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Flavors of Division

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The theoretical aim of this article is to integrate the singulative into the theory of division proposed by Borer (2005) and other theoretical linguists (e.g., Krifka 1995, Doetjes 1996, 1997, Chierchia 1998, Cheng and Sybesma 1999). To illustrate my claim, I offer a brief case study of Ojibwe, an Algonquian language, which I argue uses gender shift (from inanimate to animate) to mark singulativization. Singulatives, as morphological markers, are primarily known from Celtic, Afro-Asiatic, and Nilo-Saharan languages, but are not a known feature of Algonquian languages. Further support for my claim that the grammar of Algonquian languages embeds a singulative system comes from Fox (Mesquakie).

Keywords: singulative, division, number, gender, Algonquian, Celtic, plural, classifiers

Borer (2005) proposes that all nouns in all languages are in need of being portioned out before they can interact with the count system. In Chinese, this is achieved by (count) classifiers for count nouns and (mass) classifiers for mass nouns (Cheng and Sybesma 1999).¹ In English, plural marking takes the role of classifiers for count nouns, and measure phrases are used in lieu of

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¹ Following Cheng and Sybesma (1999), classifiers can roughly be divided into two groups: classifiers that create a unit of measure, and those that simply name the unit in which the entity denoted by the noun naturally occurs. Cheng and Sybesma refer to the classifiers that create a unit of measure as *massifiers* (short for *mass-classifiers*) and to the ones that simply name the unit of natural semantic partitioning as *classifiers* (short for *count-classifiers*).

mass classifiers (Sanches and Slobin 1973, Doetjes 1996, 1997).² For singular individual nouns in English such as *cat* in *one cat*, the numeral *one* functions both as a divider and as a counter. In Hungarian, Tagalog, and Turkish, this is generalized to all numerals, in which case it is possible for the noun to be free of plural marking (Borer 2005).

I will show that atomization³ for count nouns in Ojibwe (an Algonquian language)⁴ can proceed exactly as in English, namely, by way of the plural. However, in the absence of many measure phrases or productive mass classifiers, Ojibwe uses a singulative system (or the remnants thereof) to perform division that yields unit-of-measure readings (from mass nouns). As is the case in other languages with the singulative, atomization via the singulative in Ojibwe is also used to create individuals from collectives.

The idea that the singulative performs the same function as a classifier goes back to Greenberg (1972),⁵ who states that “[t]he classifier is an individualizer which performs the same function as a singulative affix in languages with the collective/singulative opposition” (p. 26).⁶ Reversing this claim (a singulative affix performs the same function as a classifier) and adding the singulative system to the theory of division is only a logical step that makes the present proposal a very natural one.

The degree to which the content of Div⁰ (the locus of individuation according to Borer (2005)) varies is consequently higher than previously thought (see Ritter and Wiltschko 2009 for the idea that the content of functional categories can vary crosslinguistically). The plural, numeral classifiers, and atomizing numerals are all different flavors Div⁰ can take, but we must now add the singulative. I will show that the content of the singulative itself varies: in Ojibwe, it comes in the form of gender shift or in the form of the diminutive. Crosslinguistically, gender shift comes in two subflavors: shift from masculine to feminine in Breton, Welsh, Somali, and Arabic,

² The idea that number is not about counting but about dividing undivided stuff is most apparent in English in the case of fractions (as originally described by Krifka (1989)). The noun *apple* is systematically pluralized in (i) although there is only one apple involved in each case. This is an effect found in many languages, not just English.

- (i) a. 0.2 apples/*apple
 - b. 0.1 apples/*apple
 - c. 1.5 apples/*apple
 - d. 1.0 apples/*apple
- (Borer 2005:115)

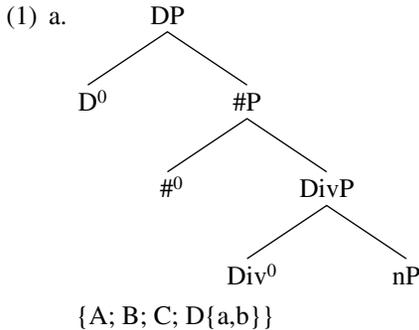
³ I use *division*, *individualization*, and *atomization* interchangeably.

⁴ *Ojibwe* encompasses varieties of the language called by different names in English, including Odawa, Ottawa, Chippewa, or Ojibway. While the language is spoken over a vast region of central Canada and in US border states from Michigan to Montana, the varieties of the language used in this study are those described in Valentine 2001: that is, dialects spoken in southern Ontario between the shores of Lake Huron to the east roughly as far as the Ottawa River. Many of the original data used in this article come from fieldwork undertaken with members of The Chippewas of Nawash Unceded First Nation at Cape Croker (Neyaashiingmiming) on the Saugeen (Bruce) Peninsula. Ojibwe is spoken there; a few individuals speak Odawa. Other data come from published material such as grammars, dictionaries, and articles on the syntax and morphology of the language.

⁵ Greenberg’s work is, of course, independently a source of inspiration for Borer 2005.

⁶ See also Sanches and Slobin 1973.

but shift from inanimate to animate in Algonquian.⁷ (1) summarizes the different flavors that Div^0 can take.



b. *Possible content/flavors of Div^0*

A = plural (Number system 1)

B = numeral classifier (Number system 2)

C = numerals (Number system 3)

D = singulative (Number system 4)

a = gender shift

b = diminutive

Since there is evidence that singulative forms can be pluralized, my final claim will be that division is not the sole function of the plural (as in Borer 2005); it can also simply be used as a counter, as taken for granted by traditional grammars and common wisdom. The plural thus has a dual role in the grammar.

In tackling issues related to the count/mass distinction (e.g., the role of number in aboriginal languages or the derived versus default nature of the plural), this article contributes to many current issues in linguistics.

Section 1 incorporates the singulative into Borer's (2005) system of division and discusses known languages that have the singulative as part of their grammars. Section 2 introduces the basic facts about Ojibwe. It also introduces a puzzle: why Ojibwe mass nouns can systematically be pluralized, a problem whose solution will be connected to the singulative. Section 3 gives a full analysis of the Ojibwe singulative, focusing on gender shift from inanimate to animate. Section 4 introduces another means by which the singulative in Ojibwe can be realized: the diminutive. Section 5 concludes.

⁷ I take it that while Div^0 is universal, its content is not. The list in (1b) is not meant to be exhaustive: other exponents of Div^0 and of the singulative itself might be discovered. This is why I want to avoid viewing the different flavors of Div^0 as traditional parameters (see, e.g., Newmeyer 2005 and Boeckx 2010 for the idea that parameters are best relegated to outside systems of the grammar).

1 The Singulative

The singulative is a process by which a collective or a mass noun (of a certain kind, depending on the language) is turned into a unit. It is common crosslinguistically for gender shift to mark the singulative. For example, languages like Russian that have remnants of a singulative system (which was once fully productive; Greenberg 1972) use a shift from masculine to feminine by way of a suffix on a mass noun to create a unit-of-measure reading (*lyod* (MASC) ‘ice’ ~ *l’dina* (FEM) ‘block of ice’) or a simple unit reading (*grad* (MASC) ‘hail’ ~ *gradina* (FEM) ‘hailstone’). Hebrew also has remnants of a singulative system whereby a mass noun that is masculine is turned into an individual marked as feminine: *se’ar* (MASC) ‘hair’ ~ *sa’ar-a* (FEM) ‘hair’ ~ *sa’ar-ot* ‘hairs’ (Doron and Müller 2011). In that language, it is also possible to shift from feminine to masculine: *alv-a* (FEM) ‘foliage’ ~ *ale* (MASC) ‘leaf’ ~ *al-im* (MASC) ‘leaves’.

In Breton (a Celtic language, still spoken in some western parts of France), nouns that refer to collections or masses can be portioned out with the help of a feminine suffix, *-enn*, yielding singulative nominals.⁸ The feminine is marked and used to distinguish count from mass/collective. Collective nouns, as in (2), are semantically plural, but morphosyntactically singular (examples from Stump 2005:62). The collective is typically used to denote a kind (in contrast, the singulative term is never associated with kinds).

- (2) a. *buzhug* ‘worms’ ~ *buzhug-enn* ‘a worm’
 b. *kraon* ‘walnuts’ ~ *kraon-enn* ‘a walnut’
 c. *per* ‘pears’ ~ *per-enn* ‘a pear’
 d. *logod* ‘mice’ ~ *logod-enn* ‘a mouse’
 e. *gwez* ‘trees’ ~ *gwez-enn* ‘a tree’

The resulting singulative form can in turn often be pluralized, as in (3). This shows that the singulative first performs the atomizing operation and that the plural is added only afterward. The plural does not itself perform the dividing function. This, a priori, poses a challenge for Borer’s (2005) theory of division; but as we will see, there is a natural solution to this problem. Once we take seriously the idea that the singulative can be a divider, like classifiers and the plural, then we must come to terms with the idea that the role of the plural in this instance is simply that of counting rather than dividing.

- (3) a. *buzhug-enn* ‘a worm’ ~ *buzhug-enn-où* ‘worms’
 b. *kraon-enn* ‘a walnut’ ~ *kraon-enn-où* ‘walnuts’
 c. *per-enn* ‘a pear’ ~ *per-enn-où* ‘pears’
 d. *logod-enn* ‘a mouse’ ~ *logod-enn-où* ‘mice’
 e. *gwez-enn* ‘a tree’ ~ *gwez-enn-où* ‘trees’

⁸ Old Breton had two singulative endings, *-in* and *-en*, one for each gender value (Hemon 1975:39). Middle and Modern Breton retain only the feminine *-enn*, so that singulative forms are invariably feminine (Acquaviva 2008:243).

The singulative by way of the feminine morpheme *-enn* also targets mass nouns; see (4). These examples (from Trépos 1980:67) show that the function of the singulative consists not only in turning abstract object types (collectives) into identifiable objects, but also in picking discrete entities out of an undifferentiated mass. The mass nouns in (4) are all masculine; the singulative nouns are all feminine.

- (4) a. *geot* ‘grass’ ~ *geot-enn* ‘blade of grass’
 b. *plouz* ‘straw’ ~ *plouz-enn* ‘wisp of straw’
 c. *ed* ‘wheat’ ~ *ed-enn* ‘stalk of wheat’
 d. *louzou* ‘weeds’ ~ *louzou-enn* ‘blade of weed’

Division by the singulative can also be performed on substances and some liquids, as shown in (5) and (6), respectively ((5a–c) and (6a–b) are from Trépos 1980:67; (5d) is from Ternes 1992:416).⁹

- (5) a. *douar* ‘earth’ ~ *douar-enn* ‘plot, terrier [survey of land]’
 b. *erc’h* ‘snow’ ~ *erc’h-enn* ‘piece of snow’
 c. *dir* ‘steel’ ~ *dir-enn* ‘lighter’
 d. *gwer* ‘glass’ ~ *gwer-enn* ‘a glass’
 (6) a. *dour* ‘water’ ~ *dour-enn* ‘drop of water’
 b. *glav* ‘rain’ ~ *glav-enn* ‘drop of rain’

Although *-enn* joins very freely with collective nouns (see (2)), it is apparently much more sporadic in its combinations with mass nouns (however, note that in other singulative languages, such as Classical Arabic, not all collectives are the target of the singulative either; Greenberg 1972). In addition, as pointed out by Acquaviva (2008:245), when singulatives are derived from mass nouns, the meaning/value of the massifier varies with the word (*piece* of ice, but *blade* of grass and *drop* of rain). This state of affairs is widespread in languages where the singulative is available. In Syrian Arabic, for example, singulatives are formed by suffixing *-el/-a*, both feminine forms.¹⁰ The translated measure word varies according to the noun that is used (here, ‘grain’ or ‘blade’). Examples are from Cowell 2005:298.

