

Plural Morphology of Nouns Denoting Game Animals: A Corpus-Based Study

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Undergraduate thesis / Završni rad

2021

Degree Grantor / Ustanova koja je dodijelila akademski / stručni stupanj: **Josip Juraj Strossmayer University of Osijek, Faculty of Humanities and Social Sciences / Sveučilište Josipa Jurja Strossmayera u Osijeku, Filozofski fakultet**

Permanent link / Trajna poveznica: <https://urn.nsk.hr/urn:nbn:hr:142:215335>

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Download date / Datum preuzimanja: **2024-11-22**



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Množina imenica koje označavaju divljač: korpusna analiza

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Znanstveno područje: humanističke znanosti

Znanstveno polje: filologija

Znanstvena grana: anglistika

Mentor: prof. dr.sc. Gabrijela Buljan

Osijek, 2021.

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Department of English

Double Major BA Study Programme in English Language and Literature and

Pedagogy

Marko Kovačić

**Plural morphology of nouns denoting game animals: a corpus-based
study**

Bachelor's Thesis

Scientific area: humanities

Scientific field: philology

Scientific branch: English studies

Supervisor: Gabrijela Buljan, Ph.D. Professor

Osijek, 2021

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U Osijeku, datum 19.7.2021.

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Abstract

The aim of this paper is to empirically test the relevance of some factors proposed to explain \emptyset plural inflection in nouns denoting game animals. Authoritative reference grammars of English, such as Quirk et al. (1985: 307–308), and Biber et al. (1999: 288) explain that zero plural is used when game animals are referred to as a group, whereas the regular plural is used when they are being commented upon in terms of different species. Toupin (2015) and Corbett (2004) argue that there are specific types of context that favor one plural inflection over the other. Their claims serve as the foundational core for this paper. Moreover, Toupin (2015) addresses the history of individual nouns as one of the factors behind nouns taking a \emptyset plural inflection. In the introduction of this paper, a brief overview of the regular and irregular plural formation pattern is presented, as well as our hypothesis regarding their appearance. Namely, following some of the above-mentioned sources, we hypothesize that when nouns denoting game animals are used in the context of hunting, they favor the zero plural form. To test this hypothesis, we collected some authentic data from two online corpora: the iWeb and The Corpus of Contemporary American English (COCA). We searched the corpora to elicit 20 examples each (40 examples in total) of the zero and the regular plural forms in ten selected nouns denoting game animals. The goal is to explore the contexts where either plural form is predominantly used. In our analysis we also briefly comment on the historical evolution of the nouns studied, to see if - as Toupin suggested -the source of the zero plural inflection may be a historical residue of sorts. Our analysis has confirmed the hypothesis that zero plural inflection is associated with certain kinds of contexts, specifically the context of hunting.

Keywords: zero plural form, regular plural form, game animals, context.

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1. Introduction

At first glance, the formation of plural forms of nouns in the English language may appear to be fairly easy; the regular plural marker *-s* is added at the end of a noun in singular, thus making it plural (e. g. *cat – cats*). However, things are not as straightforward and transparent as they seem. Namely, there is a fair number of more specific rules, or, better put, patterns regarding the expression of the plural category in English nouns. There are, on the one hand, regular and irregular markers of plurality (Quirk et al 1985: 304–306, Biber et al 1999: 284–286). Among irregular plural markers, some belong to the inventory of native English plural markers (e.g. *-en*), while others have been absorbed together with their host nouns through the process of lexical borrowing from languages with which English has been in contact (cf. Quirk et al. 1985: 311–313). Even if we only focus on the regular plural marker, there are some spelling and pronunciation issues that need to be considered. For instance, one of the special cases concerning spelling (Quirk et al. 1985: 304–305) involves expanding the regular plural marker *-s* with *e* when pluralizing nouns ending in *-o* (e. g. *tomato – tomatoes*). However, like with many other “rules” or “patterns”, this one does not apply across the board. For example, the noun *photo* ends in *-o*, but instead of the expected form *-es*, its plural form features the regular spelling form of the regular plural marker, viz. *photos*. Some of this background will be elaborated on in Section 2. For the purposes of this paper, we will focus on one area where plural noun formation does not conform to the regular pattern, viz. on the use of the so-called \emptyset plural with nouns denoting game animals. This is one of several native irregular ways to mark plurality in English nouns. The situation here becomes somewhat complex since, as claimed by e.g. Quirk et al. (1985: 307–308), Biber et al. (1999), Corbett (2004), Toupin (2015), nouns denoting game animals vary between regular plural expression and zero plural expression. Some rationale is provided for this variation. For example, Quirk et al. (1985: 307–308) claim that the \emptyset plural form is preferred by people who are especially concerned with the animals and who refer to them in mass as game; Biber et al. (1999: 288) claim that the regular plural draws attention to the individual specimens, whereas the zero plural facilitates the construal of the animals as a group. Similar suggestions can be found in Allan (1976) and Corbett (2004), see further below. In addition to these meaning- and context-based explanations, the study by Toupin (2015) discusses this irregular pattern of plural noun formation from a combined diachronic (cf. also Barber et al. 2009: 168) and non-linguistic perspectives (anthropology, archeology and art history). In view of the fact that the explanations so far provided are somewhat vague or at least

impressionistic, it is felt that a corpus analysis of the plural behavior of nouns denoting game animals could shed some more light on this variation and allow us to assess the strength and validity of the explanations so far offered to account for it. Before we state the hypothesis to be explored in our corpus-based study, let us first provide a few illustrative examples of variation in the plural forms of game animals.

