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The English Plural Linguists Have Forgotten, but Speakers Have Not

Abstract: The late professor Jan Cygan, to whose memory this volume is dedicated, was fond of showing that many quirks of modern English usage are in fact vestiges of earlier stages in the history of the language. He cherished using historical data to elucidate such puzzling cases, and this paper follows in his footsteps by investigating a minor English zero plural pattern that featured quite prominently in discussions of Boris Johnson’s legacy as mayor of London, e.g.: “Three secondhand water cannon bought and refurbished for £322000 during Boris Johnson’s time as mayor of London have been sold for £11025” (Devlin). In order to account for such usages, this paper reviews extant research on animal zero plurals and extends the explanation argued for in Berezowski to inanimate instances. It is shown that in both scenarios, the use of the zero plural is conditioned by a cognitive factor rooted in human perception. Specifically, it is claimed that inanimate zero plurals are holdovers from the times when early military tactics and technology prevented speakers from individuating the referents of a handful of English nouns.

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Introduction

As can be amply demonstrated by any descriptive grammar, English has a broad range of minor plural patterns, both native, e.g. goose—geese, wolf—wolves, and borrowed from a variety of languages, e.g. crisis—crises, seraph—seraphim, etc. One of the former is the zero plural illustrated below:

(1) A whole French brigade was surrounded and compelled to surrender; the total bag amounting to 2,825 troops, twenty-five machine guns and twelve assorted cannon, and a box full of brand new Croixde-Guerres—a discovery which delighted German war correspondents (K91).
The numeral *twelve* leaves no doubt that the nominal *twelve assorted cannon* is plural and the absence of any overt plurality marker on the noun clearly puts it in the company of animal nouns that can take zero plurals if the context is right, e.g. *buffalo, herring* or *antelope*. While the use of such plural forms of nouns denoting animals is duly noted in descriptive grammars and has sparked some research, to be reviewed below, inanimate zero plurals like *cannon* in (1) have not been inquired into by linguists for more than a century, and, what is even more bizarre, have disappeared from grammar books, even though their usage continues as shown above.

Inanimate zero plurals like (1) were noted and illustrated from a variety of sources in Kruisinga, Jespersen, or Poutsma, to name only three extensive volumes on English grammar published on the eve of the Great War, but are not even given a footnote in voluminous descriptive grammars printed almost a century later, e.g. Quirk et al. or Huddleston and Pullum, let alone in somewhat more compact descriptions, e.g. Biber et al. or Aarts.

The reason for the omission is neither the demise of such forms nor their extreme rarity, as in the BNC the zero plural *cannon* in fact narrowly outnumbers the inflected plural *cannons*. When the corpus was searched for *cannon*, there were 641 hits comprising both plain singular nominals, e.g. *a 20 mm cannon*, and a mixed bag of other items, including a fair share of proper names, e.g. *Geoffrey Cannon*, a number of adjectival usages, e.g. *cannon shots*, quite a few ambiguous cases that in the maximum context available in the BNC could technically be given either singular or zero plural readings, e.g. *cross-fire from the cannon*, and as many as 102 examples framed in unequivocally plural contexts. At the same time, the search for the inflected plural *cannons* returned 122 hits, out of which only 101 actually refer to guns.

Since the zero plural *cannon* is marginally more frequent than the overt plural *cannons* in a corpus of modern English, it is then obvious that the usage illustrated in (1) is not a specimen of antediluvian grammar brought back to life by fans of antiquated English, but a plural form that is actually quite popular nowadays. In the most explicit cases, its use is revealed by numerals, as shown in (1), but it may also be disclosed in more subtle ways, e.g.:

(2) The idea of a siege as a ritual conducted according to well-defined rules is clearly illustrated by the answer of the commander of the Spanish garrison at Gaeta in southern Italy when faced in the 1730s with an Austrian demand for surrender: “It is not yet time, since no batteries have been formed and *no cannon are* yet in place which would be a cause for surrender” (H8C).