⁹ ‘Il y a d’autres collectifs qui sont en réalité des noms de *matière*, ou d’*espèce*’ (Trépos 1980:67). ‘There are other collectives that are in fact names of *matter*, or *kind*’ (my translation).

¹⁰ Three points are worth noting here. First, in Classical Arabic, traditional grammars distinguish two kinds of collectives: nouns of collections (applies to sentient beings), like ‘herd’ and ‘company’, and nouns of collective kinds. The latter applies to animals, plants, and inanimate objects, and comprises many nouns denoting fruits, vegetables, flowers, grains, insects, and birds. These forms serve as the basis for the derivation of singulatives (unit nouns), which in turn can be pluralized.

Second, another way to express semantic packaging in Arabic is through classifiers. Examples from Egyptian Arabic (Cairo dialect) are *hittit lahm* ‘a chunk of meat’, lit. ‘piece meat’, and *hittit haddiid* ‘a piece of iron’, lit. ‘piece iron’ (Holes 2004:171, cited in Acquaviva 2008:223). This illustrates again different forms for Div⁰.

Third, collectives are also the target of the singulative in Syrian Arabic, as shown in (ia). In turn, the singulative can be pluralized, as shown in (ib). Examples are from Cowell 2005:297.

- (i) a. *dəbbān* ‘flies’ ~ *dəbbān-e* ‘one fly’
 b. *dəbbān-e* ‘one fly’ ~ *dəbbān-āt* ‘flies’

- (7) a. ʔam^h ‘wheat’ ~ ʔam^h-e ‘a grain of wheat’
 b. εəš^b ‘grass, weeds, herbs’ ~ εəš^b-e ‘a blade of grass, a weed, an herb’

The singulative is not productive with all mass nouns. In Syrian Arabic, a few mass nouns designating plants, for example, either have no unit derivative at all, or have one that appears very rarely. In such cases, a periphrastic phrase is used instead. An example from Cowell 2005: 298 is *tūm* ‘garlic’ ~ *rās tūm* ‘a garlic bulb’ (*rās* means ‘head’).¹¹

The incomplete productivity and the shifting meaning of the singulative are sometimes taken as a sign that although clearly an inflectional process (see footnote 13), it nevertheless has many derivational properties (see, e.g., Acquaviva 2008). However, I wish to abstract away from the inflectional/derivational distinction (following Distributed Morphology; inflectional vs. derivational processes share many properties) and I follow Booij (1993, 1995), who shows that inflectional and derivational morphology are not two different kinds of morphology, but two different processes: inflectional morphology, in particular, can be used contextually—purely syntactically—or inherently. I therefore assume that (a) the absence of certain singularized mass nouns is simply a reflection of accidental gaps, and (b) the exact meaning of singularized nouns is obtained through context (contextual determination of meaning/compositionality being a property of syntax).

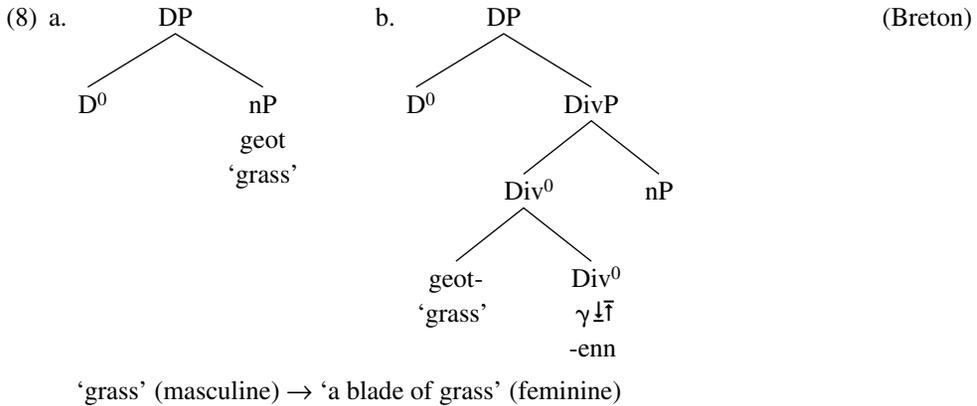
That the context is important for the interpretation of singulativized nouns is clear from the case of nouns that denote substances (see (5)). Sometimes the meaning is the measure reading (‘a piece of’, ‘a blade of’, etc.); sometimes it is the simple unit meaning (‘a lighter’, ‘a glass’). Sometimes the translation of the word varies according to the source: *gwer* ‘steel’ in (5c) is sometimes translated as ‘piece of steel’ in online dictionaries.

The important point is that the singulative performs *division*: whether it yields a measure reading or a simple unit reading, we obtain an individual. I propose that regardless of the obtained interpretation, the singulative is encoded in Div^0 (the number head proposed by Borer (2005)). There is no need to postulate an additional projection for the measure reading (see footnote 19). This idea is consistent with the facts.

The singulative is an alternative way to create division in the grammar. While classifiers and the plural are well-studied mechanisms for creating individuation (Krifka 1995, Doetjes 1996, 1997, Chierchia 1998, Cheng and Sybesma 1999, Borer 2005), the singulative has not been previously considered a divider in generative grammar. I propose that like classifiers and the plural, a singulative morpheme originates in the head Div^0 and that it is in that position that it creates an individual. By way of illustration, (8) gives the derivations for Breton *geot* ‘grass’, from a mass noun (8a) to a singulative noun (8b).¹² ($\gamma \perp \bar{\Gamma}$ = gender shift)

¹¹ Breton also expresses the analogue of a singulative derivation by the use of classifier-like elements, *penn* ‘head’ or *pez* ‘piece’: *moc’h* ‘pigs’ ~ *pennmoc’h* ‘a pig’, *dilhad* ‘clothes’ ~ *pez-dilhad* ‘a garment’ (Trépos 1956:236, cited in Acquaviva 2008:244). These classifiers are in complementary distribution with singulative *-enn*.

¹² It is admittedly more difficult to see gender shift in the case of Breton collectives, since collectives are not listed as masculine or feminine in dictionaries. This must be due to the fact that such nouns are used as kinds without articles, numerals, or quantifiers that might signal masculine or feminine gender; and since the nouns in question refer to kinds, it must be difficult or impossible to refer to them with pronouns, which are marked for masculine and feminine.



The process is productive and syntactic in the sense that it occurs in exactly the same syntactic contexts as the choice between an ordinary singular noun and its plural counterpart (Stump 2005).¹³

Additional evidence for the idea that the singulative resides in a unique head Div^0 and that it is in complementary distribution with the plural comes from Dagaare, a Gur language spoken in Ghana and Burkina Faso. This language has a type of number marking known as “inverse” or “polarity” number marking (Baerman 2007), whereby the same element marks singularity or plurality depending on the syntactic context. Grimm (2009) shows that the marker *-ri* marks the plural for nouns denoting individual objects (child, dog), while for collective nouns (seeds, insects), *-ri* marks the singular. I assume that in the first case, *-ri* is the regular plural acting as a divider (under Div^0), but that in the second case, *-ri* is used as a singulative (also under Div^0). This shows clearly that the plural is not alone in performing division and that, importantly, in some languages

¹³ For example, Stump (2005) shows that the syntactic contexts that determine the choice of the ordinary singular noun *potr* ‘boy’ (lenited form *botr*) and its plural counterpart *potred* ‘boys’ in the following table (from Stump 2005: 63) likewise determine the choice between the singulative noun *sivienn* ‘strawberry’ (lenited form *zivienn*) and its collective counterpart *sivi* ‘strawberries’.

The singulative in Breton is also clearly inflectional in that it appears after inflectional morphemes: for instance, after the plural in examples such as *peskedenn* ‘fish-SINGULATIVE’, whose derivation is *pesk* ‘fish’ → *pesk* + *ed* ‘fish’ + ‘PL’ → *pesk* + *ed* + *enn* ‘fish’ + ‘PL’ + ‘SINGULATIVE’.

| | POTR ‘boy’ | | SIVI ‘strawberries’ | |
|-------------------|---|---------------------------------|---|--|
| | Singular: <i>potr</i> | | Singulative: <i>sivienn</i> | |
| Singular contexts | <i>ur potr bennak</i> <i>meur a botr</i> | ‘a certain boy’ ‘many a boy’ | <i>ur zivienn bennak</i> <i>meur a zivienn</i> | ‘a certain strawberry’ ‘many a strawberry’ |
| | Plural: <i>potred</i> | | Collective: <i>sivi</i> | |
| Plural contexts | <i>un nebeud potred</i> <i>kalz potred</i> | ‘some boys’ ‘a lot of boys’ | <i>un nebeud sivi</i> <i>kalz sivi</i> | ‘some strawberries’ ‘a lot of strawberries’ |

the plural and the singulative are one and the same morpheme (examples from Grimm 2010: 169).¹⁴

- (9) a. bíé ‘child’ (individual) ~ bíírí ‘children’ (plural) (stem = bi-)
 b. birí ‘seed’ (singulative) ~ bíê ‘seeds’ (plural) (stem = bi-)

Interestingly, Dagaare also possesses a singulative marker *-ruu*, which is primarily restricted to granular mass terms (‘pepper’, ‘straw’, ‘grass’), designating ‘a piece of’. The use of *-ri* as a singulative is reserved for collective aggregates, such as vegetation, insects, or inherently plural body parts. In this language, it is the form of the singulative, rather than two different positions, that distinguishes the simple unit from the unit-of-measure reading. Examples are from Grimm 2010:176.

- (10) a. múó ‘grass’ ~ múórúú ‘blade of grass’
 b. súnnì ‘gum’ ~ súnnúú ‘piece of gum’

Finally, let me briefly discuss the case of liquids and substances. Grimm (2009) argues that substance and liquid terms in Dagaare are not the target of any individuating operations. He argues that Dagaare is like Welsh in this respect (like Breton, Welsh has a singulative system) and that both languages pattern with English in this regard. Table 1 (adapted from Clausen et al. 2010) summarizes the crosslinguistic variation, adding Breton.

