

## COLLECTIVIZING\*

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*Collectivizing is the process which results in hunted animal nouns being used in the unmarked (singular) form for plural reference and with plural concord even though a normal plural form may exist and be used. Collectivizing is limited to animals that were hunted for food and, subject to a contextual constraint, it extends to some animals hunted for sport. Collectivized nouns are compared with formally and/or semantically similar collective and uncountable nouns. It is suggested that the language user employs the pragmatic 'k-principle' in determining whether it is possible and significant to refer to individuals in the donotata, or preferable to use the unmarked 'k-forms'. A range of data are discussed in the light of this hypothesis; in particular, meat nouns are said to be in k-form because the animals that meat comes from are not significant as individuals, cp. I like lamb, I like lambs. It is finally suggested that animals hunted for food are collectivized (i.e. in k-form) just because they were seen to be significant as the source of meat and not as individual animals; by analogy with them some animals hunted for sport came to be collectivized, but only in hunting contexts. This accounts for the fact that pets and beasts of burden, which are not a source of food and are significant as individuals, are not collectivized.*

1. 'On the way back to camp we sighted two giraffe on the other side of the river, which were coming down to the water's edge to drink.'  
(Arkell-Hardwick 1903, 285)

The interest of this quotation is that 'giraffe' is not plural in form although it is preceded by a numerative greater than one; it has plural concord with 'were,' and it has plural reference. In fact it could just as well be in plural form without effecting any change in syntax or meaning. The same is true for the animal names in the following quotations:

2. 'A three-month shooting trip up the White Nile can offer a very good mixed bag, including, with luck, Elephant, Buffalo, Lion, and two animals not found elsewhere: Nile or Saddle-back (Mrs. Gray's) Lechwe and White-eared Kob.'  
(Maydon 1951, 168)  
'Hippo are hardly worth considering' (ibid. 31)  
'We disturbed eight giraffe near camp' (Curtis 1923, 51)

In this paper we shall be considering animal nouns like these, which permit plural reference (and then require plural concord<sup>1</sup>) without the use of a plural form, even

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when one exists. Such nouns have been classified in many grammars of English as 'collectives' because of their similarity to nouns like *cattle*, which are also not marked for plurality and yet refer to more than one real world object, cf. Jespersen (1914, §§3. 1-3. 4), Poutsma (1914, 250-6), Sweet (1898, §§1966-69), Zandvoort (1972, §§226c, 259). But a sub-classification is useful. Nouns like *cattle* refer to a collection, defined as a set consisting of at least two members and usually more; they may be called 'collection nouns.' The animal nouns we are considering are rather different: they may refer to individuals as well as collections (cf. *a giraffe* but not \**a cattle*<sup>2</sup>) and they typically have plural forms in addition to the collective form; the latter I therefore prefer to call *collectivized*. The term 'collective' then remains free to be used as the hyperonym for both collectivized and collection nouns. It is my purpose here to examine the conditions on collectivizing and suggest a possible reason for the existence of such a phenomenon.

The quotations in (1) and (2) all come from descriptions of game hunting, and there appears to be a general constraint in English which limits collectivizing to nouns that refer to members of the set of animals and birds hunted for food or sport but not as vermin; cf.

3. Exotic game: *antelope, bear, bongo, buck, buffalo, bushpig, crocodile, eland, elephant, giraffe, gnu, hippo, hippopotamus, kudu (koodoo), leopard, lion, nyala, panther, rhino, rhinoceros, sambur, tapir, tiger, warthog, zebra.*
4. British wild mammals: only *roe, roebuck* and *deer* are collectivized.
5. Mammals, reptiles, and amphibia whose plural is always marked by an overt plural morpheme: *badgers, foxes, frogs, hares, hedgehogs, hyenas, jackals, lizards, moles, otters, rabbits, rats, snakes, toads, turtles, wild dogs, kinds of monkeys.*
6. Hunted birds: *black cock, coot, -fowl, francolin, grey hen, guinea hen, land rail, mallard, moorhen, ostrich, pheasant, pintail, ptarmigan, quail, ringed plover, snipe, teal, tufted duck, widgeon, woodcock.*
7. Other birds whose plural is always marked by an overt plural morpheme: *bee-eaters, blackbirds, crows, eagles, falcons, finches, flamingoes, hawks, hoopoes, larks, orioles, owls, rooks, sparrows, swallows, thrushes, vultures.*

Many further examples may be adduced to these lists.<sup>3</sup> The frequency with which collectivizable animal nouns are to be found with an overt plural morpheme varies idiosyncratically, although it seems generally lower among bird nouns than other animal nouns; plural marking of *deer, goral, kudu, snipe, teal*, for example, is very rare.<sup>4</sup> Interestingly, none of the order names like *carnivore, rodent* or *ungulate* may be collectivized.<sup>5</sup>

Reading through the relevant literature one discovers a wide individual variation in the use or non-use of the overt plural morpheme with hunted animal nouns; for example, Lydekker (1908) regularly uses an overt plural morpheme where other authors would collectivize, and he is by no means alone. In (5) *hyenas* and *kinds of monkeys* are said to require an overt plural morpheme, but Lyell (1923, 211) writes 'I have not said much about zebra, gnu, leopard, warthog, bushpig, baboon, crocodile and hyena . . .'. The explanation may simply be that one man's game is another man's vermin! Even within a book it is not rare to find both collectivized and plural

forms of the same animal noun; for example, within two sentences of the above quotation Lyell uses 'zebras,' but a little later 'zebra'—the collectivized form—again. Such variation does not correlate consistently with any particular position of the noun in a sentence although, for instance, lists of animals are more likely to contain collectivized nouns than the same nouns to occur collectivized alone in subject position. I think it is correct to deduce from all this that the phenomenon of collectivizing animal nouns is unstable and can lead to vacillation in the use of noun forms, such as is manifest later in this essay by my use of *fish(es)* to indicate the plural of *fish*.