(3) It was entirely within range of even the smaller cannon left in the castle, although depressing the muzzles sufficiently downwards would mean that only the far side of the ford would be bombardable (CD8).

Since the determiner *no* is compatible both with singulars and plurals, its use in (2) is in itself insufficient to conclude whether the nominal *no cannon* should be given a singular or plural reading, but the question is decided in favor of the
latter by the plural verb are, i.e. by agreement, and a somewhat similar mechanism may be observed at work in (3). The nominal the smaller cannon looks singular but technically could also be a zero plural, as the English definite article is compatible with both and the scale is tipped in favor of the latter interpretation by a later use of a noun that is plural and definite. As every cannon has only one muzzle, the use of the definite plural the muzzles leaves no doubt that an array of guns is referred to in (3) and, consequently, cannon is a zero plural.

The most inconspicuous way of indicating the plural status of cannon is the disuse of determiners, e.g.:

(4) Six weeks later the town, which had suffered heavily from the bombardment of English cannon, capitulated (EDF).

As is well-known, if an English nominal headed by a common noun is bare, it has to be either plural or uncountable, since singular countables always take a determiner. However, just like scores of other well-bounded man-made objects, e.g. a rifle, a gun, a rocket, etc., a cannon is designated by a countable noun, which leaves only a plural reading in cases like (4). Consequently, bare nominals headed by cannon may be safely taken to be instances of the zero plural.

Since such usages have somehow slipped under the radar of modern linguists, the goal of the paper is to plug that gap in the study of English plurals by exploring their commonalities with the much better studied animal zero plurals and showing that the examples in (1)–(4) in fact represent a somewhat broader pattern of English zero plurals that has so far not been enquired into.

The discussion is based on examples retrieved from the British National Corpus (BNC) and checked manually for their zero plural status, as outlined above. The paper is structured as follows: Section 1 reviews earlier scholarship on English zero plurals, Section 2 develops a cognitive explanation of the pattern illustrated in (1)–(4) above, Section 3 explores instances of similar zero plurals, and Section 4 draws final conclusions.

1. Previous scholarship

As has been noted in the previous section, the number of modern publications on the pattern at hand is nil. The review of previous scholarship will thus focus on the studies of the morphologically-identical pattern of animal zero plurals, with the view to identifying those features of extant explanations that can be helpfully applied to accounting for the usages in (1)–(4).

A few English animal nouns take the zero plural only, e.g. deer, salmon or sheep, but in most cases where such a form is available, it is in competition with the inflected one, e.g. duck, giraffe or rhino. Consequently, the main thrust of research on English animal zero plurals has been to identify the contextual factors which make such uses possible and it can be separated off into two main strands: an older
one argued for in quite much detail in Allan or Toupin, and a newer one broached in Berezowski.

The older account is ultimately based on an observation in Sweet, which links the use of zero plurals with hunting, e.g.:

(5) “Okay, gentlemen, today we hunt buffalo!” Senator Nathaniel Sherman stood in the middle of the camp clearing, his booted feet astride, clutching a handcrafted Purdey .450 double-barreled rifle in one fist (FU8).

Specifically, Toupin claims that the use of zero plurals like buffalo in (5) is due to viewing animals as game (113), which has been salient in English culture since Anglo-Saxon times (107–109), while for Allan, such usages are correlated with the extent to which humans treat wild animals designated by particular nouns as sources of food and other useful products, e.g. skins, trophies, etc. (Allan 107).

Such explanations can obviously be easily extended to contexts in which hunting is not as explicitly invoked as in (5), but the referents of the zero plurals are the quarry of hunters, trappers, fishermen or anglers, e.g.:

(6) On either side there was open parkland grazed by a herd of red deer or, now that it was December and the males were apart, two herds (HP0).