Table 1

Kinds of nouns targeted by the singulative crosslinguistically

| Language | Liquids/ Substances | Granular aggregates | Collective aggregates | Individual objects |
|----------|------------------------|---------------------|-----------------------|-----------------------|
| English | 0 | 0 | plural (-s) | plural (-s) |
| Breton | 0 | singulative (-enn) | singulative (-enn) | plural (-où) |
| Welsh | 0 | singulative (-yn) | singulative (-yn) | plural (-od) |
| Dagaare | 0 | singulative (-ruu) | singular (-ri) | plural (-ri) |

¹⁴ Dagaare is not unique in its ability to use the same morpheme in two very different contexts. In Tangga, a language of Papua New Guinea, the same element *an/am* denotes not only the plural for count nouns, but also the singulative for noncount nouns. The situation is not unlike that of the Kiowa inverse system, as described in Harbour 2008 (though here only singular and plural values are involved; see Corbett 2000:163). Examples are from Ross 1988:295, 298.

- (i) a. fel ‘the house’ ~ am-fel ‘the houses’
 b. man ‘poultry/bird’ ~ an-man ‘the bird’

This cannot be correct, however. This is because as the examples in (5) and (6) show, it is possible in Breton for substance and liquid terms to be targets of the singulative operation. In fact, in other singulative languages, it is possible for substance *and* liquid terms to be inputs to singulativization. For example, in Classical Arabic, ‘wood’ and other nongranular aggregates such as ‘mud’ and ‘butter’, as well as liquids such as ‘buttermilk’ and ‘wine’, can be targets of the singulative.¹⁵ ((11a) is from Greenberg 1972:21; (11b–e) are from Saleh AlQahtani, pers. comm.)

- (11) a. khashab ‘wood’ ~ khashabat ‘a piece of wood’
 b. teen ‘mud’ ~ teenah ‘a chunk of mud’
 c. zubbd ‘butter’ ~ zubdah ‘a portion of butter’
 d. laben ‘buttermilk’ ~ labanah ‘a portion of buttermilk’
 e. xamer ‘wine’ ~ xamrah ‘an amount of wine’

Table 2 is a revised version of table 1. It now includes both Breton and Arabic. What is clear is that not all singulative languages are the same: some allow substances and liquids to be singulativized, some either substances or liquids, others neither. In section 3, we will see that Ojibwe tolerates the singulativization of substances, but not of liquids.¹⁶

A natural consequence of the idea that the singulative is a divider is that the plural of a singulativized noun is not a divider, but something else. The question is, what is it?

Table 2

Revised version of table 1. (sing = singulative; sgl = singular)

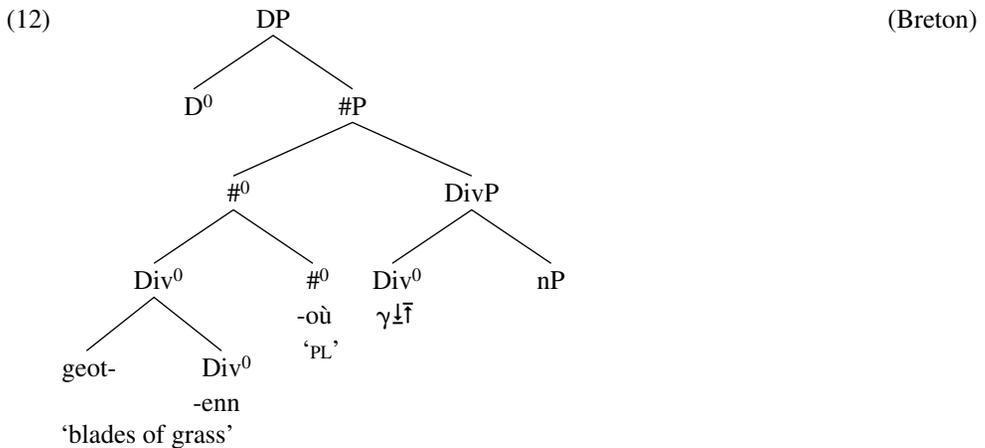
| Language | Liquids | Substances | Granular aggregates | Collective aggregates | Individual objects |
|----------|-------------|------------|---------------------|-----------------------|--------------------|
| English | 0 | 0 | 0 | plural (-s) | plural (-s) |
| Breton | sing (-enn) | sing (-yn) | sing (-enn) | sing (-enn) | plural (-où) |
| Welsh | sing (-yn) | sing (-yn) | sing (-yn) | sing (-yn) | plural (-od) |
| Dagaare | 0 | 0 | sing (-ruu) | sgl (-ri) | plural (-ri) |
| Arabic | sing (-ah) | sing (-ah) | sing (-ah) | sing (-ah) | plural (-t) |

¹⁵ In fact, it appears that even in Dagaare, it is not completely impossible for material terms to be targets of the singulative. For example, Grimm himself shows that *fanfama* ‘soap’ (general term) can become *fanfanuu* ‘a piece of soap’ (Grimm 2011).

¹⁶ Relatively closely related languages might also vary in their ability to pair the singulative with substances *and* liquids. Bari and Turkana (Nilo-Saharan languages) both use the singulative, but whereas in Bari it is possible to use the singulative *-tat* as a unit of individuation with the word *le* ‘milk’ (*litat* ‘a drop of milk’), this is not possible in Turkana, where instead a special word for ‘drop’ must be used (Dimmendaal 2000).

I want to propose that it is in this instance simply a counter. The plural is thus not exclusively tied to division. This follows naturally from the idea that the singulative is used for division and thus is generated under Div^0 . We know independently that the plural has other uses: the plurals of modesty and abundance, and the exaggerative, hyperbolic, approximative, and antiassociative plurals (Corbett 2000). The counting plural is different from these, though, since it is completely systematic and not tied to the meaning of the noun (see footnote 29).

That the plural does not have a unique denotation has been proposed by Wiltschko (2008): on her account, in some languages number is a functional head ($\#$, as head of $\#\text{P}$) while in others it is a modifier. Another way to express this idea is to claim that the plural is sometimes inflectional and sometimes derivational. In fact, the interpretation we get for a pluralized singulative is exactly that of counting. If in cases such as Breton (12) the plural had a dividing function, then we would expect the derivation *geot-ou-enn*, but this is completely ill-formed. The counting interpretation is exactly the one we obtain: *geotennou* in (12) means ‘more than one blade of grass’.



It also follows from this proposal that numerals like ‘one’ in Breton and other singulative languages are not always dividers. For Borer (2005), the numeral ‘one’ is special in that it acts both as a divider and as a counter in English and similar languages. However, if division is already performed by the singulative, the counter element ‘one’ must simply be a counter when used in combination with a singulative. However, when used with an ordinary singular noun (in the absence of the singulative), it does act both as a counter and as a divider.

In summary, in singulative languages, such as Breton, the singulative can target collective nouns and mass nouns with the same kind of effect (individualization of mass and collective terms). The singulative was incorporated into the theory of division and was argued to be a particular flavor of Div^0 .

2 The Basic Ojibwe Facts and a Puzzle

On the basis of the fact that in Ojibwe, words such as *mkwam* ‘ice’ can be pluralized (*mkwamiig* ‘ice-PL’) and that *mkwam* can equally mean ‘ice’ (mass), ‘a piece of ice’ (measure unit), or even

'icicle' (individual), it has been argued in the literature on Algonquian that there is no grammaticized count/mass distinction in Ojibwe (Rhodes 1990:153; see also Corbett 2000:87).¹⁷

While it is admittedly common in Native North American languages for plural marking to target all sorts of nouns (count or mass) and/or for plural marking and agreement in general to be completely optional (Whorf 1941 for Hopi, Davis and Matthewson 1999 for Lillooet Salish, Wiltschko 2008 for Halkomelem Salish), and while it might be tempting to conclude that the absence of a grammaticized count/mass distinction is a pervasive feature of aboriginal languages, it is not the case that *all* Native North American languages lack such a distinction. For example, as Mithun (1988) points out, all nouns in Taos, Kiowa, Zuni, and the Algonquian languages are inflected for number. In addition, the Ojibwe examples in (13) show that subject and object nominals have to agree with the verb.¹⁸

- (13) a. N-gii-waabmag nenwag.
 1SG-PAST-see.3PL men.3PL
 'I saw men.'
- b. Nenwag n-gii-waabm-igoog.
 men.3PL 1SG-PAST-see-3PL
 'Men saw me.'

As seen in (14), the opposition between singular and plural cuts across the paradigms of nouns, pronouns, and verbs. Agreement is obligatory with all these categories. (Here and later, IN = inanimate, AN = animate.)

| (14) | <i>Singular</i> | <i>Plural</i> | <i>Gloss</i> |
|------|-----------------|----------------|---|
| a. | giin | giinwaa | 'thou (SG) ~ you (PL)' |
| | wiin | wiinwaa | 'he ~ they' |
| | maanda | nanda | 'this (one) IN proximal ~ these (ones) IN proximal' |
| | n- . . . -im | n- . . . -naan | 'my ~ our (EXCL)' |
| b. | giuwe | giuwewag | 'go home (PRES 1/2/3 SG) ~ go home (3PL)' |

Number is therefore clearly inflectional in Ojibwe (see Mathieu 2012 for details): it is not a modifier (to a nominal root; i.e., derivational) but a functional head (see Wiltschko 2008).

¹⁷ As Corbett and Rhodes put it:

Or consider the Algonquian language Ojibway (Richard Rhodes 1990:153–4, and personal communications). Nouns which might be expected not to have a plural do in fact form plurals freely, interestingly with the unit reading and not with the sort reading. Thus *mkwam* 'ice' or 'piece of ice', *mkwamiig* (plural) 'pieces of ice'. Rhodes is unable to find a noun that cannot be pluralized in Ojibway. (Corbett 2000:87)

In Ojibwa there is no grammatical distinction like the mass/count distinction of Indo-European. Thus *mkwam* can equally mean 'ice' or 'a piece of ice'. *Nbiish* can mean 'water' or 'an amount of water'. (Rhodes 1990:153)

¹⁸ Verbal agreement in Ojibwe follows a person hierarchy: 2nd > 1st > animate 3rd > obviative (animate) 3rd > inanimate. This is why the proclitic in (13) is always first person singular. Third person marking is often not pronounced.

The puzzle is thus as follows: why is it possible in some cases for mass nouns in Ojibwe to be pluralized (e.g., *mkwamiig* ‘ice-PL’) or for singular mass terms to denote individuals (e.g., *mkwam* ‘ice/piece of ice/icicle’) and even appear with numerals (e.g., *bezhig mkwam* lit. ‘one ice’)?¹⁹ The answer, I will argue, is related to the fact that Ojibwe lacks productive massifiers and certain measure phrases, but also more generally to the fact that the grammar embeds a singulative system, albeit not always a visible one.