The set of collectivized animal nouns contains none referring to domestic animals; thus, Curtis (1923) mentions 'a pair of zebra' (p. 71) but 'a pair of oxen' (p. 99). However, we need no other authority than our knowledge of English to confirm that it is impossible to make collectives of *budgerigar*, *cat*, *dog*, *donkey*, *goat*, *mule*, *ox*, *parrot*, *turkey*, *chicken*,<sup>6</sup> *cow*, *bull*, *pig*,<sup>7</sup> *horse*,<sup>8</sup> etc. It is the general constraint on collectivizing, limiting its application to hunted animal nouns, which prevents the collectivizing of domestic animals. Consider the effect of this constraint in determining the most natural interpretation of each of the following sentences:

8. The farmer shot some duck. (Unstressed 'some' /sm/)
9. The farmer shot the duck.
10. The farmer fed the duck.
11. The farmer fed the ducks.
12. ?\*The farmer fed some duck. (Unstressed 'some' /sm )

Involved in the derivation and interpretation of these sentences are certain assumptions we make about farmers' behaviour that may either support or conflict with the stated constraint on collectivizing. The first assumption ( $A_1$ ) is that if a farmer shoots a duck, it will be a wild duck (+w);<sup>9</sup> hence we suppose that assumption  $A_1$  entails reference to wild duck and, for convenience, I shall symbolize this  $A_1 \supset +w$ . The second assumption ( $A_2$ ) is that a farmer feeds only domestic ducks (-w) and not wild ones; hence we suppose that assumption  $A_2$  entails reference to one or more domestic ducks, and I symbolize this  $A_2 \supset -w$ . Bearing these assumptions<sup>10</sup> in mind, we will consider each of the above sentences in turn.

8'. Here  $A_1 \supset +w$  and we expect reference to wild duck. 'Some duck' has plural denotation (+p) but singular form (-s), it therefore exemplifies collectivizing ( $c \supset +p$  & -s) which, under the stated constraint, implies reference to wild duck ( $c \supset +w$ ). Thus the entailments of both  $A_1$  and the collectivizing constraint support one another to give the most natural interpretation of 'duck' as 'wild duck.'

9'. Here  $A_1 \supset +w$  and we expect reference to wild duck. Because of this the singular form (-s) of 'the duck' may have either singular or plural reference ( $\pm p$ ) and (9), in its most natural interpretation, is ambiguous in this respect. But should  $A_1$  be violated such that reference is made to a domestic duck, then the singular form will imply singular reference,  $-w \supset (-s \supset -p)$ ; this, however, is an unnatural interpretation.

10'. Here  $A_2 \supset -w$  and we expect reference to domestic duck. Under this condition,  $-s \supset -p$  and the most natural interpretation is that reference is to a single domestic duck. But should  $A_2$  be violated such that reference is made to wild

duck, then  $-s \supset \pm p$ ; this, however, is an unnatural interpretation. The conditions on the derivation and interpretation of (10) are the converse of those on (9).

11'. Here  $A_2 \supset -w$  and we expect reference to domestic ducks. Under this condition  $+s \supset +p$  and the most natural interpretation is plural denotation of domestic ducks. But if  $A_2$  should be violated such that reference is made to wild duck, this unnatural interpretation has no effect on the understood plural reference of 'ducks' because plural reference of a  $+w$  noun either may or may not be expressed by an overt plural morpheme ( $+w \supset \pm s$ ).

12'. Here  $A_2 \supset -w$  and we expect reference to one or more domestic ducks. Under this condition, we expect  $-s \supset -p$ , but in fact we have collectivizing ( $= -s \ \& \ +p$ ), and  $c \supset +w$ . Hence we have conflict between the entailments of  $A_2$  and the collectivizing constraint, which give, respectively,  $-w$  and  $+w$ ; and so there is no natural interpretation of (12). 'The farmer fed a number of domestic ducks' seems to be impossible as an interpretation, and the best that can be made of (12) is an unnatural interpretation that 'the farmer fed a number of wild duck'—perhaps in the context of a hard winter. And so we see that the general constraint on collectivizing can over-ride our assumptions about farmers' behaviour, but not vice versa. Until we have a satisfactory overall account of the pragmatics of the English language it is not clear what value can be placed on this conclusion, but I speculate that the general constraint on collectivizing is a strong one.

A subset of the nouns which fall within the general constraint, mainly nouns referring to exotic game animals, is subject to the further constraint of being collectivized only in certain contexts<sup>11</sup> associated with the notion of hunting. It is probable that there was originally a restriction to the context of hunting with weapons which came to include game rearing and the preservation of game for the hunter; in more recent times the scope of the constraint has expanded to cover hunting with a camera and game conservation. Hence in reports of animals observed in nature reserves, particularly by game rangers and cognoscenti, one finds many examples of collectivizing. Zoos, however, have a rather different status. Notice the gradation in acceptability of sentences (13) to (16):

13. We bagged three elephant that day.
14. We observed three elephant in the game park.
15. ?We saw three elephant in the game park.
16. ?\*We saw three elephant at the zoo.

The difference between (14) and (15) lies in the probable utterance characteristics of the two sentences evoked by the respective connotations of *observe* and *see*. We would predict that (14) was uttered by a cognoscente in some appropriate context, so satisfying conditions on its acceptability. We would not be so certain about the utterance characteristics of (15); it could be like (14) or it could be like (16). Note that (16) appears to be the remark of a casual visitor to the zoo, and it is unnatural because it flouts the contextual constraint on collectivizing; if uttered (16) would sound either facetious or precious; compare it with:

17. We have reared three white rhino at the London Zoo.

Assuming that (17) were spoken by someone like a zoologist from the London Zoo

within an appropriate context it would be perfectly acceptable. It is not the case that the language of cognoscenti is not subject to the same constraints as that of other speakers, but simply that they will normally be operating in the right context when making such utterances.

To summarize the discussion so far: collectivized nouns are formally similar to non-collective countables in that (i) the singular form refers to an individual referent, (ii) the plural form refers to a number ( $n \geq 2$ ) of referents, (iii) they freely take numeratives; they are similar to collective nouns in that the singular form may have plural reference. But they differ from other collectives: they differ from countable collection nouns like *herd* in that the singular form of these collection nouns refers to a collection not an individual referent, and the plural form refers to a number ( $n \geq 2$ ) of collections; they differ from quasi-countable collection nouns like *cattle* which (i) never refer to an individual referent and do not concatenate with *one* or *a*, (ii) do not normally concatenate with specific numeratives, cf. ?\**There are six cattle in that field* is very odd, but see Poutsma (1914, 281); non-specific numeratives e.g. *very few cattle* are acceptable and a borderline case is ?*about 700,000 cattle*. There is a general constraint on the collectivizing of animals which limits it to the set of animals and birds hunted—in times past if not at present—for food or sport (i.e. for trophies like feathers, skins, tusks, etc.); there is a further contextual constraint which restricts the collectivizing of a proper subset of this set (consisting of exotic animals and some others) to the context of hunting or, antithetically, conservation. The likelihood of a member noun being collectivized varies idiosyncratically on a scale from most unlikely (e.g. *hyena*) to most likely (e.g. *teal*). See Figure 1.