(7) Female squid do not extend any parental care of protection to their eggs and may become so exhausted by the act of reproduction that they die shortly after (C96).

While the use of the zero plurals red deer in (6) and squid in (7) can be credibly accounted for by claiming that their referents are game animals and/or sources of food and trophies, such an approach is, however, unable to explain why zero plurals can also denote farm animals, e.g. sheep, or can be found in a variety of generic contexts, e.g.:

(8) There are about 2,700 species of snake in the world, yet only 50 or so are highly venomous (CJ3).

Snakes are neither commonly hunted for food nor sources of useful products, so the zero plural snake in (8) defies explanation in that framework and there are scores of further counterexamples, as has been shown in Berezowski.

The descriptive adequacy of the explanation based on the practice of hunting is thus limited, but what is even more crucial is the fact that it cannot be sensibly applied to zero plurals like cannon in (1)–(4), as their referents are neither game nor sources of any animal products.

The other approach to animal zero plurals, argued for in Berezowski, is based on the concept of referent individuation defined as the ability to construe referents as separate individuals (Grimm 528). Specifically, it is claimed that the availability of the zero plural is triggered by the impossibility of referent individuation, i.e. the inability of the speaker to perceive individual referents in a group. On land, that is typically the case when animals live in large herds, e.g.:

(9) On the plain I could see long, black, sinuous lines of wildebeest, hundreds of thousands of them, constantly on the move. These absurd-looking antelopes...
cavort, buck, kick and run in all directions, making a strange honking sound. The annual migration of some one and a half million wildebeest is an awesome spectacle as they travel about 800 kilometers in search of water and green pastures for survival (HSG).

Those referents of the plural wildebeest that are the closest to the speaker may be easy to individuate, but all the rest, whether standing in the center of the herd or on its far side, are visible only partly or not at all. They are blotted out by the animals facing the observer, which makes individuating all group members virtually impossible. And when the herd starts to move as is the case in (9), doing so is even harder as the animals mix and blur.

In this approach, it is thus no wonder that the zero plural can denote farm animals that live in large flocks, e.g. sheep, but such usage does not extend to horses, cows or bulls, which can be likewise seen in large herds but are commonly given names and/or are branded, which facilitates individuation.

While on land referent individuation may depend on group size, distance or naming and branding traditions, in water it does not. Since sunlight is either reflected off water surfaces or dissipates soon after crossing it, the creatures that spend their entire lives under water remain permanently in the dark and, consequently, practically invisible for humans located on dry land or in fishing boats. Water surfaces create a cognitive barrier which prevents humans not only from individuating the animals which dwell below it, but even from noticing them at all, and that is duly reflected in the use of zero plurals, e.g. clownfish, carp, pike, krill, etc. However, if aquatic creatures surface on a regular basis and can be individuated, as is the case with sharks or dolphins, they are designated by nouns taking overt plurals.

The role of referent individuation in motivating the use of zero plurals is perhaps the most palpable in the case of whales. They have been hunted almost to extinction and for centuries were the source of a variety of useful products, e.g. blubber, ambergris, whalebone, etc., which should make the nouns that designate them paradigm examples of zero plurals if the hunting-based explanation were true. However, as shown in Berezowski, whales are predominantly designated by nouns that are overtly marked for the plural because, like any other sea mammals, they surface on a regular basis and, consequently, can be individuated by harpooners and conservationists alike.

Finally, the approach based on referent individuation is also able to account for the fact that in generic contexts, the zero plural can be taken by nouns designating practically any animal, as has been exemplified in (8) and is further illustrated below:

(10) Among the diurnal raptors, the various species of eagle appear to be the most important predators of larger animals (B2C).

Neither snakes in (8) nor eagles in (10) are gregarious animals and both are usually cautiously individuated by people who are intent either on avoiding the danger they can pose or admiring the majesty they display. However, species
are set up by abstracting away from the characteristics of specific individuals and generalizing over entire populations, i.e., by cognitive processes which are in stark opposition to individuating particular animals. Consequently, in generic contexts, the zero plural is available even for nouns designating solitary animals with highly distinctive features, e.g. hiss, rattle or resplendent plumage.

