Number classifying to number marking: Change in English countability[1]

Kurt ERBACH — *Goethe-Universität Frankfurt am Main; Universität des Saarlandes*

Abstract. It is herein argued that, from Old English (OE) to Present Day English (PDE), (i) number marking has narrowed from a complex function specifying either atoms or quantities to its present day status specifying only atomicity in addition to number, and (ii) numericals have been reanalyzed from AP heads to specifiers, $n_{\langle n \rangle}$ of the functional measure phrase, *M*P, that takes a cardinality or measure function as its head. This analysis situates OE as a "number classifying language" wherein number marking specifies atoms or contextually specified partitions, and in doing so militates against previous claims that OE 'is a classifier language' and 'had no count–mass distinction'.

Keywords: count/mass, number marking, diachrony, English.

1. Introduction

While a great deal has been written on countability in English and a few other languages (e.g. Link, 1983; Krifka, 1989; Chierchia, 1998; Gillon, 1999; Borer, 2005; Wiese and Maling, 2005; Rothstein, 2010; Landman, 2011; Grimm, 2012; Sutton and Filip, 2016; Erbach et al., 2021; Erbach and Schoenfeld, 2022; Erbach and Kheder, 2024: among many others), little work (Ackles, 1997; Toyota, 2009; Marckwardt, 2019; Tichỳ, 2022) has addressed countability from a diachronic perspective. The question is of particular interest, not only as an empirical gap that can be filled, but also from the perspective of typology and language change. Given it is known that countability occurs quite differently across languages like English, Mandarin (Krifka, 1989), Nez Perce (Deal, 2017), and Yudja (Lima, 2010), to name just a few, an open question is how languages have evolved to their present state.

This paper presents a review of literature on countability in English before the present day and, building on this literature, and the analyses of number marking and countability in Scontras (2013) and Chierchia (2021), argues that English has evolved from a number classifying language, wherein number marking specified either countable atoms or portions, to a number marking language, wherein number marking specifies only atoms and portions can be specified further down in the DP. In other words, English is seen to have undergone both syntactic and semantic change, whereby number marking has narrowed in meaning, and the DP structure has changed from using measure terms like *pound* as nouns that take genitive specifiers to including a measure phrase, *M*P, for overt or covert (i.e. phonologically null) measure terms.

This paper uses *count* and *mass* to characterize both nouns and modifiers thereof. 'Count nouns' are those that occur with 'count modifiers' and denote a set of individuals that can be measured for cardinality as in (1), while 'mass nouns' are those that occur with 'mass modifiers' as in (2).

(1) a. one dog
    b. many cats

(2) a. one drop of rain

[1]I would like to thank the audiences and reviewers at Sinn und Bedeutung 29 and Formal Diachronic Semantics 8 and my supervisor Cornelia Ebert for funding these trips.

In: Federica Longo and Daniele Panizza (eds.) *Proceedings of Sinn und Bedeutung 29*, pp. 455-464.
Noto: University of Messina, C.U.M.O.

b. much dander

Since Link (1983), it has been often assumed that singular count nouns denote sets of atomic entities, where atoms, formally defined in (3) relative to a predicate P, are entities that a predicate can be truthfully applied to, and whose parts that the predicate can also be truthfully applied to are equivalent. In other words, the only part of an atom that a predicate can be true of is the atom itself.

(3) $AT(P) = \lambda w\, \lambda x\, P_w(x) \wedge \forall y[P_w](y) \leq x \rightarrow x = y$ (Chierchia, 2021: 27)

Unlike singular count nouns, plural count nouns and mass nouns are often assumed to denote mereologies, that is sets of atoms and sums thereof, where sums are created with the $\sqcup$ operation. Note that the domain of concrete entities are not always assumed to be atoms (e.g. Krifka, 1989; Erbach et al., 2019) and it is not always assumed that plural nouns denote mereologies (e.g. Lücking and Ginzburg, 2022). Various arguments have been made for how to best account for the difference between count and mass nouns and modifiers (Link, 1983; Krifka, 1989; Chierchia, 1998; Gillon, 1999; Borer, 2005; Wiese and Maling, 2005; Rothstein, 2010; Landman, 2011; Grimm, 2012; Sutton and Filip, 2016: among others). The approaches of Chierchia (2021) and Scontras (2022) are adopted in this paper only because, as will be seen, these particular approaches provide a straightforward means of accounting for the reported changes in this domain in the history of English. Presumably, other approaches could also be used to characterize the changes that will be discussed.