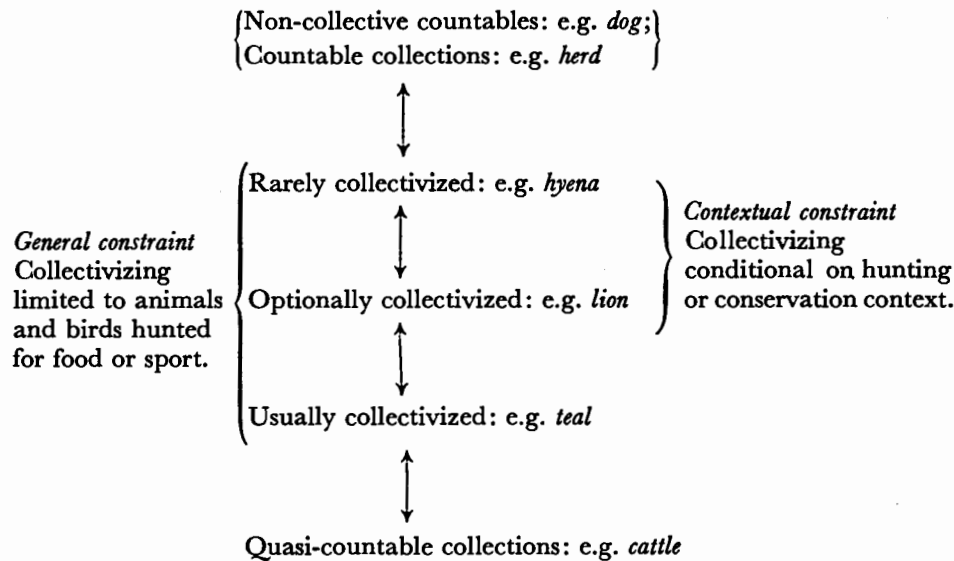


FIGURE 1. The two-headed arrow indicates that the subcategories form a continuum. *Collectivizing is subject to idiolectal variation and inconsistency within idiolects.*

Like nouns referring to wildfowl, fish nouns are subject to the general constraint on collectivizing but not to the contextual constraint; but whereas with hunted animals and birds the presence or absence on the noun of an overt plural morpheme under the stated constraints has no semantic effect, this is not the case with fish nouns, as can be seen from the following:

18. 'The cat-fishes, of which there are about fifty distinct forms arranged in four families, constitute the largest group, with probably the greatest number of individuals per species. In some parts of the country, where nets are little used and fishing is mainly done with traps and long lines, at least three-quarters of the annual catch is of cat-fish.' (Welman 1948, 8.)

Here, within the length of two sentences, we find both the form with an overt plural morpheme and the collective form. What is more, this quotation makes it plain that 'cat-fishes' refers to different species of cat-fish(es) whereas 'cat-fish' refers to individuals (from one or more species) caught by fishermen. This distinction in the scope of reference between the form with an overt plural morpheme and the collective form is obvious to anyone who cares to examine ichthyological literature; for example:

19. 'Butterfly fishes  
Butterfly fishes (freshwater)  
Butterfly fish, striped  
...  
Carp, African  
Carps, toothed  
...  
Herrings  
Herring, dog-toothed  
...  
Horse mackerel, African  
Horse mackerels  
Horse mackerel, thread-fin  
...  
Mullet, grey  
Mullet, grey (golden)  
Mullet, grey (lagoon)  
...'

(Irvine 1947, Index).

And cf. Cooper (1934), Copely (1952), Davis (1953), Welman (1948). In Davis we find a chapter entitled 'The Propagation of Pacific Salmons' and within its first paragraph:

20. 'Salmon, like trout, build nests' (Davis 1953, 83).

'Salmon' here has plural reference (and concord) and it is generic. We find both the collective form and the form with an overt plural morpheme used of fish nouns for generic reference, the sense of the former being something like 'the genus is a set

of member fish' and of the latter 'the genus is a set of subsets (= species) of fishes.' The two forms seem to be in free variation, cf.:

21. Herring travel in large shoals.
22. Herrings travel in large shoals.

Likewise the class term *fish/fishes*, which also has two forms and two senses with identical reference. *Fishes* is typically used when a number of species or genera are being referred to, for example in the book titles *The Game Fishes of Africa, Culture and Diseases of Game Fishes, Preliminary Survey of the Freshwater Fishes of Nigeria*. However, we also find *fish* used with the same kind of reference in *The Fish and Fisheries of the Gold Coast*; the use of *Fish* instead of *fishes* in this title (of the book from which (19) is quoted) is presumably a matter of style, it does not seem to be motivated by any other consideration. In the index of this same book (Irvine 1947) we find 'Cat-fish, sea' but the text indicated refers to 'sea cat-fishes': this is possibly a typographical error, but the explanation is more likely to lie in the variability of usage characteristic of collectivized animal nouns.

Most fish nouns are obligatorily collectivized when they have plural reference, and the adjunction of an overt plural morpheme indicates reference to a number of species instead of a number of individuals. I will label this latter characteristic the *PS-factor*. The PS-factor is also exhibited by many so-called 'uncountable' nouns that do in fact appear in plural form when reference to a number of species, types, or kinds of the substance is intended; interestingly, the referents of some of these nouns are collective in nature. Consider the following examples:

23. *Bamboo*. McClure (1966) *The Bamboos: A Fresh Perspective*, passim.
24. *Coffee*. Haarer (1962) 'Although the Arabian and "robusta" coffees provide most of the world's trade in coffee, the "excelsa" coffees have been taken to most countries in the tropics where they are grown in botanical gardens or small patches.' (p. 21) 'There are two other coffees found in Asia . . .' (p. 29) etc.
25. *Cotton*. Barre et al. (1947) *Better Cottons*.  
U.S. Department of Agriculture (1950) *Revised Micronaire Fiber-Fineness Scale for Use in Testing American Upland Cottons*.  
U.S. Department of Agriculture (1955) *Annual Varietal and Environmental Study of Fiber and Spring Properties of Cottons*. Etc.
26. *Tea*. Eden (1958) 'Non-wither Teas,' (pp. xii, 149, 166).
27. *Wheat*. Finlay and Shepherd (1968) 'The Origin of the Cytoplasm of Tetraploid Wheats . . . It is believed widely that the A genome of emmer wheats has been derived from einkorn wheat.' (p. 141) 'The wheats were predominantly *Triticum aestivum* ssp. *vulgare* types but many species and subspecies of the tetraploid and hexaploid levels of *Triticum* were obtained.' (p. 159). Etc.