Although Ojibwe admittedly has some massifiers of the Chinese kind in its grammar, their use has diminished in recent years (Valentine 2001:502). They attach to numerals to indicate measure units: *-aatig* is used for wooden, pole-like elements; *-eg* for cloth-sheet-like elements; *-aabik* for metal, glass, plastic, or stone; and *-aabiig* for string-like elements. Some examples appear in (15).

- (15) a. *niizh-waatig mishi*
 two-CL firewood
 ‘two sticks of firewood’
 b. *niizh-weg zenibaa*
 two-CL silk
 ‘two pieces/sheets of silk’

Other classifiers include *-naagans* ‘cupful’, *-ooshkin* ‘bagful’, *-oonag* ‘boatload’, *-baneninj* ‘handful’, *-sag* ‘barrelful’, but some of these are listed as rare in dictionaries (e.g., ‘boatful’ in Rhodes 1985) and they appear to be no longer productive.²⁰ Two examples appear in (16).

- (16) a. *niizh-naagans zisbaakwad*
 two-CL sugar
 ‘two cupfuls of sugar’
 b. *niizh-ooshkin mnoomin*
 two-CL rice
 ‘two bagfuls of rice’

¹⁹ Ojibwe is not the only Native North American language with plural mass nouns triggering a unit-of-measure reading. Mithun (1999:80) mentions the case of Yup’ik: ‘Yup’ik mass nouns such as *uquq* ‘oil’ and *meq* ‘water’ often appear with number suffixes to indicate units of substance, such as ‘containers of’: *uqu-k* ‘oil-DUAL’ = ‘two sealpokes of oil’; *mer’-et* ‘water-PL’ = ‘buckets of water.’’ Yup’ik number appears to have all the properties associated with number in Ojibwe: it is obligatory, disjunctive, transparent, and word-final, yet it allows the pluralization of mass nouns.

Ojibwe has all the properties of a language with inflectional/grammatical number: plural marking is obligatory, it triggers agreement, it is not possible inside compounds, it is not possible inside derivational morphology, and pluralia tantum as well as bare plurals are available (see Wiltschko 2008 for a discussion of this cluster of properties in relation to Halkomelem Salish, a language without, it seems, inflectional number).

²⁰ Since Ojibwe number is in complementary distribution with mass classifiers (e.g., the noun *naagans* ‘cup’ in (16a) cannot be pluralized in this context, **niizh-naagansan zisbaakwad* ‘two cupfuls of sugar’; of course, in other nonclassifier contexts, it can be pluralized) and since independently Chinese count classifiers and mass classifiers are in complementary distribution (Fassi Fehri and Vinet 2007), I take it that number and mass classifiers target the same head, namely, Div⁰. In English, on the other hand, it is possible for measure phrases to be pluralized: *six pieces of sugar*. Therefore, it may be the case that in English two different heads are needed for this type of construction (see Borer 2005).

Ojibwe not only lacks productive mass classifiers of the Chinese kind, but also appears to lack measure phrases of the English kind (e.g., ‘piece of’, ‘bit of’, ‘portion of’).²¹ As Greenberg (1972:16) points out, “[T]here are a considerable number of Amerind languages . . . which do not have measure constructions [including Ojibwe; Greenberg 1974]. Numerals occur directly both with nouns designating mass as well as countable objects.”

The main empirical fact introduced in this article is that in the absence of measure phrases such as ‘piece of’, ‘bit of’, ‘portion of’, Ojibwe (and Fox) uses a singulative system to denote units of measure. The same mechanism is used to create individuals out of collectives. While the Ojibwe (and Fox) singulative marker is the animate form *-a*, the collective and mass nouns that are the input to the singulative are inanimate forms ending in *-i*.

Ojibwe, like other Algonquian languages, has a productive gender system based on animacy. Some nouns are animate; others are inanimate. The animate/inanimate contrast is grammaticized (like the masculine/feminine gender system of, say, Romance languages): for example, some types of berries are inanimate while others are animate, some body parts are inanimate while others are animate.

A reviewer asks whether animacy and gender are really the same in Ojibwe, citing Wiltschko (2012), who claims on the basis of Blackfoot that animacy is not gender, but nominal aspect. For Ojibwe, the answer is definitely yes: animacy in Ojibwe is unquestionably gender and not nominal aspect. Following Rijkhoff (1991), Wiltschko makes an analogy between the verbal and the nominal domain in terms of boundedness. Bounded events have an inherent endpoint/culmination, beyond which the same event cannot continue (e.g., *walk to the store*), while unbounded events have no inherent endpoint/culmination: the same event can continue over an indefinite period of time (e.g., *play cards*). For the nominal domain, the idea is that mass nouns are unbounded (they are not collections of individuals), while count nouns are bounded (they form collections of individuals). Wiltschko’s (2012) idea is that English has a clear grammaticized count/mass distinction; therefore, nominal aspect is instantiated by a bounded versus unbounded distinction. On the other hand, according to Wiltschko, Blackfoot does not have a grammaticized count/mass distinction (Wiltschko cannot find examples of mass terms that cannot be pluralized in that language). This means that the language lacks a nominal aspect instantiated via a bounded versus unbounded contrast. Instead, in Blackfoot nominal aspect is instantiated via animacy. Compare (17a) with (17b).

- (17) a. [DP D⁰ [NumP Num⁰ [AspP Asp⁰ [nP n⁰ [√N]]]]] (English)
 ↓
 [+ / – bounded]
- b. [DP D⁰ [NumP Num⁰ [AspP Asp⁰ [nP n⁰ [√N]]]]] (Blackfoot)
 ↓
 [+ / – animate]

²¹ A reviewer asks how “real” measure words such as ‘pound’ and ‘kilo’ work. I have not been able to find a word for ‘kilo’, but the language uses the word *dibaabiishkoojigan* for ‘pound’. Like classifiers, it attaches to numeral roots, as in *ingo-dibaabiishkoojigan* ‘one pound’ and *ingodwaaso-dibaabiishkoojigan* ‘six pounds’.

To support her claim, Wiltschko uses the fact that in Blackfoot, verbs have different forms depending on whether the participants are animate or inanimate (see, e.g., (23) in Ojibwe where *waabam* ‘see’ = AN and *waabnd* ‘see’ = IN). She argues that in Blackfoot, Aktionsart is thus not based on [+/-bounded]/telicity; rather, it is based on [+/-animate]. She also argues specifically that animacy in Blackfoot is not like gender. She shows that in German nominalizers are specified for gender but that in Blackfoot they are not: German *die Grammat-ik* ‘the grammar’ is feminine, whereas *der Lehr-er* ‘the teacher’ is masculine; the Blackfoot nominalizer *a’tsis* is used for both animate nouns (*saa’kssoya-a’tsis* ‘poison ivy’) and inanimate nouns (*isoohkama-a’tsis* ‘container’).

In Ojibwe, the count/mass distinction is clearly grammaticized, as I have shown. For example, not all mass nouns can be pluralized: liquid terms resist pluralization. Also, while it is true that verb stems in Ojibwe end in either animate or inanimate forms, this is completely independent of boundedness. For example, the Ojibwe verb ‘be’ has two forms: one for animate nouns, *-wi* (18a), and another for inanimate nouns, *-wan* (18b) (see Valentine 2001). As Valentine (2001) points out, verbs such as these can be interpreted not only as ‘be’ but also as ‘become’, where a change of state is clearly asserted.

- (18) a. *Ninii-wi*.
 man-be
 ‘He is a man.’
 b. *Oodena-wan*.
 town-be
 ‘It is a town.’

More generally, Ojibwe verbal expressions such as ‘walk to the store’ are bounded while expressions such as ‘play cards’ are not. As in English, telicity is therefore a concept very much anchored in the grammar of Ojibwe.

Finally, while it is true that Ojibwe nominalizers are indifferent to whether the noun they merge with is animate or inanimate (e.g., the nominalizer *-gan* can appear with either), it is not clear how this is relevant to distinguishing languages with a grammaticized count/mass distinction from languages without one. In conclusion, there is no reason to treat animacy in Ojibwe as (nominal) aspect instead of the more traditional notion of gender. Everything points to the view that animacy is gender in Ojibwe.

Let us now turn to gender shift in Ojibwe. While it is well-known that it is possible in Algonquian languages to shift gender from inanimate to animate as a mark of elevated status, especially in storytelling (a case of semantic shift (Black-Rogers 1982, Valentine 2001:118) or perspectival marking (Muehlbauer 2008)),²² it is less well-known that it is also possible to shift

²² This is a separate phenomenon and, in my view, not the realization of the singulative. Moreover, as Goddard (2002) points out, the use of gender shift in narratives to express ‘power’ should not be exaggerated. For example, in Fox inanimates seem to be freely assigned the powers of speech, comprehension, and thought without shifting gender (Goddard 2002:208).

gender from inanimate to animate as a way to divide what would otherwise be a mass or collective noun. In this case, a unit is created, either of a simple kind as in (19) (a simple unit reading) or of a measure kind as in (20) (a unit-of-measure reading). The examples are from Fox (Mesquakie) (see Goddard 2002); *-i* is the inanimate ending on nouns while *-a* is the animate ending. Goddard (2002) does not correlate these facts with the notion of the singulative, but I believe this is exactly what is at work here.²³

- (19) a. *zhooniyaahi* ‘silver, money’ IN ~ *zhooniyaaha* ‘a coin, a bill’ AN
 b. *miichipehi* ‘game’ IN ~ *miichipeha* ‘a game animal’ AN
- (20) a. *owiiyaasi* ‘meat, flesh’ IN ~ *owiiyaasa* ‘a piece/cut of meat’ AN
 b. *owiinenwi* ‘fat (generic)’ IN ~ *owiinenwa* ‘a piece of fat’ AN
 c. *anakehkwi* ‘bark’ IN ~ *anakehkwa* ‘a piece of bark’ AN
 (Goddard 2002:213)

Once singularized, nouns such as *zhooniyaaha* (AN) ‘silver, money’ can be pluralized (with an animate plural form), giving *zhooniyaaha-ki* (AN) ‘coins, bills, money’. The same is true for *miichipehi* (IN) ‘game (collective)’ → *miichipeha* (AN) → *miichipeha-ki* (AN) ‘game animals’.

It is evidently difficult to notice the gender shift that is the spell-out of the singulative in Ojibwe. This is because most singular inanimate nouns in Ojibwe have lost their final *-i* and most animates have lost their final *-a*. There are, nevertheless, residual visible effects of this process in modern Ojibwe, as I will show.

First, let me point out that there is evidence, as Piggott (2007) argues, that number is present in the derivation of every Ojibwe noun. Each of the singular forms in (21a–c) ends in a vowel that is demonstrably not part of the exponent of the root morpheme. For example, the root allomorphy in (21c) [miʃ → mis] results from a palatalization process (*s* → *ʃ*) that only applies in a derived environment (Kaye and Piggott 1973). This means that there is a singular suffix *-i* that attaches to inanimate nouns and a counterpart *-a* that attaches to animates.

