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On Count/Mass Distinction in Slovene

Članek predstavlja modelno-teoretsko raziskavo števnosti v slovenščini. Obravnava in razlaga slovenske števne ter snovne samostalnike, obenem pa kaže na nepravilnost Chierchove (2004) teoretske napovedi, po kateri noben jezik snovnosti ne označuje oblikoslovno. V članku so predlagane pomenoslovne in skladenjske analize števnosti slovenskega samostalnika.

This paper is a model-theoretic investigation into the count/mass distinction in Slovene. It overviews and accounts for Slovene nouns, while also invalidating Chierchia's (2004) theoretical prediction that no language marks mass morphologically. I provide analyses of countability in the nominal domain of Slovene on semantic and morphosyntactic levels.

1 Introduction

This paper explores the lexical semantics of count/mass distinction in Slovene. It shows the correlation between morphology and countability. Count/mass distinction has been given much attention in the literature since the distinction provides an interface between language (i.e., grammar), non-linguistic conceptual faculties and reality. In this paper, the focus of investigation is purely linguistic in that the paper seeks to provide a semantic account of count/mass distinction in a particular language. Chierchia (2004) predicts that no language may mark its count and mass nouns morphologically—this paper invalidates that claim by showing a morphological correspondence to mass nominals.

1.1 Outline

The overall structure of the paper is as follows: in section 2, we review the relevant problematic data cross-linguistically. This section will deals with the phenomenon of mass-plurals in Greek, and the syncretic mass/plural status of nouns in Lingala, Zuni and English languages where nouns can be interpreted as being both mass and plural. Section 3 outlines the empirical facts of Slovene nominals and establishes (*i*) mass-morphological correspondence, (*ii*) mass-pluralisation, (*iii*) mass/plural syncretism and (iv) what appears *prima faciae*, further massification of mass nouns. In section 4, the empirical facts are treated theoretically whereby possible analyses and accounts for the Slovene data are proposed, both on semantic and morphosyntactic levels.

In the remainder of this introduction, I describe the background notions and define the theoretical assumptions that are made throughout this paper.

1.2 Background Notions & Assumptions

This paper assumes model-theoretic semantics. With regards to this, I assume that mass nouns are predicates over entities or individuals (x) as well as aggregates (or sums) of such entities or individuals (X). The denotation of a mass noun may, therefore, be represented by a complete join semi-lattice, which contains variables over entities (x) and pluralities/aggregates thereof (X). In other words, following Bale & Barner (2009: 235), the join semi-lattices relevant to my semantics implicate sets of aggregates, where aggregates may be interpreted to be quantities of individuals or of substances, energies, ideas, etc. I define aggregates with an ordering relation by using a sum/join operator ($\oplus$) that maps any two atoms or pluralities thereof to a single aggregate that is the combination of the two/three/etc. The sum/join operator is defined in (1)

(1) DEFINITION OF $\oplus$
    a.   the aggregation of a and b : $a \oplus b$
    b.   the aggregation of $a \oplus b$ and $a \oplus c$: $a \oplus b \oplus c$

It follows from (1b) that sum/join operation has the cumulatively property (in simple terms: if we add something to a sum, it is still a sum).[1] I also define (2) a partial-ordering relation ($\prec$) between the aggregates and its constituent parts (by means of part-whole relation), whereby $\langle X, \prec \rangle$ would read: X is a set partially ordered by $\prec$.

(2) DEFINITION OF $\prec$:
    a.   for all aggregates x and y, $x \prec y$ iff $(x \oplus y) = y$
    b.   if $x \in X$ and $y \in X$ and $x \oplus y \subseteq X$, then $x \prec y$ and $\langle X, \prec \rangle$

If follows from definition (1) that the interpretation of mass nouns is closed under sum and from definition (2) that the interpretation of any mass noun is a complete join semi-lattice, which I define in (3), following Bale & Khanjian (2009: 5). One of the most widely accepted proposals is that while count nouns always denote individuals, mass nouns never do (Quine 1960; Link 1983, 1998, among others). Since mass nouns do not denote individuals, the interpretation of mass nouns in closed under sums (of discrete elements). For instance, the mass noun in a sentence like *I drink water* does not denote an individual/element but a(n entire) substance that cannot be individuated. In Chierchia's (1998a:54) words, while singular count nouns have individuals in its extension (e.g., 'coin' is true of single coins) and a plural one has plural individuals or groups in its extension (e.g., 'coins' is true of pluralities of coins), mass nouns are instead interpreted as mereological wholes of some kind—their denotation takes a form of a complete semi lattice (3, 4)—or else their extension is drawn from a domain of substances whose minimal components are more elusive than ordinary individuals.

Thus the operator $\oplus$ is the typical join or sum, defined as an aggregation operator (1). I also define $\vee$ as the typical meet operator that takes two groups or portions and yields an individual, group or portion that is common to both (e.g., $\{a,b\} \vee \{b,c\} = b$).

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[1] Cumulativity (Krifka 1999) may be defined as (*i*):

(*i*) $(\forall X \subseteq U_p)(\mathrm{CUM}(X) \Leftrightarrow \exists x, y(X(x) \wedge X(y) \wedge \neq y) \wedge \forall x, y(X(x) \wedge X(y) \Rightarrow X(x \oplus_p y)))$

(3)   COMPLETE JOIN SEMI-LATTICE:

a denotation X is a complete semi-lattice iff for all members y and z of X, $y \vee z$ is a member of X and, if $y \oplus z$ is not an empty set ($\emptyset$), then $y \oplus z$ z is a member of X.

The following semi-lattice generally captures these assumptions.

$$(4) \quad [\![\text{MASS}(X)]\!] = \langle X, \prec \rangle = \begin{bmatrix} & a \oplus b \oplus c & \\ a \oplus b & a \oplus c & b \oplus c \\ a & b & c \end{bmatrix}$$

The middle notation $\langle X, \prec \rangle$ refers to the complete semi-lattice representation on the right and reads as: members (a,b,c), or aggregates thereof ($a \oplus b$, $b \oplus c$, etc.), of set X are partially ordered by $\prec$. I use this formulaic, as opposed to graphic, notation in my analyses to refer to complete semi-lattices. Following Link (1983), I also assume that (morphological) roots are interpreted as semi-lattice (*morphosemantic primacy of mass*).

In less formal terms, Chierchia (1998a) proposed ten properties that characteristic of count/mass distinction.

(5)   #1   Availability of plural morphology.
        #2   Distribution of numeral determiners.
        #3   Obligatoriness of classifier and measure phrases for combining with numerals.
        #4   Some determiners occur only with count nouns.
             (a) singular determiners: *every*, *each*, *a*
             (b) plural determiners: *several*, *few*, *a few*, *many*, *both*
        #5   Some determiners occur only with mass nouns.
                  little, *much*
        #6   Some determiners occur only with plurals and mass nouns.
                  a lot of, *plenty of*, *more*, *most*
        #7   Some determiners are unrestricted.
                  the, *some*, *any*, *no*
        #8   Independence of the distinction from the structure of the matter.
             (a) *shoes* vs. *footwear*
             (b) *clothes* vs. *clothing*
             (c) *coins* vs. *change*
             (d) *carpet* vs. *carpeting*
        #9   A (predominately) count noun can be made mass
                  there is rabbit in this stew → *there is rabbit meat in this stew*
        #10 A (predominately) mass noun can be made count
                  we store three bloods → *we store three blood types*

Section 3 overviews these properties with regards to their application to Slovene. We discuss these ten properties is in §3.2 as take a closer look at some Slovene data.

On the other hand, with regards to my syntactic-theoretic assumptions, I assume a generative Y-shaped model of grammar. Under appropriate abstraction and ideal-

ization, the faculty of language reduces to a computational system that assembles a finite number of lexical items drawn from the lexicon into structured linguistic representations, and hands them to the interfaces with the Conceptual-Intentional system (=L(ogical)F(orm)/Semantics) and the Sensorimotor system (=P(honological) F(orm)/Phonology). This computational aspect of the faculty of language is called syntax. (Narita 2010)

More specifically, I am further assuming and adopting Borer's (2005) model, which generally states that the locus of count/mass distinction lies in morphosyntax. More precisely, Borer claims that there is a syntactic number head (Num^0/#^{0}) which regulates the distinction between count and mass nouns. Furthermore, she claims that all nominal denotations are mass and that it is the syntactic presence of the dividing structure (DivS), namely the classifier phrase, that gives rise to count interpretation of nouns. I am assuming a weaker version of Borer's theory: although I assume and agree that the mechanism for linguistic count/mass distinction is syntactic (i.e., syntactic structure of count nominal is unlike mass), I am still assuming that there is difference in the nature of the denotation (which Borer does not). In a way, I am maintain a 'basic' count/mass distinction that is reflected in the syntax.

The following two phrase markers, adapted from Borer (2005: 96-7), generally capture this morpho-syntactic model of count/mass distinction. I have also associated [±COUNT] features with #^{0} (the number head).

(6)   a.   **Count Nouns**
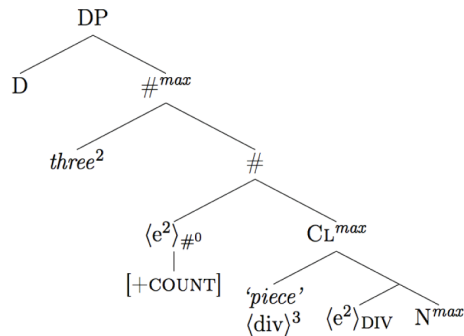
        b.   **Mass Nouns**
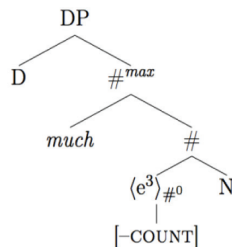
Similarly, Bale & Barner (2009) provide a different perspective of the same model. They posit two syntactic features which combine with root lexical items (Bale & Barner 2009: 234): *n* for noun and *c* for count. Thus, there are only two syntactic possibilities: the combination $\langle n,c \rangle$ will spell-out a count noun whereas $\langle n \rangle$ with the absent *c* on a noun will output a mass noun, where mass interpretation is—as in Borer's (2005) model—seen as the default setting.

These two sets of semantic and syntactic assumptions with regards to mass nouns and their interpretation will theoretically constitute my proposal in section 4. A general sketch of my assumptions is thus:

(7) A_i the denotations of mass nouns are interpreted as a complete join semi-lattices (1–5)

         A_{ii} lexical roots are interpreted as complete join semi-lattices (i.e., *morphosemantic primacy of mass*)

         A_{iii} the count/mass contrast is present in morphosyntax (6); (Borer, 2005, Bale & Barner, 2009)

I resume discussing the three general assumptions in the last section which debates the theoretical account of the data. Before providing the Slovene data in §3, I address in §2 data from Greek, English, Lingala and Zuni as being problematic for the semantic theory of countability.

2   Problematic Data

There are essentially two sets of data that are problematic for the semantic theory of count/mass distinction. The first set regards Greek and the fact that Greek mass nouns pluralise quite freely. The second set of data concerns Lingala, Zuni and examples from English where mass and plural interpretation of nouns morphosemantically collides. Both sets are relevant to Slovene, which shows both symptoms of the 'problem' that I address in this paper.

2.1 Mass Plurals in Greek: Tsoulas (2008)

Before we deal with the plural-mass data, let us acknowledge the cases where mass terms appear to pluralise, but fail to be interpreted as mass-plurals. According to Tsoulas (2008: 132), these bogus cases of mass plurals refer to:

(8)   a.   standard servings, or typical units of measurement,

         b.   type or

         c.   idiomatic expressions.

The three cases mentioned above may be exemplified by the following examples, respectively, using a mass term like *water*, taken from Tsoulas (2008: 132)

(9)   a.   We ordered three waters an hour ago (i.e., glasses, bottles, etc.)

    b.   Our restaurant serves only three waters (i.e., tap, still mineral, and
          sparkling mineral water)

    c.   Matilda's waters broke.

The plural uses of mass terms in (9) do not really present a real problem since
they do not share the properties of real mass plurals. Mass plurals in (9a) and (-b)
do not carry a scalar implicature, which would yield a reading that much water was
ordered or is served, respectively. Such bogus mass plurals are characterised by the
dividing structure (DivS) silence, as it were. The dividing structure (Borer 2005)
that serves as a measure- or kind-phrase in (9a) is not pronounced (hence deleted, let
us assume at PF) and the mass term is being marked for plurality where such plural
marking is remnant of dividing structure deletion, as shown in (10).

(10)   We ordered three [glass+~~es~~$_i$ of]$^{\text{DivS}}$ water+s$_i$ an hour ago.

The indexed plural inflection of the deleted dividing structure *glasses of* (in our
case measure phrase) can therefore be seen as pragmatically falling onto the anteced-
ing mass term in complement position. Bogus mass plurals are thus characterised as
plurals of silent measure- or kind-phrases with the plural inflection appearing in a
displaced (mass NP) position. By definition of displacement (Moro 2000), the inflec-
tional element is interpreted in a position other than the one where it occurs in the
interpretation (i.e., DivS). The independent evidence for treating examples in (9) as
bogus mass plurals (i.e., evidence for syntactic DivS deletion) is purely semantic and
interpretational: in none of the examples in (9) is the mass noun interpreted as being
pluralised, i.e., no aspect of the denotation of the mass noun *water* has been altered
with the addition of plural inflection (=*waters*): the inflection does not contribute to
scalarity of the denotation but to the differentiation of serving (9a) and kind (b) of
water.[2] The contribution of the plural inflection on mass nouns is thus, as it were,
mass-external since it is interpreted in a position higher than the mass noun (presum-
ably DivS which syntactically takes an NP$_{\text{MASS}}$ complement), although appearing in a
displaced mass-inflectional position.[3]

There is evidence, however, for real mass plurals, which do not fall within the
three cases of bogus mass plurals outlined in (8–10). Tsoulas (2008) provides us with
data from Greek where mass terms indeed pluralise.

(11)   To   patoma   itan   gemato nera
        the   floor-[NOM] was-[past]   full   water-[MASS]-[PL]
        "The floor was full of water/s."

The Greek data clearly does not refer to any of the bogus constructions.[4] Greek
shows that mass-plurals are possible. Pluralisation, however, should not be mistaken
for quantisation, that is countability, since Greek mass terms cannot quantize/count.

―――――――――――――――
[2] The use of mass plural in (9c) is idiomatic and thus falls outside of the scope of this
paper.
[3] There seem to be pragmatic factors for (syntactic) DivS deletion: should, for instance,
types of water (9b) be contextually salient, deleting the DivS may be seen an economy prin-
ciple since it's been made salient.
[4] See Tsoulas (2008) for further empirical evidence and detailed arguments.

(12)   (*Dio)   nera   trehun   apo   to   tavani.
         two-[NUM] water-[MASS]-[PL] run-[PRES]   from   the-[D]   ceiling
         "Two waters drip from the ceiling."

Tsoulas' (2008: 135) testing for the mass status of the nominals in question with respect to the possibility of occurring with numerals revealed that Greek plural-marked mass nouns behave with respect to numerals in exactly the same way as their singular English counterparts. It follows from this, as a corollary (of the impossibility of directly using numerals with mass terms), that in order to count the relevant mass term, despite its being plural-marked, a classifier/measure phrase (DivS) is required.