Since the zero plural marker means the absence of an overt change in form, in order to distinguish nouns used as singular or plural, they need to be studied in context. Observe some examples taken from Cambridge Dictionary:

- (1) Readers will grow to understand how sacred the buffalo was in building the American West.
- (2) The painting shows buffalo so numerous they darken the plain in their thousands.

Judging from the singular vs. plural subject–verb agreement pattern in the sentences above, we conclude that the noun *buffalo* is used as a singular form in example (1), and as a plural form in example (2). It is important here and in the remainder of this paper to distinguish between zero plural forms, like *buffalo* in (2) and uncountable, singular only, uses of animal names when reference is made to the flesh, skin, fur etc. of the animals. This paper is not concerned with the latter uses.

Note another example of the plural use of the noun *buffalo* from the Cambridge Dictionary:

- (3) The paths were ruined by buffaloes, which were driven over them in herds to be sold in towns.

As we can see in examples (2) and (3), the noun *buffalo* can appear in either plural form. This is where the question arises: is the choice of the plural form arbitrary, or are there principled reasons for the selection of one over the other? The aim of this paper is to establish if there are specific contexts that favor the \emptyset inflection over the regular inflection, and in smaller part to also check (data permitting) whether the historical evolution of a noun has an impact on its plural behavior. Our hypothesis builds on Quirk et al.'s (1985), partly on Biber et al.'s (1999) and Allan's (1976, as cited in Corbett 2004) explanation for this variation; viz. it is hypothesized that when nouns denoting game animals are used in the context of hunting or other contexts where they are referred to in mass, they favor the zero plural inflection.

The structure of the paper is as follows. Section 2 covers the theoretical and descriptive background for this study. In this section, some relevant information regarding the topic is presented. Section 3 explains the methodology used for the study and concerns the selection of corpora for data

extraction, as well as the selection of the nouns to analyze in the selected corpora. Section 4 presents a quantitative and qualitative analysis of the data collected. Finally, in the Section 5, the overall findings and conclusions are given.

2. Theoretical Background

2.1. Zero Plurals and Zero Animal Names

Zero plurals can be defined as nouns that have the same plural form as their singular. In other words, they receive a \emptyset inflection. According to Quirk et al. (1985: 307), we distinguish four types of nouns that appear with zero plural: some animals names (see further below), some nationality nouns, especially those ending in *-ese* (e.g. *Chinese*), some quantitative nouns (e.g. *dozen*, *head*, *yoke*), and nouns with equivocal number, i.e. those whose base forms end in [s] or [z] but there is uncertainty on the part of native speakers as to whether they represent singular or plural forms – usually because these nouns are often of foreign origin (e.g. *dice*). Since the last three enumerated types of nouns fall outside the scope of this paper, we will dedicate our focus solely to the first type – animal names with \emptyset plural inflection.

In the remainder of this section, we first present the description of this irregular plural category in English reference grammars by Quirk et al. (1985) and Biber et al. (1999), and then in Corbett's monograph on the grammatical category number (2001) and Allen (1976, as cited in Corbett 2004). Thereafter, we expand this with an overview of Toupin (2015), who provided a more thorough, synchronic–diachronic explanation of zero plurals in animal names.

Quirk et al. (1985: 307–308), an authoritative reference grammar of English, gives a relatively short shrift to the category of zero plural in general, and zero plural in animal nouns in particular. They provide a list of animal names appearing either in a regular plural form or zero plural form, or appearing in both:

- (i) Regular plural, eg:
bird, cow, eagle, hen, hawk, monkey, rabbit
- (ii) Usually regular plural:
elk, crab, duck (zero only with the wild bird)

- (iii) Both regular and zero plurals:
antelope, reindeer, fish, flounder, herring
- (iv) Usually zero plural:
bison, grouse, quail, salmon, swine (the normal word *pig* always has regular plural)
- (v) Always zero plural:
sheep, deer, cod

Incidentally, some of the nouns listed under (ii) and (iii) will be used in our analysis (see Methodology).

The problem with this treatment is, first, that the lists of examples provided are not meant to be exhaustive. Secondly, the distribution of these plural variants is described in quite impressionistic and vague terms. Notice that Quirk et al. claim that animal names **normally** have regular plural morphology; that **many** can take either plural form although the regular plural is used **regularly** (this implies that they pluralize in \emptyset exceptionally), that others still allow either plural form, that some **usually** occur with \emptyset , and some **only** with \emptyset (*sheep, deer, cod*). Still, the authors do propose at least some explanation for the patterns observed. Namely, the argument is that “zero tends to be used partly by people who are especially concerned with the animals, partly when the animals are referred to in the mass as game” (Quirk et al. 1985: 307). When it comes to the regular plural, it “is used to denote different individuals, species, etc.” (Quirk et al. 1985: 307). While the notion of “game animals” has indeed proven to be key to understanding the category of zero plurals, this still begs the question of why some animal names would be special in that regard. Some answers based on extralinguistic factors, like the status of some animals in Anglo-Saxon culture, and the corresponding resistance on the corresponding nouns to regularization are provided by Toupin (2015). We return to this further below.

Biber et al. (1999) similarly propose that nouns for some animals take zero plural inflection and provide authentic corpus examples to illustrate this tendency. This grammar is strongly empirical since it is based on the 40-million-word Longman Spoken and Written English Corpus. This means that claims such as there are “nouns which consistently take zero plurals” (1999: 288) have more weight, being based on corpus counts. Among the latter, they include *buffalo, duck* and *fish*, but the

authors still partly contradict themselves when they claim that the plural *fishes* is **relatively uncommon** compared with the zero plural. Be that as it may, Biber et al. explain that any cases of variation can be accounted for by the fact that the regular plural draws attention to individual specimens, while the zero plural favors the construal of animals as a group. Although these authors make no specific claims about the animals as falling into the category of huntable and edible game animals, their claim that zero favors a “group” reading, is compatible with the typical perception of game animals as living and moving (and being hunted) in mass.

