Plural Mass Nouns in Telugu

Peter W. Smith

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Abstract

This paper provides data from Telugu where there are nouns that are semantically mass, yet combine with plural morphology. Such data are unexpected on approaches where the mass/count distinction is created syntactically, and that masshood is essentially the absence of count syntax. Furthermore, these nouns raise problems for approaches where MASS and COUNT are distinct functional heads that create mass nouns and count nouns respectively from unspecified nominal roots. I will argue for the need to acknowledge nouns which show divergent mass/count behavior with respect to their semantics and morphology. In the case of Telugu, we need to make MASS relevant for the semantics, and COUNT relevant for the morphosyntax. The opposite situation is seen with English count-mass nouns, where MASS needs to be relevant for the morphosyntax and COUNT relevant for the semantics.

1 Introduction

Much research into the mass/count distinction has recently centered on the idea that nouns are not inherently specified to be either mass or count, coupled with an additional ability to coerce nouns from one class into the other, but rather that nouns begin life unspecified for being either mass or count, and they are turned either mass or count depending on the syntactic environment in which they find themselves. Such research is guided by the observation that most nouns, at least in languages like English can be either mass or count depending on their surrounding context. Consider a noun like *urchin* for instance. In (1) below, *urchin* is easily identifiable as a count noun since it combines with the indefinite article *an*. In (2) however, the absence of an article, coupled with the absence of plural morphology and the presence of the quantifier *much* allows us to identify that *urchin* is being used as a mass noun, and not count.

(1) The crafty sea otter plucked an urchin from the sea floor.

(2) The greedy sea otter ate too much urchin, so needed to sleep.

The fact that this can happen to virtually any noun in English and other languages (though perhaps not Chinese, Cheng et al. 2008) has led to a spate of recent proposals arguing that the mass/count distinction is created syntactically. Central to this approach is the notion that nominal roots, without any functional head to create division, denote 'undivided stuff'. That is, the denotation of the nouns *cat* is not the set of individual cats, but rather everything that could plausibly fall under being described as 'cat' - cat meat, individual cats and pluralities of cats. Furthermore, the second central tenet of this approach is that this is all that mass nouns constitute - they are undivided denotations; denotations which do not contain atomic entities of the noun in question. Therefore, in (2) above, the mass noun *urchin* denotes something that if divided, will still qualify as urchin.

This approach, successful at explaining a number of properties that are characteristic of the mass/count distinction, however makes the prediction - correct in the majority of cases - that mass properties and count properties ought not to co-occur on the same noun. Borer (2005) for instance proposes that the mass/count distinction is created through the presence or absence of a division phrase (which I call here DIVP) in combination with the nominal root. The presence of this head in the structure creates division, but is also the gateway to count-syntax. Masshood results from the absence of this head, counthood from the presence; nouns should in theory show either one set of properties or the other. In this paper I will show that this prediction is not borne out; there are a small class of mass nouns in Telugu that are semantically mass, yet bear the hallmark properties of being Telugu count nouns. These nouns show that an either/or approach to the mass/count distinction is too coarse, and a way for the two categories to co-occur must be sought.

The paper is organized as follows. Firstly, in section 2 I discuss how the mass/count distinction is manifested in Telugu, showing that (i) there is a mass/count distinction and (ii) that it is the same as the English mass/count distinction. In section 3 I then discuss the plural mass nouns in the language, showing that they show the morphosyntactic properties of being count, but show the semantic properties of being mass, thus evidencing the need for nouns to be simultaneously count and mass. In section 4, I discuss this finding in light of recent theories that propose the mass/count distinction to be created syntactically. In section 5 I offer a solution to the problem, showing that the issue can be resolved if we don't tie quantifier selection to whatever it is that creates mass and count, but rather to the morphological number value of the noun - a proposal in accordance with Smith (2014). I then conclude the paper in section 6.