(13)   a.   two bottles of water vs *two waters

         b.   dio   boukalia   nero   vs.   *dio
                two-[NUM] bottle-[DivS]-[PL] water-[MASS]-[SG] two-[NUM]
                nera
                water-[MASS]-[PL]
                "wo bottles of water" vs. "two waters."

It should also be noted that when combined with a classifier/measure phrase, Greek mass terms are singular. There is another key difference between the cardinal behaviour of mass singulars and mass plurals in Greek. A singular mass term can be quantised via dividing structure and a plural one cannot, as (14) shows.[5]

(14)   *dio   boukalia   nero   vs.   boukalia
         two-[NUM] bottle-[DivS]-[PL] water-[MASS]-[SG]   bottle-[DivS]-[PL]
         nera
         water-[MASS]-[PL]
         "two bottles of water" vs. "two bottles of waters."

According to Tsoulas, in contexts where classifier/measure phrases are used, there is a switch in denotation of singular mass terms to the denotation of standard quantities of *the stuff*. In rare cases when Greek mass plurals may combine with a classifier/measure phrase, Tsoulas claims that the classifier/measure phrase no longer performs counting (15a) but rather specifies amounts, analogous in terms of, as he puts it, *X-ful* morphology (-b), as the following examples from English show.

(15)   a.   Three spoons/portions of rice.

         b.   Three mouthfuls of rice.

It is along these lines of amount specification (as opposed to counting) that the following example from Greek may be interpreted (Tsoulas, 2008: 136).

(16)   Tris   dexamenes   nera   epesan   apo
         three-[NUM] tanks-[DivS]-[PL] water-[MASS]-[PL] fell-[PAST] from-[P]
         to   tavani.
         the-[D]   ceiling-[N]
         "Three tankfuls of water came through the ceiling."

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[5] This also holds for Slovene as addressed below in section 3.

Also proving the mass status of Greek nouns above is the determiner distribution: Greek mass nouns cannot combine with count determiners with the *much/many* contrast in Greek also testifying to the valid status of Greek mass nouns. According to Tsoulas, Greek seems to have normal mass nouns and count/mass distinction save for the pluralisation fact.

Another important distinction we need to make is that between S(ubstance)-mass and O(bject)-mass nouns.[6] Examples of S-mass terms include nouns like *water*, *mud*, *sand*, etc, which do not have atomic texture. O-mass terms, on the other hand, behave grammatically in the same manner as S-mass terms do but whose denotation contains clearly identifiable atomic parts (an English example would be *furniture*, for instance). It is both interesting and important to note that Greek does not have O-mass terms; an English mass term like *furniture* is a count-term in Greek.

(17)　　　epiplo vs. epipla
　　　　　"furniture/s" [+COUNT]

Tsoulas and Harbour generally seek to explain the Greek mass-plural phenomenon by looking into the featural specifications of Num^0 ($\#^0$ in Borer's (2005) model introduced in §1.1), which, they assume, is the locus of number specification.

Harbour (2008) develops a theory of augmentation in terms of number feature specification. He postulates two types of features: [±SINGULAR] and [±AUGMENTED]. In Harbour's (2008: 2) words, different realities of the latter features may underlie what, in naive taxonomic terms, we would classify as a singular/plural distinction. He defines the features as

(18)　　　a.　　[+SINGULAR] = $\lambda x[\text{ATOM}(x)]$
　　　　　　b.　　[+AUGMENTED] = $\lambda P.\lambda x : P(x).\exists y[P(y) \ \& \ y \sqsubset x]$

It is proposed that Greek does not instantiate a [+PLURAL] feature in Num^0 but rather that the relevant featural distinction is [±SINGULAR]. Harbour & Tsoulas hence propose the following featural settings to spell out the relevant number marking in Greek.

(19)　　　a.　　[−SINGULAR, −AUGMENTED] = count plural noun
　　　　　　b.　　[+SINGULAR, −AUGMENTED] = count singular noun
　　　　　　c.　　[+SINGULAR, +AUGMENTED] = mass singular noun
　　　　　　d.　　[−SINGULAR, +AUGMENTED] = mass plural noun

The plural morphology on mass nouns, according to Tsoulas (2008: 143), operates as modification. The general idea, therefore, is that pluralisation, as an operation, does not compositionally take a mass noun as its argument (20a), instead, as Tsoulas proposes, that mass pluralisation is mere modification (-b) with the following interpretation.[7]

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[6] For further discussion on this distinction, see Barner & Snedeker (2005).

[7] In (perhaps too) general terms, pluralisation of mass nouns is to semantics as adjunction to phrases is to syntax. The modification operation that Tsoulas proposes can be identified as theta identification/predicate modification (see Heim & Kratzer 1998:65), defined in (*ii*)

(20)   a. $[\![$*nera/waters*$]\!]$ ≠ PLURAL(WATER(x))
      b. $[\![$*nera/waters*$]\!]$ = WATER(x) & PLURAL(x)

The featural combinatorics in (19) encapsulates the behaviour of mass nouns in Greek which allows us to isolate two features, [αSINGULAR] and [αAUGMENTED][8] that can be plugged into Borer's (2005) model, addressed in the previous section (6).

In the following section, I address cases where plural and mass interpretations of nouns are inherently indistinguishable which will become relevant to our discussion of mass/plural syncretism in section 3.

2.2 The Paradox of Mass Plurals: Ojeda (2005)

Ojeda (2005) notices that the English noun *clothes* is very problematic for the semantic theory of count/mass distinction: it is both a mass term as well as a plural. *Clothes* should refer to discrete entities taken in bulk rather collectively, and at the same time, to discrete entities taken collectively rather than in bulk. He finds this predicament to be the paradox mass plurals.

Ojeda postulates two kinds of plurality in order to facilitate the resolution of this paradox: he stipulates that there are two kinds of plurality: formal and semantic. The latter applies to regular plural nouns (garments) but not to regular mass nouns (clothing). Formal plurality, however, seems to apply to certain mass nouns, like clothes[9]—and does not mean what it appears to say. His analysis concludes that the plurality in *clothes* is actually vacuous.

To resolve the paradox, Ojeda (2005: 391) discards the binary contrast between singularity and plurality and proses 'a full square of numerical opposition' in addition to the opposition between singular and plural reference as per (21).

(21)
$$\begin{pmatrix} \text{singularity} & \cdots & \text{plurality} \\ \vdots & & \vdots \\ \text{cosingularity} & \cdots & \text{coplurality} \end{pmatrix}$$

Examples of mass plurals may also be found in other languages like Lingala, a Bantu language of Central Africa, and Zuni, an indigenous North American language. Both Lingala and Zuni mass terms are inherently plural: the same affixal morphology

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(*ii*)   If α is a branching node, {β, γ} is the set of α's daughters, and $[\![β]\!]$ and $[\![γ]\!]$ are both in $D_{\langle e,t \rangle}$, then $[\![α]\!] = \lambda x \in D_{\langle e \rangle} \cdot [\![β]\!](x) = [\![β]\!](x) = 1$

See Heim & Kratzer (1998) for further details.
   [8] The use of α in my parametric notation (not the same as α in fn. 6) simply refers to unspecification; given a parameter P, we would notate its unspecification as [αP] (or [+P]). I notate [+P] for positive specification (i.e., the given language has and may instatiate parameter P) and [–P] for neagtive specification (i.e., the given language does not have and may not instantiate parameter P).
   [9] Other common examples of English mass plurals include *effects, stocks, victuals, oats, weeds, brains*, etc.

that marks plurality also marks mass[10]. The following example is from Lingala (Ojeda 2005: 395).

(22)   ma-   -lalá
          [PART]-[CL.6]-[PL] or [MASS]   orange
          "mass of orange" / "two or more oranges"

Lingala, as we can see from (22), marks both plurality and mass with the same prefix *ma-*. Zuni shows the same plural/mass morphological marking, namely with the inflection -*we* as we can see from the three examples in (23).

(23)   a.   'o-   -we
                flower/powder   [PART]-[PL] or [MASS]
                "flour/powder"

          b.   'ohe-   -we
                brains/marrow   [PART]-[PL] or [MASS]
                "brains/marrow"

          c.   ma- -we
                salt [PART]-[PL] or [MASS]
                "salt"

Ojeda's analysis primarily shows that singular and plural inflections on a mass stem will be vacuous. Using his 'full square of numerical opposition', he shows that both singular and plural operators—interpreted as *coplurality* and *cosingularity* respectively—have no effect on the meaning of mass nouns whatsoever. (Ojeda, 2005: 401-2) Therefore, the reference of any singular or plural mass noun would just be the original ideal[11] the mass stem refers to.

Although Ojeda's (2005) analysis accounts for English, Lingala, and Zuni mass plurals, it is not able to explain Greek—nor Slovene—for two reasons. Firstly, plurality on mass nouns is not inherent neither in Greek nor in Slovene, since both languages allow mass singulars and plurals (with the latter being derived from the former).

Secondly, mass plurals in Greek and Slovene do not carry the same meaning as mass singulars.

The following section provides the empirical locus of this paper as it addresses mass nouns in Slovene.

3   Slovene Count/Mass

Mass nouns I am concerned with and present in this section (which I label in the following subsection) share morphosyntactic uniformity, which is clearly seen in the following three morphosyntactic properties.

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[10] A phenomenon we shall also see in Slovene; for further debate on mass-plural categoricity in English, Lingala, and Zuni, see Ojeda (2005) and references therein.

[11] Ideal being defined and regarded here as a standard model that an analysis predicts.

(24) P_i inflectional *-je* morphology
        P_{ii} φ-features, namely neuter gender
        P_{iii} singular agreement with the verb

This section comes in two parts. In the first part, comprising sections 3.1-3, I establish and discuss the mass-status of Slovene mass nouns. In the second part, I address some of the specific issues that Slovene mass terms raise, namely:

(25)   a.   PLURALISATION OF MASS TERMS—in this aspect, Slovene behaves like Greek (Tsoulas, 2008)

        b.   MASS AND PLURALITY BORDERLINE—in this aspect, Slovene behaves like Lingala and Zuni mass/plural nouns (Ojeda, 2005)

        c.   FURTHER MASSIFICATION (as discussed below)

The following section overviews and distinguishes mass classes in Slovene. In the following section, I follow Chierchia's (1998a) ten-property system in presenting the Slovene data.

3.1 Some Mass Classes for Slovene

Not all mass nouns in Slovene share the morphosyntactic uniformity outlined in (24). With respect to my aim to establish a morphological correspondence the semantics of mass nouns, In Table 1., I list a preliminary cladistics for mass nouns in Slovene with respect to (*i*) syntactic (i.e., inflectional), (*ii.*) derivational (i.e., allowing further massification, as we shall discuss) and (*iii.*) semantic (i.e., pluralisation and S/O discriminating) criteria. I present the three features (*i-iii*) parametrically.

The first parameter, [αPLURALISATION], refers to the fact that a mass noun may (not) pluralise, as addressed in §3.2.1. The second parameter, [αINFLECTION], relates to the question whether the mass noun has the inflectional and (consequently) the φ-featural properties (24). From this inflectional property stems the very locus of this paper. Parameter [αMASSIFICATION⁺] relates to the possibility of transforming CLI mass nouns into CLII, namely the elasticity between *zrak* / *ozračje* (air/air⁺)*, voda* / *vodovje* (water/water⁺) or *nakit* / *nakitje* (jewelery/jewellery⁺).[12] The final parameter, [αDISTINCTION$_\delta$], refers to the restriction of mass denotation in terms of S(ubstance) and O(bject) as addressed in the last part of §2.1.

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[12] May the reader bear with my MASS⁺ notation until reaching section 3.4 where a fuller treatment of this derivational phenomenon is attempted.

Table 1. Parametric Classes for Mass Nouns in Slovene

		PARAMETRIC CRITERIA FOR MASS CATEGORISATION				
CLASS	DESCRIPTION	$[\alpha\text{PLURALISATION}]$	$[\alpha\text{INFLECTION}]$	$[\alpha\text{MASSIFICATION}^{+}]$	$[\alpha\text{DISTINCTION}_{\delta}^{S}]$	EXAMPLES
I	BASE MASS NOUNS	[+]	[−]	[+]	[−]	*voda* (water), *zrak* (air), *veter* (wind), *pohištvo* (furniture), etc.
II	INFLECTED MASS NOUNS	[+]	[+]	[−]	[−]	*grmovje* (bush/es), *sadje* (fruit/s), *vodovje* (water$^+$), etc.
III	DEVERBAL MASS NOUNS/ GERUNDS	[+]	[+]	[−]	?*	*urejanje* (editing), *dihanje* (breathing), *pisanje* (writing), etc.

*   Deverbal mass nouns may be hard to specify in terms of this parameter. They may be seen purely as abstracts (like *love,* for instance), which would entail their not having an atomic structure (we could thus label them as being uniformly S-mass). Alternatively, using some event-semantic notions, these nouns may be seen as mereological structures of events (which could lead us to stipulate that they have atomic event texture and are thus O-mass). Given that this direction of the argument is too philosophical for the purposes of this paper, I postulate that $[\alpha\text{DISTINCTION}_{\delta}^{S}]$ parameter does not apply to gerunds. The reader may, however, opt for a specification of the latter parameter on (the aforementioned) philosophical grounds.

Table 1. allows us some elementary categorisation of Slovene mass nouns based on the stipulated parameters. We may thus predict that all mass nouns in Slovene allow pluralisation (debated below) and that in terms of inflectional marking of mass, we can predict that there are two classes: those with and those without the inflection. The latter, according to the third parameter, may be derived into a form with the inflection (addressed in §3.5). The last parameter predicts that Slovene mass nouns do not correlate with the S/O distinction, i.e., they are not restricted according to S/O, which contrasts with Greek (see §2.1).

Given these initial parametric settings, CLII and CLIII do not seem to differ save for the matter of S/O distinction.[13] All three classes of mass nouns allow pluralisation (see §3.2.1) with the most important space of variation between CLI and CLII/CLIII lying in (*i*) inflection and (*ii*) further massification. An account of this variation is given in §4.2.

Before reaching any theoretical and/or explanatory claims, in the remainder of this section I outline the empirical facts about Slovene count/mass, beginning with tests for mass status in §3.2.

3.2   Testing for Mass Status

Chierchia (1998a: 55-7) lists ten main empirical properties that jointly characterise mass terms. He believes these properties appear to be universal, that is, they show up whenever a mass/count contrast may be detected. I use Chierchia's previously proposed ten properties, repeated here as (26), as an initial structural and navigational frame to present the Slovene data.

(26)   #1   Availability of plural morphology.

          #2   Distribution of numeral determiners.

          #3   Obligatoriness of classifier and measure phrases for combining with numerals.

          #4   Some determiners occur only with count nouns.

                    (c)   singular determiners: *every*, *each*, *a*

                    (d)   plural determiners: *several*, *few*, *a few*, *many*, *both*

          #5   Some determiners occur only with mass nouns.

                    little, *much*

          #6   Some determiners occur only with plurals and mass nouns.

                    a lot of, *plenty of*, *more*, *most*

          #7   Some determiners are unrestricted.

                    the, *some*, *any*, *no*

          #8   Independence of the distinction from the structure of the matter.

                    (e)   shoes vs. *footwear*

                    (f)   clothes vs. *clothing*

                    (g)   coins vs. *change*

                    (h)   carpet vs. *carpeting*

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[13] I will refer to class I, II, and III in this paper as CLI, CLII and CLIII respectively.