A similar account is found in Allan, who asserts that the set of nouns which can use regular plural and zero plural forms interchangeably depending on the context are limited 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.)” (1976: 103, in Corbett 2004: 68). Among other statements, one of Allan’s theses provides the rationale for the first hypothesis of this paper – that contexts of hunting favor the zero plural inflection. Cf. “Allan points out that for some nouns this use is appropriate only in the context of hunting or – surprisingly – conservation.” (Corbett 2004: 68).

We should here mention that, in addition to the understanding of “context” as a discourse topic, i.e. references to the context of hunting etc., there have been attempts to associate preferences for the regular vs. zero plural forms with the idea of context as the syntactic environment. Thus, Toupin (2015: 100–101) argues that “reference to species rather than generic taxa would tend to favour an -s inflection” (cf. examples 4 and 5 borrowed from her article); whereas – when it comes to contexts favouring a Ø inflection – she established that “animal names do not add -s but Ø when premodified by such expressions as a flock of, a herd of, etc.” (Toupin 2005: 101), see examples (4) and (5) borrowed from Toupin (2015: 102):

(4) In the enlarged countryside, wildlife bred freely. Hares multiplied; deer and boar were released into the woods from game farms; the urban ox returned to a healthier diet of bloodied, pulsing flesh.

(5) Russian Wild Boars were released in 1910 and 1912 on a North Carolina preserve near the Tennessee border.

As can be observed from examples (4) and (5), when the noun *boar* is preceded by an adjective denoting species (*Russian*), it receives the regular plural inflection. If such modification is absent, it

has a zero plural inflection. Although observing syntactic environments was not within the scope of this paper, we should make an informal note at this point that our corpus-data did not always square with this part of Toupin's explanation. In some cases, when an adjective denoting species preceded the noun, the noun itself did not receive a regular plural inflection. Here are two examples from iWeb (6–7):

- (6) At birth, Arctic hare are gray and weigh an average of 105 g. Their fur changes to white during their first winter, and the tips of their ears become grayer.
- (7) Pronghorn antelope are the fastest land animal in North America, capable of running up to 60 miles per hour.

When it comes to the syntactic contexts proposed by Toupin to favor the zero inflection, we must say that Toupin's claim was borne out by much of our data (see example 10); instances in which animal names are preceded by collectives and have a regular plural proved to be immensely rare and are found in rather informal contexts.

- (8) I have often seen flocks of snipe crossing the bay. (Toupin 2015: 101)
- (9) A herd of fourteen reindeer was seen. The horns of the entire band – for the hinds carry them as well as the stags- were still in velvet. (Toupin 2015:101)
- (10) It was a splendid hunt and we were very successful, but I must go away again immediately, for a great herd of buffalo is moving across the plain and we need all the meat we can get before the winter comes on. (iWeb)

Still, Toupin adds that zero-plural animal names can always take the regular plural inflection since zero expression is merely an option, not a rule.

The main contribution of Toupin's 2015 study is, however, in bringing in evidence from the historical development of English plural markers and from outside linguistics to explain the relevance of game animals and their zero plural marking. Like Quirk et al. and others (see above), Toupin builds her argument around the salience of game animals, and thereby implicitly around the importance of the context of hunting practices.

However, Toupin looks closer into art history, anthropology etc., where she finds clear evidence of particular husbandry practices, kill-patterns and dietary habits in Anglo-Saxon culture,

where game animals come in as a category of central importance. Here we borrow an extended quote of Arnold (1998), as cited in Toupin (2015: 107):

The evidence recovered from excavations emphasises that the landscape was fully utilised by the inhabitants of farms, or groups of farms, dispersed across the landscape. The extent of utilisation is exemplified by the settlement and cemetery excavated on a hilltop overlooking the English Channel at Bishopstone, Sussex (Bell, 1977). [...]. In the pastures stood sheep, cattle and a few horses and roaming more freely were geese, fowl and cats. [...] The food produced in this way [ref. mainly to crops of barley; my addition] was supplemented by marine resources: mussels, limpets and periwinkles gathered on the foreshore, conger eel from the lower shore and whiting taken from the sea; nets were made on the farm. The animals not only provided dairy products, meat, leather and wool for clothing; bone was used to make such things as combs, weaving tools and netting needles. In nearby woodland pigs were reared, and red and roe deer were hunted. [Arnold 1998: 33]

Toupin proposes that the category of zero plural animal names is a reflection of the salience of game animals in Anglo-Saxon culture, where they serve not only as a source of food, but also as subjects of ritual practice. Game animals are the kind of animal to which humans are both friendly and hostile; while they may enjoy human protection, such animals are still subject to hunting practices and rituals. It suffices to think of the ritual of fox-hunting to fully understand the importance of hunt for Anglo-Saxons. Hunting used to be the pastime of Anglo-Saxon warriors, and could be considered a symbol of social status. (Toupin 2015: 109)

In her later exposition, Toupin tries to provide an extended explanation for the later expansion of zero plural names to contexts other than hunting, viz. science and safari. Namely, she proposes an analogy between animals perceived as prey for hunters and animals perceived as “prey” for scientists, i.e. objects of (scientific) observation, and she bases this on the definition from the Oxford English Dictionary, which explains *safari* as “a journey; a cross-country expedition, often lasting days or weeks, orig. in E. Africa and on foot, especially for hunting; now often with motorized vehicles, for tourism, adventure, or scientific investigation” (OED, s.v. *safari*)