In what follows, it will be shown that English has changed with respect to how nouns are counted and how the count–mass distinction is realized. Section 2 will present the ways that count and mass nouns and modifiers are distinguished in different languages by Scontras (2022) and Chierchia (2021). Section 3 will show that Old English lacks the robust distinction seen in Present Day English across (1) and (2), where *dog* occurs directly with the numerical *one* while *rain* is counted in terms of *drops*, and a large amount of cats is denoted by *many cats* while a large amount of dander is denoted by *much dander*. Section 4 will present an analysis of the Old English count–mass distinction in which number marking is seen to be the locus of specifying countable atoms or quantities. Between then and Present Day English, number marking has simplified to specify only countable atoms, while the specification of countable quantities has moved down the tree to the head of the measure phrase, *M*P. Section 5 concludes that, the present account not only undermines previous claims that Old English had no count–mass distinction, but further supports the idea of count and mass as a semantic universal.

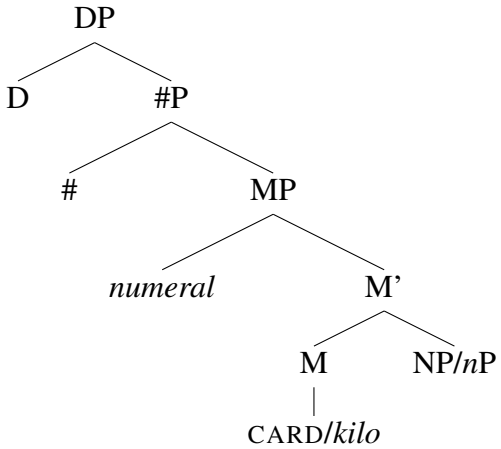
2. Background: Typologies of counting systems

This section presents two accounts of variation in number marking that have implications for the diachrony of countability systems. First, Scontras (2022) argues that variation in number marking is the result of how singular reference is checked for, while Chierchia (2021) argues that the semantics of number morphology, if a language has such morphology, affects how countability is manifest in that language. These two accounts will be integrated in Section 4 to characterize the Old English data presented in Section 3.

2.1. Variation in the means of selecting measured properties

Scontras (2022) argues that variation in counting systems is the result of variation in the means of selecting measured properties. In his proposal, he assumes that cardinal numerals, which serve the purpose of counting, are formed via $\text{CARD}_{\langle\langle e,t\rangle,\langle n,\langle e,t\rangle\rangle\rangle}$ and function like measure words such as *kilo*. These measure terms (e.g. CARD, *kilo*) head MP and specify relations between numerals and individuals.

(4)



At the same time, morphological number is determined by the head of #P, which is sister to the nominal projection and identifies, via μ, a measurable property in the nominal denotation. In other words, number marking (5) is sensitive to the quantity-uniform property (6) in the nominal semantics.

(5) *English # heads*: (Scontras, 2022: p. 1186)
a. $[\![\text{SG}]\!] = \lambda \text{P} : \forall\mu\forall \text{x} \in \text{P}[\text{QU}_\mu(\text{P}) \rightarrow \mu(\text{x}) = 1].\text{P}$
b. $[\![\text{PL}]\!] = \lambda \text{P}.\text{P}$

(6) *Quantity-uniform property*: (Scontras, 2022: p. 1185)
$\text{QU}_\mu(\text{P}) = 1$ iff $\forall \text{x}\forall \text{y}[\text{P}(\text{x}) \wedge \text{P}(\text{y}) \rightarrow \mu(\text{x}) = \mu(\text{y})]$

Singular number (5a) presupposes that, if a property is quantity-uniform with respect to a measure, then it equals one with respect to that measure. Quantity-uniformity (6) is true of a property if all entities true of P are equal in terms of measurement, and where the measurement is specified by the context of use. For example, *kilo*, is a quantity-uniform property given each entity that can be called one kilo is equal to all others. This analysis also accounts for number marking on measure nominals like *kilo* and *pound*.