#9   A (predominately) count noun can be made mass

there is rabbit in this stew → there is rabbit meat in this stew

#10 A (predominately) mass noun can be made count

we store three bloods → we store three blood types

I regard and convert Chiercia's ten properties for count/mass distinction into tests: I apply test #1 in §3.2.1, test #2 in §3.2.2, tests #4-7 in §3.2.3, test #8 in §3.2.4, and tests #9 and #10 in §3.2.5.

Chierchia's (2009) latest approach to count/mass distinction reduces and abstracts the earlier ten properties (Chierchia 1998a) into a generalised system, containing only three universal properties (Chierchia 2009: 5-7):

(27)	a.	THE SIGNATURE PROPERTY—mass terms cannot quantise

	b.	THE MAPPING PROPERTY—mass terms arise from a pre-linguistic and cognitive basis[14]

	c.	ELASTICITY—mass terms can shift into count-terms and vice versa

It is these three properties that this paper assumes as characteristic of mass nouns. I return to these in my section summary and analyses in section 4. Throughout the following data presentation, I use subscripts M(ass) and C(ount) to connote to Slovene mass terms in English translation.

### 3.2.1	*Availability of Plural Morphology*

According to Chierchia (1998a), plural and mass are in complementary distribution, that is, while count nouns are perfectly natural in the plural, mass nouns are not (cf. *There are shoes* vs. **There are footwears*).

Slovene clearly breaches the first and in a sense most basic, availability of plural morphology, just as Greek does (§2.1) Slovene is able to express count singular, dual and plural nouns, as well as mass-singular and mass-plural nouns with a single root, to which I will refer as morphological head (X^0).

(28)	Svoj/							svoja/ svoje grm/							grma/ grme
	my-[M]-[REFL]-[NOM]-[SG]/ [DUAL]/ [PL] bush-[M]-[NOM]-[SG]/ [DUAL]/ [PL]
	zalivam							že		nekaj let.
	water-[1.M.SG]-[PRES]-[PART]-[PERF] already several year-[M.PL]-[GEN]
	"I have been watering my bush/es$_c$ for several years (now)."

(29)	Pred			hišnim				vhodom					imam
	before-[PREP] house-[ADJ]-[LOC]-[M] entrance-[LOC]-[M] have-[1.SG]
	postavljeno				grmov-je.
	set-[PART/PASS]-[DUAL]-[N] bush-[MASS]
	"I have 'bushes' in front of my house-entrance."

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[14] See Barner & Snedeker (2005) for evidence of a pre-linguistic basis for count/mass distinction.

It may be assumed at this stage that the mass term for bushes (*grmovje*) is morphologically derived from the count singular term (*grm*). A mass noun such as *grmovje* 'bush$_M$' may also pluralise, yielding a scalarly amplified reading compared to the mass-singular expression as shown in (30).

(30)　　Sosed　　　　　　　　ima　　　　　　　　na
　　　　neighbour-[3.SG.M]-[NOM] have-[3.SG.M]-[PRES] on-[PREP]
　　　　vrtu　　　　　　　　mnoga　　　　　　　　grmov　-ja
　　　　garden-[3.SG.M]-[LOC] much/many-[ADJ]-[PL]-[M] bush-[MASS]-[PL].
　　　　"The neighbour has much bush(es)$_M$ in his garden."

3.2.2　Distribution of numeral determiners & Obligatoriness of classifier and measure phrases for combining with numerals

The second of Chierchia's (1998a:55) properties concerns the impossibility of mass nouns occurring directly with numeral determiners. The third property follows from this fact: to count mass nouns we must resort to measure- and/or classifier-phrases, labeled as DivS in our discussion (cf. *Two rices* vs. *Two kilos of rice*)

These two properties (no. 2 & 3) may be generalised as the signature property (Chierchia, 2009) whereby mass terms cannot directly combine with numerals (i.e., they cannot directly quantise) and classifier and measure phrases (=DivS) are obligatory for any form of counting. Whereas the first property does not entirely hold for Slovene, the second and third do. Slovene mass terms cannot be directly combined with numerals (excluding grammaticality judgements rendered under the interpretations of bogus mass plurals in examples (6–8).

(31)　*　Tri　　　　　ol　　-ja　sem　　　　　　　uporabil.
　　　　　three-[NUM]　oil -[MASS]-[PL]　am-[1.SG.M]-[AUX] use-[PART]-[PAST]-[M]
　　　　　"I used three oils."

(32)　*　Tri　　　　　grozd　　-ja　sem　　　　　　　pojedel.
　　　　　three-[NUM]　grape-[MASS]-[PL]　am-[AUX]-[1.SG.M] eaten-[PART]
　　　　　"I have eaten three grape$_M$."

What gives rise to the ungrammaticality of examples above is the absence of the classifier structure (DivS), intervening between a numeral and mass NP. Compare (31) with (31').

(31')　Tri　　　　　žlice　　　　　　ol -ja　　　　　　　sem
　　　　three-[NUM] spoon-[DivS]-[PL] oil-[MASS]-[SG]-[GEN] am-[1.SG.M]-[AUX]
　　　　uporabil.
　　　　use-[PART]-[PAST]-[M]
　　　　"I used three spoons of oil$_M$."

With regards to (32), however, one can construe counting *grape$_M$* by inserting DivS to say, for instance, that one has eaten three bowls of grapes (32'a) or, alternatively, use *grape$_C$* to imply that three individual grapes have been eaten (-b).

(32')   a.   Tri   sklede   grozd -ja
              three-[NUM] bowls-[PL]-[NOM] grape -[MASS]-[SG]-[GEN]
              sem   pojedel.
              am-[AUX]-[1.SG.M] eaten-[PART]
              "I have eaten three bowls of grape_m."

        b.   Tri   grozd -e   sem   pojedel.
              three-[NUM] grape-[COUNT]-[PL] am-[AUX]-[1.SG.M] eaten-[PART]
              "I have eaten three grapes_c."

Gerunds (CLIII) also cannot directly combine with numeral determiners and thus re-sist quantisation. Just as in English, one cannot say *tri urejanja '*three editings' in Slovene.

3.2.3   Distribution of non-numeral determiners

This subsection regards properties 4–7 that Chierchia (1998: 56) proposes, namely the fact that some determiners occur only with count nouns (e.g., *every/ several, each/few*), while some determiners occur only with mass nouns (e.g., *little, much*); some determiners occur only with plural and mass nouns (e.g., *more, plenty, all*), however some determiners are unrestricted (*such as the, some, any, no*).

In Slovene, a count determiner, such as *vsak* 'every' cannot combine with a mass noun, as shown below.

(33)   a.   *   Vsako   grozd-je   preglej
                   each/every-[QUANT] grape-[MASS] check-[3.SG]-[IMPER]
                   (posebej).
                   (separately-[ADV])
                   "Check every grape_M (separately)."
        b.   Vsak   grozd   poglej
                   each/every-[QUANT] grape-[SG] check-[3.SG]-[IMPER]
                   (posebej).
                   (seperately-[ADV])
                   "Check every grape_c (seprately)."

As seen from (35), the allegedly-mass term indeed has to be interpreted as mass as it cannot combine with *every*-quantifier. (35a) is just as ungrammatical as '*every water*' is.

Most Slovene determiners, however, behave in an unrestricted fashion with re-gards to the count/mass distinction. In Table 2, I follow Chierchia's paradigm of non-numeral determiner compatibility with count/mass nouns.[15]

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[15] Since Slovene determiners φ-agree (in number and gender) with their complement (cf. Bošković 2009), I am listing Slovene determiners in Table 2 in masculine, singular form.

Table 2. Slovene Determiners & Count/Mass Compatibility

COMPATIBILITY	ENGLISH		SLOVENE
[+SG]	*every*	~	*vsak/ posamezen*
	each	~	*vsak/ posamezen*
	a	~	Ø
[+PL]	*several*	~	*več/nekaj/nekoliko*
	few	~	*več/nekaj/nekoliko*
	a few	~	*nekaj/nekoliko*
	many	~	*več/veliko*
	both	~	*oba* =[+DUAL]
[+MASS]	*little*	~	*malo*
	much	~	*mnogo/veliko*
[+MASS] & [+PL]	*a lot of*	~	*mnogo/veliko*
	all	~	*vsi*
	plenty of	~	*mnogo/veliko*
	more	~	*več*
	most	~	*največ*
UNRESTRICTED	*the*	~	Ø
	some	~	*nekaj*
	any	~	*katerikoli*
	no	~)	*nič*

It is clear from Table 2 that the distinctions between determiners, which are apparent in English, are not as clear-cut in Slovene. English determiners like *much*$_{MASS}$, *a lot of*$_{MASS/PL}$ and *plenty of*$_{MASS/PL}$ all converge to the same set of determiners in Slovene (*mnogo*$_{MASS/PL}$/*veliko*$_{MASS/PL}$). Thus *veliko vode* would mean both '{much, plenty of, a lot of} water'. Plural determiners like *several*, *(a) few* are compatible with mass nouns in Slovene: *več/nekaj/nekoliko vode* could, given Chierchia's determiner paradigm, translate as '{several, (a) few of} water'.

Gerunds, however, may combine with a singular determiner *vsak* 'every' as in *vsako branje (še ni učenje)* 'every reading (is not learning as such)'.

For this reason, the distribution of non-numeral determiners cannot contribute a solid test for determining the mass-status in Slovene. The following table lists Slovene determiners with regards to their compatibility with count or mass nouns; those combining with both are listed as unrestricted. *Vsak/posamezen* 'every/each' determiner is listed as [+COUNT], although it may combine with gerunds (CLIII mass).

Tᴀʙʟᴇ 3. Count/mass concordance of determiners in Slovene

GLOSS	[+COUNT]	[−COUNT]	UNRESTRICTED
much/many			*veliko*
little/(a)few			*malo*
several/some			*nekaj*
both	*oba*		
all			*vsi*
more			*več*
most			*največ*
every/each	*vsak/posamezen*		[cʟIII]!

Slovene determiners behave in (an almost completely) unrestricted fashion. The only two determiners that combine with count nouns are *oba* 'both' and *vsak/ posamezen* 'every/each' with the exception as the latter may also occur with cʟIII nouns (gerunds). The combination of *every*+cʟIII is independent evidence for considering gerunds as belonging to an independent class of mass nouns. Evidence for the unrestricted behaviour of Slovene determiners is shown in (34), where all three classes of mass nouns are listed. Apart from *vsa* 'all' (34d), other determiners (34a-c&e) require that their nominal complement appear in genitive form.

(34) a. Veliko   vode/   grozdja/   branja …
          much/many   water-[GEN]-[cʟI]   grape-[GEN]-[cʟII]   reading-[GEN]-[cʟIII]
          "Much water/grape(s)_M/reading …"

      b. Malo   vode/   grozdja/   branja
          little/(a) few water-[GEN]-[cʟI]   grape-[GEN]-[cʟI]   reading-[MASS]-[cʟIII]
          "Little water/grape(s)_M/reading …"

      c. Nekaj   vode/   grozdja/   branja …
          some/several   water-[GEN]-[cʟI]   grape-[GEN]-[cʟI]   reading-[GEN]-[cʟIII]
          "Some water/grape(s)_M/reading …"

      d. Vsa   voda/   (vso)   grozdje/   (vso)   branje …
          all_i   water-[NOM]-[cʟI]   *i*   grape-[NOM]-[cʟII]   *i*   reading-[NOM]-[cʟIII]
          "All the water/grape(s)_M/reading …"

      e. Največ   vode/   grozdja/   branja …
          most   water-[GEN]-[cʟI] grape-[GEN]-[cʟII] reading-[GEN]-[cʟIII]
          "Some water/grape(s)_M/reading …"

(35) a. *   Obe   vodi/   *obe   grozdji/   *   obe
              both_i.   water-[DUAL]-[cʟI]   *i*   grape-[DUAL]-[cʟII]   *i*
              branji …
              reading-[DUAL]-[cʟIII]
              "Both water(s)/grape(s)_M/reading(s) …"

b. *	Vsaka/posamezna	voda/	* vsako/posamezno
	every/each	water-[NOM]-[CLI]	every/each
	grozdje/	vsako/posamezno	branja …
	grape-[MASS]-[CLII]	every/each	reading-[MASS]-[CLIII]
	"Every water/grape(s)$_M$/reading …"		

(35a) is ungrammatical since mass nouns cannot combine with count (i.e., dual) determiner. (35b), on the other hand, is only grammatical with CLIII nouns (like *bran-je* 'reading'). *Vsaka/posamezna voda* and *vsako/posamezno grozdje* are only grammatical under type/servings reading that we have addressed in (8) and (9) of section 2.1. Thus *vsaka/posamezna voda* 'every/each water' can only pertain to individuation of a particular type of water, and not water in general. Similarly, *vsako/posamezno grozdje* can refer only to individuation of a serving/collection of grapes as opposed to the notion of mass-of-grapes.

3.2.4   *Independence of the distinction from the structure of the matter*

Chierchia's eighth property supposes that the nature of the structure of matter is independent from the semantic structure. In other words, whether a noun is count or mass is not dependent on whether it has (no) atomic parts. Such distinction may be seen in English pairs of count/mass nouns as in *shoes/footwear*, *clothes/clothing*, *coins/change*, or *carpets/carpeting*.

This property holds for Slovene: both O-mass terms as well as S-mass[16] terms are consistently inflected with the same *-je* mass-morpheme. S-mass nouns in Table 1 clearly denote non-atomic stuff, hence no count term is available, whereas O-mass terms denote *stuff* that is atomic, hence the availability of a count noun counterpart.

TABLE 4. Independence of the distinction from the structure of the matter

S-MASS NOUNS		O-MASS NOUNS	
GLOSS			GLOSS
'oil'	*olje*	*grozd/grozdje*	'grape$_{C/M}$'
'water'	*voda*	*grm/grmovje*	'bush$_{C/M}$'
'coal'	*oglje*	*otok/otočje*	'island$_{C/M}$'
'air'	*zrak*	*las/lasje*	'hair$_{C/M+PL}$'

This Chierchia's property is somehow superfluous since it only recapitulates the fact that languages may instantiate both count and mass terms for objects/substances that are pre-linguistically (cf. Bale & Barner 2008) either count or mass. The close-ness in meaning of pairs such as *hair/hairs* (cf. *capello/capelli* in Italian), according to Chierchia (1998a: 56), shows that what is in a clear sense one and the same item can be viewed in either (count or mass) way. This property, therefore, does not have any solid bearing on our construing any viable tests for distinguishing mass and count

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[16] See section 3.3 for debate on O-/S-mass nouns

nouns, since it appears that languages may instantiate count/mass nouns independently of the actual/physical state of the matter.

The following section addresses another property of natural language expression, namely the shifts from mass to count nouns, and vice versa.

3.2.5　The Universal Packager & Grinder: MASS *to* COUNT *and* COUNT *to* MASS

According to Chierchia's (1998a) ninth and tenth properties, mass nouns may be made count and vice versa. These final two properties are also analogous to Link's (1983) availability of count/mass cross-transformation, as it were, as the examples below show.

(36)　　a.　I caught {a rabbit=[+COUNT]} to make a stew.

　　　　b.　There is {rabbit=[−COUNT]} in this stew.

In Slovene, such count-to-O-mass transformations are done morphologically, that is, by inflecting a count noun with -*je*. Some of the examples below recapitulate the elasticity of this morphosemantic behaviour.

