montague semantics, semantic structure is more or less identical with syntactic structure. For Montague, NPs constitute a set of properties. This is even true of proper names (as in Frege 1892; see Kripke 1972 for a different view; see also pp. 321ff above), thus the semantics of Max is given as (41) where \( \mathbf{P} \) is the set of properties of individuals (e.g. being bald) and \( \mathbf{\text{P}} \) denotes the extension of \( \mathbf{P} \) at a given world and time.

(41) \( \lambda \mathbf{P}[\mathbf{\text{P}}(\text{Max})] \)

The property of being bald is represented by the intension \( \mathbf{\text{bald}} \) (a property applicable to everything bald in all possible worlds). If it is true in model \( M^w \), that \( \text{Max is bald} \) then we write (42) which undergoes lambda conversion to generate (43), where \( \sequent{\text{P}}{\alpha} = \text{\text{\text{P}}}(\alpha) \), the extension of \( \alpha \).

(42) \( \lambda \mathbf{P}[\sequent{\mathbf{\text{P}}}{\text{Max}}](\mathbf{\text{bald}}) \)

(43) \( \sequent{\text{bald}}{\text{Max}} \)

So \( \sequent{\text{bald}}{\text{Max}} = \text{Max is bald} \) has extension in \( M^w \), i.e. it is true. Someone is bald would be represented as (44), which lambda converts to (45).

(44) \( \lambda \mathbf{P}[\exists x (\text{person}(x) \land \sequent{\mathbf{\text{P}}}{x})](\mathbf{\text{bald}}) \)

(45) \( \exists x (\text{person}(x) \land \text{bald}(x)) \)

In later developments (see Gamut 1991; Chierchia and McConnell-Ginet 2000) valuation functions were proposed. Suppose there is a set of men \( a, b, c \) (Arnie, Bob, Clive) who constitute the domain of a model world at a particular time, \( M \), in which \( a \) and \( c \) are bald. The extension of baldness in \( M \) is represented \( [\text{bald}]^M \). Let \( x \) stand for any member of \( \{a, b, c\} \). A valuation function takes a sentence \( x \text{ is bald} \) as its domain and assigns to it a value in
the range \{0, 1\} where 0 is false and 1 is true. So the function \([\text{bald}]^M\) applies in turn to every member of the domain \(X\) in model \(M\) to assign a truth value. The extension of \(\text{being bald}\) in \(M\) is \([\text{bald}]^M = \{a, c\}\). Put another way: in \(M\), bald(\(x\)) = 1 if and only if, and only if, \(x\) is a member of the set \(\{a, c\}\). To evaluate \(\text{Someone is not bald}\) in \(M\), a variable assignment function would check all assignments of \(x\) until one instance of \(x\) is not bald is found to be true (in our model, when \(x\) is assigned to \(b\)).

\[
\text{Anaphora}
\]

Variables in logical systems function in a manner similar to pronouns in natural languages and linguistic treatments of anaphora have borrowed from systems of logic when analysing anaphors. Early transformational grammar posited only syntactic constraints on pronominalization (Lees and Klima 1963; Langacker 1969). But Weinreich 1966 and McCawley 1968a argued that pronominal gender was semantic rather than syntactic, and Stockwell, Schachter and Partee 1973: 182 concluded: ‘English tolerates discrepancies between formal and referential identity of certain sorts in certain environments, not easily describable in simple syntactic terms.’ John R. Ross 1970 proposed a performative clause to underlie every utterance, which accounts for first and second person pronouns and their reflexives in e.g. (46).

(46) a. Only Harry and myself wanted to see that movie.
   b. Max said nothing about yourself, but he did criticize me.

Although Ross’s hypothesis was principally a syntactic device, it opened the gate to pragmatic constraints on pronouns relevant in exophora (Just look at her! said of a passing woman) and in recognizing the most likely actor in I took my dog to the vet and she bit her.

Chomsky 1965: 145f suggested that referential indices be introduced on nouns to enable reflexivization. McCawley 1968b; c introduced referential indices into the grammar on analogy with variables in predicate logic (see p. 338) and, ever since, they have been used to mark coreference even by those who reject McCawley’s hypothesis. Chomsky 1981 distinguished the empty and ungoverned category (big) PRO [+anaphor, +pronominal] as in (47) from (little) pro [-anaphor, +pronominal], which is free in the local domain, cf. (48), from [+anaphor, –pronominal], the reflexive in (49), from the referring expression which is free, like both NPs in (50).

(47) Sam asked Jo\(_1\) [PRO\(_1\)] to bring Jack.
(48) Amy\(_1\) praised her\(_2\) [= pro].
(49) Amy\(_1\) praised herself\(_1\).
(50) Amy\(_1\) praised Amy\(_2\).

Intuitively, argument binding is a matter of semantics or pragmatics rather than syntax, e.g. the pronoun her appropriately refers to, say, Amy for semantic or pragmatic not syntactic reasons. In German, das Mädchen “girl” is rendered neuter by its diminutive suffix -chen but is normally pronominalized in colloquial speech by the feminine sie and not the neuter es, though the matter is hotly debated and in the written language syntactic conformity is the
norm. Problems with Chomsky’s binding constraints were quickly pointed out and seem to be accountable for pragmatically. Huang 2000 has cogently argued that in (47) the only alternative to the zero anaphor is a reflexive, *herself*, which is emphatic. A comparison of (48)–(50) hinges on a choice between the unambiguous reflexive of (49) with the potential self-reference of *her* in (48) (as *her*$_1$) and the second occurrence of *Amy* in (50) (as *Amy*$_1$): it is pragmatically more efficient to retain these for reference to another. The choice of what are generally referred to as anaphoric forms in texts has been discussed under the familiarity hierarchy of Prince 1981; the centering theory of Grosz 1977 and Sidner 1979; the ‘topic’ (actually referent) continuity of Givón (ed.) 1983; and the accessibility theory of Ariel 1988, 1990. These all emphasize the importance of context in selecting what form of anaphor to use.

As a rule, any two successive references to an entity involve some kind of change to it on the second reference. For instance:

(51) Catch [a chicken$_1$]. Kill [it$_1$]. Pluck [it$_2$]. Draw [it$_3$]. Cut [it$_4$] up. Marinade [it$_5$]. Roast [it$_7$]. When you’ve eaten [it$_8$], put [the bones$_9$] in the compost.

All nine subscripted NPs refer to the creature identified in ‘a chicken$_1$’, which refers to a live chicken. By 2 it is dead, by 3 featherless, by 5 dismembered, by 7 roasted, and by 8 eaten. 9 refers to the chicken’s bones after the flesh has been stripped from them. Thus 7, for instance, refers not to the chicken in 1, but to the caught, killed, plucked, drawn, cut up, and marinaded pieces of chicken. Heim 1983, 1988 described this as updating the file on a referent. These successive states of the chicken are presented as changes in the world–time pair spoken of: although the world stays constant throughout (51), each clause corresponds to a temporal change time$_1$, time$_2$, … time$_9$. The aim of Heim’s file change semantics has much in common with that of Discourse Representation Theory (DRT, Kamp 1981; Kamp and Reyle 1993) where the interpretation of one in a sequence of utterances (a discourse) is dependent on co-text such that the next utterance is an update of it. DRT has been especially successful in capturing the complex semantics of so-called donkey sentences, originating in Walter Burley’s *Omnis homo habens asinum videt illum* from *De Puritate Artis Logicae* 1324–8 (Burley 2000; see p. 316); for instance, (52) – which paraphrases as (53).

(52) Every girl who owns a pony loves it.
(53) If a girl owns a pony, she loves it.

A discourse representation structure (DRS) for (53) is (54). The arrow ⇒ indicates that the second box is a consequence of the first. The lefthand box is interpreted first, then the righthand box. Notice that the anaphor for a-pony-loved-by-the-girl-who-owns-it is *z*, and it does not occur in the lefthand box. The DRS for (52) is (55).

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>girl(x)</td>
<td>pony(y)</td>
</tr>
<tr>
<td>x owns y</td>
<td>⇒ z</td>
</tr>
<tr>
<td><em>z = y</em></td>
<td>x loves <em>z</em></td>
</tr>
</tbody>
</table>
Linguistic semantics and pragmatics from earliest times

Contextual considerations and the rise of pragmatics

There are two ways in which the meaning of a new word can be revealed by whoever coins it: it may be formally defined, but this is a rare procedure in everyday language; normally the hearer or reader is left to figure out the meaning of a novel expression from its use in the prevailing context. Once the meaningful interpretation of a language expression makes recourse to context, pragmatics intrudes (see Gazdar 1979; Levinson 1983). The term context denotes any or all of four things: the world and time spoken of, the co-text (i.e. the text that precedes and succeeds a given language expression), the situation of utterance, and the situation of interpretation. The meaning ascribed by use in particular contexts will take precedence over any formally defined meaning. As Wittgenstein 1953 §43 famously wrote: ‘the meaning of a word is its use in the language.’ What he should have said is that the meaning is determined by the way the word is used. Assignment of meaning by ordinary use is phylogenetically and ontogenetically prior to defined meaning – but for words (listemes) not sentences, because at any one time the set of listemes is bounded, but the set of sentences is not. However, the ways in which the meanings of sentences are constructed are determined by use, so although no speaker could literally and truthfully say I’ve just been decapitated, the meaning is readily interpretable via its intension. One problem with the use theory of meaning is that it risks confusing denotation with (pragmatic) connotation: the denotations are the same of urine and piss or my mum and the woman who bore me, but the connotations are different. Each of these two pairs is usable of the same referent, but the contexts of use are normally different (see p. 331 and Allan 2007).

The situations of utterance and interpretation provide anchors for deictic or indexical categories such as tense, personal pronouns, deictic locatives and demonstratives. The term deixis derives from the Stoic δείκτης “demonstration, indicated referent”; indexical, in this sense, was introduced by Peirce 1931, Vol. 2, Chapter 2. Although study of these grammatical categories had been proceeding for more than two millennia, there was an upsurge of interest after World War II (see Lyons 1977; Levinson 1983; Fillmore 1966;
Corresponding to the fact that in personal pronoun systems, the speaker is first person, hearer is second person, all others are third person, many languages, including some English dialects, have corresponding locatives meaning roughly “near speaker” (here), “near hearer” (there), “not-near either speaker or hearer” (yonder). The situations of utterance and interpretation may determine choices of adverbials and directional verbs relative to the location of speaker and hearer; e.g. the choice among the verbs come, go, bring, come up, come down, come over, etc. Situation of utterance and assumptions about the hearer also play a role in determining the topic and the linguistic register or jargon – that is, the variety of language associated with a particular occupational, institutional, or recreational group: for instance, legalese, medicaelese, cricketese, linguistiquealese, and so forth (Biber and Finegan (eds) 1989; Allan and Burridge 1991; 2006). They influence politeness factors such as terms of address and reference to others (see Brown and Gilman 1960; Ervin-Tripp 1972; Geertz 1972; Shibatani 2006); and they influence kinesic acts such as gesture, facial expression, and the positions and postures of interlocutors (Hall 1959; Argyle 1988; Clark 1996; Danesi 2006).

Dieudonné Thiébault 1802: 206f rightly insisted that a speech act required a speaker, hearer, and topic of discourse. Moritz Lazarus (1824–1903), co-founder with his brother-in-law Heymann Steinthal of Zeitschrift für Völkerpsychologie und Sprachwissenschaft, wrote that for someone to understand something is to associate the sound heard with the same thought s/he would associate with it as a speaker (Lazarus 1884: 23). Thus meaning is not decoded but constructed such that one person’s understanding will often differ from that of another person. This echoes Berkeley, but has a psychological instead of an ideological (religious) basis. Words are like coins in that different forms and combinations of them can have the same value (ibid. 382).

Mill 1843 III.viii described as ‘induction’ what Charles Sanders Peirce (1839–1914) would call ‘abduction’ (Peirce 1940: 150ff), the development of hypotheses to explain patterns that are maintained and enable correct predictions. To explain a fact, said Mill, is to identify a law under which it can be subsumed. Peirce’s earliest paper on pragmatics outlines abduction without naming it.

The object of reasoning is to find out, from the consideration of what we already know, something else which we do not know. Thus, the question of validity is purely one of fact and not of thinking. A being the facts stated in the premisses and B being that concluded, the question is, whether these facts are really so related that if A were [then] B would generally be. If so, the inference is valid; if not, not.’ (Peirce 1877: 3)

Abductive reasoning is an empirically focused procedure for the construction of classes and categories from observed data. Peirce later defined it in the following syllogism:

The surprising fact, C, is observed;
But if A were true, C would be a matter of course,
Hence, there is reason to suspect that A is true. (Peirce 1940: 151)

Abductive inferences lead to testable hypotheses about states of affairs. Data are correlated on the basis of their similarity, or by analogy with some known system – usually with an eye to their apparent function or relevance within the emerging general description. Peirce’s
pragmatism focuses on the operational and practical consequences of what is perceived and conceived of.20

Consider what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then the whole of our conception of those effects is the whole of our conception of the object. (Peirce 1878: 293)

If this scientific method is pursued, two hypotheses about the same empirical content will give rise to the same truth.

Peirce 1906 [Peirce 1931, 4: 530–72] identified the distinction for which he coined the terms type and token. He is celebrated for his ‘semeiotic’, his theory of signs. This is more constrained than the later use of ‘semiotics’ to describe ideas about signs deriving from Saussure 1931 and Morris 1938, which were inspired by Peirce. The task of ‘pure rhetoric’, later called pragmatics, ‘is to ascertain the laws by which in every scientific intelligence one sign gives birth to another, and especially one thought brings forth another’ (Peirce 1940: 99).