This analysis is built on Sauerland (2003); Sauerland et al. (2005), wherein number features are located on a functional # head. Number morphology on nouns is determined by agreement with #, and the # head SG is assumed to be marked, containing a presupposition that the property it composes with is atomic, while PL has no presupposition. So, the presupposition of SG is true of a singular property (e.g. $[\![\text{dog}]\!]$ = Fido, Sparky, Rover) but not a plural property (e.g. $[\![^*\text{dog}]\!]$ = Fido, Sparky, Rover, Fido⊔Sparky, Fido⊔Rover, Sparky⊔Rover, Fido⊔Sparky⊔Rover), which can be formed with the * operation that closes the singular property under sum (Link, 1983). PL is argued to never occur with singular properties assuming the principle of Maximize

Presupposition (Heim, 1991)—i.e. SG is used with singular properties rather than PL because the former carries a presupposition. *One* is assumed to not occur with plural properties because of an economy principle—i.e. that the singular is used if the outcome of using the plural would otherwise be identical to the singular. On the other hand, *two* will not occur with a singular property because the resulting denotation would be null.

To account for the fact that counted nouns and measures occur with singular morphology in Turkish, Scontras (2022) assumes that, there, singular morphology (7) counts the smallest relative atoms of the nominal predicates it combines with (8).

(7) *Turkish # heads*: (Scontras, 2022: p. 1188)
a. $[\![\text{SG}]\!] = \lambda \text{P} : \forall \text{x} \in \text{P}[\mu_{\text{P-atom}}(\text{x}) = 1].\text{P}$
b. $[\![\text{PL}]\!] = \lambda \text{P}.\text{P}$

(8) $\mu_{\text{P-atom}}(\text{y})$ is defined only if y∈P; when defined
$\mu_{\text{P-atom}}(\text{y}) = |\{\text{x} \in \text{P} : \text{x} \leq \text{y} \wedge \neg\exists \text{z} \in \text{P}[\text{z} < \text{x}]\}|$ (Scontras, 2022: p. 1188)

In other words, the presupposition for one-ness in the semantics of singular number marking is relativized to MP, the complement of #, in Turkish, rather than M^0, the head of its complement, as in English. Western Armenian, on the other hand, where number marking on counted nouns can be either singular or plural is simply assumed to have both forms of number marking available.

In summary, Scontras (2022) is able to account for the variation seen across English, Turkish, and Western Armenian counting systems given the means of selecting a measured property can vary. In English it is assumed that the head of #P's sister selects measured properties, in Turkish it is the complement of Spec# and either of these two are possible in Western Armenian. This structure and accounts for (i) number marking on measure terms like *kilo* in English, (ii) counting morphologically singular nouns in Turkish, and (iii) counting both morphologically singular and plural nouns with numerals greater than one in Western Armenian.

2.2. Variation in which properties are selected

Chierchia (2021) characterizes countability systems with respect to two key characteristics of a language's nominal systems: (i) which nouns take plural morphology, if any, and (ii) which nouns can be directly counted, if any. The ability of a noun to be modified by number morphology, for Chierchia (2021), is an indicator of that noun denoting properties—i.e. functions from worlds to subsets of the domain of individuals ($\langle s, \langle e,t \rangle \rangle$)—instead of kinds ($\langle s, e \rangle$). The fact that English and Nez Perce nouns combine with number marking supports the assumption these nouns are type $\langle s, \langle e,t \rangle \rangle$, while the lack of general number marking in Mandarin and Yudja supports the assumption that these nouns are $\langle s, e \rangle$.