(37)　　drevo　·　drevesi　·　drevesa　·　　　　　　　　drev(es)je　·　drev(es)ja
　　　　tree-[SG]　-[DUAL]　-[COUNT-PL]　　-[MASS]　　-[MASS]-[PL]
　　　　"(a) tree$_c$ vs. two trees$_c$ vs. more than two trees$_c$ vs. a mass/volume of tree(s)$_m$ vs. masses/volumes of tree(s)$_m$"

(38)　　grm　　·　grma　·　grmi　·　　　　　　　　grmovje　·　grmovja
　　　　tree-[SG]　-[DUAL]　-[COUNT-PL]　　-[MASS]　　-[MASS]-[PL]
　　　　"(a) bush$_c$ vs. two bushes$_c$ vs. more than two bushes$_c$ vs. a mass/volume of bush(es)$_m$ vs. masses/volumes of bush(es)$_m$"

(39)　　otok　　·　otoka　·　otoki　·　　　　　　　　otočje　·　otočja
　　　　tree-[SG]　-[DUAL]　-[COUNT-PL]　　-[MASS]　　-[MASS]-[PL]
　　　　"(an) island$_c$ vs. two islands$_c$ vs. more than two islands$_c$ vs. a mass/volume of island(s)$_m$ vs. masses/volumes of island(s)$_m$"

I address the nature of this derivation in terms of denotational alterations in section 4.2. In the next section, however, I make a distinction between Object- and Substance-mass (based on Barner & Snedeker's (2005) results and conclusions).

3.3　Substance- and Object-Mass

Tsoulas (2006: 10) notices that Greek mass plurals are uniformly S-mass. Slovene, on the other hand, equally distributes its mass plurals to S- and O-mass. A short list of the latter morphosemantically derived count and mass (singular and plural) nouns is listed in Table 5.

TABLE 5. O-mass terms in Slovene

GLOSS	[+SG]	[+DUAL]	[+PL]	[+MASS]	[+MASS] & [+PL]
"bush"	*grm*	*grma*	*grmi*	*grmovje*	*grmovja*
"island"	*otok*	*otoka*	*otoki*	*otočje*	*otočja*
"wheel"	*kolo*	*kolesi*	*kolesa*	*kolesje*	*kolesja*
"branch"	*veja*	*veji*	*veje*	*vejevje*	*vejevja*
"stone"	*kamen*	*kamna*	*kamni*	*kamenje*	*kamenja*

Table 5., in a way, avails the full matrix of numeral expression in Slovene, showing the inflectional uniformity of mass (plural) terms. S-mass nouns share the same morphosyntactic properties as O-mass terms, while still allowing pluralisation as shown in Table 6.

TABLE 6. O-mass terms in Slovene

GLOSS	[+SG]	[+DUAL]	[+PL]	[+MASS]	[+MASS] & [+PL]
"oil"	Ø	Ø	Ø	*olje*	*olja*
"coal"	Ø	Ø	Ø	*oglje*	*oglja*
"universe"	Ø	Ø	Ø	*vesolje*	*vesolja*
"lapse"	Ø	Ø	Ø	*razdobje*	*razdobja*

The unavailability of count (i.e., singular, dual and plural) counterparts follows as a corollary from the definition of Substance-mass nouns and their not denoting atomically salient objects or objects with atomic texture.

In the first half of this section, I have shown that Slovene indeed has mass terms that are morphologically characterised by their inflectional uniformity. The general aspects of Slovene mass have been presented according to Chierchia's (1998a: 55-7) previously proposed ten properties. Slovene, just like Greek, breaches the first and in a way the foremost property of availability of plural morphology to mass terms. It is also not possible for mass terms in Slovene to combine with *every* quantifier just as is the case for English. The *little/much* versus *few/many* distinction, however, is not clear in Slovene since the count/mass quantifiers, that English distinguishes, converge to two single quantifiers, meaning either *little/few* and *much/many*. We have also seen in section 3.3 that Slovene—unlike Greek—mass is not restricted to Substances since O-mass terms (and plurals thereof) are possible.

In the following two sections, I address two specific peculiarities of Slovene mass. Since I have already shown that Slovene mass terms may pluralise, in section 3.4, I look at extended massification and show its semantic behaviour. In section 3.5, I address marginal plurals and plural/mass borderline, that is, particular NPs that are ambiguous between mass and plural interpretation.

3.4   Interim Section Summary

In the first half of this section, I have shown that Slovene indeed has mass terms that are morphologically characterised in that they are inflectionally uniform. The general aspects of Slovene mass have been presented according with Chierchia's (1998a: 55-7) previously proposed ten properties. Slovene, just like Greek, breaches the first and in a way the foremost property of availability of plural morphology for mass terms since mass-plurals are possible. It is also not possible for mass terms in Slovene to combine with 'every' quantifier just as is the case for English. The *little/much* versus *few/many* distinction, however, is not clear in Slovene since the count/mass quantifiers, that English distinguishes, converge to two single quantifiers, meaning either *little/few* (=*malo*) or *much/many* (=*veliko*). We have also seen in section 3.2 that Slovene—unlike Greek—mass expression is not restricted to Substances since O-mass terms are possible. I also address gerunds in section 4.4.

The full list of inflected CLII and CLIII mass nouns is provided in Mitrović (2010).

In the following two sections, I address two specific peculiarities of Slovene mass. Since I have already shown that Slovene mass terms may pluralise, in section 3.5, I look at extended massification and show what it generally means. In section 3.6, I address marginal plurals and plural/mass border- line, that is, particular NPs that are ambiguous and marginal in their being interpreted as plurals and mass simultaneously.

3.5   Extended Massification

In this section, I would like to show that it is possible in Slovene to construct a mass noun from another mass noun. This section shows the empirical status of a mass nominal construction I refer to as extended massification. In section 4.4, I propose its theoretical status.

The general idea of extended massification in Slovene is the ability of outputting two mass terms from a single morphological head (root), where one mass term can be seen as an upgrade of another, as it were. Compare the two words for furniture below.

(40)   a.   pohištvo
              furniture-[MASS]
              "furniture"

        b.   pohišje
              furniture-[MASS⁺]
              "furniture⁺"

Both (40a) and (-b) are mass terms: the former denotes only pieces of furniture, whereas the latter denotes pieces of furniture and other domestic objects that may not meet the *furniture*-criterion. The relation between (40a) and (-b) is also analogous to an English pair of mass nouns *furniture*/*furnishing* In this respect, the semantic relation of the two mass terms in (41) may be analogous to the following mereological structure.

(41)

$$\left[\left[\begin{matrix} & \{a,b,c\} & \\ \{a,b\} & \{b,c\} & \{a,c\} \\ a & b & c \end{matrix}\right]^{\boldsymbol{\beta}} \quad \begin{matrix} & & \{a,b,c,d\} & \\ \{a,b,d\} & & & \{a,c,d\} \\ \{a,d\} & & \{b,d\} & \{c,d\} \\ & & d & \end{matrix}\right]^{\boldsymbol{\alpha}}$$

In simple terms, let us assume $\{a,b,c\}$ comprises of a wardrobe ($\{a\}$), a table ($\{b\}$) and a chair ($\{c\}$). We thus refer to the set $\{a,b,c\}$ as furniture. However, should we want include a carpet ($\{d\}$), the set $\{a,b,c,d\}$ in Slovene would be *pohišje* (furniture[+]). Thus the following formulations explain the relation between set α and set β.

(42)   a. $[\![40a]\!] = \forall x[furniture(x) \Rightarrow x \in \beta \mid x = \{a,b,c\}]$
       b. $[\![40b]\!] = \forall y[furniture^+(y) \Rightarrow x \in \alpha \mid y = \{a,b,c,d\}]$
       $\therefore_i$ $\alpha \subseteq \beta$
       $\therefore_{ii}$ $|\langle \alpha, \prec \rangle| \langle \beta, \prec \rangle|$

Such α to β derivation seems to be an instantiation of further massification, which in Slovene is not restricted to wither S- or O-mass nouns. In Table 7, some examples of further O-massified nouns are listed.

TABLE 7. Further Massification of Slovene O-mass nouns

GLOSS	[+MASS]		[< MASS]
"furniture"	*pohištvo*	→	*pohišje*
"jewellery"	*nakit*	→	*nakitje*
"sand"	*pesek*	→	*peskovje*

Since this phenomenon also extends to S-mass nouns, extended massification of inherently S-mass terms are provided in Table 6. Given that the nouns in the right column of Tables 7 & 8 have no English counterparts, the right column with double-mass terms may be seen as implicating greater quantity. Following the Slovene dictionary, we may define the right column nouns as 'a great quantity of' the left column nouns. In section 4.4, I provide a different branding of the translation into English.

TABLE 8. Further Massification of Slovene S-mass nouns

GLOSS	[+MASS]		[< MASS]
"air"	*zrak*	→	*ozračje*
"wind"	*veter*	→	*vetrovje*
"water"	*voda*	→	*vodovje*
"rain"	*dež*		*deževje*
"earth/territory"	*zemlja*		*ozemlje*

What is further interesting is extended to the point of left column in Tables 7 & 8, are able to pluralise. In Table 6, I provide the relevant examples of pluralisation.

TABLE 9. *Pluralisation of Mass⁺ Nouns in Slovene*

		GLOSS	[+MASS]	& [+PL]	[< MASS]	& [+PL]
MASS	S	"air"	*zrak*	Ø	*ozračje*	*ozračja*
		"wind"	*veter*	*vetrovi*	*vetrovje*	*vetrovja*
		"water"	*voda*	*vode*	*vodovje*	*vodovja*
		"rain"	*dež*	Ø	*deževje*	*deževja*
		"earth/ territory"	*zemlja*	*zemlje*	*ozemlje*	*ozemlja*
	O	"furniture"	*pohištvo*	*pohištva*	*pohišje*	*pohišje*
		"jewellery"	*nakit*	*?/*nakiti*	*nakitje*	*nakitja*
		"sand"	*pesek*	*?/*peski*	*peskovje*	*peskovja*

The plural on extended mass nouns performs the same function as it does on other mass nouns: it implies a greater quantity. The implication of this greater quantity comes in form of multiplicity, which contributes the intuitive meaning of 'more than'. A mass plural noun thus denotes a mereologically structured set that is greater than (i.e., has more elements in its denotata than) a mass singular. A clear example of this is (40-2).

In the next section, however, I turn to another set of interesting data that show the ambiguity between plural and mass reading—I refer to this phenomenon as plural/ mass margin.

3.6   The Plural/Mass Margin

Slovene also exhibits a fuzzy distinction between plural and mass interpretation of some nouns. I am referring to these nouns as being marginally plural or plural/mass borderline, since these nouns behave both like mass and plural nouns. I will refer to the nouns, which are both plural and mass as being marginal plurals or borderline mass nouns.

Before I present the relevant data, I would like to describe the differences between normal/default count plurality and marginal plurality, on the one hand, and the difference between mass and borderline nouns, on the other.

So far, all the examples of plurality in Slovene we have implicitly dealt with have been, in a simple terms, default. Marginal plurals, on the other hand, do not function like default (i.e., normal/regular plural) nouns. The two general characteristics of borderline plurality, compared to normal count plurality, are the following.

(*i*) MARGINAL PLURALS RESIST QUANTISATION. Whereas default (i.e., normal count) plurals combine with numerals in an unrestricted fashion, marginal plurals may (with

certain stylistic implicatures) combine only with numerals three (3) and four (4). There is no syncretic duality and counting over five (5) is only possible with default (normal) plurals (43c-d).

(*ii*) MARGINAL PLURALS RESIST CASES. Whereas normal plurals may be marked for any of the six cases, syncretic plurals may only be marked for nominative case; hence, they are somehow reserved for subject positions alone (43e-f). The reason for the peculiar cardinal restriction lies within the case mechanism in Slovene. While numerals one to four inclusively (1–4) assign nominative case to their complement (en pes$_{NOM}$ "one dog$_{NOM}$", …, štirje psi$_{NOM}$ "four dogs$_{NOM}$"), all numerals above four (i.e., 5+) assign genitive to their nominal complements (pet psov$_{NOM}$ "five dogs$_{NOM}$", …). For a syntactic account of this phenomenon, see Bošković (2006).

The two differences above hold between default/count and marginal plurals. There are also minimal differences between marginal plurals and mass nouns. The only difference between mass terms we have encountered so far and the following marginal plural terms is in agreement. The former syntactically function as singulars and the following function like plurals. Examples of marginal plurals are shown in Table 9.

TABLE 9. Default & marginal plural nouns in Slovene

GLOSS	[(+COUNT] & [(+PLURAL]	[–COUNT] & [(+PLURAL]
"sonnets"	*soneti*	*sonetje*
"brothers"	*brati*	*bratje*
"bishops"	*škofi*	*škofje*
"swans"	*labodi*	*labodje*
"logs"	*hlodi*	*hlodje*

Members of the (left) [+COUNT] & [+PLURAL] column of Tab. 9 all have corresponding singular and dual terms and may be quantised in a normal fashion. The members of the (right) [–COUNT] & [+PLURAL] col- umn, however, pose a difficulty in analysing and categorising according to the count/mass distinction. I have, however, categorised them as uncount- able since they generally do not quantise. Rare cases where marginal plurals quantise are stylised and are restricted to poetic expressions. Given that they cannot quantise in normal contexts, I have labeled them as[–COUNT].[17] The examples below show the use and behaviour of marginal plurals.

(43) a. Labodi   so   lepa   bitja.
          swans-[COUNT]-[PLURAL]   are-[PL] beautiful-[N] creatures-[N]
          "Swans are beautiful creatures"

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[17] I have consulted several native speakers of Slovene in order to support this claim.

b.   Trije   labodi   plavajo   po
       three-[NUM] swans-[COUNT]-[PLURAL] swim-[PL]-[PRES] on-[PREP]
       blejskem   jezeru.
       Bled-[TOP-ADJ] lake-[LOC]
       "Three swans are swiming on the Bled lake"

c. %/* Trije/štirje   labodje   plavajo   po
       three/four-[NUM] swans-[?COUNT]-[PLURAL]   swim-[PL]-[PRES] on-[PREP]
       blejskem   jezeru.
       Bled-[TOPONYMIC-ADJ]   lake-[LOC]
       "Three/four swans$_{M/PL}$ swim on the Bled lake"

d. *   Pet   labodij   plavajo   po
       five-[NUM] swans-[?COUNT]-[PLURAL]-[N]-[GEN] swim-[PL]-[PRES] on-[PREP]
       blejskem   jezeru.
       Bled-[TOPONYMIC-ADJ]   lake-[LOC]
       "Five swans$_{M/PL}$ swim on the Bled lake"

e.   Labodov   danes   ni   na
       swans-[?COUNT]-[PLURAL]-[GEN] today-[ADV] not-[3.PL]-[PRES] on-[PREP]
       jezeru.
       Lake-[LOC]
       "The swans$_{C-PL}$ are not on the lake today"

f. *   Ladobja   danes   ni   na
       swans-[?COUNT]-[PLURAL]-[GEN] today-[ADV] not-[3.PL]-[PRES] on-[PREP]
       jezeru.
       lake-[LOC]
       "The swans$_{M/PL}$ are not on the lake today"

Even though marginal plurals are uncountable (43c), they can never appear in measure constructions (DɪᴠS). As seen from above, there are some further constraints to this syncretic plural construction, notably, the syntactic restriction to subject positions since they cannot appear in non-nominative forms (cf. 43e & -f).