A sign, or representamen, is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the interpretant of the first sign. The sign stands for something, its object. It stands for that object, not in all respects, but in reference to a sort of idea, which I have sometimes called the ground of the representamen. (Peirce 1940: 99)

The sign is related to the user of the sign and the understander of it. Signs are classifiable in terms of the manner in which the object (referent) functions in signification. Note the assumption that objects determine the nature of the sign: if the sign reflects the object’s qualitative features, then the sign is an icon. If the sign utilizes some existential or physical connection with the object (its referent), the sign is an index. If the sign utilizes some convention, habit, social rule or law to connect with the object, then the sign is a symbol. There is some overlap: for instance, a Venn diagram showing inclusion ‘will ordinarily have Symbolic features, [but] is in the main an Icon of the forms of relations in the constitution of its Object’ (Peirce 1906 [Peirce 1931 4: 530–72]). The footprint of Man Friday which Robinson Crusoe found ‘was an Index to him of some creature, while as a Symbol it called up the idea of a man’ (ibid.). As we see, the interpretant is a mental sign.

In the Second Part of my [‘How to make our ideas clear’ Peirce 1878], I made three grades of clearness of Interpretation. The first was such Familiarity as gave a person familiarity with a sign and readiness in using it or interpreting it. In his consciousness he seemed to himself to be quite at home with the Sign. […] The second was Logical Analysis [and is equivalent to] Lady Welby’s Sense. The third was Pragmatistic Analysis [and is] identified with the Final Interpretant. (Peirce 1931 8: 185)

The ‘final interpretant’ is further described as ‘a truth which might be expressed in a conditional proposition of this type: “If so and so were to happen to any mind this sign would determine that mind to such and such conduct”’. The Lady Welby mentioned here

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20. Cf. James 1907: 105: ‘[Conceptions] have, indeed, no meaning and no reality if they have no use. But if they have any use they have that amount of meaning. And the meaning will be true if the use squares well with life’s other uses.’
was briefly discussed in Chapter 1 (p. 18); she was author of *What Is Meaning?* (Welby-Gregory 1903) and her *Significs and Language* (Welby-Gregory 1911) was reviewed by Peirce. He corresponded with her (Welby-Gregory and Peirce 1977) and she introduced his work to British readers such as the influential authors Charles Ogden and Ivor Richards who included a long exposition of Peirce’s work (Ogden and Richards 1923: 279–90). Welby-Gregory emphasized the importance of acts of communication in any analysis of meaning, positing that decontextualized senses derive by abstraction from language use in context. She insisted on the significance of what meaning the language user intends to convey by using a word, sign, or symbol. Welby-Gregory’s concern with the moral and therapeutic import of language makes the ‘general semantics’ movement (see above p. 250) her natural heirs. Unfortunately, Lady Welby-Gregory seems to have left little impression on the Western Classical Tradition in linguistics.

Hermann Paul 1880 §§51ff [Paul 1891 §§98ff] distinguished ‘usual’ from ‘occasional’ meaning, the former being default or decontextualized and very much like sense. Since the 1886 edition of the *Prinzipien* ‘occasional’ meaning is contextually determined and imbued with the speaker’s intention, an idea taken from Wegener 1885: in our terms, it is reference. ‘All understanding between individuals reposes in the correspondence in the psychical attitude’ (Paul 1880 §54 [Paul 1891 §104]). ‘[A]ll language proceeds in sentences […] the unit of language, alike in thought and in sound, is the sentence and not the word’ (Paul 1880 §73 [Paul 1891 §128]). Paul was also a lexicographer (Paul 1897) who believed a dictionary should include contextual information as well as etymology, history, meaning, and semantic relations. He would have preferred a dictionary to be structured more like a thesaurus than an alphabetical listing, but could not achieve that. The importance of context was also something emphasized by Johann Stöcklein 1898.

Philipp Wegener21 (1848–1916) in his *Untersuchungen über die Grundfragen des Sprachlebens* (Wegener 1885) recognized the importance of what today might be called common ground. He recognized the context of situation, the situation of perception, the situation of remembrance or consciousness, and the situation of culture that allow for underspecification of meaning and so contribute to comprehension. He saw that understanding involves limiting and specifying expectations arising from common ground: encyclopaedic knowledge, the speech situation, and the co-text. In other words, semantics relies on pragmatics. Whitney, Bréal, and perhaps Paul, came to a similar view. Wegener identified a ‘logical subject’, by which he meant the psychological subject in much the same sense as Lev Vygotsky 1962 [1934] was later to do. Wegener 1885: 105 recognized iconicity and ‘schemata’ (*ibid.* 120ff) which may be like the frames of frame semantics or the dynamic scripts of e.g. Schank and Abelson 1977 and which lead to the kind of inferences described by Herb Clark 1977 and Ellen Prince 1981 (see p. 356). Wegener directly influenced Hermann Paul, Bronislaw Malinowski, and John R. Firth.

In ‘The problem of meaning in primitive languages’ Bronislaw Malinowski 1923 emphasized the importance of context of situation in establishing meaning; he glossed this

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as the general cultural, geographic, social, and economic conditions under which a language expression is uttered (*ibid.* 306, 309). ‘[W]ords must be treated only as symbols and [...] a psychology of symbolic reference must serve as the basis for all science of language’ (*ibid.* 309). For Malinowski language was principally a display of social interaction and a way of instigating events; ‘language in its primitive function and original form has an essentially pragmatic character’ (*ibid.* 316). He had a positive attitude to the importance of gossip in social bonding: ‘taciturnity means not only unfriendliness but directly a bad character’ (*ibid.* 314). He coined the term *phatic communion* for gossipy interchange which is neither the result of intellectual reflection nor intended to arouse such reflection in the listener but instead aims to foster the give and take of convivial gregariousness as an indispensable element of concerted human action (*ibid.* 315f). Malinowski recognized speech acts:  

[I]n all communities, certain words are accepted as potentially creative of acts. You utter a vow or you forge a signature and you may find yourself bound for life to a monastery, a woman or a prison. (Malinowski 1935 2: 35)  

Malinowski’s views were adopted by John Rupert Firth 1957: 181f and, later, Michael Halliday (see above pp. 265ff).  

The 1955 William James Lectures at Harvard University were delivered by John Langshaw Austin (1911–60). They were published posthumously as *How To Do Things With Words* in Austin 1962a (revised in Austin 1975). Austin came from the Oxford school of ‘ordinary language philosophers’, which also included Peter Geach, Gilbert Ryle, Peter Strawson, Paul Grice, and John Searle. It was intellectually engendered by Wittgenstein, who observed (e.g. Wittgenstein 1953 §23) that logicians have had very little or nothing to say about many of the multiplicity of structures and usages in natural language. Austin’s concern with speech acts exhibits an informal, often entertaining, philosopher’s approach to some uses of ordinary language. Austin insisted on a distinction between what he called constatives, which have truth values, and performatives which (according to him) do not (cf. Austin 1962b; 1963). The distinction between truth-bearing and non-truth-bearing sentences has a long history. Aristotle noted that ‘Not all sentences are statements; only such as have in them either truth or falsity. Thus a prayer is a sentence, but neither true nor false [therefore a prayer is not a statement]’ (*On Interpretation* 17a,1, Aristotle 1984). Later, the Stoics distinguished a judgment or proposition (αξίωμα) as either true or false whereas none of an interrogation, inquiry, imperative, adjurative, optative, hypothetical, or vocative has a truth value (cf. Diogenes Laertius *Lives VII*: 65–68). For more than two millennia, logicians and language philosophers concentrated their energies on statements and the valid inferences to be drawn from them to the virtual exclusion of other propositional types (questions, commands, etc.) – notable exceptions were Augustine, Abelard, and Reid. Austin was reacting to this tradition (see Hare 1971 Ch.6).  

The constative utterance, under the name so dear to philosophers, of *statement*, has the property of being true or false. The performative utterance, by contrast, can never be either: it has its own special job, it is used to perform an action. To issue such an utterance is to perform the action – an action, perhaps, which one scarcely could perform, at least with so much precision, in any other way. Here are some examples:  

I name this ship ‘Liberté’. 
I apologise. I welcome you. I advise you to do it. (Austin 1963: 22)

Austin’s point is that, in making such utterances under the right conditions, the speaker performs, respectively, an act of naming, an act of apologizing, an act of welcoming, and an act of advising (today it is usual to speak of ‘acts’ rather than ‘actions’). Performatives have ‘felicity conditions’ in place of truth values. Thus according to Austin, (57) has no truth value but is felicitous if there is a cat such that the speaker has the ability and intention to put it out, and infelicitous – but not false – otherwise. (57) contrasts with (58), which is either true if the speaker has put the cat out, or false if not.

(57) I promise to put the cat out.
(58) I’ve put the cat out.

Austin’s claim that performatives do not have truth values has been challenged from the start (e.g. by Cohen 1964) and he seems to be wrong. Roughly speaking, their truth value is less communicatively significant than what Austin called the ‘illocutionary force’ of the utterance. He observed that utterances without performatives also perform speech acts, e.g. (59) can be used to make a promise.

(59) I’ll put the cat out.

Austin would say that (57) and (59) have the same illocutionary force of promising, but that this illocution is the explicit function of the performative verb in (57) whereas it is left to be inferred in (59), an example of what became known as ‘indirect speech acts’. Austin’s interest in speech act theory may have been sparked by discussions with Harold Arthur Prichard (1871–1947) about promising (see Prichard 2002 Ch. 12). In the later lectures of Austin 1962a he identified two other components of a speech act: locution and perlocution. The locutionary act is saying something with a particular sense and reference; the perlocutionary act is the effect achieved by the illocutions in the utterance.

Austin 1975: 14f argued for four kinds of felicity conditions: (i) a preparatory condition to establish whether or not the circumstances of the speech act and the participants in it are appropriate to its being performed successfully; (ii) an executive condition to determine whether or not the speech act has been appropriately carried out; (iii) a sincerity condition – which has a similar function to Grice’s maxim of quality; and (iv) a fulfilment condition determined by the perlocutionary effect of the speech act (the one intended by the speaker). If all the relevant felicity conditions were satisfied for a given illocutionary act, Austin described it as ‘happy’ or ‘felicitous’. We can immediately dismiss (iv) as barely relevant to a linguistic theory of speech acts because – except in the case of declarations which institute states of affairs that can be legally binding – it has only a tenuous link with the meaning of the utterance. The other three felicity conditions merit brief discussion. The statement of preparatory conditions is obligatory in definitions of illocutions. The preparatory conditions identify what ought to be presupposed in a felicitous use of the illocution. For example, the preparatory condition on an assertive such as France is a republic (= p) is ‘the speaker has reason to believe that p.’ If the speaker had said France is not a republic we would
condemn the speaker for being ignorant, deluded, insane, or maliciously attempting to mislead the hearer. It is notable that presupposition failure (In 1990, the King of France died) gives rise to exactly the same response. In both cases, Austin would say ‘the utterance is void’ (Austin 1975: 51). Condemnation as a response to preparatory condition failure is common to all illocutions. The question arises whether the preparatory conditions on an illocutionary act really are its presuppositions, as Karttunen and Peters 1979:10 apparently believed. The problem, which cannot be solved here, is that only some illocutionary acts have truth conditions, yet the standard definition of presupposition is based on truth conditions (X is a presupposition of Y if it is true that Y entails X and also true that not-Y entails X). As Seuren 1985 Ch.3 recognizes, some alternative definition of presupposition seems called for.

Austin requires that the procedure invoked by the illocutionary act ‘must be executed by all participants correctly and completely’ (Austin 1975: 14). He exemplifies this ‘executive condition’ with I bet you the race won’t be run today said when more than one race was arranged for that day. But such misexecutions should be dealt with under generally applicable maxims of the cooperative principle. Today, the only executive condition which still seems warranted is one on declarations which either bring about or express decisions on states of affairs such as marriage, job appointment/termination, and umpiring – because these rely for their success on the speaker being sanctioned by the community to perform such acts under stipulated conditions.

The sincerity condition on a speech act involves the speaker’s responsibility for what s/he is saying (asking, etc.). If the speaker is observing the cooperative maxim of quality, then s/he will be sincere: and, normally, the hearer will assume that the speaker is being sincere unless s/he has good reason to believe otherwise. Generally, scholars have assumed that different kinds of illocutionary acts involve different kinds of sincerity conditions: e.g. assertions and the like are sincere if a speaker believes in the truth of the proposition asserted; requests are sincere if the speaker believes the hearer is able and willing to do what is requested, etc. Obviously, sincerity reflects on whether or not the speaker upholds the preparatory conditions, so only this single sincerity condition should be necessary. It puts a burden on precise statement of the preparatory conditions; but that seems exactly where the burden should lie, because preparatory conditions identify the particular circumstances appropriate to performing a given illocutionary act.

John Rogers Searle (b. 1932) was a student of Austin who first achieved fame as the author of Speech Acts (Searle 1969). He revised Austin’s felicity conditions into sets of constitutive rules for speech acts. For instance, given the conditions described in (60), Searle says that the utterance of p constitutes an assertion, statement or affirmation (S = speaker, H = hearer). Those in (61) constitute a request. (See Searle 1969: 66f.)

(60) Assert, state (that), affirm

Propositional content: Any proposition p.
Preparatory condition: 1. S has evidence (reasons, etc.) for the truth of p.
   2. It is not obvious to both S and H that H knows (does not need to be reminded of, etc.) p.
Sincerity condition: $S$ believes $p$.
Essential condition: Counts as an undertaking to the effect that $p$ represents an actual state of affairs.

\[(61)\] Request
Propositional content: Future act $A$ of $H$.
Preparatory condition: 1. $H$ is able to do $A$. $S$ believes $H$ is able to do $A$.
2. It is not obvious to both $S$ and $H$ that $H$ will do $A$ in the normal course of events of his own accord.
Sincerity condition: $S$ wants $H$ to do $A$.
Essential condition: Counts as an attempt to get $H$ to do $A$.