Because these so-called 'uncountable' nouns are in fact to be found in plural form, I dub them *pseudo-uncountables* to distinguish them from true uncountables like *thunder* and *heat*, and pluralia tantum like *scissors*.<sup>12</sup>

It is not only vegetable nouns that are pseudo-uncountable and exhibit the PS-factor, so do other kinds of concrete nouns; for example, human nouns like *people*, and non-living nouns like *wine, wood, soil, ore*:

28. The people of America.
29. The peoples of America.
30. He has a cellar full of wine.
31. He has a dozen different wines in his cellar.

(28) refers to the community or nation of Americans; (29) to the communities or ethnic groups within America, e.g. Caucasians, Indians, Negroes, etc. (30) refers to the wine as a whole, as a substance distinct from any other such as, for instance, coal (31) refers to different types or kinds of wine. Many further examples could be adduced to illustrate that pseudo-uncountables share with the set of obligatorily collectivized hunted animal nouns the characteristic I have called the PS-factor.<sup>13</sup>

Before further investigating the relationship between pseudo-uncountables and collectivized nouns it will clarify matters to bring Figure 1 up to date. The view of the noun subcategories and their interrelations presented in Figure 2 (p.107) summarizes the discussion so far and informs that which follows.

Observe in Figure 2 that collective nouns may be either fully countable (e.g. *herd*) or quasi-countable like *cattle*. They may also be pseudo-uncountable. We have noted two kinds of overlapping between the set of pseudo-uncountable nouns and the set of collectivized nouns: one is the PS-factor; the other is that some pseudo-uncountable nouns are, in their singular form, semantically collective in that their referents are readily separable into 'natural units,' cf.:

32. coffee: beans, grains, grounds, . . .
33. sand: grains, . . .
34. sugar: granules. . . .
35. wheat: stalks, ears, grains, . . .

Despite the fact that the singular form of pseudo-uncountables like those above denotes a plurality of 'natural units,' it has singular concord with the verb, cf.

36. The wheat is growing.
37. \*The wheat are growing.

But the collective form of the collectivized noun, which also refers to a plurality of 'natural units,' does have plural concord with the verb and so 'elephant' is collective in (38) but not in (39):

38. The elephant are downwind of us.
39. The elephant is downwind of us.

Why is it that (37) is incorrect but (38) is not? If there is a satisfactory answer to this question, it should throw light on the typical concord possibilities of the singular form of countable collection nouns like those exemplified in the following sentences.

40. The herd is/are moving off.
41. The public is/are stupid.
42. The government is/are in trouble.
43. The committee is/are overawed.



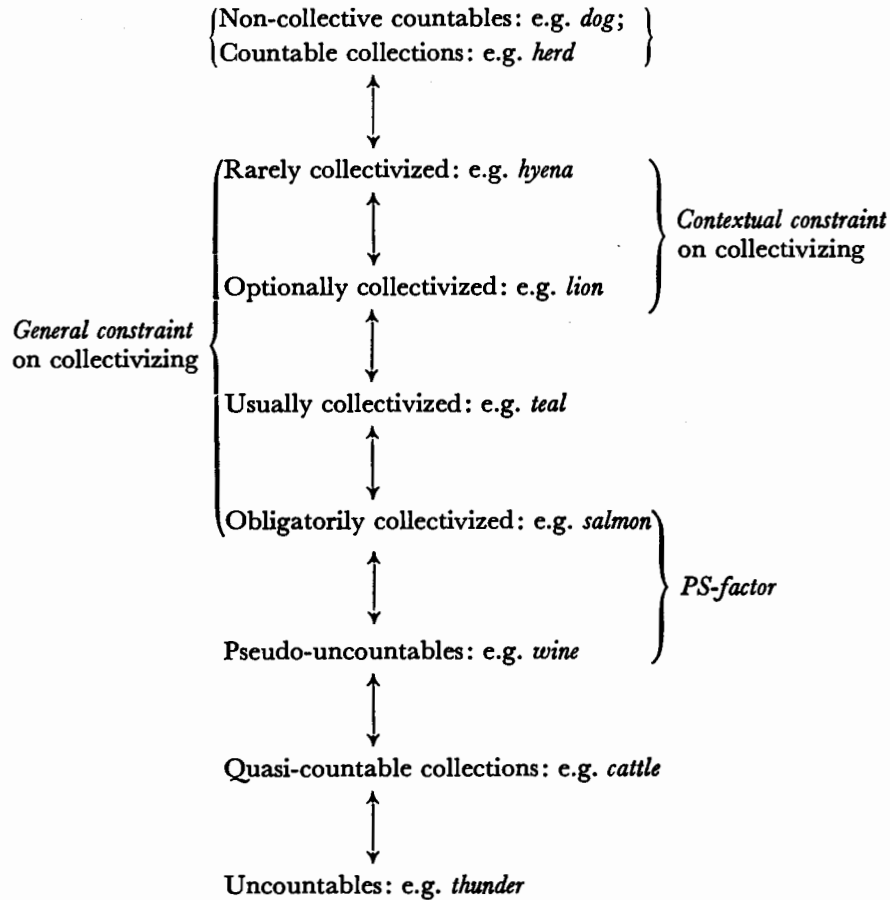


FIGURE 2.

See Poutsma (1914, 284-94) for many more examples. The traditional explanation for the concord possibilities of countable collection nouns is, essentially, that two categories of reference are manifest: countable collection nouns with singular concord make intensional reference, i.e. refer to the collection as a whole; in singular form but with plural concord<sup>14</sup> such nouns make extensional reference, i.e. refer to every member within the collection. With some predicates either extensional reference or alternatively intensional reference is mandatory; cf. (44), (45) respectively:

44. The committee  $\left\{ \begin{array}{l} *was \\ were \end{array} \right\}$  each given a medal.

45. The committee  $\left\{ \begin{array}{l} was \\ *were \end{array} \right\}$  composed of scholars.

But in (40)–(43) the distinction between the two categories of reference is irrelevant; it is neither intended nor understood, and the concord possibilities are in free variation.<sup>15</sup> Looking back to (36)–(38) we see that collective pseudo-uncountables have intensional reference whereas collectivized hunted animal nouns have extensional reference. An explanation for this is given below.