So, why deem this construction mass-like or at least mass syncretic? Marginal plurals cannot quantise (freely), despite requiring plural agreement. Given they cannot directly combine with numerals (43d), we may deduce that the overt -*je* inflection is related to mass status of these nouns. Perhaps one of the most prominent examples that may help an English speaker better understand marginal plurals is *lasje* 'hair$_{M/PL}$', which behaves in a very similar fashion like the English counterpart does. Just as we can count hairs in English, we can do so in Slovene (*las* 'one hair$_{SG}$'). Although the Slovene noun *lasje* behaves like a mass term (in that it cannot quantise)—as hair does in English (Chierchia, 1998a: 82)—it requires plural agreement and simultaneously functions like a plural.[18]

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[18] Another, cross-linguistically interesting, mass/plural syncretic noun in Slovene is *škarje* 'scissors', which is considered as *pluralia tantum*. It is inflected with -*je* and resists quantisation, just like English 'scissors'.

This construction may generally fall within Ojeda's (2005) mass-plural category, along with Zuni and Lingala (see section 2.2), since a noun like *labodje* 'swans' is simultaneously interpreted as being both mass and plural: mass because of the uncountability and the inflection, and plural because it requires plural agreement.

There is another interesting fact about this plural/mass distinction. A noun like *sonetje* 'sonnets' or *kvadratje* 'square/s$_{M/PL}$' will help us understand the interpretational fuzziness since *sonetje* is able to behave as a marginal plural (to some speakers) and as an O-mass term (to others).[19]

(44)   a.   sonetje   nesreče   so   ...
            sonnet-[+PL]-[−COUNT]   unhappiness-[GEN]-[F]   are-[PL]
            "Sonnets$_{PL}$ of unhappiness are ..."

       b.   sonetje   nesreče   je   ...
            sonnet-[−PL]-[−COUNT]   unhappiness-[GEN]-[F]   is-[SG]
            "Sonnets$_M$ of unhappiness is ..."

(45)   a.   kvadratje   so   ...
            squares-[+PL]-[−COUNT]   are-[PL]
            "Squares$_{PL}$ are ..."

       b.   kvadratje   je   ...
            squares-[−PL]-[−COUNT]   is-[SG]
            "Squares$_M$ are ..."

In (44a) and (45a), the pair of nouns behave like (marginal) plurals since they require plural agreement with the auxiliary (*so* 'are'). In (44b) and (45b), however, the nouns functions like mass terms: they require singular agreement with the auxiliary (*je* 'is') and conceptually sound, to some native speakers, like single aggregates of sonnets (44a) or squares (45b).

3.7   Section Summary

This section provided a range of data that appears to be problematic. I have shown two phenomena: further massification of mass nouns and, independently, plural/mass syncretism. With regards to, what seems like, further massification, I have shown that this phenomenon is not restricted solely to O-mass terms but that S-mass terms may also further massify. In the next section I address the very nature of what it means when I na ively say further massify. In section 3.5, I have addressed a complex behaviour of Slovene borderline plural/mass nouns (marginal plurals). Such nouns behave simultaneously as plural and mass nouns: although they resist quantisation (signature property of mass nouns), they still require plural agreement (a property of plurals). I have also shown that some (plural/mass) syncretic nouns can be interpreted as purely mass (44) & (45).

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[19] I have conducted several surveys on these two words with native speakers of Slovene. The tests have been carried out again after the first review, where a reviewer expressed doubts regarding the mass noun/marginal plural *kvadratje* (squares$_{M/PL}$).

In the next section, I propose theoretical accounts of the data I have empirically addressed in this section.

4   Analysis

As laid out in §1.1, we are assuming a Y-shaped model of grammar, whereby semantic processing is distinct from the syntactic building of structures. I am thus addressing here both the formal semantic properties of count/mass nouns (so as to establish their LF) as well as the morphosyntax of count/mass nouns. This section therefore comes in two parts: there is a (morpho-) semantic and a (morpho-) syntactic component to my proposal. In the first (§4.2 & §4.3), I address the compositional (morpho-) semantics by analysing the semantic contribution of each morpheme in question (i.e., the plural morpheme and mass -*je* morpheme). In the second part (§4.4), I theorise about and specify the morphosyntactic interface conditions by returning to Borer's (2005) model of syntactic count/mass distinction (6) and utilising the tools from distributed morphology (DM) (Halle & Marantz 1993; Marantz, 2008; Marvin 2002, among others).

§4.1 is an interim subsection on a possible reanalysis along the lines of Ojeda and Grivičić's (2005) take on Serbo-Croatian 'collectives,' which could potentially be a serious impediment to my proposal here. Section §4.2 is an attempt to theorise the elasticity of mass in Slovene and comes in two parts: §4.2.1 is a theoretical discussion of count to mass derivation (i.e., one aspect of mass elasticity) and §4.2.2 discusses the theoretical aspects of mass extension (see §3.5). §4.3 is a semantic account of the plural effect on mass nouns. The last section, §4.4, is an attempt to map the semantic analyses onto syntax (*à la* Borer 2005) by using the tools provided by DM.

4.1   An Interim Reanalysis: Mass Misinterpretation?

I would like to dismiss a possible impediment to my analysis of Slovene mass nouns in this section. In their paper, Ojeda & Grivičić (2005) discuss some Serbo-Croatian nouns, which resemble some of the Slovene mass nouns I have been discussing in the previous section, and assume that they are collectives. Let us assume, along their lines, that Slovene nouns, that I have shown are mass, may actually be given a count collective reading.

Collectives, or collective plurals, are nouns that are true if and only if they refer cumulatively. A collective noun, such as 'group' or 'committee', can never refer singularly, that is, to an individual. As (46) shows, a collective plural (such as 'group') must always denote a set of elements such that the number of the elements in that set is greater than 1.

(46)   a.   They are a group (of students).

        b.   *   He is a group (of students)

        c. $[\![group]\!] = A \wedge |A| > 1$

The alleged collectives in Serbo-Croatian that Ojeda and Grivičić (2005) discuss include nouns like *kamenje* 'rock(s)'. If *kamenje* were a collective ('a group of rocks') it would be able to quantise, just as two groups/committees can.

(47)   * Vrgel   je   dva   kamenja.
          throw-[PAST]-[3.M.SG]   is-[AUX]   two-[NUM]   rock-[MASS]-[PL]
          "He threw two (groups of) rocks."   [COLLECTIVE READING]

As seen from (47), a collective reading is not felicitous since *kamenje* resists quantisation. Counting is possible either by inserting a measure phrase (DivS) (48a) or by using a count noun counterpart (48b).[20] (48c), however, is not felicitous in Slovene.

(48)   a.   Vrgel   je   dve   vreči
               throw-[PAST]-[3.M.SG] is-[AUX] two-[NUM] bags-[DIVS]
               kamenja.
               rock-[MASS]-[SG]-[GEN]
               "He threw two bags of rock$_M$."   [MASS READING]

       b.   Vrgel   je   dva   kamna.
               throw-[PAST]-[3.M.SG] is-[AUX] two-[NUM]   rock-[COUNT]-[DUAL]
               "He threw two rocks$_C$."   [COUNT READING]

       c. ??   Vrgel   je   dve   kosa
               throw-[PAST]-[3.M.SG] is-[AUX] two-[NUM]   piece-[DIVS]
               kamna.
               rock-[COUNT]-[DUAL]
               "He threw two rocks$_C$."

The oddity, if not unacceptability, of (48c) can be explained via blocking effect. Because of the availability of a count noun (*kamen* 'rock$_C$'), the use of a mass noun (*kamenje* 'rock$_m$') with required DivS is blocked. The same resistance to direct quantisation is seen in other examples, such as *grmovje* 'bush$_M$' or *vejevje* 'branch$_M$', which otherwise pluralise easily.

(49)   a.   veliko   grmovja   vs. *dve   grmovji
               much/many-[QUANT] bush-[MASS] vs. two-[NUM] bush-[MASS]-[DUAL]
               "much/many bushes" vs. "two bushes"
       b.   veliko   vejevja   vs. *dve
               much/many-[QUANT] branch-[MASS] vs. two-[NUM]
               vejevji
               branch-[MASS]-[DUAL]
               "much/many branches" vs. "two branches"

The inability to directly combine with numeral determiners seems like a sufficient argument against collective interpretation of the examples (51–3).

This signature property of the Slovene examples above also extends to Serbo-Croatian, which Ojeda & Grivičić (2005) have failed to notice. They discuss the

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[20] Cf. (49) and (33).

Serbo-Croatian noun kamenje which behaves like, and can be said to be the same as, in Slovene in that it is unable to quantise. Consider the following examples from Serbo-Croatian.

(50) * Bacio   je   dva   kamenja.
         throw-[PAST]-[3.M.SG]   is-[AUX] two-[NUM] rock-[MASS]-[PL]
         "He threw two rock_M."   [COLLECTIVE READING]

(51)   a.   Bacio   je   dve   vreće
              throw-[PAST]-[3.M.SG] is-[AUX] two-[NUM] bags-[DIVS]
              kamenja.
              rock-[MASS]-[SG]-[GEN]
              "He threw two rock_M."   [MASS READING]

         b.   Bacio   je   dva   kamena.
              throw-[PAST]-[3.M.SG] is-[AUX] two-[NUM] rock-[MASS]-[SG]-[GEN]
              "He threw two rock_C."   [COUNT READING]

It thus seems that Slovene nouns—which I have interpreted as mass—cannot be given a collective interpretation for the fundamental reason of having the signature property of mass nouns (i.e., inability to directly count). What is more, Ojeda & Grivičić's (2005) analyses are based on faulty premises since they assume nouns like *kamenje* in Serbo-Croatian are collectives. I have shown in (50–51) that this Serbo-Croatian noun behaves in the same manner as the Slovene mass counterpart. Given that it resist quantisation, it has the signature property of mass terms and should, therefore, be interpreted as a mass, not as a collective plural noun.

4.2   Elasticity: Mass Extension & Derivation

4.2.1   *Deriving* COUNT *to* MASS

Chierchia (2009: 6) dubs his third and last property of mass expressions as elasticity. An aspect of the elastic behaviour of mass nouns has implicitly already been addressed in (8 & 9). Leaving constructions such as three waters aside, I mainly address the fact that count-to-O-Mass derivation in Slovene results in morphological marking.

I primarily provide compositional accounts of count and mass nouns, be- fore addressing the nature of denotational shifting from the former to the latter.

Following A_{ii} (7), whereby I assume that lexical roots are interpreted as complete join semi-lattices, I am assuming that the inflection in Slovene performs sub-selection within the semi-lattice, as it were. In other words, I assume that the inflection (*function*) restricts the denotation of the root (*argument*).[21]

―――――――――――――――――
[21] My use of $f(a)$ in the analyses may be seen as analogous to $\langle e,t \rangle$ should we allow for lexical roots to be seen as being of type e (i.e., entities). Given this technical difficulty of associating roots with e-types, I will be using the aforementioned notation to refer to the functional application and compositionality of roots and their respective inflections.

A morphosemantic/compositional account of a count singular noun, I propose, would be along the lines of (52).

(52)
$$[\![grozd]\!]^{f(a)} = \{x : x \in [\![grozd]\!]^a \wedge \mid x \mid = 1\}$$

$[\![grozd]\!]^a$
$= \{x : x \text{ is GRAPE} \mid \langle \text{GRAPE}, \prec \rangle\}$

$[\![\cdot \emptyset]\!]^f$
$= \lambda P. \exists x [x : x \text{ is } P \wedge \langle P, \prec \rangle$
$\wedge \text{ATOM}(x)(P)]$

The analysis in (52) states that the root $[\![grozd]\!]^a$ 'grape' denotes a complete join semi-lattice $\langle grape, \prec \rangle$, which the singular inflection takes as its argument and sub-selects an individual (i.e., one element) from the level of atoms for its denotation. The singularity is assumed to be strong, as opposed to weak, since we have assumed that the singulars denote elements with the cardinality of precisely 1. The use of $grozd_{SG}$ in Slovene always refers to one and no more than one grape.

With this in mind, we can also dub the structure of denotation that the singular inflection enforces on roots (i.e., assuming A_{ii}). I assume that the singular inflection narrows the denotation of the root, structurally from an entire domain to a sub-domain of individuals. (53) thus states that a singular denotes singular entities/elements $\{a,b,c\}$ that are members of the semi-lattice X (referred to as $\langle X, \prec \rangle$)

(53)   SINGULAR $(\sqrt{grozd}) = \{a,b,c\} \subset \langle X, \prec \rangle$

The analysis of the dual (54) would be based along similar lines. The dual inflection in Slovene would restrict the root-denotation in a way such that exactly two members of $\langle X, \prec \rangle$ are selected.

(54)
$$[\![grozda]\!]^{f(a)} = \{x,y : x \oplus y \subset [\![grozd]\!]^a \wedge \mid x \oplus y \mid = 2\}$$

$[\![grozd]\!]^a$
$= \{x : x \text{ is GRAPE} \mid \langle \text{GRAPE}, \prec \rangle\}$

$[\![\cdot a]\!]^f$
$= \lambda Q. \exists x \exists y [x \prec y \wedge x, y \in Q$
$\wedge x \oplus y \subset Q \wedge \langle Q, \prec \rangle \wedge \text{DUAL}(x,y)(P)]$

The dual inflection, therefore, selects a sub-lattice at the level of dualities (i.e., one level above the level of atomic individuals). *Grozda* in Slovene will therefore always refer to two and never more, nor less, than two grapes.

(55)   DUAL $(\sqrt{grozd}) = \{a \oplus b, b \oplus c, a \oplus c\} \subset \langle X, \prec \rangle$

Count plural inflection, on the other hand, restricts the root-denotation in a less cardinal way. Whereas the singular inflection enforces reference to exactly one entity[22] and dual inflection restricts the root-denotation in a way that the reference is

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[22] For the purposes of my argument, I am ignoring generic readings of singular nouns (e.g., A dog barks. → dogs generally bark).

restricted to exactly two entities, a Slovene plural noun may refer to any group of elements whose number exceeds two.

(56)

$$[\![grozdi]\!]^{f(a)} = \{X : X \subseteq [\![grozd]\!]^a \wedge \mid X \mid > 2\}$$

$$[\![grozd]\!]^a \qquad\qquad [\![\cdot i]\!]^f$$
$$= \{x : x \text{ is GRAPE} \mid \langle \text{GRAPE}, \prec \rangle\} \quad = \lambda R. \exists X [R(X) \wedge X \subseteq R \wedge \langle R, \prec \rangle$$
$$\wedge \text{PLURAL}(X)(R)]$$

A count plural noun, like *grozdi,* will not refer indefinitely or number-neutrally, as English 'grapes'. English bare plural noun 'grapes', for example, implies indefiniteness, or is at least pragmatically ambiguous between a definite and indefinite interpretation.