2 The mass/count distinction in Telugu

In this section I outline the fact that Telugu does have a mass/count distinction in the language, and that there are a clear set of diagnostics for distinguishing between count nouns and mass nouns. Telugu is not therefore a language like Yudja (Lima 2014)[1] which does not make a mass/count distinction.

2.1 The morphosyntax of the mass/count distinction in Telugu

The first fact of note is that Telugu has a regular singular/plural distinction, that is shown in obligatory nominal and verbal morphology, as well as being reflected in the pronominal system. To show the nominal and verbal morphology, consider the following pair of sentences. In (3), we see that *kukka* 'dog' is present in the sentence without any number marking, and is used in a singular sense, shown by the presence of 3.NM.SG morphology on the verb. In contrast, in (4), we see that *kukka* now appears with the plural suffix *-lu*, in addition to triggering 3.NM.PL agreement on the verb.[2]

(3) kukka ṭinn-a-ḍi
dog eat-PAST-3.NM.SG
'A dog ate.'

(4) kukka-lu ṭinn-aa-ji
dog-PL eat-PAST-3.NM.PL
'Dogs ate.'

Number morphology is obligatory for all nouns (aside from mass nouns as we'll see), and does not become optional through inanimacy, as shown in (5) and (6) below:

(5) oka niiLLa susaa table paina un-ḍi/*unn-aa-ji
a water bottle table on be-3.NM.SG/be-PRES-3.NM.PL
'A water bottle is on the table.'

(6) renDu niiLLa siisaa-lu table paina unn-aa-ji/*un-ḍi
two water bottle-PL table on be-PRES-3.NM.PL/be-3.NM.SG
'Two bottles of water are on the table.'

As Chierchia notes, an inability to combine with plural morphology is one of the characteristics of mass nouns. In English for instance, mass nouns like *water* don't combine

[1] See also (Wiltshko 2012) on Halkomelem Salish and Blackfoot

[2] In (3) and (4), and what follows, NM indicates non-masculine gender agreement.

with the plural marker *-s* when they are used in a count usage. This can be seen below in (7) and (8).

(7) *There are waters coming through the ceiling.

(8) *I dug sands to clear the mess up.

Telugu is the same, as we can see in (9), where the noun *isuka* 'sand' does not combine with the plural morpheme.

(9) * aa abbaaji isuka-lu ṭavvu-ṭunn-aa-Du
the boy sand-PL dig-PROG-PRES-3.NONMASC.SG
INTENDED: 'The boy is digging sands.'

Count nouns in Telugu freely combine with numerals, in a manner much akin to English. Again, plural morphology on the noun is obligatory (for numbers two and above), and count nouns in Telugu do not require some measure/classifier phrase to combine with the noun in order for them to counted. This is shown in (10) below:

(10) Raaǰu muuDu aratipanD-lu ṭinn-aa-Du
Raaju three banana-PL eat-PAST-3.MASC.SG
'Raaju ate three bananas.'

Mass nouns on the other hand are not able to combine driectly with numerals, (11) and require a measure phrase in order to do so.

(11) * Raaǰu renDu isuka-lu konn-aa-Du
Raaju two sand-PL dig-PAST-3.MASC.SG
INTENDED: 'Raaju dug two (piles of) sand(s).'

A final morphosyntactic diagnostic that we can use to identify the mass/count distinction in Telugu is through the quantifiers that translate in English to *few* and *little*. A well known difference in English between count nouns and mass nouns is that some quantifiers are able to combine with mass nouns but not count nouns, and some quantifiers show the opposite, only combining with count nouns but not mass nouns. Mass quantifiers in English are *little* and *much* whereas their count counterparts are *few* and *many*, as shown in the following where the difference between *many* and *much* is highlighted:

(12) a. There isn't much water/dirt/snow left to clear.
b. *There isn't much ducks/tables/bananas left to buy.
c. *There are many water/dirt/snow left to clear.

d. There are many ducks/tables/bananas left to buy.