Which nouns can be directly counted is taken as an indication of how counting and number marking, if any, work within these languages. In English, where count nouns are directly counted and mass nouns require a classifier, number marking is assumed to specify atomicity (3), so count nouns, which are stably atomic across worlds, denote a set of atoms, mass nouns, which are not stably atomic across worlds, denote a singleton, supremum of unstable atoms, and object mass nouns (e.g. *furniture, underwear*) denote singletons via lexical choice. In Nez Perce, where all nouns are type $\langle s, \langle e,t \rangle \rangle$ and can be directly counted, number marking is assumed to

denote the polymorphic function $\Delta_n(P)$ that specifies atoms for count nouns and a contextually relevant quantity for mass nouns. A morphologically null variant of Δ_n exists in Yudja for its kind-denoting nouns, given all nouns can be directly counted. Lastly in Mandarin, classifiers and massifiers specify atoms and portions, respectively, for all nouns, which denote kinds and cannot be directly counted. In summary, the set of nouns that can be directly counted is taken to be either a reflection of the meaning of number morphology in the languages that have it or an indicator of a morphologically null classifier in the languages that have no number morphology.

3. Data from previous accounts of Old English countability

Several studies have looked at facets of countability in Old English and each have argued that Old English lacked the robust count–mass distinction seen in Present Day English. Marckwardt (1970/2019) looked at the use of *many* and *much* in the history of English, Ackles (1997) at counting, 'the', 'a', and plural morphology in Old English, and Toyota (2009) at classifiers in the York-Toronto-Helsinki Corpus of Old English, each failing to find evidence for a strong distinction between count and mass in Old English. This section will review the data and main claims of each of these previous works, showing that countability was encoded differently in Old English than in Present Day English.

3.1. The development of *many* and *much*

Marckwardt (1970/2019) investigated the distributions of *monig* ('many'), *mycel* ('much'), and *fele* ('many/much') in fourteen Old English texts: Anglo-Saxon Chronicle, Ohtere and Wulfstan, Beowulf, Maldon, Trinity Holmes, Generydes, Life of St. Editha, Seven Sages, Alfred's Orosius, Bede, Alfred, Boethius, Aelfric, Homily on St. Gregor. He found that *monig* ('many') more frequently occurred with genitive plural nouns than nouns of other cases, for example with *rinca* ('man.GEN'), *eorla* ('hero.GEN'), *mægða* ('maiden.GEN'), and *fira* ('fire.GEN'). Early uses are characterized as distributive, like 'many-a', as in (9), wherein it is followed with a singular noun, and the indefinite article was added to such forms in the 13th century.

(9) þā wæs on morgen mīne gefræge ymb þā gif healle gūðrinc monig
then was on morning as.I.have.said around the gift hall warrior many
"Then, in the morning, as I have said, around the gift hall were many warriors"
(Beowulf, 837-838 in Marckwardt, 2019: p. 52, glosses & translation added)

At the same time, *mycel* ('much') generally described size as in (10) and modified singular nouns, including *here* ('dignity'), *fierd* ('army'/'force'), *sumorlīda*. ('summer-fleet'), and *menigu* ('crowd').

(10) næfre swā manega gesceafta, ond swā micla, ond swa fægra
never so much dispensation and so many and so fairly
"never [was there] so much dispensation and so many and so fair"
(Alfredian Boethius in Marckwardt, 2019: p. 53, glosses & translation added)

Looking ahead to Middle English is where the first uses of *mycel* ('much') clearly denote a large quantity rather than a large size, occurring with nouns like *herehȳð* ('booty'), *ege* ('fear'), *mod* ('courage') and *walsliht* ('slaughter'). The eventual obsolescence of *fele* ('many/much') is characterized in terms of loss of semantic force given it could occur with both count and

mass nouns and interpretations (c.f. *viel*(*e*) in present day German) and it eventually started co-occurring with *monig* ('many') and *mycel* ('much') before it was lost. Building on this data, Marckwardt (2019) argues that the Present Day English distribution of *monig* ('many') and *mycel* ('much') straightforwardly developed from these Old English patterns.