(57)   I have grapes.
$\Rightarrow_{impl.}$ I have some grapes. $\rightsquigarrow \exists X [^*\text{GRAPE}(X)]$

In Slovene, such indefinite implicature fails with count plural nouns. Compare the English example (57) with the following from Slovene.[23]

(58)   Imam grozde.
                 have-[pres]-[1.sg] grape-[count]-[pl]
                 "I have grapes$_C$."
$\Rightarrow_{impl.}$ I have some grapes. $\rightsquigarrow \iota X [^*\text{GRAPE}(X)]$
$\Rightarrow_{impl.}$ I have some grapes. $\rightsquigarrow \exists X [^*\text{GRAPE}(X)]$

In Slovene, therefore, count plurals refer definitely, that is, to definite (i.e., contextually salient) sums of entities. The plural inflection in Slovene thus selects a subdomain of the root, which comprises of (groups of) sums, where the cardinality of individuals within that sum exceeds the number of two. Assuming our simplified domain with only three variables over entities $\{a,b,c\}$ (5) that we have been invoking in (53) & (55), the plural noun will denote the top-most/maximal level within the semi-lattice.

(59)   PLURAL $(\sqrt{grozd}) = \{a \oplus b, b \oplus c\} \subset \langle X, \prec \rangle$

Let us now turn to the O-mass counterparts to count nouns. Resuming with our grape-examples, let us assume there is a type of person W that always carries with him/her five magical grapes that (s)he holds dear. In a scenario where those special five grapes are hidden from W, W is bound to utter (60a) and not (-b), hence the latter is marked as unacceptable.

(60)   a.   Kje   so   moji   grozdi?
                where-[WH] are-[AUX]-[PL] my-[PL]-[NOM]   grapes-[PL]-[COUNT]
                "Where are my grapes$_C$."

_____
[23] My notation of plurality in the following examples is adapted from Zweig (2008, 2009), where *X reads as plural of X.

b.   Kje   je   moje
      where-[WH]   is-[AUX]-[sg]   my-[SG]-[NOM]
      grozdje?
      grapes-[MASS]-[SG]
      "Where is my grape(s)$_M$?"

The acceptability of (60a) arises precisely from the fact that count plurals in Slovene generally cannot refer indefinitely. (60b), on the other hand, begs the question: if count inflection restrict the root-denotation (53), (55) & (60), what, then, does the mass inflection *-je* contribute to the root. I propose an account according to which the inflection (in count-to-O-mass derivations) in a way restores the denotation of the root. Since roots cannot morphosyntactically appear on their own, I propose that *-je* is essentially a function that copies and morphologically establishes the semantic contents of the lexical root that denotes a complete join semi-lattice as is assumed in the literature (Bale 2005; Bunt 1985; Chierchia 1998a&b, 2009; Gillon 1992, among others).

(61)

$$[\![grozdje]\!]^{f(a)} = \{x : x \text{ is GRAPE} \mid \langle \text{GRAPE}, \prec \rangle\}$$

$$[\![grozd]\!]^a \qquad\qquad [\![\cdot je]\!]^f$$
$$= \{x : x \text{ is GRAPE} \mid \langle \text{GRAPE}, \prec \rangle\} \quad = \lambda S.\exists x[x : x \text{ is } S \mid \langle S, \prec \rangle]$$

Assuming A_{ii} gives rise to an elegant solution, namely seeing the mass inflection *-je* simply as structural in that it restores the primary mass denotation of the root. In terms of A_{iii} and Bale & Barner's (2009) doublets $\langle\langle n \rangle, \langle n,c \rangle\rangle$,[24] inflection *-je* can be said to restore the default morphosyntactic setting from count $\langle n,c \rangle$ to mass $\langle n \rangle$. Within Borer's (2005) model, *-je* can be seen as an instantiation of [–COUNT] feature: with regards to count-to-O-mass derivation, the featural [αCOUNT] parameter on a nominal functional head can be seen as reset/reverted from [+COUNT] to [–COUNT].

In the following subsection, I explore a possible semantic treatment of the semantics of *-je* inflection with regards to mass extension, empirically addressed in §3.5.

4.2.2   *Extension, Inflection & Domains: The Case of Extended Massification*

This section provides another aspect to the mass inflection *-je*. Under A_{ii}, we have seen that *-je* lexically realises the semi-lattice denotation of the root, which in itself is lexically incomplete.[25] The second aspect of the function of *-je* is seen in extended mass nouns. The question of the inflection in this section is more ontological:

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[24] This notation would read as mass-to-count, where $\langle n \rangle$ is the default mass setting for nominals and $\langle n,c \rangle$ would read as derived/non-default count seeting for nominals. The notation $\langle\langle n \rangle, \langle n,c \rangle\rangle$ would thus read as transformation from a default (mass) setting to a derived/non-default (count) setting. See §1.2 for some elaboration and Bale & Barner (2009) for a detailed explication of this theoretical mechanism.

[25] See Acquaviva (2009) for a discussion on roots and lexicality.

why does Slovene instantiate *-je* on nouns that are already mass? We have intuitively already seen that there seems to domain variation, as it were: a mass[+] noun denotes more than a regular noun does. To recall some contrastive data:

(62)   a.   nakit   :   nakitje
              jewellwry-[MASS]   jewellery-[MASS[+]]

        b.   pohištvo   :   pohišje
              furniture-[MASS]   furniture/ furnishing[MASS[+]]

        c.   voda-   :   vodovje
              water-[MASS]   water-[MASS[+]]

        d.   zrak   :   ozračje
              air-[MASS]   air-[MASS[+]]

   As is clear from the pairs of examples above, the extended mass nouns are consistently inflected with *-je*. The non-inflected mass nouns (on the left), I posit are both roots and complete lexical items. Assuming this, we can dub a generalised morphological notation of the transformation from the non-inflected (in a way, first-order) mass noun to the inflected and extended (in a way, second-order) mass noun.

(63) $[\sqrt{}_{LEX}]^a + [je]^f \rightarrow [\sqrt{}_{LEX} + je]^{f(a)}$

   Given the morphological constituency with regards to lexical-semantic compositionality, we are confronted with the question of what *-je* has to contribute to the meaning of a mass noun, whose denotational structure is a complete join semi-lattice—a construct with the same structure as the domain itself.

(64)

$$\llbracket \sqrt{} + \cdot je \rrbracket^{f(a)} = \{ \llbracket \sqrt{} \rrbracket^a \& \llbracket \cdot je \rrbracket^f \}$$

$$\llbracket \sqrt{} \rrbracket^a \qquad \llbracket \cdot je \rrbracket^f$$
$$= \{ x : x \text{ is MASS} \mid \langle X, \prec \rangle \} \qquad \underset{?}{\mid}$$

   Clearly, CLI (root-mass) nouns, like *voda* 'water,' do not need an inflection that would lexally realise the denotation of the non-lexical root. Given that we can intuitively say that inflected mass nouns (CLII) denote something greater than the non-inflected mass nouns (CLII), we are dealing with the variation in domain-size. The inflection *-je* in examples of extended mass nouns seems to perform some sort og domain widening and is, as such, analogous to Kadmon & Landman's (1993) domain widening indefinite *any*.

   Kadmon & Landman's theory, however, is restricted to pragmatics and the widening of contextual/pragmatic domains. Transplanting the notion of domain widening, that *any* performs in English, onto lexical semantics could very well be too far-fetched an explanation to go for.

   In this section, I am exploring Kadmon & Landman's widening account that deals with (pragmatic) contextual effects on interpretation solely as a working hy-

pothesis, although no critical work has, to the best of my knowledge, ever attempted using this pragmatic-theoretic tool in lexical semantics.

The variation in lexical domain-size, found in pairs of mass/mass$^+$ nouns (63), can be captures by the following semi-lattice schema, which shows the seeming accretion of the lexical domain with mass extension.

(65)

$$\begin{bmatrix} \nwarrow & & \uparrow & & \nearrow \\ & \boxed{\begin{array}{ccc} & a \oplus b \oplus c & \\ a \oplus b & a \oplus c & b \oplus c \\ a & b & c \end{array}} & \\ \leftarrow & & & & \rightarrow \\ \swarrow & & \downarrow & & \searrow \end{bmatrix}$$

In pragmatics, Kadmon & Landman (1993) notice that *any* widens the domain. In an NP of the form *any common noun*, they claim, 'any' widens the interpretation of the common noun phrase (CN) along a contextual dimension. Chierchia (2006), on the other hand, treats *any* as a pragmatic enrichment operator and even as a generalised quantifier. The denotation Chierchia gives *any* is shown below.[26]

(66) $[\![any_D]\!] = \lambda P.\lambda Q.\lambda w[\exists w' \exists x \in D_{w'}[P_{w'}(x) \wedge Q_w(x)]]$

As we have seen in §4.1-3, the choice between singular, dual, plural, mass and mass plural nouns is contextually dependent. Since an extended mass noun denotes more than a CLII mass noun, the idea here is to relate $Q_w(x)$ with the non-inflected mass noun, and $P_{w'}(x)$ to *-je* that performs domain extension from w to w'. As a working hypothesis, let us define *-je* as a domain widening indefinite as follows, where D^L is the lexical domain.

(67) $[\![je_{D^L}]\!] = \lambda Q.\lambda w[\exists P \exists w' \exists x \in D^L_{W'}[P_{w'}(x) \wedge Q_w(x)]]$

The inflection can thus be defined as a function, looking for an argument (Q), whose denotational domain (D^L_W) it will broaden ($D^L_{W'}$), where Q is a mass instantiation and P a mass extension (i.e., mass$^+$). We may use (66) to provide a compositional account of extended mass nouns by plugging (67) into our incomplete compositional account (64).

(68)

$$[\![\sqrt{} + \cdot je\,]\!]^{f(a)} = \{x : x \text{ is MASS } | \langle X, \prec \rangle \wedge x \in D_{w'} | P_{w'}(x)\}$$

$$[\![\sqrt{}]\!]^a \qquad\qquad [\![\cdot je]\!]^f =$$
$$= \{x : x \text{ is MASS } | \langle X, \prec \rangle\} \quad \lambda Q.\lambda w[\exists P \exists w' \exists x \in D_{w'}[P_{w'}(x) \wedge Q_w(x)]]$$

Along the lines of this analysis, extended mass nouns in Table 6 can now receive an English translation as 'CLI mass + *any*' noun. An analysis of an extended mass noun like *vodovje* (voda+*-je*) 'water+any' can thus be given.

---

[26] taken from Arregui (2008: 45)

(69)

$$[\![vodovje]\!]^{f(a)} = \{x : x \text{ is WATER} \mid \langle W, \prec \rangle \wedge x \in D_{w'} \mid Z_{w'}(x)\}$$

$$[\![vodov]\!]^a \qquad\qquad [\cdot je]\!]^f =$$
$$= \{x : x \text{ is WATER} \mid \langle W, \prec \rangle\} \quad \lambda W.\lambda w[\exists Z \exists w' \exists x \in D_{w'}[Z_{w'}(x) \wedge W_w(x)]]$$

There are three positive outcomes to my working analysis of—now rebranded as— extended/broadened/widened mass nouns. The first is simplest: we at least have an account of this mass phenomenon. The second being that Kadmon & Landman's (1993) domain widening indefinite *any* theoretically maps (intuitively if not fully technically) onto mass inflection *-je*. The third advantage is, should the second prove valid, that we have an inflectional instantiation of a domain widening indefinite that is not restricted to pragmatics and syntax (negative-polar environments).

4.3 Scalarity: The Mass-Plural Effect

This section tries to answer the question of what the relation between mass singulars and mass plurals might be. Let us compare the following pairs of mass singulars and plurals.

(70)　　a.　　vejevje　　　　　:　　vejevja
　　　　　　　branch-[MASS]　　　　　branch-[MASS]-[PL]

　　　　b.　　grmovje　　　　　:　　grmovja
　　　　　　　bush-[MASS]　　　　　　bush-[MASS]-[PL]

　　　　c.　　otočje　　　　　　:　　otočja
　　　　　　　island-[MASS]　　　　　island-[MASS]-[PL]

The inflectional *-a* morphology[27] seems consistent in plural form and may be morphologically characterised as per (71) by assuming the plural operator is a function (g) that, in morphosemantic functional application, takes the mass noun ($f(a)$) as its argument.

(71)　　　　$[\![\sqrt{LEX}]\!]^a + [je]^f + a^g] \rightarrow [\sqrt{LEX}+ja]^{g(f(a))}$

Thus, a full-blown analysis of mass plurals in Slovene is (or at least resembles) the compositional structure and mechanics shown below.

---

[27] The -a inflection is plural as it is consistent with the neuter singular (I. declension) paradigm:

(*i*)　*sonce*　　　:　*gozdje*　　　　　::　　　*sonca*　　:　*grozdja*
　　　sun-[N.SG]　grape-[MASS.N.SG]　　　sun-[N.PL]　grape-[MASS.N.PL]

(72

$$[\![grozdja]\!]^{g(f(a))} = \{x : x \text{ is GRAPE} \mid \langle \text{GRAPE}, \prec \rangle \wedge \text{PLURAL}(x)\}$$

$$[\![\cdot a]\!]^g = \lambda T[\text{PLURAL}(T)]$$

$$[\![grozd]\!]^a = \{x : x \text{ is GRAPE} \mid \langle \text{GRAPE}, \prec \rangle\}$$

$$[\![\cdot je]\!]^f = \lambda S.\exists x[x : x \text{ is } S \mid \langle S, \prec \rangle]$$
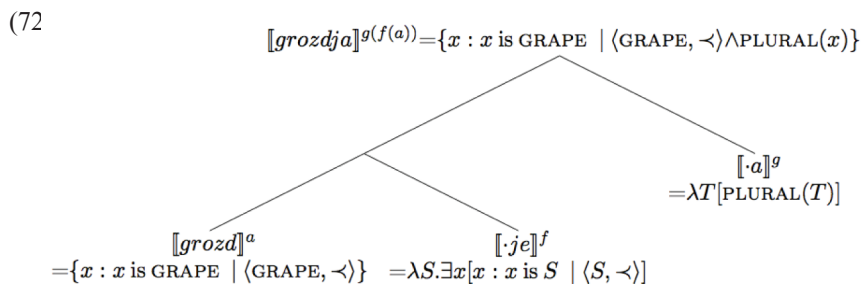
The question of what the right pluralisation node^g (plural inflection) contributes to meaning has, however, still not been answered. The plural on mass nouns in Slovene performs scalar implicature. For instance:

(73)   a.   Imam   grozdja.
              have-[1.SG] grape-[MASS]-[PL]-[ACC]
              "I have grape(s)$_{M+PL}$"
        $\Rightarrow_{impl.}$ I have *much* (of) grape(s)$_M$.

        b.   Obiskal   sem   otočja.
              visit-[1.sg] am   island-[MASS]-[PL]-[ACC]
              "I have visited island(s)$_{M+PL}$"
        $\Rightarrow_{impl.}$ I have visited *much* (of) island(s)$_M$.

The mass plural in examples in (73) carry only meanings: they may be interpreted as bogus mass plural or as mass noun carrying a scalar implicature, corresponding to English mass determiner *much*. Nominal constructions where *much* and plural on a mass noun co-occur are not possible in Slovene as (74) shows.

(74)   *   … veliko   grozdij   [vs. grozdja
                much-[QUANT] grape-[MASS]-[PL]-[GEN]   grape-[MASS]-[PL]-[NOM]
            "… much (CLS of) grape(s)$_M$"

Given (74), I postulate that the mass determiner *veliko*/*much* and the plural inflection on a mass noun are in complementary distribution. Given that either *veliko*/*much* or *-a* inflection may appear (74), I speculate that the mass quantifier much, sitting in [Spec, #^{max}] in Borer's tree, is in some morphosyntactic relation with the plural inflection on mass nouns. When #^{0} is specified for mass, the plural feature can have either syntactic or morphological realisation.[28] Syntactically, the plural feature on mass nouns can appear as *veliko*/*much* quantifier in the number head (#^{0}) specifier position (6b). Morphologically, the plural feature can also get realised as a plural inflection on a mass noun.