Of course, what is or is not a game animal is partly subject to interpretation, which means that for Toupin, the lexical expression of the category should best be construed as built around prototypical members, e. g. nouns for animals like *boar*, since semantically they represent huntable and edible animals, and do alternate between zero and *-s* plurals. But the category also includes a periphery, i.e.,

non-prototypical members, like *rhinoceros* which is a name for a huntable animal, though in the modern English culture, the rhyno would not be eaten.¹

Crucially, how does the significance of the game animal category square with such nouns allowing zero plural inflection? In other words, while most of the earlier mentioned research does associate zero plurals with contexts like hunting, it does not offer an explanation for this association. For that a quick look into the history of English plural makers is necessary. Namely, in Old English, nouns inflected for plural in several ways, one of which was zero. But as the Old English system of inflections began to erode in the Middle English period, many nouns that formerly had plurals other than *-s*, were regularized and came to conform to the regular *-s* pattern. The original variety of plural endings was eventually reduced to the *-s* inflection, with only a negligible number of nouns surviving in their OE plural form, e.g. *oxen* still bearing evidence of the once powerful *-en* (OE *-an*) plural inflection, and nouns like *feet* or *mice* preserving the OE mutated vowel pattern.

The fact that it was, among others, nouns denoting game animals that resisted regularization to *-s* speaks to the cultural importance of those animals – concepts that are culturally salient tend to be frequently used by speakers – and frequency of use of any linguistic form has been known to entrench forms in their original state and make them resistant to language change (cf. e. g. Bybee 2010).

On top of that, some names for game animals have been borrowed from other languages (cf. *rhinoceros* from Latin, *walrus* from Dutch, *luc* from French, etc.), which adds the element of morphological confusion to factors explaining zero plurals and also explains why the category of zero plurals also includes some animal names that are not of Anglo-Saxon origin and/or do not denote prototypical edible game animals. Noun borrowings ending in sibilants are likely to be misconstrued as plural (occasionally this means forcing unnatural singulars by eliminating the word-final segments, like in **rhinocero* (Toupin 2015: 100).

In our analysis we will take all of this into account, including checking, data permitting, whether there are any correlations between the historical evolution of a noun and its plural behavior.

¹ Toupin couches this explanation in terms of Culioli's speaker-centered theory – which we will not explain here in detail, except note that it is akin to the prototype-based theories of human categorization by, among others, Eleanor Rosch and associates (1975, 1977)

However, crucially, our hypothesis – to be tested further below – is that zero plurals with names of game animals are preferred in the contexts of hunting.

3. Methodology

The data for this paper has been collected from two electronic corpora: Web Based English (iWeb) and, to a lesser extent, COCA (Corpus of Contemporary American English). The COCA corpus is balanced between different kinds of registers, representing spoken English, academic English, magazine and newspapers, literature, blogs, etc. The Iweb is based on authentic English texts carefully sourced from the World Wide Web. In fact, the majority of the data was collected from iWeb (>90%), with only limited data being extracted from COCA. Specifically, COCA was used only in those instances where we were not able to meet the quantitative objective. To be able to test our hypothesis, we searched the corpora to find 20 examples in which each of the selected 10 nouns denoting game animals (see below) was found in the regular plural form, and 20 examples in which it was found in zero plural form. In order to find the cleanest results possible, the search query was first restricted to contexts where the target noun functions as the subject and is followed by the verb *to be* in some plural form, e. g. animal name [antelope(s)] + ARE. However, the restriction was sometimes lifted at a later stage, since the data retrieved by our search queries were in some cases insufficient to meet our quantitative objective. To overcome this issue, we removed all the query restrictions and manually searched for chosen nouns denoting game animals appearing in zero plural and regular plural form. Examples were thereafter analyzed for the type of context from which they were sourced, whereby we were able to limit the number of context categories to four: Hunting, Science, Food, and Informal discourse. Our categories of context were not set up a priori, but rather came out of the analysis of our examples. The following examples illustrate each of the four context types. Example (11) illustrates the context of hunting, example (12) the context of science, example (13) the context of food, and example (14) illustrates the context of informal discourse.

- (11) The spot he'd picked to shoot from lay just below a long talus of lava scree and it would put him well within that distance. Except that it would take the better part of an hour to get there and the antelope were grazing away from him. (COCA)

(12) Antelope are the fastest game animal on the continent, capable of running over 70 miles per hour. Their vision is ten times better than a human, they have excellent hearing and one of the better senses of smell in the animal world. (COCA)

(13) The ducks are traditionally roasted before being served. (iWeb)

(14) Squirrels are straight up crazy. My mom was attacked by a killer squirrel when I was 8. (iWeb)

Then, we compared the frequency of occurrence of zero plurals and regular plurals in the selected nouns per context. For our analysis, we selected the following 10 nouns: *antelope*, *boar*, *buffalo*, *duck*, *hare*, *partridge*, *pheasant*, *reindeer*, *squirrel*, and *woodcock*. These nouns were selected because they can indeed be classified in the category of game animals, and that they alternate between the usage of regular plural form and zero plural form. For insight into the historical plural forms of the nouns selected we did turn to the OED, however, where OED did not supply any information about the OE plural forms, we turned to the Old English Translator.

Given the limited number of the nouns studied and the fairly small size of the database, our conclusions should not be understood as definitive, but as providing a potentially useful initial step for a more thorough corpus study in future.