3.2. The development of articles and countability

Ackles (1997) looked at the development of noun phrase structure (DP structure in today's terms) via review of literature and an unreported number of Old English texts. The goal was to account for the development of *the*, *a*, *-s*, and counting constructions. Ackles (1997) argues that the distinction between count and mass cannot be seen in distribution of the indefinite article, plural morphology, *many*, or *much*. The primary reason for the lack of count/mass bias of the indefinite article is that it did not develop until Middle English despite *an* ('one') having a variety of uses in Old English other than strictly meaning '1'. Plural morphology is argued to have had unrestricted use across nouns, therefore not distinguishing count versus mass in any clear way. For example, instances of *wæteres* ('waters') meaning 'a lot of water' and words parallel to 'joys', where abundance readings are likewise probable. Finally, building on Marckwardt (2019), Ackles (1997) argues that *mycel* ('much') was primarily an adjective of size and *monig* ('many') did not have a clear bias for count nouns.

Looking at counting constructions, Ackles (1997) found a general use of genitive case in counting constructions, (11), i.e. use in other cases was less common (12).

(11) embe þreo and ðritig geara
about three and thirty year.PL.GEN
'about thirty three years' (ÆCHom 1.236.24 in Ackles, 1997: p. 79)

(12) of þrim folcum
of threeDAT nations.DAT
'of three nations' (Bede52.2 in Ackles, 1997: p. 78)

Given this data, Ackles (1997) argues that Old English numerals were adjectives and that the default counting construction was genitive. She assumes that the loss of genitive case for counting constructions is evidence of reanalysis: This genitive structure was reanalyzed over time as NumP, which is projected by +COUNT nouns. Whether a noun became count or mass is assumed to be a matter of frequency of occurrence with relevant terms. When not being counted with numerals, the indefinite article and plural morphology are assumed to fill NumP, and the definite article eventually developed as a correlate to the indefinite article. Lastly, this development of count nouns projecting NumP also allowed for *many* and *much* to develop distinct quantity meanings. In this way, English developed a count–mass distinction.

3.3. The development of classifiers

Toyota (2009) looks at the use of numerals and classifiers (*grain of*, *piece of*, etc.) in the Helsinki Corpus and, like Ackles (1997), characterizes numerals as adjectival given they agree with nouns in number and case. For example, 'three' agrees in the dative plural noun in (12) and 'four' agrees with the accusative plural noun in (13).

(13) hē hæfde fēower wīf
he have.PST.3SG four.ACC.PL wife.ACC.PL
'He had four wives.' (Ælfric Genesis 15-16 in Toyota, 2009: p. 119)

As for classifiers, Toyota (2009) found none of the 21 Present Day English classifiers sought in Old English, rather only one classifier, *sester* (14), was found and only rarely at that. Additionally, because such uses of *sester* occur in the genitive case, they are considered partitive rather than classifiers uses, therefore not strictly distinguishing between mass and count nouns.

(14) Nim anne sester wines & twegen
take.IMP.SG one.ACC.SG sester.ACC.SG wine.GEN.SG and two.ACC.SG
wæteres
water.GEN.SG
'Take one sester of wine and two sesters of water'
(Quadrupedibus 151 in Toyota, 2009: 120)

Given the lack of clear distinction between mass nouns and count nouns in Old English, as can be determined by the use of numerals and classifiers, Toyota (2009) argues Old English was like Mandarin, albeit with a morphologically null classifier. Note, however, that such an analysis is parallel to that of Nez Perce rather than Mandarin in Chierchia's (2021) terms.