In trying to account for collectivizing and countability, intensional and extensional reference to collections, it is necessary to assume that the characteristics of the phenomena to which nouns refer, or more exactly the language user's view of these characteristics, has a place in the determination of linguistic categorization. Just such an assumption informs the semantic descriptions of parts of speech in many traditional pedagogic grammars, and more recently, the claims made by generative semanticists about the nature of co-occurrence constraints. Hence, to explain collectivizing and countability I postulate the following pragmatic principle:

46. There is one principle, the *k-principle*, for assigning both uncountable and collective representations to denotata: either the composition of the substance denoted by the noun does not readily permit division into 'natural units,' or, if this is not the case, then such 'natural units' are not regarded as significant—either ordinarily, or in a particular context—by the language user.

For example, liquids are not composed of 'natural units' so far as the ordinary language user is concerned; liquids are therefore normally referred to by 'uncountable' nouns: the exception is when artificial units exist as in:

47. Give me three milks please.  
48. Give me three beers please.

'Milks' means bottles, cartons, or cans of milk; 'beers' means bottles, cans, or glasses of beer. Similarly with certain other 'uncountables':

49. Give me three sugars please.  
50. Give me three coffees please.

'Sugars' means lumps (cubes) or spoonfuls of sugar; 'coffees' may mean spoonfuls of coffee, but usually means cups of coffee.<sup>16</sup> This pragmatic unitizing of pseudo-uncountables into significant artificial units highlights the comparative insignificance, in most contexts, of one of the 'natural units' of the denotata of nouns like *coffee, sugar, tea*, etc. [cf. (32)–(35)]. Such nouns are collective terms for a mass of 'natural units' which can be referred to as *beans, grains, leaves*, etc., but which are not ordinarily significant enough as individuals to merit a simple noun as a common term of reference, and can only be referred to by means of a compound noun or a phrase such as *coffee bean, grain of coffee*, etc. The situation is exactly analogous to the fact that in one language a simple noun has denotation which can only be expressed by means of a compound noun or a phrase in some other language. For example, in Eskimo there are the simple nouns:

51. a. aput  
b. qana  
c. piqsirpoq  
d. qimuqsuq

denoting what we would have to describe using more complex constructions in English, viz.:

52. a. snow on the ground
- b. falling snow
- c. drifting snow
- d. snow drift

cf. Boas (1968, 177). These facts are usually explained in terms of the following hypothesis: the Eskimo environment makes it significant for Eskimos to distinguish various kinds of snow by simple nouns, whereas the environment in which the English language developed presents no real need for such nouns. (That there is no resulting limitation on the capacity of the English language to describe perceived phenomena is shown by (52); this could be regarded as evidence for pragmatically motivated lexical gaps.) The point to be taken is that natural phenomena are linguistically categorized according to those of their characteristics that are significant in a particular context or set of contexts; so that both interlingually and intralingually the (apparently) same phenomena may be referred to by one linguistic form in one environment or context, and by another, perhaps more complex form or construction, in another. The k-principle is a restricted application of this general principle.

In English the common domestic bovines may be referred to by the individuating nouns *cow* and *bull*, or by the collective noun *cattle*. The differing etymologies of these two kinds of nouns will explain how they came to exist, but their continuing to be used in English must be a consequence of the individuating nouns being significant in some contexts, the correlative collective nouns in others (for instance, when gender is irrelevant). A similar explanation holds for nouns whose k-form, that is the form derived by application of the k-principle, is identical with the singular form of the countable noun, e.g. *brick*, *hair*, *stone*, etc. Compare the following:

53. The rioters threw stones.
54. The statue is made of stone.

Only individuated objects are significant in the context of (53) whereas for (54) the kind of substance used is significant; and doubtless it is because where possible one throws objects rather than kinds of substance<sup>17</sup> that (53) is correct but \**The rioters threw stone* is not. To investigate the relationship between the k-form and its countable correlative we might revealingly compare (54) with

55. The statue is made of stones.
56. The statue is made from a stone.

The relevant context of (54)–(56) is entirely constrained by the characteristics of the particular statue denoted, so our discussion of these sentences turns on the meaning of their object noun phrases. The differences are brought out in the following paraphrases:

- 54'. The statue is made of something which is stone.
- 55'. The statue is made of some things which are  $\left\{ \begin{array}{l} \text{objects which are stone.} \\ \text{stone objects.} \end{array} \right.$

- 56'. The statue is made of something which is  $\left\{ \begin{array}{l} \text{an object which is stone.} \\ \text{a stone object.} \end{array} \right.$

Notice the adjectival use of 'stone' in (55') and (56'): this is structural confirmation of the often remarked adjectival connotation of the k-form. In (54) the k-form is interpreted as referring to a kind of substance, whereas in (53), (55) and (56) the correlative countable does not: the explanation for the different interpretations of the two forms is seen by comparing (54') with (55') and (56'); 'stone' in (54) is not a predication mediated through an object, it therefore has significance as a kind of substance and not as a kind of individual.

Similarly the animal as foodstuff is significant as a kind of meat but not as an individual animal: that is why meat terms are k-forms, cf.:

- |     |                |   |                   |
|-----|----------------|---|-------------------|
| 57. | I like         | } | lamb              |
| 58. | I like eating  |   | rabbit            |
|     |                |   | chicken           |
|     |                |   | duck              |
|     |                |   | beef              |
|     |                |   |                   |
| 59. | I like         | } | lambs             |
| 60. | *I like eating |   | rabbits           |
|     |                |   | chickens          |
|     |                |   | ducks             |
|     |                |   | cows/bulls/cattle |

(57) may only be paraphrased by (58); in both of them the significant aspect of the animal is its flesh, i.e. it is only favoured as a kind of meat, and both are therefore quite different in meaning from (59) where it is the individual beasts that are favoured. The unacceptability of (60) appears to prove the impossibility of a countable form where the significance does not lie in the animal itself. But there are other factors to take into account: we might notice that sentences like (60) are acceptable in fairy stories where the non-human subject will ingest the whole animal at one meal, and in fact some sentences like (60) with human subjects and plural nouns as objects are acceptable, cf.:

- |     |                 |           |
|-----|-----------------|-----------|
|     |                 | bananas   |
|     |                 | eggs      |
|     |                 | kippers   |
|     |                 | oranges   |
| 61. | I like (eating) | oysters   |
|     |                 | pilchards |
|     |                 | potatoes  |
|     |                 | sardines  |
|     |                 | shrimps   |

The difference between (61) and (57), (58), (60) is that in these latter three sentences the human subject will normally eat only a part of the animal object at one meal, whereas in (61) the human subject will normally eat one or more of the food objects at one meal.<sup>18</sup> Put another way, it is the individual 'natural units' which are significant in the case of the food objects in (61), but not in (57), (58) or (60): and where the 'natural units' are not significant, the k-principle operates.