4. Analysis

4.1. *Antelope*

As we know, one of Toupin's suggested causes for the historical resistance of zero plurals to regularization by -s plurals is the fact that the singular forms of nouns ended in a sibilant. This does not seem to be the case with the noun *antelope*. According to Oxford English Dictionary (OED), the noun *antelope* derives from late Greek *antholops* and it denotes "species of the deer-like ruminant genus Antilope". There are no recorded instances of its appearance in Old English (OE), but it was recorded in the late Middle English (ME) period, when its singular form was *antelop*. Since then, it has appeared in seven different forms (*antelop*, *antyllope*, *antlop*, *anteloppe*, *antelope*, *antilope*, and, finally, *antelope*). OED does not specifically address the plural form of the noun, but judging from the examples listed under the entry, there does not seem to be any clear evidence of the zero plural in

ME. This means that any explanation for the potential preference of the zero plural form for the noun *antelope* probably cannot rest on the zero plural form being some kind of “historical residue”. Rather, we may need to base the explanation on the growing importance of the zero plural category “game animal” all through Present-Day English, such that it came to attract new nouns into the category. Note that Toupin (2015) mentions the noun *antelope* in her extended list of zero-plural animals names in Present-Day English. She generally argues that the occurrence of zero plurals in nouns denoting game animals that did not have zero in Old English or did not exist in Old English can be explained as a result of the expansion of the category “zero plural game animal names”. One possible consequence or mechanism, rather, of this expansion, as mentioned above, would be the analogical extension of our understanding of animals as prey for hunters to our understanding of animals as “prey” for scientific observers (Toupin 2015: 110). Our corpus search confirmed the preference for zero plural in certain context types (see Table 1). Out of 40 selected sentences, the noun *antelope* occurred 10 times in total within the context of hunting. Of those 10 times, zero plural was found in nine instances (see examples 15 and 16), whereas the regular plural was found only once (example 17).

(15) Antelope are not difficult to kill, but they are hard to hit: small targets at long distances, often with lots of wind currents. (iWeb)

(16) Some of the day's best hunting happens in the hour or two after first shooting light, when antelope are out feeding and doing their thing. (iWeb)

(17) Elephants, tigers, and antelopes are being killed by the thousands every year. (iWeb)

Table 1. Frequency of zero plurals vs. regular plurals in the noun *antelope* per context

	Context	Zero plural (N)	Regular plural (N)	Total
1.	Hunting	9	1	10
2.	Science	8	15	23
3.	Food	2	1	3
4.	Informal Discourse	1	3	4
	Total	20	20	40

Note, however, that the most frequent type of context for this noun is science, where interestingly, the noun was found to prefer the regular plural form. In other words, the noun does not

seem to behave completely in accordance with the analogical expansion to scientific contexts - mentioned above. Nevertheless, it is noteworthy that its occurrence in scientific contexts with zero plurals is quite strong (8 occurrences). The other context types were attested too rarely to be able to draw any strong conclusions. Still, note that within the small pools of examples of *antelope* used in the context of informal discourse, the regular plural was the preferred choice (curiously, the zero plural was attested slightly more frequently than *-s* in the context of food, but the overall number of examples is extremely low).

4.2. *Boar*

The noun *boar* derived from the OE *bār*, which, according to OED, is known only in West Germanic. Toupin (2015: 114) considers the noun *boar* the prototype of the category “zero plural game animal name”; among others, it is of OE origin, it is argued to alternate between zero and regular plural form, and denotes an edible game animal of special significance to Anglo-Saxon England (p. 109). However, the singular form of the noun did not end in a sibilant (OED), and according to Old English Translator (the information was not available in OED), the plural form of OE noun *bār* was formed with the suffix *-as* (*bār – bāras*). Interestingly, despite the fact that the OE plural form was arguably regular only, our corpus results indicate that, again, in the context of hunting the noun *boar* appears more frequently in the zero plural form (see Table 2)

Of the 10 results in which the noun appeared in the context of hunting, the noun *boar* occurred 8 times in the zero plural form and only 2 times in the regular plural form (see Table 2 below). Examples (18) and (19) illustrate the noun inflected by the zero marker, and example (20) illustrates the regular plural inflection.

(18) The Elk are 4/5 shots and Boar are 9/10 with a beginner rifle, making them easy to kill.
(iWeb)

(19) Boar are killed with a boar spear, ideally from horseback but occasionally on foot. (iWeb)

(20) Larger boars are arguably more challenging to hunt and more impressive, but their generally tougher meat offers lower-quality table fare. (iWeb)

Table 2. Frequency of zero plurals vs. regular plurals in the noun *boar* per context

	Context	Zero plural (N)	Regular plural (N)	Total
1.	Hunting	8	2	10
2.	Science	8	11	19
3.	Food	2	2	3
4.	Informal Discourse	2	5	7
	Total	20	20	40

Similarly as in the case of *antelope*, we found more examples of the noun used in the context of science than in any other context, and again, although there were quite a few instances of zero plurals in that context (8 tokens), the regular plural was slightly more frequent (11 tokens). The regular plural proved to be slightly more frequent in the contexts of food and informal discourse as well.

4.3. *Buffalo*

According to OED, the noun *buffalo* came into English from Portuguese *bufalo* and it denotes “a kind of antelope, but applied to a wild ox”. Based on this definition provided by OED, we may straight away presume that the noun is more often found in zero plural form just as *antelope*. Unlike other nouns analyzed in this paper, *buffalo* is the only one that has three plural forms (*buffalo*, *buffalos*, *buffaloes*). The earliest quotations provided in OED feature regular plural forms (the earliest one dating to 1588). Zero plural is found only later (in a quotation from 1836), in collocation with a collective noun, i.e. *herds of buffalo*. So, historically, we may speak of the zero plural possibly developing later, with the growing importance of the zero plural game animal category. Our corpus data suggest that, despite *buffalo* having not one but two regular forms (two spelling variants in fact), the zero plural form is the most frequently used plural form – again, at least in the context of hunting.