The propositional content identifies the core content of the speech act. Preparatory conditions identify the appropriate presuppositions a speaker should have to felicitously say what is said. The sincerity conditions are intended to guarantee that the appropriate preparatory conditions hold and the speaker is being genuine and sincere. The essential condition, standing in place of Austin’s fulfilment condition, identifies the speaker’s illocutionary intention, i.e. what the speaker intends to achieve in making the utterance.

In the light of the Gricean cooperative maxims (see p. 358) the sincerity condition seems redundant. This was first recognized by Kent Bach and Robert M. Harnish in *Linguistic Communication and Speech Acts*, whose constitutive rules for assertions, for instance, read:

In uttering $e$, $S$ asserts that $P$ if $S$ expresses:
1. the belief that $P$, and
2. the intention that $H$ believe that $P$. (Bach and Harnish 1979: 42)

(i) is the preparatory condition and (ii) the illocutionary intention.

Austin made a lexical classification of illocutionary verbs which was augmented by Vendler 1972 and in exhaustive detail by Ballmer and Brennenstuhl 1981. Searle instead offered a classification of illocutionary acts.

If we adopt illocutionary point as the basic notion on which to classify uses of language, then there are a rather limited number of basic things we do with language; we tell people how things are, we try to get them to do things, we commit ourselves to doing things, we express our feelings and attitudes, and we bring about changes through our utterances. Often we do more than one of these at once in the same utterance. (Searle 1975b: 369)

Searle 1975a drew attention to the fact that many speech acts are ‘indirect’: the illocutionary point needs to be inferred from the context of utterance. His most celebrated example is *Can you pass the salt?* which is expressed as a question about salt-passing ability, but is normally intended as a request to have the salt handed to the speaker.

Beyond earliest childhood, very little we encounter is totally new in all its aspects; most of what we hear and read can be interpreted wholly or partially in relation to structured knowledge arranged into modules of information. A speaker presupposes this common ground when constructing a text so that understanding (62) is to invoke the restaurant *script* (Schank and Abelson 1977; Schank 1982; 1984; 1986) as a set of inferences, some of which are defeasible (can be cancelled without contradiction).

\[(62)\] Sue went to a restaurant last night with her boyfriend.
From (62) we infer that, most probably:

(a) Sue intended to eat at the restaurant with her new boyfriend.
(b) Sue entered the restaurant, probably with her boyfriend.
(c) Sue and her boyfriend sat down.
(d) They ordered food.
(e) The food was brought.
(f) They ate it.
(g) Either Sue or, more likely, her boyfriend paid the bill.
(h) Then they left the restaurant.

In (63) many of the inferences in the first clause (identical with (62)) are cancelled by what follows.

(63) Sue went to a restaurant last night with her boyfriend, but as soon as they’d got inside the door they had a huge fight and left before even sitting down.

It is confirmed that they entered and exited but implicitly denied that they sat down, ordered, ate, and paid. There is a distinction between the restaurant script – consisting of a dynamic structure of event sequences – and a restaurant frame (built from encyclopaedic knowledge) identifying the function of a restaurant and what kind of thing it is.

As can be seen from the example above, scripts contain structured information about dynamic event sequences that typically give rise to certain implications. Regular components of a script are predictable such that deviations from a script are potentially newsworthy. Scripts have personae, props, and action sequences. A restaurant script has customers, servers, cooks, etc. The props include tables, chairs, menus, cutlery, plates, food. The events include the customer entering the restaurant, ordering food, the food being brought by the server, the eating of the food, the requesting, presentation, and paying of the bill, and the customer leaving the restaurant. The vocabulary used in the script evoked by going to a restaurant indicates its semantic associations, but it is unhelpful to simply list the terms as bill, chairs, cook, customer, drink, eating, entering, exiting, food, menu, order, server, tipping, etc. The script is much more valuable because it shows how the semantic associations are organized in respect of one another. Some are logically necessary: you cannot exit from a place before entering. Other parts of the script are simply conventional and can vary: in some establishments you pay before getting food; in some the cooking precedes the ordering. There is a very large number of scripts; many overlap and there must be networking among them. For instance, entering a restaurant has much in common with entering any other business premises and is distinct from entering a private home. There is a hierarchy: generally applicable script-like memory organizational packets have more specific scripts (like the restaurant script) and finer-grained scenes within them (e.g. ordering food). There is much research to be done, but it is certain that communication and language understanding make use of scripts, and that the vocabulary used in describing the scripts constitutes a semantic field of words whose interrelationships are defined in terms of the frames and event sequences in the script. Scripts supply contextual information that builds the common ground which is essential to the pragmatic interpretation of language texts.
The **boundary between semantics and pragmatics** was specifically raised by H. Paul Grice 1975: 43 as a distinction between *what is said* – the truth-conditional aspects of meaning – and *what is implied, suggested, meant* – the non-truth-conditional pragmatic overlay that is implicated. Grice writes of (64), ‘B implicates that Smith has, or may have, a girlfriend in New York’ (*ibid.* 51).

(64) A: Smith doesn’t seem to have a girlfriend these days.
   B: He has been paying a lot of visits to New York lately.

The implicature is inferred from what B actually says given the cooperative assumption that it is a rational response to A’s remark, i.e. that it is relevant to the co-text. Implicatures (more precisely, conversational implicatures) are, for instance, the defeasible inferences discussed in respect of (62) and (63) above. The four Gricean (categories of) maxims that give rise to such implicatures were reduced to three in Levinson 1995; 2000, two in Horn 1984, and one in Sperber and Wilson 1995 [1986]; see Table 13.2.

**Table 13.2. Sources for implicatures in Grice, Levinson, Horn, and Sperber and Wilson**

<table>
<thead>
<tr>
<th>Quality</th>
<th>Levinson</th>
<th>Horn</th>
<th>S. and W.</th>
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<tr>
<td>Relation: Don’t be irrelevant without cause.</td>
<td>R: Make your contribution necessary; say no more than you must (given Q).</td>
<td>Be optimally relevant.</td>
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<tr>
<td>Quantity: Say no more and no less than is necessary to get the point across.</td>
<td>Q: What isn’t said, isn’t</td>
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<tr>
<td>Manner: Don’t be stylistically inept.</td>
<td>I: What is expressed simply is stereotypically exemplified.</td>
<td>Q: Make your contribution sufficient; say as much as you can (given R).</td>
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<td></td>
<td>M: What’s said in an abnormal way isn’t normal.</td>
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It has become a matter of controversy whether or not there is a clear distinction between *what is said* and *what is meant*. Horn 1972 identified sets of scalar implicatures (e.g. three $N + >$ exactly three $N$; some $N + >$ not all $N$; warm $+ >$ not hot)\(^{22}\) which Grice 1978 accepted as Generalized Conversational Implicatures because they do not rely on a particular context, unlike the Particularized Implicature in (64). When Grice 1978: 117 wrote ‘[s]enses are not to be multiplied beyond necessity’ (Modified Occam’s Razor), he was describing the underspecification of semantics: additional meanings are supplied pragmatically. This became known as **radical pragmatics** (see Cole (ed.) 1981). The idea is that the negative in a sentence like (65) is not ambiguous and that truth value is determined for the utterance in context: (65) was true of Louis XIV in 1650 but today there is no appropriate referent and that fact accounts for the negative.

(65) The King of France is not bald.

In (66) we assume that the light came on as a result of Sue flicking the switch, whereas in (67) Sue’s flicking the switch seems to follow the light coming on.

(66) Sue flicked the switch and the light came on.

\(^{22}\) +> symbolizes “conversationally implicates”.

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**The Western Classical Tradition in Linguistics**
The light came on and Sue flicked the switch.

These are pragmatic inferences that can be cancelled and, certainly out of context, (66) and (67) have the same truth conditions, because \((p \land q) \leftrightarrow (q \land p)\). However, according to Robyn Carston 1988, though they have the same logical form, they have different truth conditions determined on the basis of **pragmatic enrichment** (e.g. (66) is true just in case Sue’s flicking the switch did cause the light to come on).

Grice held that implicature steps in where literal meaning gives way to figurative meaning, so he distinguished *saying* from *making as if to say*. It is now generally believed that pragmatic inference kicks in *ab initio* and is needed to recognize literal as well as nonliteral language (Bach and Harnish 1979; Allan 1986; Sperber and Wilson 1995 [1986]; Jaszczolt 1999; Recanati 2004). The meaning of *open* is contextually distinct in *open a door, open a window, open mind, open a wound, have eyes opened*. The fact that *It’s raining* is necessarily understood as referring to rain in some particular locality has led Relevance Theorists to name this an **explicature** on the basis that it enriches logical form by making it more explicit; Bach 1994 calls it an **impliciture** because it is an implicit expansion of the semantic content. According to Carston 2002, (69) is an explicature of (68) and (70) an implicature (because it is functionally independent).

(68) I’ve already eaten. [Uttered at lunchtime.]
(69) I’ve already eaten lunch.
(70) I am no longer hungry.

Explicatures as first conceived were not defeasible. However, it does seem possible that *I’ve already eaten; I had a large mid-morning snack in place of lunch* is an alternative to (68); however, it is a moot point whether this is not simply an alternative to (69) that repairs but doesn’t cancel it. What it does show is that the content of explicature is far less certain than the identity of the understood eater in the nonfinite clause of *I want to eat lunch*. All this muddies the boundary between semantics and pragmatics; but as Bach 2004b says, semantics is about the meanings of sentences, which have properties independent of anybody’s act of uttering them and which may fail to determine complete propositions. Pragmatics is concerned, not with sentences themselves, but with utterances of sentences in the course of communicating; truth conditions apply to the propositions contained in these utterances.

The debate over the semantics–pragmatics interface continues. Jaszczolt’s Default Semantics (Jaszczolt 2005; 2009) seeks to merge interpretations available from logical form and from pragmatic inferences of various kinds without giving priority to any one source. For instance most readers of (71) would understand it to refer to Leonardo da Vinci; according to Default Semantics this is an interpretation simultaneous with (more precisely, merged with) the logical form of the sentence.

(71) The National Gallery of Victoria has just acquired a painting by Leonardo. There is an assumption that lexical meanings can be dispensed with because words act like pointers to particular senses in particular contexts (which is somewhat akin to construction grammar, see p.341). Whether this is feasible, remains to be seen.
A summary history of semantics and pragmatics

It pleases humans if the name can help to identify the referent. Apt naming is sometimes achieved for new artefacts and newly found species. It also works to the extent that proper names often supply some information about the referent: e.g. Sue is applicable to females; the Goulburn and the Adirondacks are recognizably toponyms. The ancients often sought to demonstrate that proper names were far more descriptive than the facts allow. According to Socrates in Cratylus, Homer said that Hector, son of King Priam of Troy, named his own son Skamandrios after the god-river Skamandros (aka Xanthos), but other Trojans called the boy Astyanax. Which is the more appropriate? Well, Hector’s foe Achilles was almost drowned by the god-river Skamandros, which is one good reason for Hector to have named his son after it. On the other hand, Astyanax means “king of the city” and the thought is that the son was given this name to honour his father Hector, whose name means “holder, possessor”, which was also a term for a king (Cratylus 392b–93d). In other words, the son of the king was to be called a king whatever form his name took. Are you persuaded that both names are apt? In the course of this book, we have seen many additional examples pretending to account for the aptness of proper names but completely failing to do so in a convincing manner. In truth, most names are symbols which denote by convention, inviting the question: How does the convention get established? The best explanation is the Kripke 1972 notion of ‘baptism’, i.e. the initiation of a name using practice. Abelard, Burley, Mill, and a handful of today’s philosophers believe that proper names make ‘direct reference’, that is, that they have no semantic content. In fact, proper names do have a minimal semantics that identifies some basic characteristics of the typical name bearer, such as gender or toponymic features. However, Frege 1892 was wrong to attribute encyclopaedic information about a particular name bearer as the semantics of the name.

I reviewed various opinions about the relationship between human minds, language expressions, and aspects of their meanings such as sense and intension, reference and extension. In medieval times NPs and verbs were attributed semantic properties, and NPs could have extensions in the real world; but propositions did not: they are merely understood by the human mind to combine the meanings and extensions of their constituents. There was dispute as to whether universals are real, as many particulars are, or invariably nominal, that is, classed together by the mind that abstracts away from the properties of individuals to their supposed genus.

In the Western Classical Tradition, lexical semantics began with etymologies and glossaries of literary works that gave way to word lists with attributed meanings (both monolingual and bilingual) resembling modern dictionaries. Today, the application of lexicographical techniques to digitized corpora has revolutionized lexicography. Stepping back a bit, study of semantic relations among listemes gave rise to lexical semantics. This is perhaps most evident in the work of, e.g. Russian lexicographers Jurij Apresjan 2000 and Igor Mel’čuk 1984–1999. Ullmann 1951; 1962; 1975 wrote on etymology and semantic relations among what I have called listemes; Cruse 1986 became a standard introduction to lexical semantics in the last years of the twentieth century. John Lyons’s two volume
Semantics (Lyons 1977) became the standard reference that lucidly reviews a far more comprehensive account of semantics and even touches on pragmatics.