I assume it was the k-principle which originally motivated the collectivizing of hunted animals (see Figure 2 and the discussion preceding it): the hunter was not primarily interested in animals as individuals, what was significant to him was either flesh for food or horns, skins, tusks, feathers, etc., for trophies; in other words the k-form was used because the 'natural units' were not significant to the hunter.<sup>19</sup> But whereas this explanation is quite adequate to account for those nouns which are only collectivized in the context of hunting (and, more recently, conservation), it does not so obviously apply to those nouns that fall within the general constraint but outside the contextual constraint on collectivizing: such nouns, mostly bird and fish nouns, are either usually or obligatorily collectivized in all contexts. The interesting difference between these nouns and the ones subject to the contextual constraint is that birds and fish(es) are hunted for food as well as sport, whereas exotic animals are primarily hunted (by native speakers of English, anyway) for sport and not food. Hunting for food phylogenetically antedates hunting for sport, and we would expect collectivizing to apply first to animals hunted for food and then, by analogy, to those hunted for sport, perhaps with special constraints placed on the collectivizing of non-food animals. If this hypothesis is correct, it not only explains the contextual constraint on collectivizing exotic animals, and perhaps the fact that it is optional to do so, it also explains the fact that vermin are not collectivized even though they are hunted. Thus we conclude that the k-principle applies in all contexts to many nouns referring to animals hunted for food, and by analogy, though only under the contextual constraint, to nouns referring to animals hunted for sport.<sup>20</sup>

Presumably, the k-principle applies with animals hunted for food just because they are significant as kinds of food and not as individual animals. I am proposing, then, that the motivation for using the k-form to refer to animals hunted for food is the same one that results in the k-form being used to refer to meat, cf. the discussion of (57)-(61).<sup>21</sup> The difference in reference between meat nouns and collectivized hunted animal nouns gives rise to syntactic differences: the meat noun refers to a kind of substance, it is therefore uncountable and has singular concord relations, cf.:

62. Beef is cheap this week.  
63. \*Beef(s) are cheap this week.

By definition collectivized hunted animal nouns refer to a collection; hypothetically this allows for either intensional or extensional reference to be made, but in fact with the collectivized noun alone only extensional reference is possible:

64. Some partridge  $\left\{ \begin{array}{l} \text{*is} \\ \text{are} \end{array} \right\}$  in that field. (Unstressed 'some' /sm/) <sup>22</sup>

It is possible to make intensional reference to a collection of hunted animals by means of a construction involving a countable collection noun which refers to the collection as a unit, cf. *herd of N*, *flock of N*, *covey of N*, etc.<sup>23</sup> The situation is the converse of that which obtains with respect to collective pseudo-uncountable nouns like *wheat*, cf. (36)–(37), which make intensional reference:

65. Sugar  $\left. \begin{array}{l} \text{is} \\ * \text{are} \end{array} \right\}$  getting more expensive.

For the sake of argument let us allow that the extensional definition of the denotata of collective pseudo-uncountables involves reference to their 'natural units': this can only be achieved by means of constructions like *grain of sugar*, etc. We suggested in the discussion of (47)–(52) that the reason for the linguistic expression of the 'natural unit' being more complex in form than the collective pseudo-uncountable noun is its comparative insignificance in most contexts. The same argument may apply to the difference between *covey of partridge* and *partridge*, etc. The 'natural units' of the denotata of the collective pseudo-uncountable noun (e.g. *sugar*) are ordinarily insignificant out of the collection, hence only the collection as a whole is significant and we have intensional reference. The members of a collection of hunted animals, however, are each significant in themselves outside of the collection (undoubtedly size has something to do with it), hence we have extensional reference. Unfortunately, this seems to conflict with the claim that hunted animals are collectivized just because they are *not* significant as individuals to the hunter. In fact there is no conflict. The option of making intensional or extensional reference to a collection does not arise until the collection exists; hence the k-principle, which gives rise to collectivized hunted animal nouns, operates before (and so independently of) the principle for assigning one or the other category of reference. Conversely, the scope of the latter principle is restricted to the collection that results from k-formation, and is independent of any decisions that led to k-formation. Thus there is no conflict.

We have associated the differences in the concord relations of different kinds of collectives with intensional and extensional reference and attempted to explain the two categories of reference in terms of the language user's view of the significance of the natural phenomena denoted. The purpose was to show that the concord relations of collectives are not merely arbitrary, but result from the application of an underlying principle (however nebulous). There is good reason to suppose that the Whorfian hypothesis is a relevant consideration in this matter, and that the conventions of the English language induce specific interpretations of natural phenomena not necessarily prevalent in other language communities; thus it seems quite reasonable to speculate that there exists a natural language in which all nouns referring to collections, regardless of the characteristics of the members of these collections, would have plural concord relations to match their plural denotation: it would be irrelevant to an account of collective nouns in such a language to categorize natural phenomena as more suited to intensional than extensional reference, or vice versa.