- | (21) | <i>Singular</i> | | <i>Plural</i> | |
|------|-----------------|------------|----------------|----------------------|
| a. | <i>nika</i> | ‘goose’ | <i>nika-g</i> | ‘geese’ |
| b. | <i>makwa</i> | ‘bear’ | <i>makwa-g</i> | ‘bears’ |
| c. | <i>miʃi</i> | ‘firewood’ | <i>misa-n</i> | ‘pieces of firewood’ |
- (Piggott 2007:15)

²³ Although rarer, there appear to be cases where the gender shift is from animate to inanimate. Goddard (2002: 211) mentions the following cases: Fox *aamoowa* (AN) ‘bee, member of any species of the non-formicid aculeate hymenoptera’ versus *aamoowi* (IN) ‘honey’ and Ojibwe *ishkodekaan* (AN) ‘fire-steel’ versus *ishkodekaan* (IN) ‘lighter.’ To quote Goddard (2002:211): ‘Usable honey did not exist in North America until the arrival of the European honey-bees, but F[ox] *aamoowa* ‘bee’ has widespread cognates and is clearly an old word. Therefore, ‘honey’ must have been named after ‘bee’ rather than the other way around’ and *ishkodekaan* (AN) ‘fire-steel’ ‘names the older fire-making device (Baraga 1850 . . .), while the inanimate noun names the later one’ (i.e., *ishkodekaan* (IN) ‘lighter’; Nichols and Nyholm 1995:69). These cases are clearly not the product of the singulative, since no unit is created. In other languages (e.g., Hebrew; see section 1), however, it appears to be possible to use reverse gender shift to express the singulative.

Since singular number and gender are fused morphologically, it is reasonable to assume that gender is also present in the derivation of every Ojibwe noun. In words where no final *-i* or *-a* surfaces, it is assumed that the vowel has been truncated. However, the vowel can only be truncated if the word meets minimality requirements. If the word is too small (e.g., if it is bisyllabic, as in (21)), the vowel cannot be truncated. As Piggott (2007) argues, the process is therefore systematic and predictable.

For most singular nouns, however, especially those that end with a consonant, it is impossible to tell whether they are animate or inanimate from the endings, creating a situation where the singulative is not morphologically visible. In addition, because some words have lost their final *-i* together with final consonants, inanimate nouns can end in *-a*, which is the mark for animates rather than inanimates (and vice versa).

With this in mind, take the case of the collective noun *zhoonya* ‘money’ in (22a). It is listed in dictionaries as an inanimate noun (although it ends in *-a*; in Fox, as shown in (19a), it clearly ends in *-i*); but interestingly, in the plural it is listed as animate. The same is true for *mitig* in (22b): it is listed in dictionaries as inanimate when it is interpreted as ‘wood/forest’ but as animate when it means ‘tree’.²⁴ Although there is no morphological surface difference between *mitig* ‘wood’ (IN) and *mitig* ‘tree’ (AN), the change from inanimate to animate is a clear residual effect of the gender shift correlated with the singulative use: from a collective we obtain a simple unit reading via gender shift.

- (22) a. *zhoonya* ‘money’ IN ~ *zhoonya-g* ‘coins’ AN
 b. *mitig* ‘wood’ IN ~ *mitig* ‘tree’ AN

To see that nouns such as *zhoonya* ‘money’ and *mitig* ‘tree’ are animate on their individual reading, we can consider them in a sentence. Since Ojibwe has two kinds of verb stems, transitive animate (TA) and transitive inanimate (TI), the verb stem selected will depend on the gender of the noun. Moreover, Ojibwe distinguishes between two third persons in a sentence or a narrative by means of obviation. In the sentence ‘John saw Fred’, for example, there are two third persons, ‘John’ and ‘Fred’. In such a case, one of the third persons is seen as primary and is called proximate (as if it were somehow closer to the interest of the speaker); the other one is seen as secondary and is called obviative. In Ojibwe, the obviative is marked only on animate nouns. In (23a), *makwa* ‘bear’ is animate; it takes the obviative form *-n* and the verb stem is TA. In (23b), *jiimaan* ‘boat’ is inanimate; it takes no obviative form and the verb stem is TI.

²⁴ According to Valentine (2001:116–117), while in most Ojibwe dialects all terms for money are animate, in Nishnaabemwin (Ojibwe, Odawa) they are consistently inanimate in the singular, but not in the plural, the latter being listed in dictionaries as animate. The term ‘money’ also clearly takes the animate plural *-ag* (the inanimate plural being *-an*). The singular term *mitig* ‘wood’ is also listed as inanimate in dictionaries, but its pluralized counterpart is listed as animate (and it surfaces with the animate plural, *-oog* being an allomorph of *-ag*).

- (23) a. John o-gii-waabam-aa-n makwa-n.
 John 3SG.SUBJ-PAST-see.AN-3SG.OBJ-OBV bear-OBV
 'John saw a bear.'
- b. John w-gii-waabnd-aa jiimaan / *jiimaan-an.
 John 3SG.SUBJ-PAST-see.IN-3SG.OBJ boat boat-OBV
 'John saw a boat.'

Turning back to *zhoonya* 'money' and *mitig* 'tree', we see in (24a) that *zhoonya* 'money' is obviative when interpreted as 'coin', and that in this case the verb stem is TA. The same is true for *mitig* when interpreted as 'tree'; see (24b).

- (24) a. John o-gii-waabam-aa-n zhoonya-an agidisag.
 John 3SG.SUBJ-PAST-see.AN-3SG.OBJ-OBV coin-OBV on.floor
 'John saw a coin on the floor.'
- b. John o-gii-waabam-aa-n mitig-an.
 John 3SG.SUBJ-PAST-see.AN-3SG.OBJ-OBV tree-OBV
 'John saw a tree.'

Turning now to mass nouns that can be turned into units of measure, consider the following examples. The plural versions of the animate mass nouns in (25) are all interpreted as unit-of-measure nominals (pieces of *x*, portions of *x*, blades of *x*—depending on the noun).²⁵

- (25) a. maandaamin 'corn' ~ maandaamin-ag 'pieces of corn'
 b. semaa 'tobacco' ~ semaa-g 'chunks of tobacco'
 c. mikwam 'ice' ~ mikwam-iig 'pieces of ice'
 d. mnoomin 'rice' ~ mnoomin-ag 'grains of rice'
 e. mashkosiw 'grass' ~ mashkosiw-ag 'blades of grass'
 f. waabigan 'clay' ~ waabigan-ag 'bits of clay'

We can now see why mass terms can be systematically pluralized in Ojibwe. It is not because the language lacks a grammaticized count/mass distinction, but because in these cases, a gender shift process has operated on the singular to give a plural that is of a different gender from the original mass noun (this is typical of singulative systems). We can also understand why *mikwam*

²⁵ As shown in (i), it is possible for certain mass nouns to be pluralized with a unit-of-measure reading, even though they are inanimate. These examples show that the singulative system is no longer fully productive morphologically. Some mass terms tend to remain inanimate when pluralized. It must be noted, however, that there is extreme dialectal variation. For example, in some dialects the plural of 'rice' is animate while in others it is inanimate.

- (i) a. (a)ki 'earth' ~ (a)ki-in 'bits of earth'
 b. azhashki 'mud' ~ azhashki-in 'chunks of mud'
 c. bkwezghan 'bread' ~ bkwezghan-an 'pieces of bread'
 d. aasaakamig 'moss' ~ aasaakamig-oon 'bits of moss'
 e. ziinzibaakwad 'sugar' ~ ziinzibaakwad-oon 'pieces of sugar'

can mean ‘ice’ or ‘piece of ice’. There is a gender shift from *mikwam* as mass noun to *mikwam* as unit of measure, although it is no longer spelled out morphologically.

This process is different from so-called coercion in English. As is well-known, although mass nouns cannot normally be pluralized in English, exceptions to that generalization are possible provided that the interpretation of a mass noun is coerced to that of a kind (26a) (via the Universal Sorter) or a standard serving (26b) (via the Universal Packer; see Bunt 1985).

- (26) a. There are only three waters available (still, sparkling, and flavored).
 b. Bill ordered three waters (i.e., glasses, bottles, etc.).

Count nouns can also be made mass (see David Lewis’s Universal Grinder)—for instance, *There was dog all over the road* (example from Pelletier 1979). It has been argued that the pervasiveness of these effects suggests that count/mass status is not tied to a lexical item but is instead rather free (Pelletier 1979).

In Ojibwe, pluralization of mass nouns is not free; rather, it is dependent on syntactic structure. First, pluralized mass nouns are never interpreted as kinds (Rhodes 1990:153–154). Speakers reject the direct translations of ‘What sugars do you have?’ (in the context of, say, entering a grocery store: castor sugar, brown sugar, Turbinado sugar, etc.).²⁶ This follows from the fact that in a singulative system, it is the nonindividuated term (the inanimate in Ojibwe) that denotes a kind. This is the situation we find in Breton and other singulative languages where collectives (and mass terms) are used to refer to kinds (recall section 1). Moreover, in most cases the unit-of-measure reading is completely independent of conventions: although one can think of portions of *semaag* ‘tobacco-PL’ as conventionalized, it is impossible to refer to ‘pieces of ice/clay/grass’ as conventionalized units.

I should also point out that some mass nouns in Ojibwe resist pluralization completely (despite what is claimed in the literature; see, e.g., Rhodes 1990:153, Corbett 2000:87). The speakers I consulted rejected pluralization of the nominals in (27), both on the kind reading and on the serving/measure reading, even though it is not difficult to think of standard servings/conventionalized units (or different kinds, for that matter) for oil (27a), milk (27c), or water (27d). Here, Ojibwe clearly differs from Breton and Arabic, where it is possible for liquid terms to be targets of the singulative.

- (27) a. bimide ‘oil’ ~ *bimide-n
 b. (a)niibiishaaboo ‘tea’ ~ *(a)niibiishaaboo-n
 c. doodooshaaboo ‘milk’ ~ *doodooshaaboo-n
 d. nbiish ‘water’ ~ *nbiish-in
 e. mini ‘pus’ ~ *mini-n

²⁶ Ojibwe has a special word that it uses for kinds (call it a *kindifier*), namely, *dnawa* or *dowa* (see Valentine 2001: 593; my consultants used *daawa*).

Nouns referring to abstract things such as qualities and states cannot occur in the plural either. Examples are from Valentine 2001:182.²⁷

- (28) a. *bmaadziwin* ‘life’ ~ **bmaadziwin-an*
 b. *aazhdaadwin* ‘revenge’ ~ **aazhdaadwin-an*
 c. *gaawendmowin* ‘jealousy’ ~ **gaawendmowin-an*

Finally, contrary to their Ojibwe counterparts *zhoonyag* ‘coins’ and *mitig* ‘trees’, which have a simple unit reading (see (22)), in English no coercion can achieve this result: *monies* does not mean ‘coins’ and *woods* or *forests* cannot mean ‘trees’.