Although Bloomfield was not unsympathetic to the cultural context of language, he came to exclude semantics from the Bloomfieldian tradition, because semantics is not directly observable in the way that phonemes, morphemes, and sentences are manifest in phones. From the 1940s until the late 1960s, semantics was regarded by many American linguists as metaphysical and unfit for the kind of scientific enquiry into observable language structures that they believed linguistics should undertake. The advance towards semantic analysis was therefore made within morphosyntax, using as a model Roman Jakobson’s distinctive feature analysis inspired by Prague School phonology of the Latin case system (Jakobson 1936). Zellig Harris 1948 analysed the Hebrew verb paradigm using distinctive features from the categories of tense, person, and gender. Eugene Nida contrasted Greek lusontai “they will loose themselves” and luō “I loose” in ‘A system for the description of semantic elements’ (Nida 1951), referring to the components of the portmanteau morph –ō as ‘semes’. It is a small step from the componential analysis of closed morphosyntactic systems like noun and verb affixes to the componential analysis of closed semantic fields like kinship systems. Anthropologists had for many years been comparing widely differing kinship systems in culturally distinct societies by interpreting them in terms of universal constituents that we can equate with semantic components. Four of the earliest articles in the componential analysis of meaning – Lounsbury 1956; 1964 and Goodenough 1956; 1965 – were analyses of kin terms. Without stepping far outside the Bloomfieldian tradition, these early writers on componential analysis in morphosyntax and kinship systems were responsible for changing contemporary linguistic opinion on the status of semantic analysis by showing that it can be carried out using approved methods of structural analysis. There is a problem deciding what should define the set of semantic components/primitives/primes/atoms; relationships among them seem to reflect exactly those which hold among their denotata. This seems acceptable to researchers using the Natural Semantic Metalanguage. Dissatisfaction with such checklist hypotheses, though, led to frame semantics and the development of prototype and stereotype semantics. The next step was Katz and Fodor 1963 ‘Structure of a semantic theory’, which brought semantics into transformational grammar as a component to ‘interpret’ syntactic structures.

Since 1963 and the onset of Katzian semantics, semantic theories have sought to account for the meanings of syntactic constructions. Anomalous constructions were to be excluded by selection restrictions on the combining of linguistic units, but it rapidly became clear that systematically defining the full gamut of such restrictions is impossible in practice. Perhaps the solution is to carefully specify the semantic frames of listemes. Alternatives to Katzian semantics such as generative semantics, conceptual semantics, and construction grammar showed some promise. But really what was needed was for more attention to be paid to pragmatic considerations such as utterance context. In Chapter 11, I discussed Role and Reference Grammar, RRG, that integrates morphology, syntax, semantics, pragmatics, and information structure in a readily accessible monosratral representation that is meaning-based and compatible with what is known about psychological mechanisms used
in language processing. Its aim is to capture the communicative potential of sentences and its comprehensive approach to linguistic analysis makes it an extremely interesting and powerful alternative to its competitors.

Early in this chapter we examined the great philosophical tradition on which linguistic semantics and pragmatics is based. Demonstration of the timeless importance of truth conditions in semantics served as a preface to a brief discussion of the developments in mathematics and logic in the late nineteenth and throughout the twentieth century that have given rise to formal semantics and pragmatics. Though barely touched on in this book, they may be the pathway to a future of more rigorous and perhaps computerized linguistics.

Recognition of the importance of context seems rarely to have been considered until the late nineteenth century. One early twentieth century example of a context inspired work was Gustaf Stern’s *Meaning and Change of Meaning*. Stern 1931 attends to the functions of speech, a general theory of signs, and a theory of reference. Speech is purposive action and words are used for communicative, expressive, and symbolic functions. Meaning derives from the language user’s ‘subjective apprehension of the referent’ (Stern 1931: 45). Meaning changes according to what is referred to; referring to different types of bird or tree gives rise to different inferences arising from the particular properties of the denotatum. For instance, the characteristics of the denotata of the words *window, bread,* and *telephone* have changed significantly over time and consequently so have their intensions and senses. As the referent of the noun *telephone* changes, so does that of the corresponding verb, giving rise to unremarked anomaly when we continue to speak of *dialling* a number when punching the buttons of a modern phone.

From Aristotle’s time (if not before) discussions of rhetoric perforce raise topics that are now subsumed under pragmatics. The way in which a topic is presented, the manner in which language is expressed, attention to the inferences to be drawn, and interest in a speaker’s sincerity have been relevant concerns in rhetoric and oratory from earliest times; today they are meat for books on pragmatics. So, too, is the matter of illocutionary acts which have been discussed from time to time since the days of the Stoics, perhaps largely driven by the need to explain moods and clause-types in grammar. They received a boost for some 25 years after Austin’s William James Lectures of 1955 but have now lost their novelty. Instead there is a great deal of research into the underspecification of meaning in language identified in the use of frames and scripts, defeasible inferences (conversational implicatures), and the need for the pragmatic enrichment of texts.
Epilogue

Within the covers of a short book it is impossible to comprehensively cover several thousand years of linguistic enterprise and extensively review millions of words of text. I was only able to select the work of a few scholars whom I count among the leading lights in the Western Classical Tradition in linguistics. Even from before the middle ages, many worthy figures have been given but short shrift; and from among twentieth century linguists the shrift was shorter still, or they have been completely unacknowledged. To fill these gaps, there is much detail in compendia like *Concise History of the Language Sciences: From the Sumerians to the Cognitivists* (Koerner and Asher (eds) 1995), the three volume *History of the Language Sciences* (Auroux, Koerner, Niederehe et al. (eds) 2000-2006), and often within at least one of the many histories of linguistics referred to in the course of this book. Lack of space stopped me from including copies of the non-English texts I have quoted. It was tangential to my theme to review all the linguistic theories that sprang up in the late twentieth century; and, in any case, the topic has been well covered by e.g. Botha 1992; Butler 2003; Randy Harris 1993; Huck and Goldsmith 1995; Joseph, Love and Taylor 2001; Joseph 2002; Matthews 1993; 2001; Newmeyer 1986; 1996; among others. In a comprehensive history of twentieth century linguistics Chomsky will loom larger than he has in my story; but I have shown why he can be judged a major contributor to various aspects of the Western Classical Tradition.

I hope to have achieved my goal of demonstrating that there truly is a Western Classical Tradition in linguistics that passes from the ancient Greeks to the Latins and grammarians of Latin, down through to the scholastics of the later middle ages. From the vernacular grammarians of the Renaissance to the rationalists, the prescriptivists, and universal grammarians of the seventeenth and eighteenth centuries, we progressed to the Romantics and Humboldtians of the late eighteenth and early nineteenth centuries; then on to the comparative philologists and into the structuralist, functionalist, and cognitive grammars of the twentieth. In the penultimate chapter we examined the reasons for the re-ascendancy of hypothetico-deductive theory over the dominant inductivist theories of the early twentieth century; the conclusion is that both approaches are necessary for the proper modelling of language in the twenty-first century. The final chapter, on the history of semantics and pragmatics, repaired a regrettable lacuna in the first edition of the book.
Life dates