I represent this complementary behaviour with the following scheme, where SYN corresponds to the domain of syntax and MORPH to the domain of lexical morphology. Other category labels are Borer's (2005), based on (6b).

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[28] I give a full and unified account of this in section 4.4..

(75)

$$^{\text{SYN}}[_{\#^{max}} \text{ veliko }_i \ldots \ [_{\#^0_{[-\text{COUNT}]}} \ldots ^{\text{MORPH}}[_N \ldots \text{ ja }_i]\ ]\ ]$$

The complementary relation between *veliko*/*much* and the plural inflection can also be detected independently, namely by the fact that there is a correspondence between the forms [*much*+MASS(*X*)] and [MASS(*X*)+*je*]. Below is a very likely conversation that might take place when A is enquiring about the gardening results of B's neighbour.

(76)   A: A   ima   sosed   grmovja?
                [Q]   has-[3.SG]   neigbour bush-[MASS]-[PL]
                "Does the neighbour have bush(es)$_{\text{M+PL}}$?"

          B: Ja, veliko   grmovja   ima
                yes much-[QUANT]   bush-[MASS]-[SG]-[GEN]   has-[3.SG]
                "Yes, he's got a lot of/much bush$_{\text{M}}$"[29]

The scalar implicatures that the forms [*much*+mass(*X*)] and [mass(*X*)+*je*] carry are therefore very similar, if not the same. The discussion of the relation between the determiner *veliko*/*much* and the plural inflection is resumed at the end of section 4.4.

4.4   Semantics-Syntax Mapping and Morphological Phases

Sections 4.2 and 4.3 dealt with compositional morphosemantics of Slovene count and mass nouns. In this section, I attempt to translate the semantic analyses in the previous two sections into Borer's (2005) syntactic cartography of count/mass distinction, along the lines of DM.

The analyses in this section unify the phenomena I have empirically shown in §3 and semantically analysed in §4.2-3. I propose that the variation between the classes of mass nouns in Slovene (Table 1.) results from different phase cycles.

Following Chomsky (2001, 2004, 2008), syntactic derivation proceeds cyclically phase by phase. The organisation of grammar we are adopting is the Y-shaped model as refined by DM, where morphological structure mediates between syntax and phonology. The relation *r*, I am positing in (77), is the area of morphosemantics or morphosyntax-semantics mapping that this section addresses.

(77)
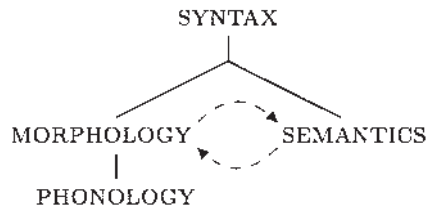
_____
[29] Note that the plural nominative and singular genitive have the same spell-out/morphological form.

Marantz (2001) has proposed that the heads that form words identified by 'lexical' category (noun, verb, adjective) – 'little x' heads, to generalize from the little v head that creates verbs – may uniformly correspond to phase heads. As a consequence, syntactic computation could be unified above and below the word level. Category changing morphology could yield multiple phases within a single word, and cyclic phonological effects within words could be related to – hopefully reduced to – the cyclic operation of phase-based syntax, which Marvin (2002) successfully explores and defends. (Marantz, 2008).

Following Marvin (2002), I am assuming that (*i*) the category-forming functional head *n* constitutes a Spell-Out domain at word level and that (*ii*) phrases within words (notably *n* in our case) are subject to Phase Impenetrability Condition.

(78)   PHASE IMPENETRABILITY CONDITION

Feature checking under c-command reaches no further than the specifier (=edge) of any embedded ph(r)ase. (Adger 2003: 400)

Let x_n be a phrase within a word: we can posit three (word-internal) phases as per (79).[30]

(79)   a.   PHASE

b.   PHASE 2

c.   PHASE

---
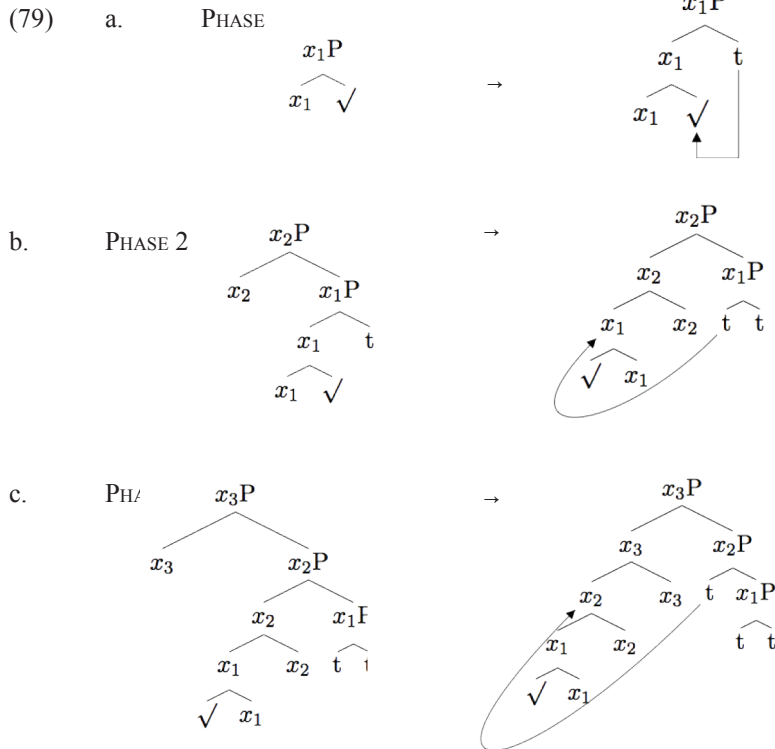
[30] Based on Marvin (2002:22-3).

Assuming that phases exist word-internally, we shall be explaining the mass phenomena, generally captured in Table 1 using these DM tools to establish phasal variation. The skeletal generalisation for our phasal explanation of mass phenomena in Slovene is thus (80), where n in x_nP (78) corresponds to phase cycles.

(80)

PHASE **3**
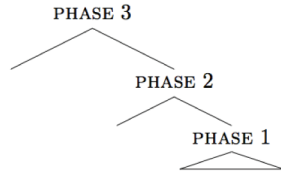
PHASE **2**

PHASE **1**

These notions of word-internal phases can easily be plugged into Borer's (2005) model we have been adopting (6) by defining a finer internal structure of the NP in (6). Thus we shall be assuming a fine-grained N in Borer's model that involves three phrase cycles, namely the root ($\sqrt{}$P), Number agreement phrase, and nP as shown in (81).

(81)

DP

D $\#^{max}$

QUANT $\#$

$much/veliko$

$\#^0$

PHASE $3 = n$P

PHASE $2 = \mathrm{Agr}_\#$P

PHASE $1 = \sqrt{}$P
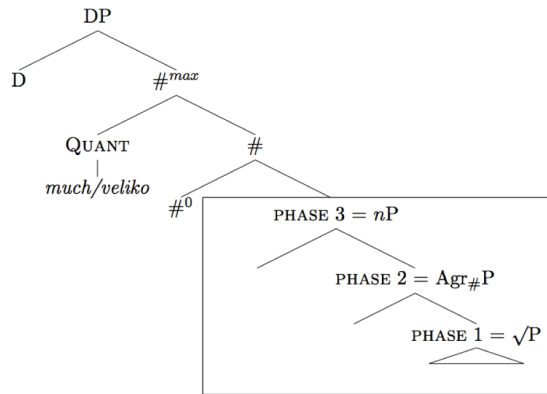
We start with Marvin's (2002) take on gerunds that I have classified as CLIII mass nouns. Once an analysis for gerunds is established, we will try extending it to CLI and CLII mass nouns.

The meaning of gerunds with regards to *je*-nominalization, according to Marvin (2002:112), is predictable—these nominalizations denote the event denoted by the *v*P. They are parallel to English gerundive *-ing* nominalization, except that the latter does not involve any participial morphology apart from *-ing*. The proposed structure for gerunds (like *branje* 'reading') is shown below.

(82)

$$nP$$

$$n^0 \quad \text{PassP}$$

$$je \quad \text{Pass}^0 \quad \sqrt{P}$$

$$-n \quad br\text{-}a$$
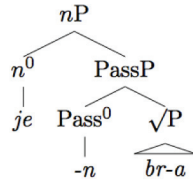
Phasal derivation and spell-out of (81) would follow in accordance with (79) & (80) as shown in (83).

(83)

$$nP$$

$$n^0 \qquad \text{PassP}$$

$$\text{Pass}^0 \quad n \qquad \text{Pass}^0 \quad \sqrt{P}$$

$$br\text{-}a\text{+-}n\text{+} \quad \text{-}je \quad \sqrt{P} \quad \text{Pass}^0 \quad br\text{-}a$$

$$br\text{-}a\text{+} \quad \text{-}n$$
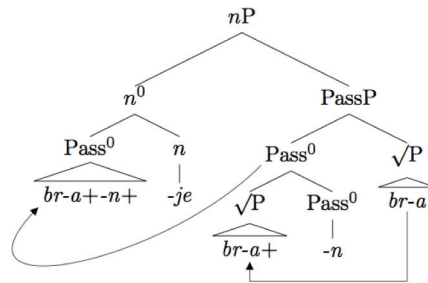
The first phase in the derivation involves the movement of the root projection ($\sqrt{P}$) to $Pass^0$-adjacent position. The second phasal derivation is thus movement of the $Pass^0$ (to which the root has adjoined/incorporated) into n. The phasal derivation within a word thus involves head-to-head roll-up movement (with the exception of the phrase-to-head movement in the first phrase, assuming $\sqrt{P}$ is indeed a phrase).

We thus have an account of Slovene gerunds—and CLIII mass class—as involving two phasal cycles. Let us now turn to CLI nouns, such as *voda* 'water' or *zrak* 'air'. For true nominals (as opposed to gerunds), I stipulate that a number agreement phrase ($Agr_\#P$), that is bound by $\#^{max}$ (6), takes a root projection ($\sqrt{P}$) as its complement.

(84)

$$Agr_\#P$$

$$Agr_\#^0 \quad \sqrt{P}$$

$$[-\text{COUNT}] \quad voda$$
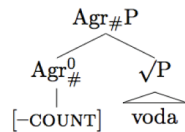
A noun like *voda* may be seen as having its number features checked by the agreeing $Agr_\#$ head. We could also speculate that the agreement is as strong as to motivate movement of $\sqrt{P}$ into $Agr_\#$. Following Marantz (1997) and Marvin (2002:14), n in (85) would be Ø (i.e., no derivational affixes apply).

(85)
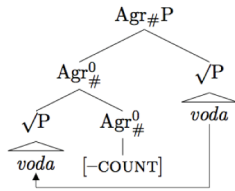
    CLI mass nouns may thus be seen as involving a single phase cycle, namely the movement of $\sqrt{P}$ into Agr$_\#$. CLII nouns, such as an O-mass noun like *grozdje*, on the other hand, involves the *-je* inflection that I speculate is a spell-out of *n*.

(86)
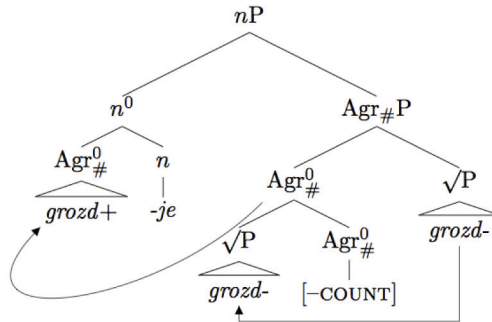
    CLII nouns (*grozdje)*, thus, just like gerunds (CLIII) involve two phasal cycles. The first cycle is common to all mass nouns: the second one results in an inflectional (*-je*) by-product, as it were. The phasal logic of CLII nouns may also be shown with an example of mass extension such as the transformation from *voda* to *vodovje* ('water'/'water⁺'). The phasal mechanics will be the same as it is for CLII nouns (87).

(87)
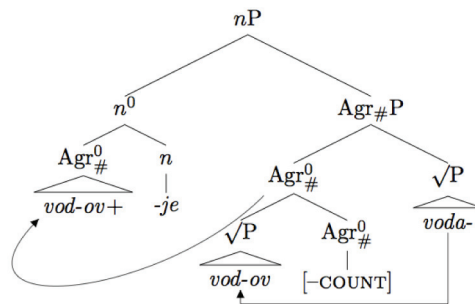
    The infixation (of *-ov-* in *vodovje*) seems to occur as a by-product of mass extension (i.e., mass-to-mass⁺ derivation), as shown below.

(88) a. voda > vod-*ov*-je ('water')

  b. dež > dež-*ev*-je ('rain')

  c. veter > vetr-*ov*-je ('wind')

This agreement by-product of mass extension may also be spelt-out as a prefix in (88). I speculate this morpheme is prefixed to the root at the same phasal level as the aforementioned infix, as shown in (90)

(89) a. zemlja > *o*-zemlje ('earth/territory)

  b. zrak > *o*-zračje ('air)

  c. voda > *po*-vodje ('water')

(90)
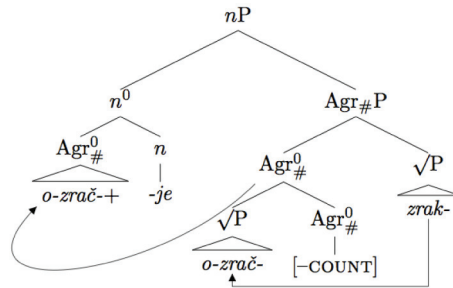
The marginal plural/mass distinction that we addressed in §3.6 can be explained along the following lines. A noun like *bratje* 'brothers' is plural and count (since *trije bratje* 'three brothers' is possible): √P moves into Agr$_\#$ that has [+COUNT] specification (=first cycle). The inflection, however, results from the second phase cycle where I assume that Agr$_\#$ incorporates into *n*.

(91)
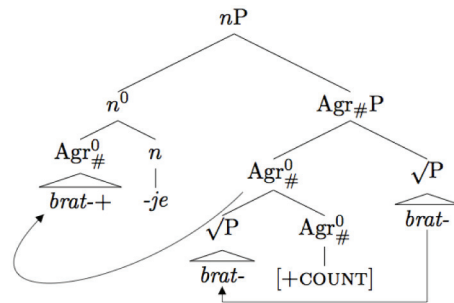
For speakers that process and The aetiology of inter-speaker variation with regards to plural/mass distinction (§3.6) thus lies in the fact that a [+COUNT] root+Agr$_\#$ is licensed to enter into the second cycle, namely the movement into *n*. For speakers

of Slovene that have natively acquired and use nouns like *kvadratje* 'square(s)$_M$', however, the feature on the root after the first phase is [−COUNT].[31]

(92)
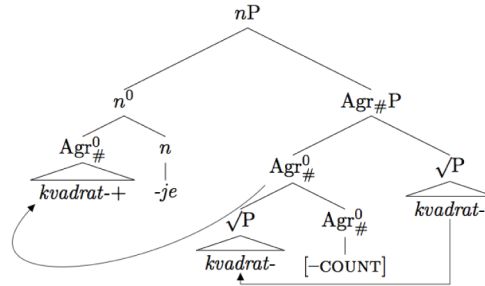
Let us now return to the plural inflection on an inflected mass noun (CLII). Borer's model (6b) places the mass quantifier in the specifier position of the number phrase ([Spec, $\#^{max}$]). As we have discussed and propose, based on the complementary distribution of the plural inflection and quantifier occurrence (74), the quantifier *veliko/ much* may be seen as instantiating the plural effect on a mass noun, like *grozdje*. The [−COUNT] feature can thus be seen to percolate higher since the number agreement with the verb is singular.