To summarize, we have seen that (a) the pluralized version of an Ojibwe or Fox mass or collective term is accompanied by a change in the gender class of the noun; (b) gender shift also targets singulars; (c) not all mass nouns can be pluralized in Ojibwe (liquid terms resist pluralization); and (d) the function of gender shift in Ojibwe is to perform individualization. These properties are exactly those found in languages with a singulative system (see section 1). In the next section, I give a full account of the singulative in Ojibwe, with complete derivations.

3 An Analysis of the Ojibwe Singulative

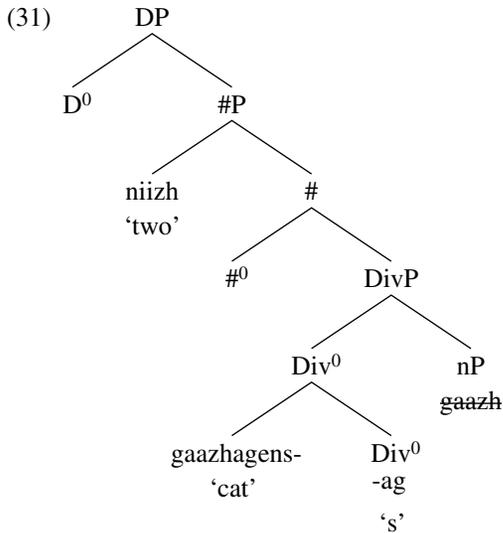
In the simplest cases, pluralization in Ojibwe creates a series of discrete individuals. Just like English *nuts*, Ojibwe *bagaanag* ‘nuts’ in (29a) means ‘more than one nut’. (29a–c) are animate nominals while (30a–c) are inanimates.

- (29) a. *bagaan* ‘nut’ ~ *bagaan-ag* ‘nuts’ AN
 b. *miigwan* ‘feather’ ~ *miigwan-ag* ‘feathers’ AN
 c. *maanadikoshens* ‘goat’ ~ *maanadikoshens-ag* ‘goats’ AN
- (30) a. *akwaandawaagan* ‘ladder’ ~ *akwaandawaagan-an* ‘ladders’ IN
 b. *ishkwaandem* ‘door’ ~ *ishkwaandem-an* ‘doors’ IN
 c. *makizin* ‘moccasin’ ~ *makizin-an* ‘moccasins’ IN

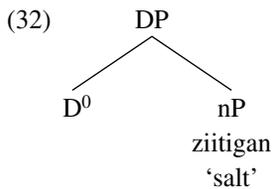
Since everything points to the idea that there is a count/mass distinction in Ojibwe (see section 2 and Mathieu 2007, 2012), the category Number (by way of Div^0) is projected in the language. Therefore, the structure of *niizh gaazhagensag* ‘two cats’ must be (31). Division is performed by the plural (as in Borer 2005 for other languages). The noun raises to Div^0 via head movement,²⁸ and the numeral *niizh* ‘two’ is added as a counter in Spec,#P.

²⁷ My generalization differs slightly from Valentine’s (2001:182), since he argues that mass terms such as ‘bread’, ‘snow’, and ‘sand’ cannot appear in the plural, contrary to fact: *bkwezghan-ag* ‘pieces of bread’, *mkwam-ig* ‘pieces of snow’, and *negaw-an* ‘grains of sand’ are all possible.

²⁸ The head movement operation is triggered by the fact that *-ag* ‘PL.AN’ is an affix. Whether head movement is carried out in the narrow syntax (Travis 1984, Roberts 2010) or at PF (Chomsky 2001) makes no difference for my proposal.

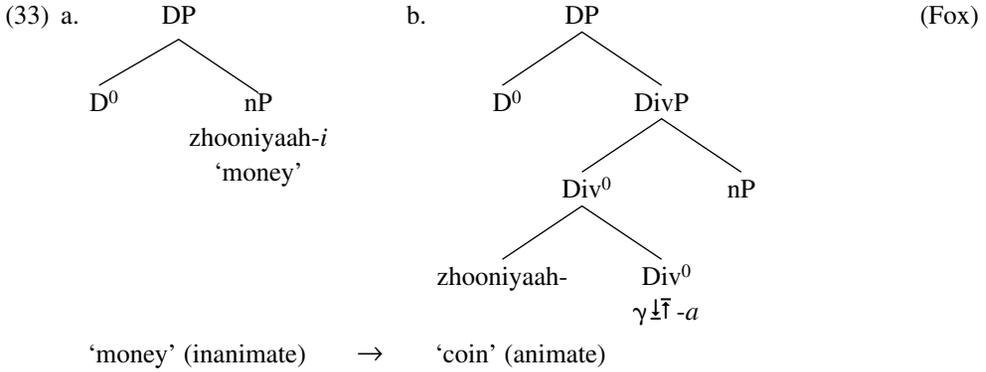


In the absence of a DivP, nouns are always interpreted as mass. So far, this is exactly like English. The meanings of (31) and (32) are read off from the structure (neoconstructionist view; Borer 2005 and many others).

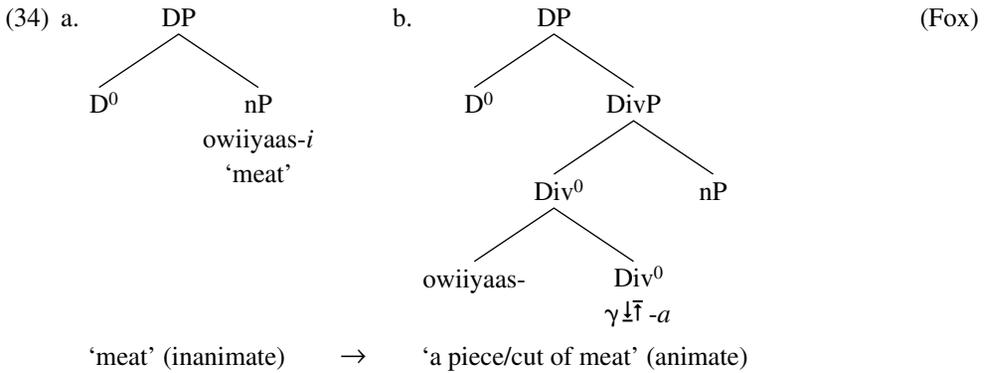


Where Ojibwe differs from English is in the use of measure phrases. Since Ojibwe has no measure phrases of the type *pieces of*, *bits of*, *portions of* in English, and since Ojibwe also makes less and less use of its mass classifier system, I want to argue that the language uses another system to obtain measure readings: the singulative. In fact, this system is probably very old and must have been in competition with the classifier system for a long time. The singulative system is still fairly productive, but often not visible for independent reasons (loss of final vowels like *-i* and *-a*; see section 2).

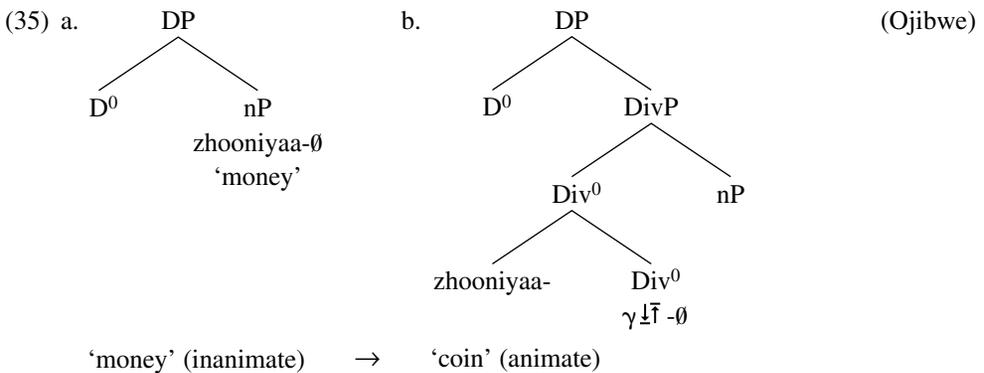
In Fox, the gender shift in question is clear: *-i* becomes *-a*. In the collective version of 'money', the noun is inanimate (33a) (and is undivided; i.e., no DivP is present), while in the individual version of 'money', the noun is animate (33b) (DivP is projected and gender shift operates in Div⁰).

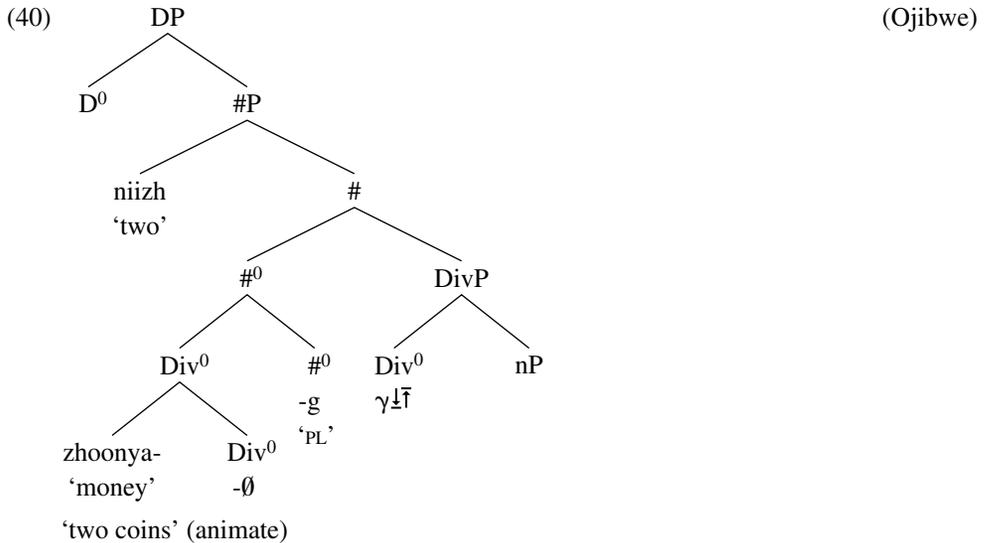


(34) illustrates the case of a mass noun turned into a unit of measure in Fox. The mass noun 'meat' starts undivided and is inflected inanimate (34a). In (34b), the addition of DivP and gender shift under Div⁰ creates a unit of measure.



In Ojibwe, exactly the same derivations take place, (35) and (36). The difference between Fox and Ojibwe is that in Ojibwe, gender shift is not morphologically visible for most nouns.





Morphologically, the counting plural is identical to the dividing plural. It simply behaves differently depending on where it appears in the structure. When in Div^0 , the plural behaves as a divider; when in Num^0 , the plural behaves as a counter. We know independently that the same morpheme/grammatical element can have two very different functions: for example, *-ri* in Dagaare encodes both singular and plural (see section 1), and 'one' in Ojibwe sometimes behaves as a divider, sometimes as a counter ((37) vs. (38)).²⁹

Finally, table 3 adds Ojibwe to the picture. Ojibwe is similar to yet different from other singulative languages in that it allows substance terms to be singulativized, but not liquid terms.