Aarsleff, Hans 1925–
Abelard (Abaelardus), Peter 1079–1142
Adelung, Johann 1732–1806
Ælfric of Eynsham c. 955–1010
Aiikhenvald, Alexandra Yurievna 1957–
Alberti, Leon Battista 1404–72
Alcuin (Althwin) 732–804
Alexander de Villa Dei c. 1175–1240
Alexander of Aphrodisias fl. 198–210
Allan, Keith 1943–
Allen, William Sydney 1918–2004
Amsler, Mark 1949–
Anselm of Canterbury 1033–1109
Antipater of Tarsos, mid-second century BCE
Apollonius Dyscolus c. 80–160
Apresjan, Jurij Derenkovich 1930–
Apuleius of Madaura c. 123–170
Aquinas, Thomas 1225–74
Argyle, Michael 1925–2004
Ariel, Mira 1952–
Arnauld, Antoine 1612–94
Ash, John 1724–79
Asporius, seventh century
Augustine of Hippo 354–430
Aurous, Sylvain 1948–
Austin, John Langshaw 1911–60
Bach, Emmanuel 1929–
Bach, Kent 1943–
Backhouse, Anthony E. 1944–
Bacon, Francis 1561–1626
Bacon, Roger c. 1220–92
Baker, Robert fl. 1770
Bally, Charles 1865–1947
Barsalou, Lawrence W. 1951–
Battig, William F. 1929–79
Baudouin de Courtenay, Jan N. 1845–1929
Bayless, Martha, 1958–
Beaumee, Nicolas 1717–89
Becanus, Johannes Goropius 1519–72
Bekker, (August) Immanuel 1785–1871
Bentham, Jeremy 1748–1832
Benthem, Johan F. A. K. van, 1949–
Berkeley, George 1685–1753
Berlin, Brent 1936–
Biber, Douglas E. 1952–
Bickerton, Derek 1926–
Bierwisch, Manfred 1930–
Black, Max 1909–1988
Blair, Hugh 1718–1800
Blank, David L. 1953–
Bloch, Bernard 1907–65
Bloomfield, Leonard 1887–1949
Boas, Franz 1858–1942
Boethius of Dacia d. c. 480–524
Bolinger, Dwight Le Merton 1907–92
Boniface (Uynfreth Bonifatius) 675–754
Bopp, Franz 1791–1867
Botha, Rudolf P. 1942–
Bowerman, Melissa 1942–
Bréal, Michel 1832–1915
Brehat, Ernest 1873–1953
Bresnan, Joan Wanda 1945–
Bright, William 1928–2006
Brinton, Daniel G. 1837–99
Broca, Paul 1824–80
Bronowski, Jacob 1908–74
Brown, Penelope 1944–
Brown, Roger William 1925–97
Brugmann, Karl 1849–1919
Bruner, Jerome Seymour 1915–
Bubenik, Vit 1942–
Buchanan, James fl. 1753–73
Buridan, John (Jean) c. 1295–60
Burley (Burleigh), Walter c. 1275–1345
Burnet, James (Lord Monboddo) 1714–99
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First grammarian, see Teitsson
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Fisher, Ann 1719–78
Fisher, Daniel 1718–99
Fodor, Jerry Alan 1935–
Foley, William A. 1949–
Frede, Michael 1940–2007
Frege, (Friedrich L.) Gottlob 1848–1925
Fries, Charles 1887–1967
Fromkin, Victoria Alexandra 1923–2000
Galindo, Beatriz c. 1465–1534
Gardiner, Sir Alan Henderson 1879–1963
Gazdar, Gerald 1950–
Gech, Peter Thomas 1916–
Geckeler, Horst 1935–
Geertz, Clifford James 1926–2006
Gelb, Ignace J. 1907–85
Gellius, Aulus c. 123–80
Gilman, Albert 1923–
Givón, Talmy (Tom) 1936–
Gleason, Henry 1882–1975
Goddard, Cliff 1953–
Goffman, Erving 1922–82
Gold, Harvey J. 1932–
Goldberg, Adele 1963–
Goldsmith, John A., 1951–
Goodenough, Ward H. 1906–94
Gorn, Sir A. 1719–78
Gordianus, Herodes 160–80
Gordon, Cyrus Herzl 1908–2001
Grassmann, Hermann 1809–77
Greenberg, Joseph Harold 1915–2001
Grice, (Herbert) Paul 1913–88
Grimm, Jakob 1785–1863
Groenendijk, Jeroen A. G. 1949
Grosz, Barbara J. 1948–
Gumperz, John Joseph 1922–
Gyermathy, Samuel 1751–1830
Hahn, Emma Adelaide 1893–1967
Haiman, John 1946–
Hall, Edward Twitchell 1914–
Halle, Morris 1923–
Halliday, Michael Alexander K. 1925–
Hamilton, Sir William 1788–1856
Hammar, Johann G. 1730–88
Hanks, Patrick W. 1940–
Hare, Richard Mervyn 1919–2002
Harman, Gilbert 1938–
Harsh, Robert M. (Mike) 1941–
Harr, George 1722–96
Harr, James 1709–80
Harris, Randy Allen 1956–
Harris, Roy 1931–
Harris, Zellig Saffet 1909–92
Hasan, Ruqaiya 1931–
Haugen, Einar 1906–94
Hawking, Stephen 1942–
Heine, Bernd 1939–
Hellwege, Christopher F. 1754–1835
Helwig, Christoph 1581–1617
Henley, Nancy 1934–
Henderson, Desmond Paul 1921–2004
Heracleitus c. 540–475 BCE
Heron, Johann Gottfried von 1744–1803
Herodotus c. 484–425 BCE
Hervás y Panduro, Lorenzo 1735–1809
Hickes, George 1642–1715
Hinton, Leanne 1941–
Hippian, Elis c. 460–399 BCE
Histiaeus c. 200 BCE
Hjelmslev, Louis 1899–1965
Hobbes, Thomas 1588–1679
Hockett, Charles 1916–2000
Hoijer, Harry 1904–76
Holder, William 1616–98
Homer, 8th century BCE
Hopper, Paul 1939–
Horace 68–8 BCE
Horn, Laurence R. 1945–
Householder, Frederick W. 1913–94
Hovdaug, Even 1941–
Hrozný, Bedřich 1879–1952
Huang, Yan 1955–
Huck, Geoffrey 1944–
Hudson, Richard (Dick) 1939–
Hughes, George Edward 1918–94
Hughes, John 1677–1720
Humboldt, Wilhelm von 1767–1835
Hume, David 1711–76
Hurford, James R. 1941–
Hymes, Dell Hathaway 1927–
Isidore of Seville 560–636
Isocrates 436–338 BCE
Itkonen, Esa 1944–
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Aarsleff 181, 190, 227, 364
abduction 220, 280, 281–5, 304, 334, 350
ablative 75–7, 82, 94, 95, 98, 114, 116, 121, 122, 140, 150, 171, 326
accent 46, 85–7, 97, 102, 105, 112, 113, 119, 140, 142, 147, 148, 151, 155, 156, 196, 198, 200
accusative 64, 72, 75, 76, 90, 95, 98, 102, 103, 105, 107, 114, 116, 122, 144, 150, 170
acquisition 7, 27, 28, 35, 36, 103, 109, 118, 144, 146, 151, 156, 171, 191, 193, 213, 228, 238, 242, 252, 263, 265, 268, 277, 278, 329
Addison 144, 145
Adelung 208, 364
adequacy 27, 48, 55, 91, 102, 126, 167, 185, 189, 192, 193, 205, 212, 221, 235, 237, 281, 287, 291, 294, 295, 299, 302–4
adjective 44, 48, 57, 63, 64, 72–5, 78, 90, 94, 95, 97, 113, 114, 119, 125, 141, 142, 144, 148–50, 163, 169, 171, 181, 184, 193, 255, 268, 312, 345
Adriatic 3, 111
Ælfric 15, 24, 122, 139–42, 159, 197, 364
Aeolic 46, 86, 113, 211
affirmation 42, 43, 50, 52, 62, 109, 110, 150, 187, 189, 310, 317, 320, 355
affixation 68, 71, 72, 77, 79, 89, 105, 114, 178, 181, 204, 215, 326, 361
Africa 14, 131, 137, 196, 290, 328
agglutinating languages 2, 215–17
Aikhenvald 221, 304, 364
Alcuin 136, 138, 142, 161, 364
Aldhelm 136, 138
Alexander de Villa Dei 142, 163, 174, 364
Alexander of Aphrodisias 312, 318, 364
Alexander the Great 321, 322
Alexandria 11, 14, 45, 58, 60, 63, 80, 84, 87, 89, 101, 112, 126, 142, 196, 295, 323
Algonquian 286
Allen 20, 47, 364
America 6, 10, 13, 179, 196, 238, 241, 250, 286, 324, 328
American Sign Language 5
Amsler 136, 309, 364
analogy 48, 66, 69, 71, 72, 74, 77, 81, 82, 85, 105, 120, 131, 146, 153, 184, 185, 198, 218, 225, 236, 243, 245, 252, 256, 258, 280, 281, 288, 294, 308, 325, 345, 347, 350
Ancient Egyptian 1, 3, 7, 19, 22, 23, 80, 176, 202
angling 27, 28
Anglo-Saxon 15, 17, 130, 136, 139–42, 159, 240. See also Old English.
anomaly 69, 71, 73, 93, 103, 137, 173, 327, 337, 343, 361, 362
Anonymous ad Cuimnanum 136
Anselm 166, 168, 169, 312, 313, 364
Anstey 269
anthropology 9, 195, 224, 231, 238, 241, 244, 249, 276, 284, 287, 326, 327, 361
Antipater 14, 59, 64, 69, 364
antiquity 12, 14, 15, 82, 86, 127–34, 158, 169, 192, 199, 208, 222, 227
aorist 63, 66, 76, 90, 91, 103, 126, 219
Apollonius Dyscolus 8, 11, 12, 20, 58, 64, 84, 86–8, 92, 100–12, 114, 117, 119–26, 131, 142, 161–3, 166, 183, 193, 194, 306, 320, 364
Apresjan 360, 364
Apuleius 52, 53, 364
Aquinas 172, 315, 364
Arabic 3, 4, 164, 176, 177, 193, 201, 208, 209, 222, 312
Aramaic 111, 161, 163, 208
arbitrariness 29, 30, 33, 35, 37, 60, 96, 114, 184, 240, 256, 258, 261, 282, 292, 294, 296, 307, 308, 319, 344
Argyle 350, 364
Ariel 348, 364
Aristarchus 84, 101, 107, 114, 364
Aristophanes (dramatist) 60
Aristophanes of Byzantium 323, 364
Arnauld 49, 178, 179, 183–9, 317, 318, 328, 344, 364
Arrernte 272
article 40, 45, 58, 63, 75, 78, 81–3, 88, 89, 91, 93, 94, 97, 98, 103–6, 108, 112, 116, 120, 122, 135, 141, 149, 150, 345
Asher N. 349
Asher R. 19, 22, 363
Asia 14, 196, 201, 208, 210
aspect (grammatical) 49, 66, 71, 73, 76, 78, 90–2, 95, 96, 98, 103, 108, 126, 216, 244, 245, 273
aspiration (phonetic) 46, 47, 84, 88, 110, 113, 139, 195, 196, 205, 206, 212, 213, 217
Asporius 137, 138, 364
associative (relations) 256, 257, 261, 262, 264, 266
Astell 17
Athens 15, 26, 33, 59, 90, 91, 101, 110, 115, 130, 323
Atkins 332
Attic 11, 24, 46, 66, 85–7, 110, 142, 323
Audax 137, 138
Augustine (Saint) 111, 131–3, 159, 161, 185, 306, 310, 311, 314, 320, 353, 364
Auroux 19, 22, 202, 362, 364
Austin 50, 51, 320, 321, 353–56, 362, 364
Austronesia 196, 210, 213
Aztec 244
Babel 132, 177, 179, 226, 231
Bach, E. 43, 364
Bach, K. 323, 345, 356, 359, 364
Backhouse 327, 364
Bacon, F. 281, 364
Bacon, R. 164, 165, 314, 364
Baker 144–6, 301, 364
Ballmer 356
Bally 255, 364
Bantu 247, 286
barbarism 67, 81, 94, 131, 153
Barsalou 332, 364
Baque 210, 213, 215
Batemman 268
Battig 330, 364
Baudouin de Courtenay 203, 204, 364
Bayless 131, 139, 364
Beaumee 184, 364
Becanus 176, 208, 364
behaviourism 287, 288
Bekker 26, 71, 84, 364
Bendix 327, 338, 364
Bentham 320, 344, 364
Berkeley 319, 320, 350, 364
Berlin, B. 33, 248, 279, 364
Biber 350, 364
Bible 12, 17, 25, 31, 59, 111, 128, 130–3, 146, 151, 158, 159, 164, 224, 226, 314
Bickerton 5, 233, 364
Bierwisch 334, 364
Black, M. 247, 364
Blank, D. 71, 364
Bloch 289–91, 364
Boas 13, 19, 213, 238–46, 248, 261, 264, 283, 285, 287, 290, 292, 303, 305, 364
Boethius, A.M.S. 171, 311–13, 364
Boethius of Dacia 165–8, 364
Bolinger 207, 250, 364
Boniface 136–8, 142, 159, 364
Bopp 10, 216, 217, 364
Botha 5, 299–301, 363, 364
bottom-up processing 281, 283, 285, 304, 344
Bowerman 252, 364
Bréal 17, 306, 324, 325, 352, 364
Brehaut 60, 111, 131–3, 135, 364
Brennenstuhl 356
Bresnan 192, 207, 269, 364
Brinton 239, 364
Britain 10, 129, 136, 138, 140, 144, 156, 177, 199, 265, 324, 352
Broca 255, 259, 364
Bronowski 278, 281, 364
Brown, P. 55, 364
Brown, R.L. 229, 234, 235, 238
Brown, R.W. 240, 350, 364
Brugmann 218, 219, 286, 364
Bruner 278, 364
Bubeník 46, 47, 364
Buchanan 144, 364
Buridan 316–18, 364
Burley (Burleigh) 316, 321, 348, 360, 364
Burnet (Monboddo) 154, 364
Bursill-Hall 164, 365
Burton-Roberts 301
Butler, Charles 199, 200, 365
Butler, Christopher S. 269, 363, 365
Bybee 221, 365
Byrne 226
Bywater 45
Byzantium 71, 82, 111, 130, 131, 308, 312, 323
Cajka 16
Calepino 324, 365
Cameron 150, 151, 155, 160, 365
Campbell, G. 144, 146, 152–4, 365
Campbell, L. 221, 365
Capella 137, 196, 365
Carden 53
Carnap 182, 306, 339, 365
carolingian 136, 138, 158, 161, 162, 172
Carré 36, 37
Carroll 98, 323, 365
Carston 359, 365
Cassiodorus 132, 308, 365
Catullus 14, 186
causative 73, 273, 338, 341, 342
Cavendish 17, 18
Celtic 158, 208, 210, 216
Chafe 252, 365
Champollion 202, 365
Chao 337, 365
Charisius 112, 131, 138, 159, 365
Charlemagne 138, 157
Chase 250, 365
Cheney 226, 365
chess 258, 261
Chierchia 346, 365
Chinese 2, 22, 98, 147, 156, 177, 213, 215, 222, 244, 286, 322
Chomsky 5, 7–10, 12, 13, 20, 33, 46, 119, 123, 124, 164, 175, 177, 179, 195, 207, 210–12, 214, 216–18, 220, 222, 223, 234, 239, 244, 248, 249, 255, 256, 261–4, 272, 295, 363
competence 102, 191, 262, 263, 277, 284, 305
computers 73, 277, 306, 319, 324, 362
Comrie 221, 304, 365
conceptual field 134, 327, 328
conceptualist linguistics 178, 296, 298, 300, 301, 334, 340, 341, 361
clause-type 50, 62, 66, 90, 108–10, 117, 122, 362
Cmejrková 265
codex 5, 112
cognitive linguistics 8, 10, 19, 58, 77, 192, 243, 248, 249, 253, 264, 284, 305, 306, 308, 363
Cohen 182, 354, 365
Cole 358, 365
colour 152, 167, 246–9, 257, 258, 267, 278, 313, 319, 327–9, 332
Colson 71, 104, 365
Comenius 177, 365
communicative dynamism 264
comparative adjective 48, 89, 94, 96, 99, 113, 114, 131, 150
comprehension 102, 191, 262, 263, 277, 284, 305
computers 73, 277, 306, 319, 324, 362
Conklin 279, 365
connotation (associative meaning) 63, 160, 276, 311, 331, 349
connotation (sense) 320, 321, 323, 331, 344
consonant 4, 33, 46, 47, 78, 87, 88, 113, 141, 147, 148, 195–201, 204, 206, 213, 215, 217, 218, 220, 222, 254, 286
Constantine 111
Constantinople 15, 111, 112, 137, 166
constitutive 353
construction grammar 341, 342, 359, 361
contradictory 30, 50–4, 150, 168, 307, 316, 343, 356
contrary 47, 49–53, 56, 121, 133, 168, 178, 181, 293, 314
Coogan 103
Cooper 251
copula 45, 49, 96, 179, 181, 216, 320
Corballis 232, 365
Cordemoy 184, 365
corpus 113, 222, 263, 277, 281, 283, 290, 296, 303, 324, 360
Coulmas 1, 19, 365
Coulson 253, 331, 365
counterfactual 90, 97
Covington 164, 171, 365
cowan 234