The approach based on referent individuation is thus able to account for many more examples of animal zero plurals than the explanations centered on the practice of hunting, but what is even more important for the purpose at hand is the fact that the key concept of that approach can be easily applied also to the referents of zero plurals like cannon in (1)–(4) above.

2. Cannon and its plurals

In order to appreciate how referent individuation can help to account for zero plurals like cannon, it is necessary to step back in time a bit, e.g.:

(11) The approaching fleet, now seen to be wearing banners showing the Leopards of England, did slow down and bunch together as they approached the harbour entrance, to negotiate the fairly narrow channel. Their cannon were very evident, as they closed, crews lining the bulwarks. Still Seton waited, calculating distance, gunners impatient at their dozen cannon, touch-ropes steeped in saltpetre smoking, fizzing, ready. As it happened, it was the enemy who opened fire first, the leading ship suddenly letting off a ragged salvo from its starboard guns, in flame and smoke, as demonstration and warning presumably (CD8).

Grammatically, both instances of cannon are evidently plural in (11), as shown by the use of the plural verb were and the traditional numeral dozen, respectively. What is equally evident historically in (11), is, though, the employment of early technology which relied on gunpowder and used saltpeter, i.e. potassium nitrate, as its key oxidizing ingredient. The result was that every time a cannon was fired, it belched out flames and a plume of smoke that shrouded the gun for a while, and if a number of them went into action at once, their entire location was soon enveloped in a dense cloud of smoke.

Under such opaque conditions, observers were obviously unable to individuate particular guns that were actually fired, which provided the same motivation for the use of the zero plural cannon as has been posited for animal zero plurals in Berezowski (2020). The only difference is that while in animal zero plurals the inability to individuate referents is due to natural causes, e.g. the gregarious behavior of animals or the dissipation of light in water, in the zero plural cannon, it was due to a side effect of primitive gun technology that prevailed for several centuries until smokeless powder was invented in 1884.

However, by the time that happened, the zero plural had already become so well entrenched in English that no later advancement in technology has so far been
able to dislodge it, even if cannon not only have become smokeless but even started to spray water and snow, e.g.:

(12). Detachments of police went after individuals and when the street was nearly clear, water cannon were brought in. Later it was alleged that the RUC sprayed not only those who remained on the road but also groups sheltering in shop doorways and the first-floor windows of houses, some of which were open. Passers-by, and others who had taken no part in the demonstration, were also soaked (APP).

(13) A hundred snow cannon have laid 10 million gallons of snow in the Park City race area known as Willi’s Face (A8N).

As evidenced in (12)–(13), the zero plural pattern has been inherited by the compounds water cannon and snow cannon. The latter is recorded in the BNC only once and is outnumbered by 4 instances of the inflected plural snow cannons, but the former, with 19 examples, is twice as frequent as the inflected plural water cannons, which has merely 8 BNC records. In the fairly recent compound water cannon, the zero plural pattern is thus even more robust than in cannon itself.

3. More military zero plurals

Fundamentally similar examples of zero plural usage can be found in other early branches of the army and the navy, e.g.:

(14) But Yusuf could no longer allow the continuance of El Cid’s foothold in the east. He therefore despatched a force of some 150,000 horse and 3000 foot soldiers under the generalship of his nephew Mohammed, with orders to crush the power of the Campeador for ever (ASW).

The staggering numeral leaves no doubt that horse in (14) is a zero plural and the references to a force, foot soldiers and generalship clearly specify that it designates cavalrymen, presumably subdivided into a number of units. Given the discussion in the previous section, the cognitive motivation behind such a usage is, however, fairly straightforward. In a large unit of cavalry, only the horsemen riding close to the observer can be fully individuated, while those riding further in the center of the formation or on its far side are visible only partly, if at all, and when the unit charges, individuating any of the cavalrymen is even harder, as the speed of galloping horses blurs the picture and the dust they kick up decreases visibility.