(93)

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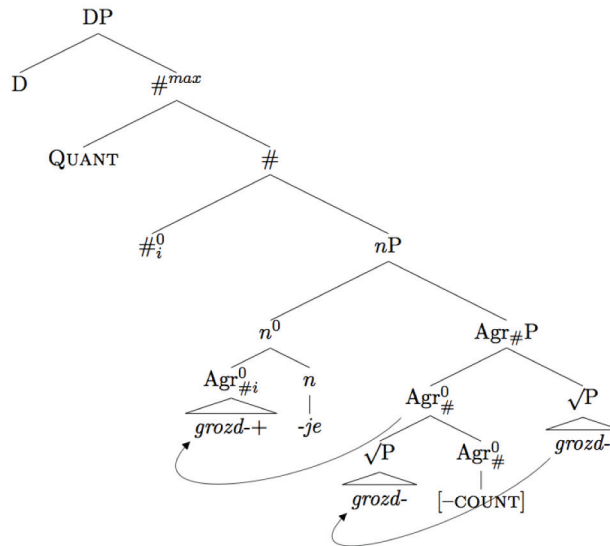
[31] Readers who are native speakers of Slovene and do not have *kvadratje* in their lexicon, may substitute the latter with a noun like *bratje*.

Thus we are now in a position where we can posit a double (and complementary distributional) instantiation of QUANT that sits in [Spec, $\#^{max}$]. It may lie outside of the word-syntactic domain, as it were, and thus be spelt-out as a quantifier *veliko* 'much', as shown in (93). Note also that the quantifier *veliko* imposes the genitive form of its nominal complement (*veliko + grozdje*[NOM] = *veliko grozdja*[GEN]). The frame around *n*P represents the morphological boundary (i.e., what I have referred to as the word-syntactic domain).

(94)
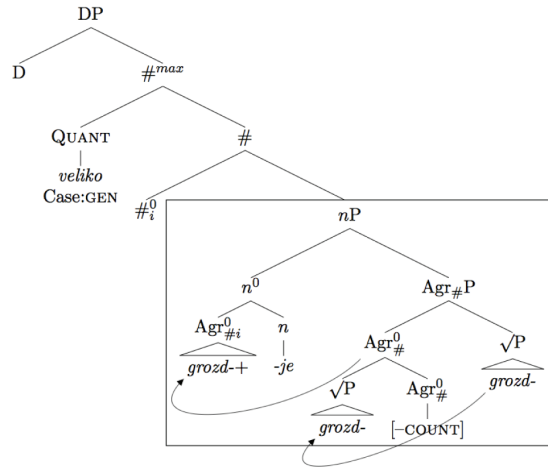
On the other hand, we can posit a fourth phasal cycle whereby the QUANT falls within the word-syntactic domain. Under this view, n^0 can be seen to move higher and adjoin to/incorporate into QUANT as per (95).

(95)
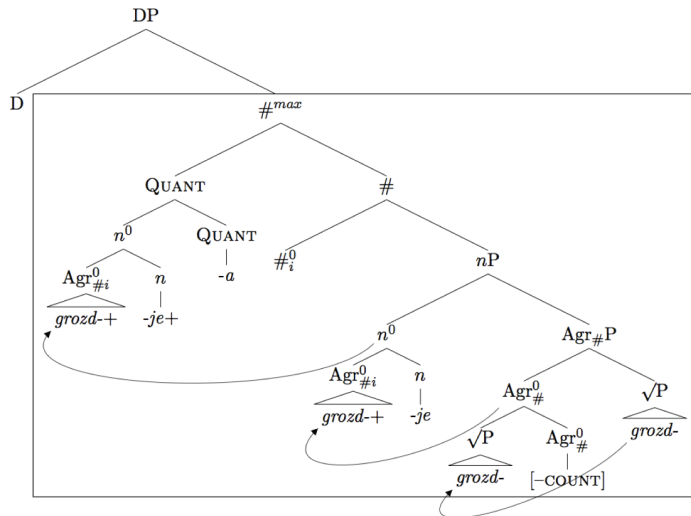
Assuming Bošković's (2009) analysis of Slovene NP/DP structure, we could also eliminate the top-most DP in our adaptation of Borer's model. This would allow us a unified analysis of the cyclic/phasal mechanics of the entire nominal domain in Slovene.

The plural inflection on a mass noun in Slovene can thus be analysed as the third phase in morphological derivation of CLII and CLIII nouns. Count and CLI plurality (as well as duality), I posit, also originates in QUANT: since there would be no relevant nominal affixes in *n*, *n* is null, and so singularity and duality (on count) and plurality (on count and mass nouns) may be analysed as the second cycle in the morphological derivation.

Given sections 4.2-3, we can assign each morphosyntactic node (QUANT, #/Agr$_\#$, *n*, √P) in our derivations an LF (=semantic) representation.

5   Conclusion

This paper has addressed and discussed the morphosemantic status of Slovene mass nouns. I have shown the invalidity of Chierchia's (2004) prediction that there is no one languages that mark mass morphologically. Using Chierchia's (1998a) previously proposed ten properties to test the count/mass distinction, I have presented empirical facts about the behaviour of and distinction between count and mass nouns. Slovene turned out to have mass nouns that are inflectionally uniform (CLII & CLIII). The non-inflected mass nouns (CLI) may be extended, as it were, or further massified and thus become CLII (§3.5).

With our background notions and assumption laid out in §1, in §2 we have overviewed some problematic data from Greek which exhibits mass pluralisation (§2.1). We have also encountered some data from Lingala, Zuni and English, which show morphological syncretism of plural and mass features on a noun. Section 2 thus provided us with an empirical and cross-linguistic context for the Slovene data in the following section.

In §3.1 I have proposed a working cladistics for mass nouns in Slovene. The trichotomy of CLI, CLII and CLIII nouns was based on four parameters, we have stipulated and further explored in §3 and §4, were those relating to pluralisation, inflection, mass extension and S/O distinction (Table 1). In §3.2, adopting Chierchia's (1998a) ten-property system, we have tested and confirmed the hypothesis that -je inflection corresponds to [−−COUNT] feature. Just like Greek, Slovene allows mass plurals, which breaches the first property and invalidates Chierchia's (1998a) hypothesis that mass nouns come out of the lexicon with inherent plurality. We have also confirmed the signature property (Chierchia 2009) of Slovene CLII mass nouns by showing that numerals cannot directly combine with mass terms since they impose direct combination with classifier/measure phrases (DIVS) when quantising. In §3.2.3, we have seen that Slovene non-numeral determiners are almost completely unrestricted with an exception of two determiners (*oba* 'both' and *vsak/posamezen* 'each/every'). The individuating determiner *vsak/posamezen* 'every/each' has also been shown to combine with CLIII mass nouns (gerunds), which only leaves us with

only one (dual) determiner to have a restricted use, i.e., *oba* 'both'. §3.2.4 addressed the possible transformations of count nouns into mass (and vice versa). We have seen that count-to-O-mass transformations in Slovene may be done morphologically, that is, by inflecting a count noun with *-je*, so that a morphological head ($\sqrt{P}$) may have three count spell-outs (singular, dual, plural), and two mass spell-outs (CLII mass singular, CLII mass plural). We have also seen (§3.3) that Slovene mass nouns, unlike Greek ones, are not restricted to S-mass and that both O- and S-mass nouns of CLI may be extended into CLII forms (§3.5), with the latter denoting something 'more than' the former. We have attempted to define this space in the denotational size in terms of lexical-domain widening. In §3.6, we have seen some empirical evidence to support the claim that Slovene allows mass plurals. We have used §3 to develop some empirical observations and descriptions of Slovene nominals with theoretical accounts explicated in §4.

The last section (§4) dealt with analyses of the data. In a preliminary subsection (§4.1), we have overviewed Ojeda & Grivičić's (2005) analysis of Serbo-Croatian and entertained the idea that the count/mass distinction in Slovene is after all a collective/non-collective distinction, as Ojeda & Grivičić propose for Serbo-Croatian. We were not only able to reject the hypothesis that *-je* in Slovene relates to collective nouns, but were also in a position to reject Ojeda & Grivičić's analysis since the nouns with *-je* inflection in Serbo-Croatian are actually mass as these nouns cannot quantise (i.e., directly combine with numerals), which is consistent with the signature property of mass nouns. After addressing and rejecting a possible impediment to our general analysis, we have devoted the remainder of §4 to theorising the meaning and structure that lies behind the inflection and the relation between the latter to scalarity (pluralisation) and elasticity (mass extension/derivation). Having assumed a Y-model, supposing a discrepancy between syntax and semantics, we have first assigned the morphemes in questions a semantic function and logical form (LF) in §4.2 and §4.3. We have concluded §4.2 by stating that—under under A_{ii}—the mass inflection *-je* may be seen as lexically realising the semi-lattice-structured denotation of the root: *-je* inflection is related to features [–COUNT] (in Borer's) and $\langle n \rangle$ (in Bale & Barner's model). We have also discussed and proposed the idea that *-je* be given an *any*-styled analysis since *-je* can be seen as a morphosemantic realisation of domain widening indefinite. Extended mass nouns with *-je* inflection (CLII) have been shown to denote a greater set than CLI nouns (40-2). Similarly, *-je* on count nouns (like *bratje* 'brothers'), takes over the plural function instead, which also, in a widening-based lexical analysis (just like *-je* on mass nouns), performs some type of domain widening from a set of singulars to a set of plurals. Thus we need not stipulate two -je functions but only two instantiations of the same (widening-based lexical) function, one appearing on count and another on mass nouns. §4.3 sought to explain the plural effect on mass nouns: we have entertained the idea that the mass determiner *veliko*/*much* and the plural inflection on a mass noun are in complementary distribution and in some morphosyntactic relation. Once the morphemes have been assigned their semantic function, we have turned to last and unifying section in the second half of §4, where we have sought the explain the interface between syntax and semantics in light of DM and phasal derivation. §4.4 thus attempted a correspondence of the semantic LFs

(of word-internal compositionality) to the morphosyntactic structure. We have shown that the count/mass and clI/clII/clIII distinction arises from the variation in morphological phases. Count and clI nouns have been shown to involve a single phasal cycle, positing that the root projection moves to $Agr_\#$ (85), whereas clII and clIII nouns have been analysed as involving two cycles: movement of the root projection into $Agr_\#$ (Phase 1), and movement of $Agr_\#^0$ into n^0 (Phase 2), where -*je* inflection is attached (86-93). The plural on clII and clIII nouns may be analysed as movement of n^0 into Quant (Phase 3).

(97)

With regards to phasal-cyclic variation in morphology, we could also propose a (hypothetical theory of) correspondence of the hierarchical-syntactic structure to lexical-domain widening (with respect to semantics). In Marantz's (2008) words, on perhaps the most stringent view of compositionality (exemplified, e.g., by Montague Grammar, i.e., model-theoretic semantics that we have been adopting throughout this paper), each syntactic operation would have a corresponding interpretation, making the result of every 'merge' of items into a phase, in the sense of a domain for phonological and semantic processing.

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O števno-snovnem razlikovanju v slovenščini

Članek predstavlja modelno-teoretsko raziskavo števnosti v slovenščini. Obravnava in razlaga slovenske števne ter snovne samostalnike, obenem pa kaže na nepravilnost Chierchove (2004) teoretske napovedi, po kateri noben jezik snovnosti ne označuje oblikoslovno. V članku so predlagane pomenoslovne in skladenjske analize števnosti slovenskega samostalnika.

Prvi del uvede v pojme in predpostavke, ki zagotavljajo skladenjsko- in pomenoslovno-teoretske temelje, na katerih temelji prispevek.

Drugi del je pregled nekaterih medjezikovnih podatkov iz grščine, lingalščine, zunijščine in angleščine, ki so problematični za pomenoslovno teorijo števnosti. Grščina pozna snovno množino, tj. snovne samostalniki, ki se lahko množinijo, medtem ko nekateri samostalniki v lingalščini, zunijščini in angleščini izkazujejo množinsko-snovni sinkretizem, so torej hkrati množinski in snovni. Ta del omogoča navzkrižnojezikovni okvir, v katerem se lahko umestijo empirični dokazi iz slovenščine.

Tretji del skuša predstaviti jezikovne pojave v slovenščini: v prvem poddelu je števno-snovno razlikovanje predstavljeno paradigmatično, in sicer na osnovi Chierchiovega (1998a) sistema desetih lastnosti števno-snovnega razlikovanja. V drugem poddelu obravnavam nekatere števno-snovne pojave, ki ne spadajo v prej obravnavani sistem in so specifični za slovenščino: snovna razširitev in množinsko-snovna meja.

Četrti del, ki ga prav tako sestavljata dva poddela, se ukvarja s teoretskimi analizami pojavov, predstavljenih v prejšnjem delu. Prvi poddel se ukvarja s pomenoslovnim (leksikalno-kompozicijskim) pristopom, drugi poddel pa slednji pristop prevaja v oblikoskladenjsko strukturo (z uporabo orodja in predpostavk iz teorije porazdeljenega oblikoslovja).

Peti del zaključuje raziskavo s predlogom, da se lahko števno-snovno razlikovanje in različni snovni pojavi v slovenskem jeziku razumejo fazno (Chomsky 2001 in sl., Marantz 2008).

On Count/Mass Distinction in Slovene

This paper is a model-theoretic investigation into the count/mass distinction in Slovene. It overviews and accounts for Slovene nouns, while also invalidating Chierchia's (2004) theoretical prediction that no language marks mass morphologically. I provide analyses of countability in the nominal domain of Slovene on semantic and morphosyntactic levels.

Section 1 introduces the background notions and assumptions and thus provides the syntactic- and semantic-theoretic foundation upon which this paper rests.

Section 2 overviews some cross-linguistic data from Greek, Lingala, Zuni and English that are problematic for the semantic theory of countability. Greek shows mass plurals (i.e., mass nouns that may pluralise) and Lingala, Zuni and English show mass/plural syncretism (i.e., nouns that are both plural and mass). This provides me with a cross-linguistic context within which the empirical evidence from Slovene may be mapped.

Section 3 seeks to present the Slovene data: in the first part, count/mass distinction is presented paradigmatically, i.e., on the basis of Chierchia's (1998a) ten-property system. The second part addresses some count/mass phenomena that fall outside

of the aforementioned system and specific to Slovene: mass extension and plural/mass margin.

Section 4 deals with theoretical accounts of the data presented in the previous section. This section also comes in two parts: the first gives a semantic (lexical-compositional) account, and second translates the latter into morphosyntactic structures (using the tools and assumptions from Distributed Morphology).

Section 5 concludes the research by proposing that the count/mass distinction and various mass phenomena in Slovene may be accounted for phasally (Chomsky 2001 *et seq.*, Marantz 2008).