Cram 177, 178, 365
Crates 68, 85
Cratylus 28–35, 37, 70, 71, 224, 307, 308, 360
Cresswell 55, 345, 365
croft 253, 365
Cruse 253, 274, 330, 360
culture 8, 14, 16, 80, 101, 111, 128, 130, 157, 211, 213, 214, 224, 226, 233–9, 241, 244–53, 263, 264, 268, 277, 284, 305, 323, 326, 329, 352, 353, 361
cuneiform 2
Curtius 10, 365
Cust 17
Cyril of Byantium 111, 365
Cyrillic 111
Czech 177, 265
Dahlmann 69
Dalgarno 177–9, 181, 182, 194, 202, 328, 365
Dalrymple 269, 365
Dani 247, 248, 257, 258
Danes 136, 210, 211
Daneš 265, 365
danesi 350, 365
Daniels 19, 365
Danish 196, 210
Dante 175, 365
Darwin 217, 224, 295, 365
dative 64, 72, 75, 76, 90, 95, 98, 102, 103, 106, 107, 114, 116, 121, 140, 144, 150
Davidson 342, 345, 365
declarative 25, 26, 39, 49, 57, 75, 90, 95, 109, 232, 266
decension 63, 64, 67, 72–5, 77, 83, 95, 116, 118–23, 126, 137–41, 147, 170, 177, 326
deduction 65, 78, 209, 232, 262, 280–2, 304
deep structure 43, 109, 193, 338
default semantics 359
Defoe 128, 129, 365
deixis 93, 232, 267, 268, 314, 349. See also indexical.
Delaware 215, 216
Delbrück 218, 365
Democritus 36, 308, 365
Demosthenes 81, 8, 128
demotic 22, 23
denial 42, 50, 52, 53, 65, 109, 110, 131, 178, 186, 214, 215, 218, 278, 310, 317
deponent 76, 95, 96, 114, 116, 117, 170, 185
Descartes 178, 186, 190, 194, 226, 365
Devanāgarī 201, 222
Devitt 322, 365
diachrony 32, 92, 134, 260, 261, 276, 277, 287, 328
diacritic 86, 87, 178, 196, 199, 201, 202
dialect 2, 24, 33, 46, 47, 66, 73, 82, 86, 99, 110, 115, 130, 142, 146, 156, 164, 165, 176, 179, 199, 204, 209, 210, 212, 213, 217, 218, 222, 317, 324, 342, 350
dialectic 16, 25–7, 37, 57, 59, 60, 67, 76, 78, 80, 138, 143, 158, 162, 310, 313, 314, 316, 317
dictionary 6, 35, 61, 144, 157, 181, 182, 194, 309, 323, 324, 329, 332, 336, 352, 360. See also lexicon.
Diderichsen 210, 365
Diels 307, 308, 365
differential value (valeur) 247, 257, 258, 261, 262, 287, 325, 328
Dik 192, 269, 277, 365
Diodorus Siculus 308, 365
Diogenes Laertius 26, 27, 59, 63, 67, 80, 86, 353, 365
Diogenes of Babylon 59, 67, 68, 365
Diomedes 112, 138, 365
Dionysius Thrax 10–12, 20, 58, 64, 68, 80, 83–92, 97–9, 101, 104, 112, 138, 142, 161, 285, 365
discourse representation theory 348, 349
distinctive feature 74, 75, 77, 205, 206, 265, 292, 296, 326, 327, 361
Dolezal 182
Donatus 11–13, 20, 58, 80, 82–4, 86, 92–9, 111–13, 125, 126, 128, 130–2, 136–40, 142, 147, 157, 158, 161, 168, 170, 195, 196, 365
Dowty 273, 274, 345, 365
Drechsel 239
Dufriche-Desgenettes 203, 365
Dunbar 226, 232, 333, 365
Durkheim 255, 259, 365
Dyche 147, 148, 365
Dyirbal 270
Egeria 15
Egli 65–7, 78, 365
Egypt 11, 14, 15, 26, 80, 209
Egyptian 1, 3, 7, 19, 22, 23, 80, 176, 202, 209
Einstein 279–82, 294, 304, 365
E-language 8, 191, 214, 277
ellipsis 61, 102, 106, 155, 243
Ellis 202, 203, 365
Elstob 15–17, 141, 142, 144, 365
emoticon 18
Engler 255, 260, 261, 365
epenthesis 106, 142, 219
epicene 89, 94, 95
Epicurus 19, 224–6, 228–30, 235, 259, 264, 365
Eriugena, Johannes Scottus 136, 162, 365
Ervin-Tripp 350, 365
Esquiro 210, 238–40
Estienne, H. 26, 365
Estienne, R. 324, 365
Ethiopic 208, 209
Etruscan 3
etymology 29–32, 60, 68–70, 73, 79, 81, 82, 85, 87, 91, 92, 106, 111, 131–5, 139, 147, 148, 150, 157, 158, 161, 171, 175, 176, 196, 209, 210, 306–9, 323, 325, 352, 360
Eudocia 15, 365
Euripides 81, 84, 110, 128
Eutyches 137, 158, 196
evaluation 5, 48, 50, 145, 156, 244, 248, 279, 280, 282, 283, 295, 296, 298, 301, 304, 321, 332, 334, 337, 339, 346, 347
explicature 359
extension 78, 186, 309, 310, 315, 316, 318, 319, 321, 344, 346, 347, 360
semantic 72, 73, 151, 221, 328
Farro 144, 365
Fauconnier 253, 366
felicity 50, 246, 302, 337, 343, 354–6
Fenn 16
Fillmore 274, 330, 341, 349, 366
Finegan 41, 350, 366
Finnish 2, 208–10
Finno-Ugrian 210
Firbas 265, 366
First Grammarian 47, 196–9, 211, 221, 295, 366
Firth 265, 266, 277, 352, 353, 366
Fisher, A. 16–18, 135, 146–50, 155, 171, 366
Fisher, D. 16, 366
Fodor, Janet 335
Fodor, Jerry 183, 302, 303, 333, 334, 337, 339, 361, 366
Foley 269, 366
text elements of taxonomic separations 297, 330
folk taxonomy 279, 330
frame semantics 306, 332, 337, 352, 357, 361, 362
France 13, 17, 51, 323, 354, 355, 358
Frede 64, 366
Freye 49, 58, 182, 318, 321, 322, 344, 346, 360, 366
French 9, 24, 29, 33, 49, 84, 89, 101, 131, 147, 148, 156, 157, 164, 175, 179, 185, 186, 188, 203, 252, 255, 256, 264, 265, 281, 316, 322, 324, 325, 329
Fried 192
Fries, C. 286, 366
Fries, P. 266
Fromkin 165, 366
fuzzy sets/truth 51, 330
Galindo 15, 366
Gamut 182, 344, 346
Gazdar 349, 366
Geach 316, 353, 366
Geckeler 258, 327, 366
Geertz 350, 366
Gell 19, 366
Gellius 71, 366
general grammar 41, 44, 153, 154, 159, 161, 184, 185, 187, 192, 194, 215, 283, 305. See also universal grammar.
general semantics 250, 251, 352
generative semantics 43, 44, 216, 338, 339, 340, 361
genitive 15, 28, 64, 75, 76, 90, 94, 95, 98, 102, 103, 107, 113, 115, 116, 120, 121, 123, 147, 148, 150
genius of a language/people 128, 153–5, 159, 215, 234, 237
German 29, 33, 89, 130, 164, 177, 201, 203, 212, 216, 229, 230, 238, 242–4, 253, 255, 265, 280, 319, 321, 324, 327, 347
Germanic 111, 144, 153, 158, 208, 210–12, 217, 218, 240, 286, 319
Germany 13, 137, 158, 175, 178, 241
gestalt 36, 241–4, 249, 251, 253, 331
Gilman 350, 366
Givón 269, 304, 348, 366
Gleason 291, 295, 366
Gneuss 139
Goddard 192, 328, 329, 366
Godel 255
Goffman 332, 366
Gold 299, 366
Goldberg 192, 269, 274, 341, 366
Goldsmith 363, 366
Goodenough 183, 327, 361, 366
Gordon, C. 19, 366
gossip 232, 353
Gothic 15, 111, 208, 209, 212, 213, 216, 255
Graesser 61, 64
Grassmann 217, 366
Greece 4, 10, 14, 19, 22, 24, 26, 68, 80, 82, 101, 110, 114, 125, 143, 209, 231, 306, 323
Greenberg 304, 366
Gregory (Pope) 131
Gregory, M. 266
Grimm 210–13, 217, 218, 222, 295, 366
Groenendijk 182, 316, 366
Grosz 348, 366
Gruber 338
Gumperz 242, 251, 366
Guugu Yimithirr 252
Gyarmathi 208, 366
Hahn 108, 366
Haiman 269, 366
Hall 350, 366
Halle 206, 207, 293, 366
Halliday 192, 254, 265–8, 277, 353, 366
Hamilton 318, 321, 344, 364
Hamman 229, 230, 241, 261, 366
Hanks 324, 366
Hare 353, 366
Harman 283, 301, 366
Harnish 323, 356, 359, 366
Harris, George 145, 153, 366
Harris, James 144, 153, 154, 189, 234, 320, 344, 366
Harris, Randy 293, 295, 363, 366
Harris, Roy 260, 287, 366
Harris, Zellig 183, 290–5, 305, 326, 327, 361, 366
Hasan 266, 366
Haugen 10, 197, 198, 366
Hawking 282, 366
Hebrew 3, 5, 31, 44, 111, 130, 132, 133, 147, 148, 159, 161, 163, 164, 175, 176, 178, 185, 188, 193, 196, 208, 209, 213, 244, 293, 294, 308, 309, 324, 326, 361
Heim 348
Heine 221, 233, 253, 366
Hellēnismos 60, 67–9, 78, 80, 85, 86, 101, 110
Hellwag 201, 366
Helwig 175, 366
Henley 251, 366
Henry 169, 366
Heraclitus of Ephesus 307, 308, 366
Herodian 11, 102, 105, 110, 366
Herodotus 84, 176, 225, 366
Hervás 207, 208, 366
Hickes 15, 366
Hinton 33, 366
Hippias of Elis 308, 366
Histiaeia 14, 366
Hittite 6, 7, 217, 220, 297
Hjelmslev 256, 342, 366
Hobbes 319, 326, 366
Hockett 281, 291, 292, 294, 295, 366
Hodge 266
Hoijer 250, 366
Holder 200, 201, 366
Homer 15, 24, 25, 68, 81, 83–5, 87, 109, 110, 128, 235, 323, 360, 366
homonymy 40, 116, 179, 199, 308
homophony 2, 103, 115, 291, 307
Hopi 244, 245, 247
Hopper 221, 366
Horace 14, 82, 128, 131, 143, 152, 366
Horn 10, 53, 358, 364
Hovdhaugen 164, 165, 366
Hrozný 217, 366
Huang 348, 366
Huck 363, 366
Hudson 193, 366
Hughes, C. 233
Hughes, G. 55, 366
Hughes, J. 151, 155, 367
Hume 320, 367
Hungarian 153, 208, 209, 213, 324
Hurford 231, 232, 253, 367
Hussey 307
Hymes 262, 367
hypothetico-deductivism 20, 282–5, 293–8, 301, 303–5, 363
Icelandic 10, 47, 196, 198, 199, 210, 211
iconicity 351, 352
idealization 7, 167, 191, 193, 259, 284, 300, 303, 305, 317
ideograph 18, 177, 193, 221, 222
livenon 201
I-language 7, 8, 191, 277, 284
imperative 26, 62, 75, 90, 95, 109, 110, 117, 122, 124, 140, 141, 156, 163, 266, 353
imperfect(ive) 66, 90, 91, 96, 103, 117, 118, 124, 144, 149, 181, 264
implication 66, 121, 249, 357
implicature 57, 273, 274, 307, 344, 358, 359, 362
implicitude 359
<table>
<thead>
<tr>
<th>Term</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>indefiniteness</td>
<td>44, 63, 64, 75, 79, 95, 102, 123, 142, 345</td>
</tr>
<tr>
<td>independency</td>
<td>6, 7, 10, 17, 20, 41, 60, 69, 92, 104, 107, 111, 126, 130, 162–4, 196, 216, 233, 236, 239, 246, 247, 254, 258, 261, 262, 276, 283–5, 287, 292, 294, 297–9, 301, 302, 331, 343, 359</td>
</tr>
<tr>
<td>index</td>
<td>43, 44, 338, 341, 347, 351</td>
</tr>
<tr>
<td>indexical</td>
<td>168, 314, 316, 349. See also deixis.</td>
</tr>
<tr>
<td>India</td>
<td>19, 22, 209, 210, 226</td>
</tr>
<tr>
<td>indicative</td>
<td>66, 76, 90, 95, 103, 109, 115, 117, 122–4, 126, 141, 163, 170, 266</td>
</tr>
<tr>
<td>Indo-European</td>
<td>4, 10, 13, 14, 46, 70, 176, 203, 208, 210, 212, 213, 215–20, 239, 252, 254, 255, 261, 285, 328</td>
</tr>
<tr>
<td>inductivism</td>
<td>20, 254, 281–5, 291–8, 303</td>
</tr>
<tr>
<td>Inés de la Cruz</td>
<td>15</td>
</tr>
<tr>
<td>infinitive</td>
<td>90, 95, 108, 109, 117, 118, 121, 122, 124, 139, 141, 163, 170</td>
</tr>
<tr>
<td>inflection</td>
<td>40, 44, 45, 49, 57, 58, 63, 67, 69, 71–5, 79, 88–92, 94, 97–9, 102, 112, 118, 122, 123, 125, 126, 136, 138, 154, 158, 161, 164, 210, 211, 215–18</td>
</tr>
<tr>
<td>information structure</td>
<td>265, 269, 276, 277, 313, 361</td>
</tr>
<tr>
<td>innateness</td>
<td>7, 191, 194, 227, 233, 236, 320</td>
</tr>
<tr>
<td>insular grammar</td>
<td>136, 138, 159</td>
</tr>
<tr>
<td>interjection</td>
<td>82, 83, 89, 91, 93, 94, 96–8, 104, 112, 113, 119, 126, 141, 142, 148–50, 169, 170, 178, 230</td>
</tr>
<tr>
<td>International Phonetic Alphabet (IPA)</td>
<td>111, 182, 194, 201–3</td>
</tr>
<tr>
<td>interrogative</td>
<td>26, 75, 90, 95, 117, 138, 145, 146, 265, 266, 271, 353</td>
</tr>
<tr>
<td>intuition</td>
<td>8, 44, 154, 159, 215, 229, 280, 281, 283, 291, 297–9, 304, 311, 347</td>
</tr>
<tr>
<td>Ionic</td>
<td>24, 46, 85, 86</td>
</tr>
<tr>
<td>Irish</td>
<td>136, 159, 176</td>
</tr>
<tr>
<td>irregularity</td>
<td>69, 71–4, 76, 77, 103, 106, 124, 129, 141, 149, 153, 154, 164, 179, 218, 325</td>
</tr>
<tr>
<td>Isidore (Saint)</td>
<td>60, 111, 131–40, 161, 308, 323, 324, 367</td>
</tr>
<tr>
<td>Isocrates</td>
<td>80, 128, 367</td>
</tr>
<tr>
<td>Italian</td>
<td>3, 138, 164, 175, 176, 185, 186, 209, 280, 322, 324, 329</td>
</tr>
<tr>
<td>Italy</td>
<td>26, 68</td>
</tr>
<tr>
<td>Itkonen</td>
<td>19, 61, 300, 367</td>
</tr>
<tr>
<td>Jackendoff</td>
<td>53, 233, 253, 284, 324, 338, 340, 341, 367</td>
</tr>
<tr>
<td>Jäger</td>
<td>208, 367</td>
</tr>
<tr>
<td>Jakobson</td>
<td>9, 201, 205, 206, 261, 326, 361, 367</td>
</tr>
<tr>
<td>James</td>
<td>351, 353, 367</td>
</tr>
<tr>
<td>Jankowsky</td>
<td>211, 367</td>
</tr>
<tr>
<td>Japanese</td>
<td>2, 3, 9, 33, 153, 191, 192, 270–2, 322, 327, 329, 331</td>
</tr>
<tr>
<td>Jaszczołt</td>
<td>253, 349, 353, 359, 367</td>
</tr>
<tr>
<td>Javanese</td>
<td>9, 213, 234</td>
</tr>
<tr>
<td>Jerome (Saint)</td>
<td>111, 130, 132, 142, 158, 308, 309, 367</td>
</tr>
<tr>
<td>Jespersen</td>
<td>204, 211–13, 367</td>
</tr>
<tr>
<td>Jeudy</td>
<td>139, 367</td>
</tr>
<tr>
<td>Jewishness</td>
<td>80, 130, 132, 133, 238, 322</td>
</tr>
<tr>
<td>Johansson</td>
<td>234, 253, 367</td>
</tr>
<tr>
<td>Johnson, J.</td>
<td>146, 367</td>
</tr>
<tr>
<td>Johnson, Mark</td>
<td>253, 331, 367</td>
</tr>
<tr>
<td>Johnson, Richard</td>
<td>143, 367</td>
</tr>
<tr>
<td>Johnson, Samuel</td>
<td>144, 145, 324, 367</td>
</tr>
<tr>
<td>Johnson, Wyn</td>
<td>206</td>
</tr>
<tr>
<td>Jones, Daniel</td>
<td>203, 205, 367</td>
</tr>
<tr>
<td>Jones, William</td>
<td>201, 208–10, 262, 367</td>
</tr>
<tr>
<td>Jonson</td>
<td>145</td>
</tr>
<tr>
<td>Josephus</td>
<td>133, 367</td>
</tr>
<tr>
<td>Jung</td>
<td>241, 255, 367</td>
</tr>
<tr>
<td>Junggrammatiker</td>
<td>189, 218, 223</td>
</tr>
<tr>
<td>Juntune</td>
<td>175</td>
</tr>
<tr>
<td>Kamp</td>
<td>182, 316, 348, 367</td>
</tr>
<tr>
<td>Kant</td>
<td>229, 235, 367</td>
</tr>
<tr>
<td>Kaplan</td>
<td>63, 345, 367</td>
</tr>
</tbody>
</table>
Index