This paper began by noting that some countable animal nouns may occur in singular form and yet have plural reference even though, for many of them, a normal plural form exists and could just as well be used; I called such instances collectivized nouns. The class of collectivized animal nouns was found to be limited to nouns that

refer to mammals, birds, fish(es), and a handful of exotic reptiles, which are, or were until fairly recently, hunted for either food or trophies. Animals hunted for food are collectivized in all contexts, and it is by analogy with them that animals hunted for sport (or, perhaps, in more recent times being conserved in game sanctuaries) are collectivized, but optionally, and only in hunting (or conservation) contexts. We observed the instability of collectivizing in the idiosyncratic behaviour of both individual nouns and language users; but one of the most peculiar things is the fact noted in (4) that, with the exception of *roe*, *roebuck* and *deer*, no nouns referring to hunted British mammals are collectivized,<sup>24</sup> although many bird and fish nouns are. It is peculiar because Britain is the land where the English language developed and one would have expected animals hunted there to be collectivized *a priori*. There is no satisfactory explanation.<sup>25</sup> The appropriacy conditions on collectivizing were discovered by setting collectivized nouns among other nouns of similar form and/or denotation; and it was found that there is a regular correlation, described as the k-principle, between the form of the noun and the language user's view of the significant characteristics of its denotata. The k-principle is a working hypothesis which seems to offer a valid explanation for collectivizing,<sup>26</sup> yet the definition of terms used in stating it is at best difficult and at worst impossible. How do we define 'significance'? What are the defining features of a given context? What is a 'natural unit'? And there is the very important question: how much is fixed by convention, how much a matter of choice? The k-principle works well enough for the data discussed, but it is not clear how it applies (if it does) in the derivation of collectivized quantities as in *He weighs fourteen stone*; *It's two foot long*; *He paid three pound for it*; *Two million five thousand six hundred*; etc. And why are colloquial *quid* and *bob* uncountable, but *pound* and *shilling* countable? We have by no means expunged the arbitrariness of the sign even though we have established certain regularities in the relationship between natural phenomena and linguistic categorization.

## NOTES

1. i.e. where the noun is head of a noun phrase (i) number concord between it and an indefinite article or a demonstrative pronoun in the same noun phrase (ii) person/number concord between the noun phrase and any coreferential noun phrase (iii) where the noun phrase is subject of the sentence, person/number concord between it and the verbal group.
2. The indefinite singular noun phrase is not an accurate test frame for reference to an individual; the true criterion is the semantics of the head noun. Hence a collection noun like 'herd' in *a herd* does not refer to an individual but to a collection, and the plural *herds* refers to a number ( $n \geq 2$ ) of collections. Nouns like *herd* are discussed later on.
3. All these examples are from books listed as References.
4. It may appear that exotic sounding names like *chiru*, *gnu*, *goral*, *kudu*, *lechwe*, *saiga*, *tiang*, *wapiti*, etc., inhibit the affixation of the normal English plural morpheme; but there is no phonological basis for such a view, which would have to rely on some psychological explanation. However, enough exotic sounding names do occur with the plural morpheme, and enough mundane sounding names occur without it, to destroy any credence in such a hypothesis.
5. I am grateful to Michael Taylor for pointing this out.

6. Sweet (1898, §1967) notes the occasional use of collectivized *chicken* and suggests that the final *-en* in such cases may be mistaken for the Germanic plural suffix, on analogy with words like *oxen*.
7. For *cow* and *bull* there is the suppletive collective *cattle*, and for *pig* the suppletive collective *swine*. These two collectives are discussed briefly later on in the paper.
8. In military register there is a collectivized use of the word *horse* meaning cavalry, cf. *troop of horse*. But this has no relevance to the present discussion.
9. There is a related assumption, call it  $A_1'$ , that a farmer wrings the neck of a domestic duck. Incidentally, these assumptions are determined by the normal practices of farmers in Britain; customs elsewhere may be different.
10. These assumptions about farmers' behaviour are not necessarily true, but they are most probably true. We can associate the potential truth value with a decimal scale valued between 0 and 1, where 0 = false and 1 = true. Then  $A_1 \supset +w$  will have a value around 0.9, and consequently its violation, i.e. the assumption that a duck shot by a farmer will be a domestic duck ( $A_1 \supset -w$ ), will have a truth value around 0.1. Similarly for  $A_2 \supset -w$ : the likelihood of a duck fed by a farmer being a domestic duck is around 0.8, the likelihood of it being wild is around 0.2.

The entailment of  $A_1$  does not derive from the verb *shoot*, or even *the farmer shot*, but from the whole sentence

*the farmer shot*  $\left\{ \begin{array}{l} \text{some} \\ \text{the} \\ \text{etc.} \end{array} \right\}$  *duck*. Thus the entailment of *the farmer shot the (crippled) horse* would probably not be  $+w$ .

On variable truth values see Lakoff (1972).

11. 'Context' here is used in the widest possible sense to connote co-textual, situational, and environmental influences.
12. In some dialects of English pluralia tantum does not exist (e.g. West African English); however, it was surprising to read *a scissors* in the London *Times* 23 September 1974; Poutsma (1914, 147 ff.) has many examples of pluralia tantum nouns used as if they are not.
13. There is no morpheme which denotes the PS-factor; the PS-factor results from the effect of the plural on the nature of the noun involved, and in that sense it is a *connotation*. This is quite clearly revealed in (29), for example.
14. A singular countable collection noun must have singular concord with an indefinite article or a demonstrative pronoun in the same noun phrase; but where the singular countable collection noun is head of NP there may be plural person/number concord (i) with any coreferential noun phrase, (ii) with the verbal group when NP is subject of the sentence.
15. As one might expect because of its association with *one* and the notion of unity, the use of *a/an* with countable collection nouns makes plural concord unlikely, though not quite impossible, cf.
  - (i) A committee  $\left\{ \begin{array}{l} \text{was} \\ ?*\text{were} \end{array} \right\}$  formed to investigate the problem.
  - (ii) A government  $\left\{ \begin{array}{l} \text{has} \\ ?*\text{have} \end{array} \right\}$  been defeated over the issue.