4. Analysis

The analysis argued for herein builds on the analyses and data reported in the aforementioned accounts, though it undermines some of the previous conclusions. Following Ackles (1997), Old English numerals are assumed to be adjectives, and following her and Toyota (2009) there is no count–mass distinction visible in terms of which nouns can and cannot directly combine with numerals or plural morphology. These patterns are accounted for by treating Old English somewhat like Nez Perce as a number classifying language, presupposing that what is counted is specified by Δ, (15), within number marking (16a), and its flexibility allows for both count and mass nouns to be counted. Δ specifies either atoms or quantities depending on the nominal it composes with.

(15) $\lambda\text{P}.\Delta_n(\text{P}) = \{\lambda\text{P.AT(P) if defined, else } \lambda\text{P}.\mathit{quantity}_n(\text{P})\}$ (cf. Chierchia, 2021: 48)

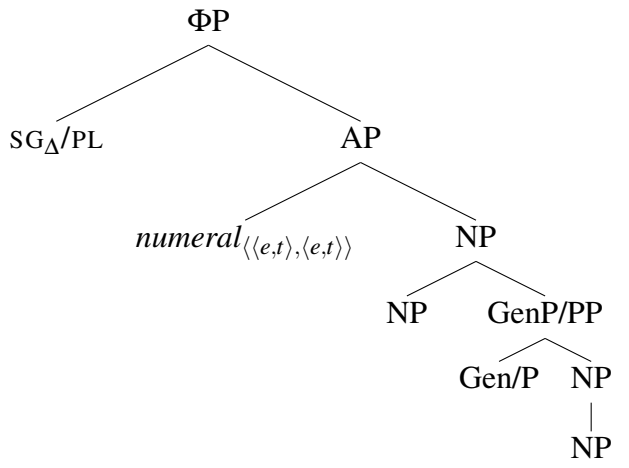
(16) Old English Number Marking:
a. $[\![\text{SG}]\!] = \{\lambda\text{P} : \Delta_n(\text{P}).\text{P if defined, else } \lambda\text{P}.(\text{P})\}$
b. $[\![\text{PL}]\!] = \lambda\text{P} : {*}\text{SG}(\text{P}).\text{P}$ (cf. Chierchia, 2021: 49)

Following Ackles (1997), among others (e.g. Rothstein, 2017), numerals are categorized as AP heads of type $\langle\langle e,t\rangle,\langle e,t\rangle\rangle$, (17).

(17) $[\![\text{þrí}]\!]_{\langle\langle e,t\rangle,\langle e,t\rangle\rangle} = \lambda\text{P}\lambda\text{x. P(x)} \wedge \mu_{\text{CARD}}(\text{x}) = 3$ (cf. Scontras, 2022: 1177)

All together, Old English nominal structures are analyzed as in (18), where counted NPs have GenP specifiers, either simply specifying the relationship between numeral and noun, or a further genitive relationship like partitivity.

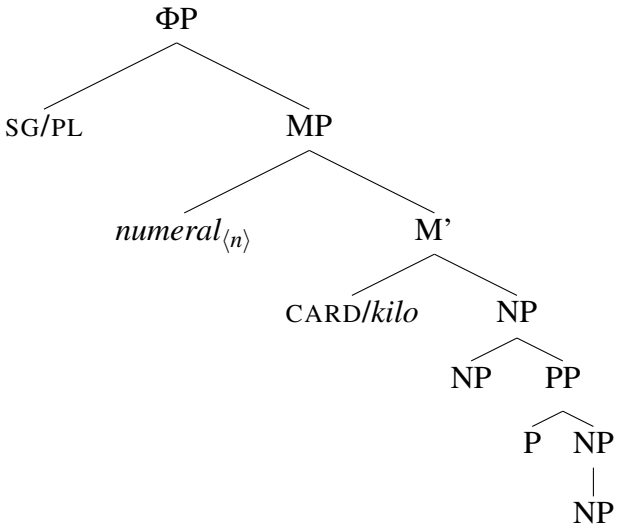
(18) Old English



The structure in (18) also accounts for counting when the head noun was not genitive, and (11) in particular is assumed to be accounted for with a deleted upper NP as is assumed to occur in Present Day English partitives (Marty, 2019).