In the nine sentences where it appeared in the context of hunting, *buffalo* appeared 7 times with zero plural inflection, and only 2 times with the regular plural marker (see Table 3 below). Examples (21) and (22) illustrate the zero plural form, and example (23) features *buffalo* pluralized with the regular –s inflection.

- (21) To quote Glen Derra, manager of the Bar-Y Ranch in Chilikin, Oregon where free roaming buffalo are hunted, "The cows are most likely to charge because of the calves and will make a pass at you. (iWeb)
- (22) Buffalo are there and can be hunted, as can cow elephant on a limited basis. (iWeb)
- (23) The larger bulls are targeted for their trophy value, although in some areas, buffaloes are still hunted for meat. (iWeb)

Table 3. Frequency of zero plurals vs. regular plurals in the noun *buffalo* per context

	Context	Zero plural (N)	Regular plural (N)	Total
1.	Hunting	7	2	9
2.	Science	13	15	28
3.	Food	0	0	0
4.	Informal Discourse	0	3	3
	Total	20	20	40

Once again, the regular plural form proved to be slightly more preferable than the zero plural one in the context of science – although the zero plural occurred quite often too. In the context of food and informal discourse, there were no instances of the zero plural in our database.

4.4. *Duck*

Duck is a noun which derives from OE *dūce* (OED). OED also shows that it has had many variants over the course of years until it reached its present-day form (*duk, dukke, ducke, doke, dooke, duke, duik, deuk, douk, and dowk*). According to the Old English Translator, its plural form in OE was made by adding the suffix *-an* to its base (*dūce – dūcean*). Since there are no examples in OED of the noun *duck* in the zero plural form, it means that we should be cautious about appealing to the retention of OE zero plurals, i. e. resistance to regularization, as the explanation for the noun’s present-day tolerance of the zero plural form. Once again, pending other evidence, we should probably ascribe this feature to the growing importance of the category “zero plural game animal names”.

Zero plural form of *duck* followed by a verb ‘to be’ in plural form proved to be a rarity in both corpora. Therefore, the search query restrictions were removed in order to find enough results for this

noun. After successfully reaching our quantitative goal for both plural forms, we encountered a similar pattern of their distribution per context. Namely, the noun *duck* was once again more frequently found in the context of hunting. In 14 examples in total where the noun appeared in the context of hunting, it appeared 12 times in the zero plural form, and only 2 times in the regular plural form. In the examples (24 and 25), it is used in zero plural form, and in the examples (26) it is used in regular plural form.

(24) Deer season's over. Okay. Ducks. What kind of duck are you hunting? (COCA)

(25) Sometimes you need to move to where the duck are out in the open. If you hunt levees, building a duck blind can be a tedious process. (iWeb)

(26) When the curious ducks are within shooting range, the hunter calls his duck tolling retriever back to the blind. (iWeb)

Table 4. Frequency of zero plurals vs. regular plurals in the noun *duck* per context

	Context	Zero plural (N)	Regular plural (N)	Total
1.	Hunting	12	2	14
2.	Science	5	9	14
3.	Food	2	5	7
4.	Informal Discourse	1	4	5
	Total	20	20	40

It once again needs to be underscored that the regular plural form is preferred in the contexts of science, food, and informal discourse, although the noun does not shy away from the zero plural in those kinds of context either.

4.5. *Hare*

The OE variant of the noun *hare* was *hara* (OED). Just like the noun *boar*, it is a noun of West Germanic origin. However, unlike *boar*, its OE plural form was created the same way as in *dūce*, viz. by adding the suffix *-an* (Old English Translator). Once again, the OED featured no recorded instances of the noun in the zero plural form, and yet, it is found in present-day English. The explanation for this can again be ascribed to only the expansion of the category of zero plural game animal names.

Our results have shown that when *hare* is used in contexts of hunting, it exclusively takes the \emptyset plural inflection. We attested 12 examples in which it was used in the context of hunting, and it was always in zero plural form (see Table 5 below). Examples (27) and (28) substantiate this claim.

(27) To make it even more difficult, snowshoe hare are lightning fast and only feed at night.

During the day, the little rabbits snuggle down in the snow to sleep, making them nearly invisible to the naked eye. (iWeb)

(28) Snowshoe hare are amazingly quick and a shot gun provides added coverage that improves your odds for success. (iWeb)

Table 5. Frequency of zero plurals vs. regular plurals in the noun *hare* per context

	Context	Zero plural (N)	Regular plural (N)	Total
1.	Hunting	12	0	12
2.	Science	6	11	17
3.	Food	1	5	6
4.	Informal Discourse	1	4	5
	Total	20	20	40

Regarding the other observed contexts, the noun *hare* conformed to the regular pattern; when it was found in contexts of science, food, and informal discourse, the regular plural form proved to be the (slightly) more frequent one.

4.6. *Partridge*

According to OED, *partridge* derives from Latin word *perdix*. It has had many different forms throughout history, and its last recorded form prior to the contemporary one was in Middle English-*partrich*, which stems from the Old French word *perdriz*. Recall that Toupin (2015: 112) argues that nouns that are “non-native and whose contemporary and/or etymological base forms end in [s] or [z]” commonly take the zero inflection. Namely, the author argues that “the final sibilant probably caused these words to be misinterpreted as plural” (Toupin 2015: 112) which may be the ultimate reason why pluralization by the -s marker was avoided.

Regarding the contexts of hunting, it was once again established that the zero plural form is the plural form of choice. In the 12 sentences where the context of hunting was established, zero plural appeared 7 times, and the regular plural 4 times (see Table 6 below). Examples (29) and (30) show its zero plural usage in the context of hunting, and example (31) provides us with its regular plural form in the context of hunting.