In summary, although gender shift has been known to be used in Algonquian languages to signal change of perspective or expression of power (see references in Goddard 2002), what is less well-known is that gender shift in these languages can target mass and collective nouns. This is discussed at length in Goddard 2002 for Fox. What has never been proposed before is that this type of gender shift is a feature of an underlying singulative system.

²⁹ There also appear to exist plurals that are neither dividing nor counting (plural of modesty; exaggerative, hyperbolic, and approximative plurals; antiassociative plurals; and the plural of abundance; see Corbett 2000). These can often take special forms. For example, in Banyun, a language of the West Atlantic branch of Niger-Kordofanian, spoken in Senegal and Guinea Bissau, the plural of abundance (sometimes called the greater plural) is used when the exact number is impossible to pinpoint or when it is irrelevant, and it surfaces as a different form from that of the dividing plural. In this language, nouns typically have singular and plural forms, distinguished by prefixes, as in (ia) and (ib) (Corbett 2000:31, from Sauvageot 1967:227–228). The greater plural is shown in (ic).

- | | | |
|-----------------|------------|-------------|
| (i) a. bu-sumɔl | b. i-sumɔl | c. ba-sumɔl |
| SG-snake | PL-snake | PL-snake |
| 'snake' | 'snakes' | 'snakes' |

In the case of the greater plural, I assume that no Div^0 head is present, perhaps not even $\#P$. The plural in this case is probably some kind of modifier (as in Wiltschko 2008).

Table 3

Revised version of table 2 (final version). (sing = singulative; sgl = singular)

| Language | Liquids | Substances | Granular aggregates | Collective aggregates | Individual objects |
|----------|-------------|------------------------------|------------------------------|------------------------------|--------------------|
| English | 0 | 0 | 0 | plural (-s) | plural (-s) |
| Breton | sing (-enn) | sing (-enn) | sing (-enn) | sing (-enn) | plural (-où) |
| Welsh | sing (-yn) | sing (-yn) | sing (-yn) | sing (-yn) | plural (-od) |
| Dagaare | 0 | 0 | sing (-ruu) | sgl (-ri) | plural (-ri) |
| Arabic | sing (-ah) | sing (-ah) | sing (-ah) | sing (-ah) | plural (-i) |
| Ojibwe | 0 | sing (<i>i</i> → <i>a</i>) | sing (<i>i</i> → <i>a</i>) | sing (<i>i</i> → <i>a</i>) | plural (-gl-n) |

4 The Diminutive as Singulative

In this section, I argue that in addition to gender shift, Ojibwe uses the diminutive as a means to singulativize collective and mass nouns. While the individuating property of the diminutive is well-known (it is widespread crosslinguistically; see Dressler and Barbaresi 1994, Jurafsky 1996), the idea that it is a form of the singulative is, to the best of my knowledge, not often (if ever) entertained. There is a good reason for this: in many cases, the diminutive behaves differently from gender shift in its individualizing capacity. However, I want to show that in Ojibwe there is evidence to treat both types on a par.

On its most basic use, the diminutive process in Ojibwe turns nouns such as *mkisin* ‘shoe’ into *mkiznens* ‘little shoe’. However, as Rhodes (1990:152) points out, “The highly lexicalized English diminutives frequently used to gloss these forms belie this productivity; any concrete Ojibwa noun can form a diminutive up to the limits of semantic compatibility. This extends even to borrowings.” Some examples are given in (41).³⁰

- (41) a. sin ‘stone’ ~ sin-iins ‘pebble’
 b. ziibi ‘river’ ~ ziibi-ins ‘brook, creek’
 c. miikan ‘road’ ~ miikna-ans ‘path’
 d. mBill ‘Bill’ ~ mBil-iins ‘Billy’

When the diminutive ending is attached to the name of an animal, the meaning is the young of that animal (42a–c). The early stages of human life are also marked with the help of the diminutive (42d–e). Examples are from Rhodes 1990:152–153.

³⁰ The diminutive in Ojibwe has several allomorphs.

- (42) a. *mkwa* 'bear' ~ *mkoons* 'bear cub'
 b. *nimosh* 'dog' ~ *nimoons/nimshens* 'puppy'
 c. *bzhiki* 'cow' ~ *bzhikiins* 'calf'
 d. *binoojiinh* 'child' ~ *binoojiins* 'baby'
 e. *kwe* 'woman' ~ *kwezens* 'girl'

Interestingly for the present discussion, the diminutive can also help individuate mass or collective nouns as shown in (43). These in turn can be pluralized, as the third column shows (examples from Rhodes 1990:153–154 and Pedchenko, Lippert, and Gambill 2003).

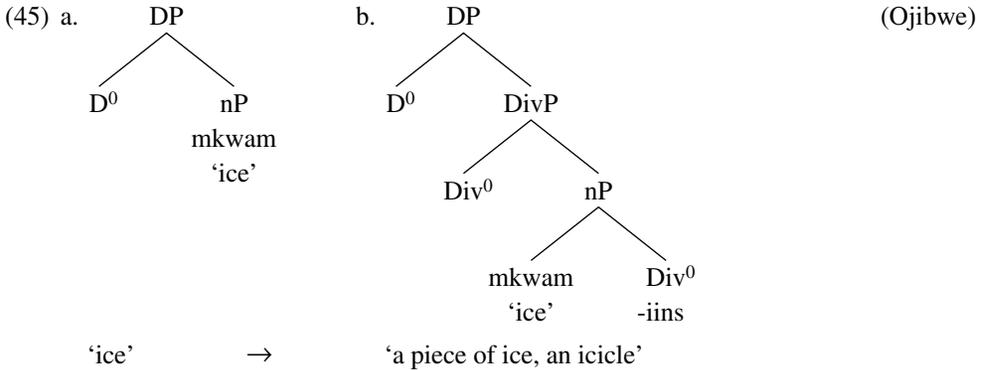
- (43) a. *mtig* 'wood/forest' ~ *mtigoons* 'stick' ~ *mtigoons-ag* 'sticks'
 b. *mkwam* 'ice' ~ *mkwamiins* 'icicle' ~ *mkwamiins-ag* 'icicles'
 c. *zhoonya* 'money' ~ *zhoonyaans* 'coin' ~ *zhoonyaans-ag* 'coins'
 d. *ziisbaakwad* 'sugar' ~ *ziisbaakdoons* 'candy' ~ *ziisbaakdoons-ag* 'candies'
 e. *mshkiki* 'medicine' ~ *mshkikiins* 'pill' ~ *mshkikiins-ag* 'pills'
 f. *semaa* 'tobacco' ~ *semaans* 'cigarette' ~ *semaans-ag* 'cigarettes'
 g. *bkwezghan* 'bread' ~ *bkwezghaans* 'cookie' ~ *bkwezghaans-ag* 'cookies'

In these examples, we see that the diminutive achieves the same result as gender shift would. Nouns denoting substances, granular aggregates, and collective aggregates are targeted by the diminutive to form an individual. As with the case of gender shift, the diminutive cannot apply to liquid terms, (44a–b).

- (44) a. **nbiishins* intended: 'puddle of water'
 b. **bimidens* intended: 'bit of oil'

Despite the similarities, there is one main difference between gender shift and the diminutive as markers of the singulative: the diminutive tends to yield a simple unit rather than a unit-of-measure reading. For example, in (43d) the diminutivized noun does not mean 'a piece of sugar'; it means 'a candy'. In (43g), the diminutivized noun does not mean 'a piece of bread'; it means 'a cookie'. However, it must be noted that the diminutive targets exactly the same kind of collective and mass nouns as the singulative. In addition, although it is common for mass nouns in singulative languages with gender shift to be ambiguous between the simple unit reading and the measure reading, it appears that in Ojibwe gender shift correlates with unit-of-measure readings while the diminutive correlates with simple unit readings. However, this is not a strict dichotomy. Instead, I speculate that in order to avoid the ambiguity that a term faces when singulativized, the diminutive as divider is used to mark simple units, some of which are specialized ('bread' becomes 'cookie', etc.—although *bkwezghaans* 'bread-DIM' is in fact ambiguous among 'cookie', 'biscuit', 'roll', 'doughnut', etc.). The difference in meaning is reflected in the context or across dialects.

Since I am not making a difference between the measure reading and the simple unit reading (both are exemplars of Div^0), I propose that the diminutive is another flavor that Div^0 can take. (45) shows the derivation for a mass noun such as *mkwam* 'snow' that becomes singulativized via the diminutive.



Ojibwe is far from being the sole language to use the diminutive as an individualizer. In many languages, an element that also expresses smallness must be used to achieve individuation (see Rijkhoff 1991 for discussion). Stroomer (1987:87) reports that the singulative affix *-itii* in Wellegga Oromo (Cushitic) also has a diminutive reading.

In summary, the diminutive is a full individualizer on a par with gender shift. My account applies to Ojibwe and is not meant to apply to other languages where diminutives have been shown to encode atomization independently of a singulative system (absent from the language). For example, in some dialects of German and Dutch, it is possible to individuate a mass noun with the diminutive (Wiltschko 2006, De Belder 2008, 2011, Ott 2011). Borer (2005:92n6) mentions similar examples in passing, attributing the observation to Henk van Riemsdijk. These are sometimes said to pose a problem for her view that classifiers and number are in complementary distribution (De Belder 2008, 2011). It appears that in these languages the diminutive works differently from the diminutive in Ojibwe. In the dialects mentioned, it is not possible to diminutivize granular aggregates.³¹

5 Conclusion

In this article, I argued for integrating the singulative into Borer's (2005) system of division. Division or atomization comes in different flavors cross- and intralinguistically: via the use of classifiers, number, and atomizing numerals, but also, as I have shown, via the use of the singulative. The singulative itself introduces different flavors: gender shift (from masculine to feminine, but also, as I have argued, from inanimate to animate) as well as the diminutive. With a comprehensive view of the singulative, I was able to give an account of why mass nouns in Ojibwe can often be pluralized. One major consequence of my proposal is that the plural has a dual function in the grammar: it can be used as an atomizer (as Borer (2005) argues) but also as a regular counter (as in traditional grammars).

³¹ Thanks to a reviewer for pointing this out to me.