The sentences in (12) show that English uses different quantifiers in certain environments depending on whether the quantified noun is a count noun or a mass noun. Telugu also has a difference like this, although with only a single quantifier. Unlike English, there is no difference between *many* and *much* in Telugu; both are expressed using the word *čaala* as shown below in (13). However, there is an equivalent to the difference between *few* and *little* in Telugu, with the former expressed by *konni*, (14) and the latter by *končam(u)*, (15):

(13) a. raaǰu čaala aratipanD-lu t̪inn-aa-Du
Raaju a.lot.of banana-PL ate-PAST-3.M.SG
'Raju ate many bananas.'

b. raaǰu čaala annam t̪inn-aa-Du
raaju a.lot.of rice eat-PAST-3.M.SG
'Raju ate a lot of rice.'

(14) Raaǰu konni aratipanD-lu t̪inn-aa-Du
Raaju few banana-PL eat-PAST-3.MASC.SG
'Raaju ate few bananas.'

(15) neenu končamu uppu t̪inn-aa-nu
I little salt eat-PAST-1.SG
'I ate little salt.'

2.2 The semantic distinctions between mass nouns and count nouns in Telugu

Changing track to the semantic side, Telugu again patterns with English in a couple of diagnostics. The diagnostics that will be discussed are the ability to combine with *stubbornly distributive predicates*, see **?**, and standard of comparison, as discussed by Bale & Barner (2009).

The first diagnostic is *stubbornly distributive predicates*. **?** shows that count nouns differ from mass nouns in their ability to combine with predicates such as *large, round* and *long* in that count nouns can happily combine with these predicates, but mass nouns cannot. Abstracting away from the semantic details, the reason that count nouns are able to combine with stubbornly distributive predicates is that count nouns contain atomic subparts of their denotation; that is, in the denotation of a count noun, there is a set of minimal parts such that they can't be divided further and remain true of the predicate. In

other words, if you divide a duck into smaller parts, you're no longer left with a duck. Stubbornly distributive predicates require these atomic subparts, since they obligatorily distribute down to atomic subparts. Therefore, count nouns can happily combine with stubbornly distributive predicates. Mass nouns on the other hand are taken (here as well) to involve denotations without atomic subparts. This means that in the denotation of a mass noun like *water*, there is no minimal part of water that you can divide leaving you with two (or more) quantities of something that no longer would qualify as water. Mass nouns are in essence infinitely divisible, and since they do not contain the necessary atomic subparts for stubbornly distributive predicates to distribute down to, they do not felicitously combine with stubbornly distributive predicates. We see the contrast in English below:

(16) a. The dogs/apples/boxes are large.
b. # The water/sand/snow is large.

Telugu also has a class of predicates that show this property. In the sentences below, I show this with the adjective *peḏḏagaa*, which combines with count nouns such as *aratipanDlu* 'bananas', but not mass nouns like *veṇḍi* 'silver', (17). By way of contrast, an adjective that does not obligatorily distribute, like *baruvugaa* happily combines with both count and mass nouns, (18), as in English.

(17) a. aratipanD-lu peḏḏa-gaa unn-aa-ji
banana-PL big-GA be-PRES-3.NM.PL
'The bananas are large.'
b. # veṇḍi peḏḏa-gaa un-ḍi
silver large-GA be-3.NM.SG
INTENDED: 'The silver is large.'

(18) a. aratipanD-lu baruvu-gaa unn-aa-ji
banana-PL heavy-GA be-PRES-3.NM.PL
'The bananas are heavy.'
b. veṇḍi baruvu-gaa un-ḍi
silver heavy-GA be-3.NM.SG
'The silver is heavy.'

Telugu thus shows an identical distribution of stubbornly distributive predicates to English; there exists in Telugu (as in many languages - see Maldonado 2012) a set of predicates which must obligatorily distribute down to atomic entities, and these predicates happily combine with count nouns in Telugu, but not mass nouns.