Karttunen 355, 367
Kay, Paul 247, 248, 253, 341, 367
Kay, R. 253
Keenan 304, 345, 367
Keil 112, 367
Kilwardby 165, 367
King, Karen 14
King, Peter 313
Klima 347, 367
Kneale 49, 52, 66, 182, 367
Koerner 5, 19, 22, 202, 258, 293, 295, 363, 367
Koffka 241, 242, 244, 367
koinē 46, 85, 93, 99, 110, 111, 142
Korean 2, 252
Korzybski 250, 367
Kövecses 331, 367
Kress 266, 367
Kretzmann 312, 314, 367
Kripke 65, 66, 73, 182, 314, 322, 345, 346, 360, 367
Kroeker 183, 327, 367
Kruszewski 203, 367
Kuhn 262, 278–81, 291–3, 295, 296, 367
Kuryłowicz 220, 367
Kwakiutl 238, 244
Labov 43, 329, 367
Ladd 207, 367
Lakoff, George 10, 48, 51, 253, 284, 330, 338, 339, 367
Lakoff, Robin 183, 190
Lambert, Johan 230, 367
Lambert of Auxerre 314
Lamy 185, 367
Lancelot 49, 150, 179, 183–9, 367
Langacker 192, 253, 347, 367
langage (Saussure) 8, 258, 259, 262
Langendoen 77, 367
language as physical object 5–7, 19, 78, 93, 97, 204, 222, 257, 258, 260, 283, 291, 300, 313, 351
language faculty 5, 7, 8, 19, 191, 194, 227, 259
language (Saussure) 8, 257–60, 262, 263, 276, 277, 284, 287, 297, 305
Lappish 208, 209
laryngeal 220
Lascarides 357
Lass 150, 221, 367
lattice 266, 267, 270, 344
Latvian (Lettish) 208, 210
Law, Vivien 84, 89, 93, 112, 136–40, 143, 159, 164, 169, 367
Lazarus 350, 367
Leakey 253, 367
Leaey 249, 367
Lee, Dorothy 249, 367
Lee, K. 53
Lee, Penny 249, 251, 367
Lees 347, 367
Lehmann 202, 216, 218, 367
Lehrer 327, 328, 342, 367
Leibniz 136, 176, 177, 182, 229, 234, 241, 243, 261, 302, 314, 319, 367
Leipzig 10, 218, 223, 254, 286
leken 60–3, 67, 78, 79, 92, 310
Leonard 144, 145, 152–4, 367
Lepschyi 19, 22, 202, 367
Lepsius 202, 367
Leskien 218, 286, 367
Lettish See Latvian.
Levinson 55, 242, 251–3, 283, 349, 358, 367
Lewis 156, 182, 259, 279, 333, 367
Lexical category/class 72, 73, 77, 92, 167, 192, 206, 356
Lexical conceptual structure 333, 340, 341
Lexical Functional Grammar 192, 269, 277
Lexical insertion 67, 337, 338
Lexical relation 48, 70–3, 77, 92, 121, 134, 135, 158, 219, 308, 312, 314, 316, 319, 322, 323, 326, 327, 332–4, 343, 352, 357, 360, 361
Lexical semantics 48, 71, 134, 135, 167, 206, 306, 323–33, 360
Lexicography 157, 182, 306, 323, 324, 330, 352, 360
Lexicon 48, 182, 323, 332, 333, 336, 340, 341. See also Dictionary.
Liberman 207, 367
Lily 143, 144, 367
Linear B 3
linguae sacrae 193, 308, 309
Linguistic relativity 13, 224, 237, 241, 242, 244–51, 253, 261, 264
Linnaeus 210, 214
Listeme 258, 307, 309, 322, 326–8, 332, 333, 336–9, 341–3, 345, 349, 360, 361
Literary 11–16, 40, 68, 69, 80, 83–6, 92, 101, 102, 110, 111, 113, 122, 128, 130, 132, 135–9, 145, 149, 153, 158, 164, 175, 193, 196, 199, 205, 235, 263, 277, 317, 360
Lloyd, Anthony 71
Lloyd, William 182, 324, 367
Locke 19, 151, 152, 226–9, 234, 235, 255, 259, 318–20, 367
Lo(du)wick 177, 178, 201, 328, 367
Loftus 248, 293, 367
Logical form (LF) 341, 359
Logograph 1–3, 18, 19, 177, 178, 222
Londey 52
Long 60, 61, 367
Lounsbury 183, 327, 361, 367
Lowth 16, 144–6, 149–51, 186, 368
Lucretius 19, 225, 226, 228, 229, 235, 259, 368
Lucy 240, 250, 251, 368
Luhtala 162, 163, 368
Łukasiewicz 182, 368
Lyons 41, 60, 97, 165, 321, 327, 342, 349,360, 361, 368
Maasai 5, 7, 11, 191
MacLaury 248, 249, 368
Macrorole 274, 275
Majuscule 8, 23, 199
Makkai 324
Malagasy 11
Malay 210, 215, 286
Malinowski 306, 352, 353, 368
Mann 266
Marenbon 157
Markedness 22, 23, 63, 64, 66, 87, 105, 108, 118, 125, 126, 162, 163, 186, 188, 203, 206, 265, 275, 337
Markerese 333–6, 340
Marrou 14, 25, 27, 80–2, 84, 89, 101, 368
Marsais 194, 368
Martin, James 266, 368
Martin of Dacia 169, 368
Martinet 263, 264, 368
Mary of Magdala 14
Mates 61, 64, 368
Mathesius 205, 263–5, 277, 368
Mathieu 175
Matthews 30, 45, 96, 112, 118, 276, 363, 368
Matthiessen 265–8, 368
maxim (Gricean) 40, 43, 55–7, 67, 151, 155, 354–6, 358
Mayan 7, 33, 244, 247
McCawley 43, 51, 55, 182, 284, 337–9, 342, 347, 368
McConnell-Ginet 346, 368
mechanistic linguistics 13, 288, 290–2, 295, 304, 305. See also Bloomfieldian.
medieval See middle ages.
Mel’čuk 193, 360, 368
Ménage 32, 175, 176, 368
Mennye 144, 368
mentalism 284, 286, 301–3
Mesoamerica 246, 249
metafunction 268
metaphor 40, 55, 83, 214, 220, 221, 247, 331
metaphysics 8, 11, 39, 40, 61, 64, 68, 69, 168, 188, 221, 249, 253, 300, 317, 326, 361
Metcalf 208, 368
metre 25, 46, 68
Michael 16, 368
Michaelis 154, 368
middle ages 8, 9, 12, 13, 19, 32, 58, 59, 88, 93, 99, 105, 111, 112, 122, 127–37, 139, 142, 148, 150, 151, 154, 157–9, 161–4, 166, 175, 176, 191, 192, 194, 195, 222, 283, 309, 311, 312, 315, 317, 321, 360, 363
Middle East 19, 25
Mill 281, 320, 321, 323, 331, 344, 350, 360, 368
Milton 143, 368
miniscule 159
Möbius 243
modality 7, 40, 43, 49, 54, 55, 57, 65, 66, 221, 345
modistae 12, 41, 44, 49, 148, 161–75, 184, 187–9, 192–4, 216, 295. See also scholasticism.
monogenesis 231, 233
monostratal 269, 275, 277, 361
Montague, Richard 182, 273, 345, 346, 368
Montague, William 330
Morgan 25, 85
morphophoneme 113, 204, 214, 254, 293–5
morphosyntax 66, 88, 104, 105, 110, 169, 326, 332, 361
Morpurgo Davies 223, 254, 368
Morris 351, 368
Mueller 65
Murray 16, 135, 145, 146, 150, 151, 155, 171, 186, 368
Muses 14, 22, 26, 80, 82, 95, 137
mute 68, 88, 141
Nagel 335, 336
Nahuatl 244
nationalism 82, 128, 143, 152, 177, 213, 222, 231, 235
Native American 14, 176, 213, 239, 241, 244, 245, 284–6
naturalism 29–37, 60, 70, 71, 79, 133, 134, 308
natural semantic metalanguage (NSM) 321, 328–30, 340, 361
Navajo 5
Navest 16, 368
Neale 345, 368
Nebrija 15, 175, 368
Neckham, Alexander 142, 368
neogrammarians 189, 216, 218, 219, 221, 223, 254, 286
Nerlich 325, 352, 368
Newmeyer 363, 368
Newton 151, 281, 284, 286, 298, 368
Nicole 178, 186, 318, 328, 368
Nida 183, 295, 361, 368
Niemeier 251
nominalism 36, 174, 284, 313, 315, 317, 319
Nootka 247
Norse See Scandinavian.
Nyts 251, 368
object-language 43, 110, 194, 276, 283, 290, 294, 299
oblique cases 45, 66, 67, 72, 102, 113, 116, 127, 148, 162, 163, 170, 325
Ockham, William of 37, 42, 174, 314, 315, 317, 318, 321, 368
Ogden 18, 60, 61, 309, 322, 323, 352, 368
Old English 7, 122, 139, 140, 142, 198, 199, 218. See also Anglo-Saxon.
onomatopoeia 31, 33, 63, 81, 90, 225, 230
optative 26, 62, 90, 95, 97, 98, 109, 110, 117, 122, 124, 126, 141, 163, 266, 353
oratory 6, 14, 41, 56, 80–4, 92, 98, 128, 311, 319, 362
Origen 132, 308, 309, 368
origins of languages 14, 22, 30–2, 68–70, 154, 159, 175, 208–10, 223–34
orthography 16, 24, 41, 47, 81, 111, 138, 147, 150, 158, 183, 196–203, 211, 221
Osthoff 218, 219, 368
Otero 190, 368
Ovid 14
Padley 91, 368
Palæmon 83, 93, 96, 98, 368
Palsgrave 61, 175, 324, 368
Pānini 202, 213, 366
paper 25
papyrus 22, 23, 25, 81
paradigm (grammatical) 71, 74, 76, 77, 79, 85, 87, 99, 123, 128, 131, 135, 137–9, 148, 150, 158, 192, 258, 266, 326, 333, 361
paradigm (Kuhnian) 13, 262, 278, 283, 285, 292, 293, 295, 296, 304, 305
Parmenides of Elea 166, 307, 368
parole (Saussure) 7, 257–63, 276, 277, 284, 287, 294
Parkinson 19, 22
parsing 92, 94, 125, 138, 142, 148, 149, 151, 158, 159, 163, 183, 192, 268
Parsons 346, 368
participle 48, 49, 58, 74, 75, 81, 88, 89, 91–8, 103, 104, 113–18, 121, 124, 126, 141, 144, 146, 148–50, 168–70, 174, 179, 188, 189, 193, 230
Passy 18, 202, 203, 368
Paul, Hermann 218, 256–62, 325, 352, 368
Paul (Saint) 132
Paulus Diaconus 138, 159
pedagogy  See teaching.
Pedersen  210, 219, 368
Peirce  18, 280, 281, 344, 349–52, 368
perception  6, 8, 10, 11, 13, 15, 17, 19, 30, 32, 36, 39–41, 43, 55–6, 62, 77, 93, 133, 139, 153, 154, 157, 167–9, 186, 190, 193, 224, 229, 232, 236, 237, 240, 243, 244, 247, 248, 253, 274, 275, 278, 279, 283, 293, 297, 298, 300, 304, 308–11, 313, 319, 320, 325, 326, 330, 340, 342, 351, 352
perfect(ive)  66, 76, 90, 91, 96, 103, 108, 113, 115, 117, 118, 124, 126, 219
performance (Chomsky)  102, 191, 262, 263, 277, 303, 317
performative  109, 347, 353, 354
Persian  208–10
Peter of Pisa  138
Peter of Spain  314
Peters  345, 355, 368
Petrus Helius  163, 170, 368
Petrus Ramus  175, 199, 368
Pfeiffer  84, 86, 87, 92, 368
phatic communion  353
philosophy  5, 11–13, 15, 17, 25, 27, 30, 50, 65, 68, 69, 80, 85, 86, 110, 111, 130, 142, 152, 165, 166, 179, 190, 199, 282, 294, 295, 301, 311, 312, 316, 320, 331, 333, 345, 362
Phocas  137, 138, 158, 196
Phoenician  4, 22, 59, 195, 208, 311
phone  2, 4, 24, 28, 88, 196, 201, 216, 219, 221, 281, 283, 285, 290–4, 305, 326, 361
phonostheme  324
Pictet  254, 368
pictograph  2, 4, 18
Pike  269, 368
Pinborg  63, 64, 66, 84, 105, 368
Pinker  250, 368
Pirsig  280, 281, 368
Pitcher  319, 368
Pitman  182, 202, 368
Plant  14, 15, 368
Platonist  37, 132, 153, 299, 311
Plautus  128, 131
Pliny  132, 186, 368
pluperfect  66, 90, 91, 96, 117, 124
plurigenesis  233
poetics  11, 14, 15, 16, 25–7, 40, 45, 46, 56–8, 67–9, 76, 78, 80–6, 88, 93, 94, 97, 102, 104, 107, 110, 123, 128, 142, 152, 159, 195, 196, 225, 227, 230, 231, 323
Poincaré  281, 368
politeness  9, 15, 128, 144, 147, 268, 350
Pollard  192, 368
Pollux  323, 368
polysemy  40, 291
Pompeius  137, 368
Pope, Alexander  15, 144, 368
Pope (Bishop of Rome)  111, 131, 138, 169
Porphry  132, 311–14, 368
Porter  122, 139, 140
Port-Royal  183, 185, 187, 190, 191, 194
Porzig  258, 327, 368
Postal  7, 299, 300, 336, 338, 368
Prague school  205, 206, 222, 263–5, 326, 327, 361
prayer  50, 62, 109, 117, 122, 140, 320, 353
prefix  89, 91, 96, 99, 105, 113, 114, 119, 126, 142, 148, 150, 170, 178, 204, 214
prehistorical  3, 4, 19, 22, 224, 241
prescriptivism  12, 20, 81, 89, 105, 134, 142, 151, 155, 157, 159, 160, 163, 171, 183, 363
Pre-Socratics  306
presupposition  51, 53, 240, 246, 354–6
Priestley  145, 155, 368
primacy  114, 249, 261. See also priority.
primate  224, 232, 233
primer  93, 131, 136, 137, 142, 158
Prince, Alan  207, 368
Prince, Ellen  265, 348, 352, 369
printing  5, 9, 18, 24, 26, 80, 86, 128, 149, 150, 157, 176, 182, 186, 199, 200, 211, 286, 333
Prior  345, 369
priority  10, 11, 40–2, 44, 57, 64, 74, 89, 99, 103, 105, 118, 127, 162, 163, 183, 184, 188, 193, 209, 221, 230, 234, 257, 276, 277, 283, 284, 297, 298, 304, 338, 345, 349, 359. See also primacy.
Proba  14, 15, 369
Probus  112, 116, 131, 137, 369
Prodicus  308, 369
proper name/noun  24, 63, 75, 78, 94, 97, 99, 101, 113–16, 125, 126, 162, 168, 309, 314, 316, 319, 321, 322, 334, 344, 360
prosody  16, 81, 85, 87, 110, 140, 147, 148, 151, 196, 200, 206, 207, 218, 265, 268, 277
Protagoras  25, 26, 308, 369
Proto-Indo-European (PIE)  176, 210, 217, 219, 220, 254, 261
psycholinguistics  224, 249, 339
psychology  7, 9, 39, 118, 195, 203–5, 226, 228, 231, 241–5, 249, 250, 251, 253, 255–9, 262, 275–7, 286–9, 294, 300–2, 305, 350, 352, 353, 361
Ptolemy  3, 298
punctuation  22–4, 86, 87, 94, 147–9, 151, 323
Pustejovsky  39, 332, 333, 369
Putnam  331, 369
Pütz  251, 369
quantifier  40, 48–50, 53, 78, 115, 123, 141, 314, 344, 45
Quine  344, 369
Quintilian  80–3, 86, 89, 92–4, 98, 111, 128, 152, 369
Rask  210–13, 222, 369
Raumer  213, 369
realism  36, 174, 231, 296, 298, 299, 315, 317
Recanati  359, 369
reciprocal  67, 117, 232
scripta continua 22, 23, 87, 133
Scripture 18, 130, 131, 137–9, 142, 151, 158, 165, 175, 315, 316
Scythian 176, 208
Searle 322, 353, 355, 356, 369
Sechehaye 255, 257, 259, 261, 262, 369
Sedulius Scottus 136, 170, 369
selection restriction 332, 335–7, 339, 342, 361
Selkirk 207, 369
semantic field 134, 135, 258, 325–8, 342, 357, 361
semantic atom (component, prime, primitive) 32, 181, 308, 326–9, 332–5, 338–43, 345, 361
formal semantics 306, 344–7, 362
semiology/semiotics 9, 18, 60, 61, 205, 255, 262, 263, 268, 277, 309, 318, 322, 351
Semitic languages 3, 4, 161, 208, 210, 215, 220
semivowel 88, 93, 141
Seneca (rhetorician) 128, 183
Seneca (language) 252
Sequoyan 130, 132, 133, 309
Sergius 138, 369
Seuren 39, 50, 51, 182, 316, 355, 369
Sextus Empiricus 50, 59, 60, 63, 68, 82, 84, 85, 87, 88, 369
Shakespeare 143, 145, 278, 337, 369
Shapin 159, 369
Shawnee 247, 252
Sheffer 344, 369
Shibatani 350, 369
Sidner 348, 369
Sievers 202, 218, 223, 369
Siwierska 269, 369
Siger de Courtrai 169, 170, 174, 369
signifier 255, 257, 261
signing 5
sincerity (condition) 354–6, 362
Slavic 153, 210, 216
Slobin 251, 253, 369
Smaragdus 131, 138, 369
soames 18, 202, 203, 369
sociology 9, 195, 255, 276
Socrates 25, 26, 30–3, 51, 63, 71, 107, 162, 163, 170, 172–4, 188, 224, 313–15, 360, 369
solecism 26, 67, 81, 94, 104, 106, 121, 130, 131, 142, 145, 146, 153, 174
Sommers 53, 369
sonant 219, 220
sound symbolism 32, 33, 37, 224, 256, 310
Southey 134
speculative grammar 12, 58, 154, 159, 163–9, 171, 174, 184, 187, 192
Sperber 57, 236, 283, 358, 359, 369
square of opposition 52–4
standard language 7, 60, 67, 82, 101, 110, 128, 129, 131, 142, 143, 145, 150–3, 156, 157
standard theory 338
Steinhall 238, 350, 369
stem 72–4, 88, 91, 113, 115, 119, 216, 219
Stern 362, 369
stimulus–response 229, 230, 232, 236, 278, 287–9, 319
Stöcklein 352
Stokes 53
Stokhof 182, 316
Strabo 14
Strawson 51, 320–2, 353, 369
structuralism 9, 13, 205, 254, 263, 276, 292, 305, 324, 363
Stubbs 324, 369
style 41, 43, 45, 56, 58, 67, 82, 83, 85, 92, 94, 101, 105, 125, 128, 142, 145, 146, 151, 152, 153, 155, 175, 183, 186, 194, 277, 307, 324, 358
subcategory See category.
subjunctive 26, 75, 76, 90, 95, 97, 98, 101, 117, 122, 124, 126, 141, 163, 314
substitution 83, 91, 99, 105, 106, 126, 138, 251, 290, 294, 296, 319
Suetonius 14, 68, 132, 369
suffix 72, 73, 79, 88, 89, 113–15, 119, 123, 165, 178, 204, 216, 327, 347
Suida 323
Sullivan 241, 369
Sumerian 2, 363
Summer Institute of Linguistics (SIL) 111
supine 124
suppositio (supposition) 315–17
Süssmilch 230, 369
Swadesh 211, 328, 369
Swales 67, 369
Sweet 202, 203, 205, 206, 222, 257, 261, 369
Sweetser 331, 369
Swift 144, 145, 149, 154, 369
syllable 3, 201
syllable 3, 15, 19, 24, 30, 40, 41, 46, 58, 70, 81, 84, 86–8, 91, 94, 95, 97, 104, 110, 113, 115, 116, 120, 123, 125, 140–2, 147–51, 163, 195, 198–205, 207, 230, 265
syllogism 28, 49, 51, 312, 315, 317, 350
sylistic (Aristotle) 51, 52, 187
Symes 143, 369
synchrony 92, 207, 261, 276, 277, 287
syntagmatic relation 256, 257, 261, 262, 264, 266
Syriac 92, 163
Systemic Functional Grammar (SFG) 192, 254, 265–70, 277
Tagalog 210, 286
Takelma 241
Talmy 243, 253
Tannen 248, 267
Tatwine 136–8, 142, 369
taxonomy 39, 179, 191, 210, 220, 279, 283, 294, 296, 304, 305
Taylor, Daniel 73, 76, 369
Taylor, John 253, 370
Taylor, Talbot 232, 363, 370
teaching 4, 11–14, 18, 20, 25, 26, 30, 35, 37, 45, 57, 58, 60, 80–5, 87, 92–7, 101, 111, 112, 118, 120–3, 125, 128, 129, 131, 132, 134, 136, 139, 142–4, 148, 149, 150, 156–8, 160, 163, 165, 166, 174, 184, 185, 187, 192,
Index