In terms of the ability to individuate referents, viewing a large group of horsemen is thus not much different from observing a herd or flock of gregarious animals. In both cases, it is hard to do, if possible at all, which, as has been claimed in Berezowski (2020), motivates the use of zero plurals.

It has to be noted, though, that in the use illustrated in (14) and explicated above, the zero plural horse designates cavalrymen, i.e. soldiers mounted on horses and not horses on their own. As stated and richly exemplified in Jespersen (63–64) and other grammars based on historical data, English had a zero plural horse,
denoting groups or herds of equines, i.e. a form parallel to *sheep* or *deer* in modern English, but its use died out in the 1600s. The animal zero plural was a holdover from Old English times and was ultimately supplanted by the inflected form *horses* that arose in Middle English.

The military zero plural remains in use as exemplified in (15); however, after the disappearance of cavalry from the armed forces the number of occasions for its use obviously dwindled and its frequency in the BNC is very low, but it survives in modern accounts of past wars. The same is the case with another military zero plural:

(15) He kept the Iranian troops and a few hand-picked detachments; one Iranian division was detached to escort Xerxes to the Hellespont and come back. From the size of his camp in 479, said to have been 2,000 yards square, he may have had up to 75,000 horse and foot (G3C).

As in the previous example, the numeral makes it plain that *foot* in (15) is a zero plural and the reference to troops and detachments clarifies that it refers to foot soldiers, i.e. infantrymen. Given the tactics used by infantry in the past, the cognitive motivation of such usages is, however, essentially the same as in the case of *horse*. For centuries, foot soldiers fought in close formations shaped into squares or rows. While it was thus possible to individuate the soldiers positioned on the side of such formations that faced the observer, those inside or on the far side were barely visible, and if the formation moved or clashed with the enemy, the chances of successful referent individuation were even slimmer.

The motivation for the development of the zero plural *foot* is thus again provided by the inability to individuate particular foot soldiers marching or fighting in close ranks, but the disappearance of such formations after the development of machine guns made them impracticable has restricted the usage of this grammatical form to modern narratives of past military campaigns.

Another example of a military zero plural whose range of use fell prey to progress in technology can be found in modern descriptions of past naval engagements, e.g.:

(16) On the morning of 30 June 1690, while 360 miles [573 km] away near Drogheda, William III and the late King James prepared to fight the Battle of the Boyne. Torrington, with a fleet of 58 English and Dutch warships, backed by a favourable wind, reluctantly engaged a French fleet of 77 sail under Admiral de Tourville (BNB).

The use of a numeral once again leaves no doubt that *sail* in (16) is a zero plural and the reference to an admiral clarifies that it designates warships. The cognitive motivation of such a usage is also quite straightforward. In times when sails provided a ship with propulsion, they also acted as screens hiding from view anything that was behind them. A ship or ships sailing close to an observer made thus individuating those farther away next to impossible, which, as has been shown above, motivates the development of zero plurals.
Once navy tall ships had been phased out, the number of situations in which such plurals could be used obviously plummeted, which translates into a very low BNC frequency, but they live on in modern historical narratives. Another zero plural with a similar background has, however, been far more fortunate:

(17) All around, tacking between the galleys, milling around the Doge’s vessel, I see the myriad small craft by which for so many years Venice exerted its supremacy around the Adriatic shores (HSG).

(18) There were a number of instances when Iran used ‘gunboats’ or other small craft, often mere motor launches (HRE).

Originally, craft designated only small navy vessels carrying few sails, but the impact of this propulsion system on grammar was the same as described above. Since sails also acted as screens hiding from view ships of similar size sailing further away from the observer, i.e. made individuating particular craft hardly possible, they ultimately provided sufficient motivation for the development of the zero plural.