The change from Old English to Present Day English can therefore be characterized as follows: (i) number marking, (16a), has narrowed from presupposing a complex function, ΔP (15), specifying either atoms or quantities, to its present day status (20) as presupposing only atomicity in addition to number (3), and (ii) numerals have been reanalyzed from AP heads, (17), to specifiers, $n_{\langle n\rangle}$ of the functional MP that takes a cardinality or measure function as its head.

(19) Present Day English



(20) Present Day English Number Marking:
a. $[\![\text{SG}]\!] = \lambda\text{P:AT(P).P}$
b. $[\![\text{PL}]\!] = \lambda\text{P.P}$ (cf. Chierchia, 2021: 42)

(21) a. $[\![\text{CARD}]\!]_{\langle\langle e,t\rangle,\langle n\langle e,t\rangle\rangle\rangle} = \lambda\text{P}\lambda\text{n}\lambda\text{x. P(x)} \wedge \mu_{\text{CARD}}(\text{x}) = \text{n}$ (Scontras, 2022: 1177)
b. $[\![\text{kilo}]\!]_{\langle k,\langle n\langle e,t\rangle\rangle\rangle} = \lambda\text{k}\lambda\text{n}\lambda\text{x.}\ ^{\cup}\text{k(x)} \wedge \mu_{kg}(\text{x}) = \text{n}$ (Scontras, 2022: 1181)

This analysis situates Old English as a number classifying language in the sense of Chierchia (2021), wherein number marking specifies atoms or contextually specified partitions, and in

doing so undermines previous claims that Old English 'is a classifier language' (Toyota, 2009) and 'had no count–mass distinction' (Ackles, 1997). Old English can still be said to have a count–mass distinction in the sense that there are presumably ways to distinguish words with these respective denotations such as with distributive predicates (see, e.g. Schwarzschild, 2011) rather than with the grammar of counting in Old English. Again, the idea is that Δ, is part of the presuppositional content of number marking, and that it does the work of specifying countable atoms or measurable units in Old English depending on the noun's denotation. In developing towards the present day grammar, this specification has moved down the tree and is now realized as CARD or a measure unit in Present Day English.

5. Conclusion

This analysis shifts the description of how English has changed, namely countability did emerge via the development of count nouns and mass nouns based their distribution, rather countability became more visible via the change in number marking. Moreover, this supports the notion that the count–mass distinction is a linguistic universal based on the cognitive distinction between discrete solid objects and non-solid substances (see Spelke et al., 1992; Chierchia, 2021).

References

Ackles, N. M. (1997). *Historical syntax of the English articles in relation to the count/non-count distinction*. Ph. D. thesis, University of Washington.

Borer, H. (2005). *In Name Only*, Volume 1. Oxford University Press on Demand.

Chierchia, G. (1998). Plurality of Mass Nouns and the Notion of "Semantic Parameter". In S. Rothstein (Ed.), *Events and Grammar: Studies in Linguistics and Philosophy Vol. 7*, pp. 53–103. Kluwer.

Chierchia, G. (2021). *Mass vs. Count: Where Do We Stand? Outline of a Theory of Semantic Variation*, pp. 21–54. Cambridge University Press.

Deal, A. R. (2017). Countability distinctions and semantic variation. *Natural Language Semantics 25*(2), 125–171.

Erbach, K., H. Filip, and P. R. Sutton (2019). Bare nouns and the Hungarian mass/count distinction. In *Logic, Language, and Computation: 12th International Tbilisi Symposium on Logic, Language, and Computation, TbiLLC 2017, Lagodekhi, Georgia, September 18-22, 2017, Revised Selected Papers*. Springer.

Erbach, K. and D. Kheder (2024). Variation in countability properties and noun classes. *International Journal of Kurdish Studies 10*(1).