- (29) Pheasants and partridge are sometimes raised for shooting in Australia but information on these practices is difficult to confirm. (iWeb)
- (30) On sunny days, partridges are easier to hunt. They tend to stay close to the trails, where they are easily spotted. (iWeb)
- (31) It was a chill, rain-washed afternoon of a late August day, that indefinite season when partridges are still in security or cold storage, and there is nothing to hunt - unless one is bounded on the north by the Bristol Channel, in which case one may lawfully gallop after fat red stags. (iWeb)

Table 6. Frequency of zero plurals vs. regular plurals in the noun *partridge* per context

	Context	Zero plural (N)	Regular plural (N)	Total
1.	Hunting	7	4	11
2.	Science	7	11	18
3.	Food	4	3	7
4.	Informal Discourse	2	2	4
	Total	20	20	40

The regular plural form was found, once again, in a slightly higher number in the context of science. Interestingly, this is the first case where the zero plural form was more frequent in contexts of food and informal discourse, though its somewhat higher number is practically negligible.

4.7. Pheasant

The noun *pheasant* derives from Greek noun *phaisano*, and it developed into the Middle English form from the Old French noun *fesan*. OED does not specifically comment on its plural forms, but judging from the earliest quotes involving this noun, its plural forms appeared to have involved the regular

plural only. That being said, apart from the noun being classified as a name for a game animal, there seem to be no historical morphological grounds for explaining the possibility of *pheasant* taking a \emptyset inflection.

Yet, according to our results, when it is used in the context of hunting, the noun is preferably used in the zero plural form. In the 10 sentences featuring the noun in this kind of context, *pheasant* was used 7 times in zero-plural form, and 3 times in regular plural form (see Table 7 below). Example (32) and (33) show it being used in a zero-plural form, whereas in example (34) it is used in regular plural form.

(32) Pheasant are too easy to catch/poach. (iWeb)

(33) Pheasant are considered game birds but it is anything but fair game when birds are raised to be fat and slow, so unlike their Asian ancestors. (iWeb)

(34) Instead, many hunters tend to focus solely on pheasant hunting, as pheasants are often easier to find and appear in larger groups, making harvesting the daily limit a simpler task. (iWeb)

Table 7. Frequency of zero plurals vs. regular plurals in the noun *pheasant* per context

	Context	Zero plural (N)	Regular plural (N)	Total
1.	Hunting	7	3	10
2.	Science	10	12	22
3.	Food	2	2	4
4.	Informal Discourse	1	3	4
	Total	20	20	40

Similarly to most other nouns analyzed above, the zero plural form of the noun *pheasant* exhibited a marked presence in the context of science, even if the context seems to show a slight preference for the regular plural inflection (10 vs. 12). The other data are negligible, but again, the regular plural form is at least equally, if not more frequent, than the zero plural form in the contexts of food and informal discourse.

4.8. Reindeer

According to OED and Toupin (2015: 103), *reindeer* is a noun of Old Norse origin whose singular form in Old Norse was a combination of words *hrein* and *dýr*, thus forming *hreinndýri*. For the purposes of explaining the noun *reindeer*, let us now briefly shift our focus to the noun *deer*. Namely, *deer* is the only noun for which the OED showed that it had been used in zero plural form. Since historical data suggest that the noun *deer* is very comfortable with the zero plural inflection, perhaps we could argue, on morphological grounds, that *reindeer* should have the same tendency for the \emptyset inflection.

Interestingly, the noun *reindeer* has been found only once within the context of hunting (see Table 8 below). The reason for this is most likely the fact that they have been proclaimed an endangered species in numerous countries and hunting practices are considered to be illegal. They are most commonly associated with Christmas and Santa Clause and are therefore most frequently found in informal contexts. Example (35) shows the only instance where it was found in the context of hunting, and example (36) shows it being used in an informal context:

(35) Reindeer are primarily hunted by residents and tourists for their meat. (iWeb)

(36) Santa's reindeers are in town! (iWeb)

Table 8. Frequency of zero plurals vs. regular plurals in the noun *reindeer* per context

	Context	Zero plural (N)	Regular plural (N)	Total
1.	Hunting	1	0	1
2.	Science	10	5	15
3.	Food	1	1	2
4.	Informal Discourse	8	14	22
	Total	20	20	40

It is noteworthy to mention and to highlight that this is the only noun among the ten explored in this study, where the zero plural form seems preferable to the regular plural form in the context of science. Also, we found many more examples of this noun in the context of informal discourse, where the presence of the zero plural – though weaker than that of the regular plural - is far non-negligible (8:14).

4.9. *Squirrel*

Squirrel is a noun which derives from Greek word *skiouros*. The situation regarding the historical evolution of this noun is once again the same as with nouns analyzed earlier. Our OED data is lacking – i.e. we do not have any evidence of the plural forms of the noun, which meaning the OED does not feature any recorded instances of the noun in the zero plural form in OE or ME. Hence, any evidence of the noun now being used in the zero plural form should probably be attributed to categorial pressure – the noun belonging to the category of those denoting game animals.

The context of hunting has once again proven to be most inclined toward the zero inflection. In the 10 occasions where the noun appeared in the context of hunting, it appeared 9 times in zero plural form and solely once in the regular plural form (see Table 9 below). Examples (37) and (38) show it being used in a zero plural form, and example (39) shows the noun *squirrel* being used in regular plural form:

(37) Those unusually large squirrel are quiet but they are not hard to track in snow. (iWeb)

(38) Indeed, given they're widespread nature small game like rabbits and squirrel are better options than large game like deer. (iWeb)

(39) It's best to wait for the squirrels to forage for the nuts that have already fallen on the ground, as you have a better chance of hitting them. (iWeb)

Table 9. Frequency of zero plurals vs. regular plurals in the noun *squirrel* per context

	Context	Zero plural (N)	Regular plural (N)	Total
1.	Hunting	9	1	10
2.	Science	6	10	16
3.	Food	3	0	3
4.	Informal Discourse	2	9	11
	Total	20	20	40

When used in the context of science, the noun *squirrel* was slightly more frequently found in the regular plural form. Curiously, the zero plural form proved to be the preferred (and only) choice in our dataset in the context of food. In informal discourse, the regular plural form proved to be, by far, the more frequent one.