As shown by (18), the zero plural has, however, outlived the age of sail and remains in use as a common designation of small motor vessels used by the navy for a variety of purposes:

(19) The problems became clear in marshalling hundreds of landing craft as big as single-decker buses, but without any brakes, in a confined seaway (CCS).

(20) Oman is placing an order for three patrol craft with French shipbuilders after weeks of waiting in the hope that a buyer might be found for the Tyneside yard (K2C).

As evidenced by landing craft in (19) and patrol craft in (20), craft has given rise to compounds that inherited the zero plural. Following in the footsteps of cannon, as discussed in the previous section, craft has also diversified to a broad range of civilian uses, e.g.:

(21) I also declare another non-commercial interest as one of the members of the Thames Traditional Boat Society, which is concerned with the maintenance, preservation and use of the traditional hand-propelled craft of the Thames—dinghies, skiffs, canoes and punts (FX6).

(22) Most of the traffic on the narrow canals is now of a different kind: growing numbers of pleasure craft owned or hired by those who have discovered the fascination of the inland waterways.

(23) We reached Lerwick at dusk to moor amongst the varied fishing craft at the fish quay (H0C).

Whether the craft serve to ferry people and goods across the Thames (21), are used for leisure (22) or fishing (23), the compounds designating them all follow the zero plural pattern. However, what is perhaps even more remarkable about the staying power of craft is its spread to non-sailing contexts, e.g.:

(24) Parachutes do not fall within the definition of aircraft and neither do hovercraft so they, too, are excluded (CN2).
(25) On present plans, 648 aircraft will be produced, at a cost of $65 billion–95 billion, the first ones coming off the production line in early 1997 (ABJ).

(26) Rather than having its own satellites, AFSAT uses transponders (relay devices) on several spacecraft of different types (B7N).

No matter if a craft hovers above any surface (24), flies in the air (25) or travels in outer space (26), the compounds designating them consistently take the same zero plural as sailing craft that originally motivated that pattern centuries ago.

4. Final conclusions

The paper has examined a dataset of English zero plurals comprising cannon, horse, foot, sail and craft, and a variety of compounds which the first and especially the last of these nouns have given rise to. This has been the first inquiry to probe these nouns for more than a century and it warrants drawing a number of conclusions.

The most immediate one is that all these nouns remain in use and, given their atypical plural pattern, deserve to be noted in descriptive grammars of English. In some cases, the frequencies of zero plural usage is substantial, e.g. 50% in the case of cannon, 58% for water cannon and 100% in the case of craft and its compounds. The omission of such forms not only makes modern grammars incomplete, but may also baffle users who come across any of these zero plurals. Whether they are students or grammar buffs, they are offered neither a rudimentary explanation of that uncommon grammatical pattern nor even a confirmation that it does exist.

Secondly, and far more importantly, the paper has shown that the zero plurals under investigation are not random exceptions but form a coherent pattern sharing fundamentally similar motivating factors centered on early modern military tactics and technology. In later centuries, the fortunes of particular nouns diverged, as the demise of navy tall ships, cavalry troops and close infantry formations substantially reduced the number of occasions when the zero plurals sail, horse and foot could be used, depressing their BNC frequencies, while the continuing employment of guns and small vessels provided multiple occasions for the use of the zero plurals cannon and craft, boosting their BNC frequencies and giving rise to an array of compounds.

Since all the zero plurals examined in the paper share a cognitive motivation steeped in the military, they have been dubbed military zero plurals and claimed to complement the much better known group of animal zero plurals among English minor plural patterns.

Finally, the examination of English military zero plurals lends further support to the explanation of English animal zero plurals based on the concept of referent individuation argued for in Berezowski, as both groups of zero plurals can be consistently accounted for by resorting to its central notion, while the rival approach to animal zero plurals based on the practice of hunting is unable to do so.
References