196, 202, 203, 210, 241, 244, 266, 268, 277, 286, 305, 311, 321, 322, 324
Teitsson 196, 370
Teresa of Ávila 15
terminant 171–4, 193
Tesnière 193, 370
terminant 171–4, 193
Thibault 257
Thiébault 350, 370
Thomas of Erfurt 163, 164, 167–74, 370
Thracoian language 210
Thurót 165, 166, 187, 370
Tieken-Boon van Ostade 16, 146, 150, 370
titulus crucis 133, 308
Tohono O’odham 11
Tomlin 265
Tooke 153, 216, 370
top-down processing 282, 283, 295, 304, 344
Trager 289, 290, 292, 370
Traugott 221, 253, 331, 370
transitivity 49, 54, 57, 66, 76, 78, 95, 96, 98, 102, 108, 116, 117, 121, 127, 141, 150, 162, 163, 172, 173, 265, 335, 337, 341
triad 46, 47, 195, 212, 213, 222
Trier 258, 327, 370
trivium 59
Trnka 264, 276, 370
Trubetskoy 40, 46, 204, 205, 370
Truss 155, 370
Tryphon 101, 102, 108, 109, 122
Turkish 2, 153, 215, 286
Twaddell 204, 205, 286, 291, 294, 370
Tyler 279, 370
typology 195, 215, 220, 221, 242, 263, 277, 284, 285
Tzeltal 33
Uhlig 84, 88, 91, 101, 370
Ulfilas 111, 370
Ullmann 360, 370
underlying structure 13, 106, 107, 110, 164, 185, 291, 336
universal (vs particular) 28, 35–7, 40, 50–2, 152, 226, 284, 300, 312–19, 326, 345, 360
usage 60, 65, 68, 71, 81, 82, 85, 86, 102, 128, 129, 131, 149, 151–7, 159, 166, 183, 184, 186, 226, 227, 247, 251, 258, 260, 323, 324, 325, 328, 353
Usher 15, 370
Uto-Aztecan 244
Vachek 264, 370
value See differential value.
Van Valin 106, 192, 253, 254, 269, 273, 274, 370
Varro 13, 31, 32, 45, 59, 60, 68–79, 81, 86, 90–2, 94, 103, 111, 126, 131, 132, 134, 370
Vendler 40, 273, 356, 370
verb phrase (VP) 39, 166, 170, 335, 338
verbal group 266–8
verbal hygiene 155, 160
vernacular 12, 19, 128, 136, 139, 158, 161, 175, 193, 363
Verner 218, 370
verse 83, 124, 125, 143
Vickery 181, 370
Vico 230, 370
Victorinus 137, 311, 370
Viëtor 203, 370
Virgil 14, 68, 83, 114, 120, 124, 128, 131, 143, 193, 370
Virgilius Maro grammaticus 136, 138, 370
Vives y March 317, 370
vocabulary 15, 37, 48, 69, 77, 131, 135, 137, 139, 143, 145, 158, 182, 194, 209, 211, 229, 232, 240, 266, 282, 322, 327–9, 334, 335, 340, 341, 357
vocative 62, 75, 76, 90, 95, 98, 103, 116, 118, 122, 123, 150, 169, 189, 353
voice (grammatical) 48, 64, 66, 78, 90, 92, 95, 96, 98, 108, 117, 124, 170, 213, 320
voicing (phonetic) 4, 32, 47, 88, 169, 199–201, 206, 212, 218, 219
vowel 3, 4, 7, 24, 46, 52, 68, 78, 85, 87, 88, 93, 110, 113, 116, 123, 125, 141, 142, 147, 196–201, 203, 204, 206, 213, 215, 218–21, 254, 261
Vulgar Latin 11, 93, 96, 98, 99, 111, 131, 144
Vulgate 12, 111, 130, 131, 142, 158
Vygotsky 352, 370
Wall 345
Warren 16
Waterman 136, 176, 219, 220, 370
Watson 155, 370
Waugh 201, 206, 370
Weber 255, 370
Webster 145, 157, 324, 370
Wegener 352, 370
Weinreich 324, 329, 334, 338, 339, 347, 370
Weisgerber 258, 327, 370
Weiss 288, 370
Welby-Gregory 17, 18, 325, 351, 352, 370
well-formedness 61, 120, 122, 164, 173, 174, 192, 206, 269, 283, 317, 329, 337, 338
Wells 262, 370
Wernicke 255, 257, 259, 370
Wettstein 345, 370
Wheeler 143, 370
Whitaker, C.W.A. 39, 42, 53
Whitaker, Katie 17, 370
Whiten 226
Whitney 238, 239, 243, 255, 256, 258, 259, 261, 262, 325, 352, 370
Whorf 8, 13, 19, 41, 224, 229, 237, 240, 242–53, 295, 370
Wierzbicka 43, 192, 253, 329, 370
Wilkins 176, 177, 179–82, 194, 202, 324, 326, 328, 370
Wilkinson 15
William of Conches 163, 164, 370
William of Sherwood 314
Wilson 57, 236, 283, 358, 359, 370
Wishram 2
Withers 144, 145, 154, 155, 370
Wittgenstein 290, 320, 321, 331, 349, 353, 370
Worden 232
worlds (spoken of, modelled) 65, 66, 78, 307, 309, 310, 313, 316, 319–22, 326, 329, 332, 334, 342, 343, 346, 348, 349, 360
Wray 324
Wright Joseph 111, 222, 324, 370
Wright, William 34
writing systems 1–4, 10, 18, 19, 22–5, 177–83. See also orthography, script.

Yana 244
Yáñez-Bouza 145, 370
Young 208, 370
Index

Yucatec 247, 251
Yup’ik 240
Zadeh 51, 370
Zeno 59, 370

Zipf 240, 370
Zola 259, 370