This can be explained as the result of the number attraction between *a/an* and the countable collection noun being carried over to concord with the verbal group. The attraction is similar to the number attraction exemplified in *What kind of trees are those? Neither of them are remarkable for their perspicacity. There's an old man and woman come to live next door.* where verbal concord is with the nearest noun instead of the head noun of the appropriate NP. If this explanation is correct we would expect that distancing the NP *a/an + countable collection noun* from the verbal group with



- which it has concord relations should allow for plural concord to be more acceptable, and this does seem to be the case, cf.:
- (iii) A committee looking into the connection between absenteeism and the raising of the school leaving age have issued an interim report . . .
  - (iv) A herd using the water hole at Pongo have also been observed on the Nguje plain.
16. Strictly speaking, (47)–(50) are ambiguous between the senses given here and the less probable ‘Give me three kinds of N please’; compare (50) with (24). But I would be very surprised if any such ambiguity arose in normal language use: for example, if I went into a pub and wanted three kinds of beer I would guard against ambiguity by asking for *three kinds of beer* and not *three beers*—which would be pragmatically deviant. Unfortunately, there is not the space here to discuss the relationship between the two senses of NP like *three coffees*, but I am investigating this relationship in a work currently in preparation.
  17. The reason is, presumably, that discrete solid objects make better missiles than a mass of substance; hence, although people do throw *mud* and *snow*, where feasible they find artificial units like *snowballs* more effective.
  18. For some such nouns it is possible to use either an individuated form or a k-form, cf.
    - (i) I like  $\left\{ \begin{array}{l} \text{apples.} \\ \text{potatoes.} \end{array} \right.$
    - (ii) I like  $\left\{ \begin{array}{l} \text{apple.} \\ \text{potato.} \end{array} \right.$
 In (i) reference is made to a number of individual fruits and vegetables, for example raw or baked apples, roasted or boiled potatoes. In (ii) the reference is to apple or potato as a substance, or to a characteristic such as taste or texture, or to stewed apple or mashed potato which have no ‘natural units.’ My guess is that these two forms are never in free variation, but that one or the other is required by the particular context of utterance.
  19. Countable collection nouns like *herd* are not ordinarily suitable; there is discussion of these below.
  20. It was pointed out earlier on that many animals that used to be hunted are now being conserved in game sanctuaries; and, paradoxical as it may seem, remarks about hunted animals refer equally to the same animals in conservation contexts.
  21. Supporting evidence for the claim that the collectivizing of hunted animals was motivated by their being a source of food is the fact that some domestic animals reared for food (*inter alia*) are referred to by collective nouns, viz. *catle*, *swine*, ?*sheep*, whereas pets like *dogs*, *cats*, etc., and beasts of burden like *horses*, *mules* and *donkeys*, are never collectivized. Yet, if the hypothesis is correct, it begs the question: why should food provide such a motivation? Could the answer be that there was an historical construction in which the k-form of the meat/animal noun was the adjectival modifier to the head noun *flesh* as in modern *horse flesh*? Cp. German *Hammelfleisch*, *Schweinefleisch*, *Rindfleisch*, Dutch *schapeveles*, *varkensveles*, *rundveles*. (I am grateful to Tom Fawcett for drawing my attention to this possibility.)
  22. Compare the reference of *the partridge* in the following:
    - (i) The partridge was delicious. (*meat*)
    - (ii) The partridge was shot by the Duke. (*single animal or meat*)
    - (iii) The partridge were shot by the Duke. (*collectivized*)
 Example (ii) cannot be used for intensional reference to a collection.
  23. The application of countable collection nouns to denotata is subject to certain conditions on the spatio-temporal unity of the collection, and the maximum and/or minimum number of individuals in the collection.
  24. None of the works cited as References, nor any others I have seen, contain any additional collectivized British wild mammals to those listed in (4). However, two native speakers of English are known to me who claim to be able to collectivize *badger*, *fox* and *otter*, but since neither is of the

hunting fraternity, nor are they naturalists (i.e. they are not cognoscenti), I am inclined to ignore their claim. For interesting information on native-informant responses see Langendoen (1970, chapter 2).

25. There is no satisfactory explanation, but consider the following suggestions: (i) Apart from various kinds of deer all hunted British mammals are regarded as vermin. But this ignores the fact that rabbits and hares are hunted for food, and foxes (although often regarded as vermin) are hunted for the brush. (ii) Apart from deer, none of the hunted British mammals go about in herds and so they must be hunted as individuals. But neither leopard nor rhinoceros are gregarious animals, and many collectivized fish are caught singly. (iii) Apart from deer all British wild mammals are small. The exotic game mammals which are collectivized are usually large or largish, and so are the domestic animals which are collectivized, viz. cattle, swine, and ?sheep; hence arises a hypothesis that their large size may be a prerequisite for the collectivizing of mammals: the speculativeness of this hypothesis is tempered by the fact that, according to Frank Kapelinski (personal communication), such a constraint operates in Polish. This constraint looks slightly better when we remark that the set of collectivized (and larger sized) mammals is just the subset of mammals most likely to be hunted by the upper socioeconomic classes rather than the peasantry; so we might postulate that the collectivizing of hunted animals was originally an upper class phenomenon which became incorporated into Standard English without being extended to all relevant nouns. This still does not explain why stags and foxes are not collectivized, and unfortunately the hypothesis can only be seriously sustained if we assume that birds and fish(es) were also the game of the upper classes alone. *Prima facie* this assumption seems untenable and I reject the hypothesis for lack of evidence, though further investigation into historical sociolinguistics might substantiate it. Parenthetically, observe that the guardians of cattle, swine and sheep would not have been upper class. So I conclude that none of these attempts to explain the anomalies in the collectivizing of hunted animals is adequate.
26. A fact not hitherto noted is that all collectivized animal nouns which do also have plural forms take the common -s plural: there is no collectivizing of nouns that have an internal vowel change plural or a Germanic -en plural. (Collectivized *hippopotamus* and *rhinoceros* have both the -s plural and the Latin -i plural, so they are debatable counterexamples; the issue is further muddled because their singular form terminates in -s.) Thus Sweet's (1898, §§994, 1966) conjecture that what I have called collectivized nouns result from an historical failure to substitute the -s suffix for earlier plural forms may seem justified, and indeed may be justified for *deer*, *swine* and *sheep*. But his hypothesis cannot apply to many of the nouns referring to exotic game, which would have been unknown during the Old English period. Furthermore, the hypothesis fails to explain three important facts: (i) many collectivized nouns have both normal plural and collective forms, (ii) only animals that were hunted for food and sport are collectivized, (iii) a subset of these animals are only collectivized in hunting (or, more recently, conservation) contexts. The account of collectivizing given in this paper explains these facts in terms of a motivation for collectivizing, and it is therefore a more satisfactory hypothesis than Sweet's. The reason that collectivizing appears to apply only to nouns which have -s plurals is simply a matter of statistical probability: only one noun, *goose*/*geese*, falls within the stated constraint on collectivizing but takes a different kind of plural; in view of the large number of nouns which fall within these constraints but are not collectivized despite their -s plural forms, the instance of *goose* is no surprise. Hence I suggest that collectivizing is not in fact limited to nouns that have the normal -s plural (and so there is no debate about *hippopotami* and *rhinoceri* after all).

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