Moving on to a second semantic diagnostic, Telugu also distinguishes count nouns from mass nouns with respect to comparison contexts. Bale & Barner (2009) (building on other work, for instance Barner & Snedeker 2005) show that mass nouns and count nouns differ with respect to what the unit of comparison is in the following sentences. Count nouns are compared by number of individuals entities and not any volume measurement, whereas mass nouns are compared with respect to the total volume of the mass noun, and the number of distinct individual quantities is irrelevant. Thus, in the following, (19a) is judged as true when the overall number of books that John read is greater than the number than Mary read. In (19b) on the other hand, it is the total volume of salt that is relevant not the individual portions. So, (19b) can be true in a situation where John ate 5 grams of salt in one serving, but Mary are three single gram servings of salt. The sentence is not true in the converse situation where John ate three single gram servings of salt and Mary ate one 5 gram serving, even though the number of individual portions of salt that John ate is larger than the number Mary ate.

(19) a. John read more books than Mary.
b. John ate more salt than Mary.

Telugu also shows this pattern. Count nouns in Telugu are compared by number whereas mass nouns are compared by volume. This relevant sentences are given below. (20) is true when the number of bananas that Raju ate is larger than the number of bananas that Raani ate, whereas (21) is true where the overall quantity of oil is relevant, and not individual quantities, for instance bottles.

(20) raaǰu raani kanna ekkuva aratipanD-lu t̪inn-aa-Du
raaju raani COMP more banana-PL eat-PAST-3.M.SG
'Raju ate more bananas than Raani.'

(21) raaǰu raani kanna ekkuva nuune konn-aa-Du
raaju raani COMP more oil buy-PAST-3.M.SG
'Raju bought more oil than Raani.'

The preceeding discussion has established that there is a mass/count distinction in Telugu, and that it shares many properties with English. There are other properties relevant to the mass/count distinction in English that have not been discussed here. I leave investigation of these properties for future study, but the above discussion has established the existence of the mass/count distinction in Telugu, and now I move the discussion on to a small class of mass nouns that have plural morphology on them.

3 Milk and water: Plural mass nouns in Telugu

In section 2 the absence of plural morphology on a noun was used as a diagnostic of that noun being a mass noun. However, as has been noted in various places this does not hold without exception; cross-linguistically there are a small number of languages where plural morphology can appear on mass nouns. These will be discussed in section 3.2, but first I introduce the facts from Telugu, before discussing them in a wider context.

3.1 Milk and Water

As mentioned in section 2, an incompatibility with plural morphology is one of the hallmarks of the mass/count distinction in Telugu. However, as noted in Krishnamurti & Gwynn (1985), there are a small class of mass nouns in Telugu that occur with plural morphology. I focus my attention throughout this paper on two nouns, *niiLLu* 'water' and *paalu* 'milk', though it should be pointed out that the class of these nouns is larger than just two, and they are not limited to liquid mass nouns, see Krishnamurti & Gwynn (1985) for more details.[3] Consider the following sentences. Note that the forms do not just look as though they are plural by virtue of ending in *-lu*, but they also trigger plural morphology on the verb that they agree with, and not singular morphology.

(22) nii-LLu unn-aa-ji
water-PL be-PRES-3PL
'There is water.'

(23) * nii-LLu und̲i
water-PL be-3.NONMASC.SG
INTENDED: 'There is water.'

(24) paa-lu table miid̲a padd-aa-ji
milk-PL table on spill-PAST-3.PL
'Milk spilled on the table.'

Interestingly, even though these nouns are prototypically mass in English, in Telugu they appear to show (at least a subset of) count properties. For instance, we see that they combine with the count quantifier *konni*, and not *končam*:

(25) aa abbaaji konni nii-LLu t̲aag-ees-t̲un-aa-Du
the boy few water-PL drink-??-PROG-PRES-3.MASC.PL

[3] I focus my attention to these nouns since they were the nouns that were easiest to elicit from my informant. The other nouns listed in the grammar are *wadLu* 'paddy', *pesalu* 'green gram' and *kandulu* 'red gram'

'The boy is drinking some water.'