Erbach, K. and A. Schoenfeld (2022). Object mass nouns and subkind countability. *Glossa: a journal of general linguistics*.

Erbach, K., P. R. Sutton, H. Filip, and K. Byrdeck (2021). *Object Mass Nouns as Arbiter for the Mass/Count Category*, pp. 167–192. Cambridge University Press.

Gillon, B. S. (1999). The lexical semantics of English count and mass nouns. In *Breadth and depth of semantic lexicons*, pp. 19–37. Springer.

Grimm, S. (2012). *Number and individuation*. Ph. D. thesis, Stanford University.

Heim, I. (1991). Artikel und definitheit. *Semantik: ein internationales Handbuch der Zeitgenössischen forschung*, 487–535.

Krifka, M. (1989). Nominal reference, temporal constitution and quantification in event semantics. In R. Bartsch, J. F. A. K. van Benthem, and P. van Emde Boas (Eds.), *Semantics and*

Contextual Expression, pp. 75–115. Foris Publications.

Landman, F. (2011). Count nouns – mass nouns, neat nouns – mess nouns. *Baltic International Yearbook of Cognition, Logic and Communication 6*(1), 1–67.

Lima, S. (2010). About the count-mass distinction in Yudja: a description. In *WSCLA 15: The Fifteenth Workshop on Structure and Constituency in Languages of the Americas*, pp. 157–164.

Link, G. (1983). The logical analysis of plurals and mass terms. In *Meaning, Use, and Interpretation of Language*, pp. 127–146. Walter de Gruyter.

Lücking, A. and J. Ginzburg (2022, April). Referential transparency as the proper treatment for quantification. *Semantics and Pragmatics 15*(4), 1–58.

Marckwardt, A. H. (2019). *Much and many: The historical development of a Modern English distributional pattern*, pp. 50–54. De Gruyter Mouton.

Marty, P. (2019). On the source of proper partitivity. In *Proceedings of Sinn und Bedeutung*, Volume 23, Bellaterra, pp. 143–160. Universitat Autònoma de Barcelona.

Rothstein, S. (2010). Counting and the mass/count distinction. *Journal of Semantics 27*(3), 343–397.

Rothstein, S. (2017). *Semantics for Counting and Measuring*. Cambridge University Press.

Sauerland, U. (2003). A new semantics for number. In *Semantics and Linguistic Theory*, Volume 13, pp. 258–275.

Sauerland, U., J. Anderssen, and K. Yatsushiro (2005). The plural is semantically unmarked. *Linguistic evidence*, 413–434.

Schwarzschild, R. (2011). Stubborn distributivity, multiparticipant nouns and the count/mass distinction. In *Proceedings of NELS*, Volume 39, pp. 661–678. Graduate Linguistics Students Association, University of Massachusetts Amherst, MA.

Scontras, G. (2013). A unified semantics for number marking, numerals, and nominal structure. In *Proceedings of Sinn und Bedeutung*, Volume 17, pp. 545–562.

Scontras, G. (2022). On the semantics of number morphology. *Linguistics and Philosophy 45*(5), 1165–1196.

Spelke, E. S., K. Breinlinger, J. Macomber, and K. Jacobson (1992). Origins of knowledge. *Psychological review 99*(4), 605.

Sutton, P. R. and H. Filip (2016). Counting in context: Count/mass variation and restrictions on coercion in collective artifact nouns. *Semantics and Linguistic Theory 26*(0), 350–370.

Tichỳ, O. (2022). Countability in the history of english: Evidence from grammars and dictionaries. *Linguistica Pragensia 32*(1), 39–58.

Toyota, J. (2009). When the mass was counted: English as classifier and non-classifier language. *Skase Journal of Theoretical Linguistics 6*.

Wiese, H. and J. Maling (2005). Beers, kaffi, and schnaps: Different grammatical options for restaurant talk coercions in three Germanic languages. *Journal of Germanic Linguistics 17*(1), 1–38.