References

- Acquaviva, Paolo. 2008. *Lexical plurals*. Oxford: Oxford University Press.
- Baerman, Matthew. 2007. Morphological reversals. *Journal of Linguistics* 43:33–51.
- Baraga, Friderik. 1850. *A theoretical and practical grammar of the Otchipwe language*. Detroit, MI: Jabez Fox.
- Black-Rogers, Mary B. 1982. Algonquian gender revisited: Animate nouns and Ojibwa ‘power’—an impasse? *Papers in Linguistics* 15:59–76.
- Boeckx, Cedric. 2010. What principles & parameters got wrong. Ms., Universitat Autònoma de Barcelona.
- Booij, Geert. 1993. Against split morphology. In *Yearbook of morphology 1993*, ed. by Geert Booij and Jaap van Marle, 27–50. Dordrecht: Kluwer.
- Booij, Geert. 1995. Inherent versus contextual inflection and the split morphology hypothesis. In *Yearbook of morphology 1995*, ed. by Geert Booij and Jaap van Marle, 1–16. Dordrecht: Kluwer.
- Borer, Hagit. 2005. *In name only*. New York: Oxford University Press.
- Bunt, Harry. 1985. The formal representation of (quasi-)continuous concepts. In *Formal theories of the commonsense world*, ed. by Jerry Hobbs and Robert Moore, 37–70. Norwood, NJ: Ablex.
- Cheng, Lisa Lai-Shen, and Rint Sybesma. 1999. Bare and not-so-bare nouns and the structure of NP. *Linguistic Inquiry* 30:509–542.
- Chierchia, Gennaro. 1998. Reference to kinds across languages. *Natural Language Semantics* 6:339–405.
- Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. by Michael Kenstowicz, 1–52. Cambridge, MA: MIT Press.
- Clausen, David, Alex Djalali, Scott Grimm, Sven Lauer, Tania Rojas-Esponda, and Beth Levin. 2010. Extension, ontological type, and morphosyntactic class: Three ingredients of countability. Ms., Stanford University, Stanford, CA. Available at <http://www.stanford.edu/~bclevin/bochum10abst.pdf>.
- Corbett, Greville. 2000. *Number*. Cambridge: Cambridge University Press.
- Cowell, Mark W. 2005. *A reference grammar of Syrian Arabic (based on the dialect of Damascus)*. Washington, DC: Georgetown University Press.
- Davis, Henry, and Lisa Matthewson. 1999. On the functional determination of lexical categories. *Revue québécoise de linguistique* 27:30–69.
- De Belder, Marijke. 2008. Size matters: Towards a syntactic decomposition of countability. In *WCCFL 27*, ed. by Natasha Abner and Jason Bishop, 116–122. Somerville, MA: Cascadia Press.
- De Belder, Marijke. 2011. A morphosyntactic decomposition of countability in Germanic. *Journal of Germanic Linguistics* 14:173–202.
- Dimmendaal, Gerrit J. 2000. Number marking and noun categorization in Nilo-Saharan languages. *Anthropological Linguistics* 42:214–261.
- Doetjes, Jenny. 1996. Mass and count: Syntax or semantics? In *Proceedings of Meaning on the HIL*, 34–52. Leiden: HIL/Leiden University.
- Doetjes, Jenny. 1997. Quantifiers and selection: On the distribution of quantifying expressions in French, Dutch and English. Doctoral dissertation, Leiden University.
- Doron, Edit, and Ana Müller. 2010. The cognitive basis of the mass-count distinction: Evidence from bare nouns. Abstract. The Hebrew University of Jerusalem and University of São Paulo.
- Dressler, Wolfgang, and Lavinia Merlini Barbaresi. 1994. *Morphopragmatics: Diminutives and intensifiers in Italian, German, and other languages*. Berlin: Mouton de Gruyter.
- Fassi Fehri, Abdelkader, and Marie-Thérèse Vinet. 2007. Number and classifier distributions in Arabic and Chinese and their complementarity. In *Architectures, rules, and preferences: Variations on themes by Joan Bresnan*, ed. by Annie Zaenen, Jane Simpson, Tracy Holloway King, Jane Grimshaw, Joan Maling, and Chris Manning, 167–193. Stanford, CA: CSLI Publications.
- Goddard, Ives. 2002. Grammatical gender in Algonquian. In *Papers of the Thirty-Third Algonquian Conference*, ed. by H. C. Wolfart, 195–231. Winnipeg: University of Manitoba.

- Greenberg, Joseph H. 1972. Numeral classifiers and substantival number: Problems in the genesis of a linguistic type. *Working Papers on Language Universals* 9:2–39.
- Greenberg, Joseph H. 1974. Studies in numeral systems, I: Double numeral systems. *Working Papers on Language Universals* 14:75–89.
- Grimm, Scott. 2009. Number marking and individuation: A view from Dagaare. Abstract. Stanford University, Stanford, CA.
- Grimm, Scott. 2010. Number and markedness: A view from Dagaare. In *Proceedings of Sinn und Bedeutung 14*, ed. by Martin Prinzhorn, Viola Schmitt, and Sarah Zobel, 168–184. Vienna: University of Vienna, Department of Linguistics.
- Grimm, Scott. 2011. Countability in Dagaare. Paper presented at the Department of African Studies, Humboldt University, Berlin, December.
- Harbour, Daniel. 2008. *Morphosemantic number: From Kiowa noun classes to UG number features*. Dordrecht: Springer.
- Hemon, Roparz. 1975. *A historical morphology and syntax of Breton*. Dublin: Institute for Advanced Studies.
- Holes, Clive. 2004. *Modern Arabic: Structures, functions, and varieties*. 2nd ed. Washington, DC: Georgetown University Press.
- Jurafsky, Daniel. 1996. Universal tendencies in the semantics of the diminutive. *Language* 72:533–578.
- Kaye, Jonathan, and Glyne Piggott. 1973. On the cyclical nature of Ojibwa t-palatalization. *Linguistic Inquiry* 4:345–362.
- Krifka, Manfred. 1989. Nominal reference, temporal constitution and quantification in event semantics. In *Semantics and contextual expression*, ed. by Renate Bartsch, Johan van Benthem, and Peter van Emde Boas, 75–115. Dordrecht: Foris.
- Krifka, Manfred. 1995. Common nouns: A contrastive analysis of English and Chinese. In *The generic book*, ed. by Gregory N. Carlson and Francis Jeffrey Pelletier, 398–411. Chicago: University of Chicago Press.
- Mathieu, Éric. 2007. The count/mass distinction and the role of number in Ojibwe. Paper presented at the Workshop on Nominal and Verbal Plurality, Paris, November 9–10.
- Mathieu, Éric. 2012. On the mass/count distinction in Ojibwe. In *Count and mass across languages*, ed. by Diane Massam, 172–198. Oxford: Oxford University Press.
- Mithun, Marianne. 1988. Lexical categories and the evolution of number marking. In *Theoretical morphology: Approaches in modern linguistics*, ed. by Michael Hammond and Michael Noonan, 211–234. San Diego, CA: Academic Press.
- Mithun, Marianne. 1999. *The languages of Native North America*. Cambridge: Cambridge University Press.
- Muehlbauer, Jeffrey. 2008. *kâ-yôskâtahk ôma nêhiyawêwin: The representation of intentionality in Plains Cree*. Doctoral dissertation, University of British Columbia.
- Newmeyer, Frederick. 2005. *Possible and probable languages: A generative perspective on linguistic typology*. Oxford: Oxford University Press.
- Nichols, John, and Earl Nyholm. 1995. *A concise dictionary of Minnesota Ojibwe*. Minneapolis: University of Minnesota Press.
- Ott, Dennis. 2011. Diminutive formation in German: Spelling out the classifier analysis. *Journal of Comparative Germanic Linguistics*. Online.
- Pedchenko, Svetlana “Weshki-ayaad,” Charlie Lippert, and Guy Gambill. 2003. Freelang Ojibwe-English dictionary and English-Ojibwe dictionary. Available at <http://www.freelang.net/dictionary/ojibwe.html>.
- Pelletier, Francis Jeffrey. 1979. Non-singular reference: Some preliminaries. In *Mass terms: Some philosophical problems*, ed. by Francis Jeffrey Pelletier, 1–14. Dordrecht: Reidel.
- Piggott, Glyne. 2007. Deriving word minimality by phase. Ms., McGill University, Montreal.
- Rhodes, Richard. 1985. *Eastern Ojibwa-Chippewa-Ottawa dictionary*. Berlin: Mouton de Gruyter.

- Rhodes, Richard. 1990. Lexical hierarchies and Ojibwa noun derivation. In *Meanings and prototypes: Studies in linguistic categorization*, ed. by Savas L. Tsohatzidis, 151–158. London: Routledge.
- Rijkhoff, Jan. 1991. Nominal aspect. *Journal of Linguistics* 8:291–309.
- Ritter, Elizabeth, and Martina Wiltschko. 2009. Varieties of Infl: Tense, location, and person. In *Alternatives to cartography*, ed. by Jeroen van Craenenbroeck, 153–202. Berlin: Mouton de Gruyter.
- Roberts, Ian. 2010. *Agreement and head movement: Clitics, incorporation, and defective goals*. Cambridge, MA: MIT Press.
- Ross, Malcolm D. 1988. *Proto Oceanic and the Austronesian languages of Western Melanesia*. Canberra: Pacific Linguistics.
- Sanches, Mary, and Linda Slobin. 1973. Numeral classifiers and plural marking: An implicational universal. *Working Papers on Language Universals* 11:1–22.
- Sauvageot, Serge. 1967. Sur la classification nominale en bainouk. In *La classification nominale dans les langues négro-africaines*, 225–235. Paris: Centre national de la recherche scientifique.
- Stroomer, Harry. 1987. A comparative study in three southern Oromo dialects in Kenya (phonology, morphology, and vocabulary). Doctoral dissertation, Leiden University.
- Stump, Gregory. 2005. Word-formation and inflectional morphology. In *Handbook of word-formation*, ed. by Pavol Štekauer and Rochelle Lieber, 48–71. Dordrecht: Springer.
- Ternes, Elmar. 1992. The Breton language. In *The Celtic languages*, ed. by Donald MacCaulay, 371–452. Cambridge: Cambridge University Press.
- Travis, Lisa. 1984. Parameters and effects of word order variation. Doctoral dissertation, MIT, Cambridge, MA.
- Trépos, Pierre. 1956. *Le pluriel Breton*. Rennes: Imprimerie Réunies.
- Trépos, Pierre. 1980. *Grammaire Bretonne*. Rennes: Ouest-France.
- Valentine, Randy. 2001. *Nishnaabemwin reference grammar*. Toronto: University of Toronto Press.
- Whorf, Benjamin. 1941. The relation of habitual thought and behavior to language. In *Language, culture and personality: Essays in memory of Edward Sapir*, ed. by Leslie Spier, A. Irving Hallowell, and Stanley Newman, 75–93. Menasha, WI: Sapir Memorial Publication Fund 1941.
- Wiltschko, Martina. 2006. Why should diminutives count? In *Organizing grammar: Studies in honor of Henk van Riemsdijk*, ed. by Hans Broekhuis, Norbert Corver, Riny Huybregts, Ursula Kleinhenz, and Jan Koster, 669–679. Berlin: Mouton de Gruyter.
- Wiltschko, Martina. 2008. The syntax of non-inflectional plural marking. *Natural Language and Linguistic Theory* 26:639–694.
- Wiltschko, Martina. 2012. Decomposing the mass/count distinction: Towards a formal typology. In *Count and mass across languages*, ed. by Diane Massam, 146–171. Oxford: Oxford University Press.

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