4.10. *Woodcock*

According to OED, *woodcock* is a noun which derived from an Old English *wuducoc*. Again, there are no recorded instances of its zero plural form in OED. Hence, we may need to base the explanation for the existence of zero plural on the growing importance of the zero plural category “game animals” as well.

Of the 18 examples in which *woodcock* was used found in the context of hunting, it was used 16 times in zero plural form, and only 2 times in the regular plural form (see Table 10 below). Examples (40) and (41) again illustrate the tendency of nouns denoting game animals towards receiving a zero inflection when used in the context of hunting.

(40) If you see migrating robins in your area, there's a good chance woodcock are there. (iWeb)

(41) Woodcock are small targets, so if you can see one, it's in range and worth a shot. And don't hold out for a perfectly clear shot with no obstructing twigs, branches or leaves. If you do, a box of shells will last you a lifetime. (iWeb)

Table 10. Frequency of zero plurals vs. regular plurals in the noun *woodcock* per context

	Context	Zero plural (N)	Regular plural (N)	Total
1.	Hunting	16	2	18
2.	Science	2	12	14
3.	Food	2	2	4
4.	Informal Discourse	0	4	4
	Total	20	20	40

Scientific contexts have, in this case, proven to strongly prefer the regular plural form in comparison to the priorly analyzed nouns. The situation with the contexts of food and informal discourse are pretty much similar to that with most other nouns; although there is a slight preference for the regular plural, no strong conclusions can be drawn based on the small proportions of sentences exhibiting those contexts.

4.11. Summary

Due to lack of access to reliable sources and data, we were not able to find any clear evidence of the existence of zero plural forms in the OE and ME period for as many as 9 of the 10 analyzed nouns. This is not to say that the zero plural forms did not exist, it only means that it may be difficult to trace the historical forms of words without dedicated diachronic work, which we could not afford within the confines of this study. *Reindeer* was the only noun for which OED presents examples of the zero plural form, and *partridge* was the only noun whose historical forms indicate why the noun may show at least some inclination for the zero-plural form, viz. there was potentially some morphological confusion of the sibilant-ending singular form - for the plural form. This means that, given our methodological restrictions, we can at best attribute the availability of zero plural forms in the remaining nouns to the growing importance and thereby extension of the category of zero-plural game animal names beyond those that may originally have taken the zero plural form in earlier times.

Our hypothesis, which builds on Quirk et al.'s (1985), partly on Biber et al.'s (1999) and Allan's (1976, as cited in Corbett 2004) work, viz. that nouns denoting game animals prefer the zero plural inflection in the context of hunting has been confirmed. In the total number of 105 examples in which it was found in the context of hunting, the zero plural form was found in 88 sentences, i.e. 83.8% of cases in total, whereas the regular plural was only attested in 17 corpus examples, i.e. 16.2%.

Regarding other contexts, our results have, interestingly, shown that – in line with some of Toupin's (2015) observations - the zero plural seems to be quite comfortable with the nouns used in scientific contexts, although the regular plural form proved more frequent, even if only slightly. The distribution of the two plural forms is quite close in the context of food, whereas the regular plural form seems to be favored in the informal contexts. Detailed results are presented in the Table 11.

Table 11. Frequency of zero plurals vs. regular plurals in all 10 selected nouns denoting game animals per context

	Context	Zero plural (N)	Regular plural (N)	Total
1.	Hunting	88	17	105
2.	Science	75	111	186
3.	Food	19	21	40
4.	Informal Discourse	18	51	69
	Total	200	200	400

5. Conclusion

To recapitulate, zero plurals are defined as those nouns whose plural form is identical as their singular. According to Quirk et al. (1985: 307), we distinguish four types of nouns that appear with zero plural: some nationality nouns, some quantitative nouns, nouns with equivocal number, and some animal names. In this paper, we focused solely on the latter one- animal names. More precisely, we focused on those animals which are classified into the category of game animals. The aim of this paper was to establish if there are specific contexts that favor the \emptyset inflection over the regular inflection. As a brief aside, we also explored, as far as the sources permitted, the historical evolution of the nouns for its potential impact on their plural behavior. Previous studies have corroborated that there indeed are specific contexts which favor one plural inflection over the other. Hence, we hypothesized that when nouns denoting game animals are found in the context of hunting, they favor the \emptyset plural inflection. Upon analyzing our data extracted from two online corpora (iWeb, COCA), we have confirmed our hypothesis. As for the historical aspect of the study, since our main source of insight into the historical forms of words (OED) did not usually present any evidence of plural forms of the nouns studied (or their zero plural forms for that matter), we were unable to provide any etymological explanations for the patterns observed in the corpora. Therefore, pending a more dedicated diachronic study and a more extensive corpus study, we could provisionally conclude that the very existence of zero plural inflection in many nouns denoting game animals squares with the historical, cultural, and linguistic importance of the category of English nouns denoting game animals.

Although some conclusions can be drawn from our results about the present-day likelihood of particular “game animal nouns” taking zero plural inflection in various context types (see in particular Table 11), the reader should keep in mind the exploratory nature of the study –viz. we studied a fairly limited number of nouns in a limited number of corpus examples and we made specific methodological choices, all of which makes a more in-depth study a desirable future goal.

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