(26) * končam nii-LLu
little water-PL
INTENDED: 'Little water.'

One might suppose that it is expected that these nouns would appear with the count quantifier, since they exhibit plural morphology. For theories of the mass/count distinction like that espoused in Borer (2005), plural morphology is only possible if the noun root combines with the count syntax. Thus one may suppose that these nouns are simply count nouns in Telugu; it is well known that languages classify some nouns differently to others with respect to being mass or count. However, it is not so clear that these nouns are count nouns since they do not exhibit the full range of count-properties, for instance, they are not countable without the aid of some measure phrase:

(27) Raaǰu renDu *(kap-lu) nii-LLu ṯaag-ææ-Du
Raaju two cup-PL water-PL drink-PAST-3.MASC.PL
'Raaju drank two (cups of) water.'

In addition to not being countable, these nouns also show the hallmark properties of having non-divided extensions and so being regular mass nouns. For instance, they do not combine felicitously with stubbornly distributive predicates, as shown in the following:

(28) # nii-LLu peḏḏagaa unn-aa-ji
water-PL big-GA be-PRES-3PL
'The water is large.'

Furthermore, they do not combine with quantifiers that require division, such as *prati* 'every':

(29) * aa abbaaji praṯi niiLLu ṯaag-ees-ṯun-aa-Du
the boy every water-PL drink-??-PROG-PRES-3.MASC.SG
INTENDED 'The boy is drinking every water.'

Finally, as is the case with mass nouns, comparison is done by volume, crucially not by number. In the following situation where (30) is true is a situation where Raaju used one 5 liter bottle of milk and Raani used three 1 liter bottles. Thus, the overall volume of milk used by Raaju was larger than that used by Raani, even though Raani used more individual portions of milk. It is *not* true if Raaju used three 1 liter bottles of milk and Raani used one 5 liter bottle, where the number of individual portions of milk used by Raaju is greater than the number used by Raani.

(30) Raaǰu Raani kanna ekkuva paa-lu vaaD-ææ-Du
Raaju Raani COMPR more milk-PL use-PAST-3.MASC.SG
'Raaju used more milk than Raani.'

3.2 Cross-linguistic picture

As was mentioned earlier it is not unheard of for mass nouns to occur with plural morphology. English for instance has a productive process of coercing a mass noun into count usage, which then allows a noun that usually occurs as a mass noun to be a count noun. However, this is not strictly a case where a mass noun is used with plural morphology, since the mass noun is in essence count.

A second way that mass nouns occur with plural morphology is when they have some kind of abundance reading. This is shown in the following example from Halkomelem Salish (Wiltshko 2008).

(31) tsel kw'éts-lexw te/ye shweláthetel
1SG.S see-TRANS-3O DET/DET.PL fog.PL
'I've seen a lot of fog.'

The same pattern is seen in Greek (Tsoulas 2007), where the use of the plural suffix on the mass noun gives rise to the reading that a lot of the noun was involved. This is *not* the case in Telugu however, since my informant states that the *niiLLu* and *paalu* are able to be used when only a little amount of milk and water is intended. Also, in the following situations, an abundance use of the mass noun would render the sentence infelicitous, however the sentences are fine:

(32) Raaǰu t̪ana coffee-lo paa-lu poos-ææ-Du
Raaju his coffee-in milk-PL pour-PAST-3.MASC.SG
'Raaju put milk in his coffee.'

(33) Raaǰu čet-la-ki nii-LLu poos-ææ-Du
Raaju plant-PL-DAT water-PL pour-PAST-3.MASC.SG
'Raaju gave the plants water.'

To summarize, the following facts of *niiLLu* and *paalu* are relevant for the discussion at hand:

1. They are nouns which we can consider prototypically mass in many languages.

2. In Telugu, they appear with the plural suffix *-lu*, as well as triggering plural agreement on the verb; they are clearly identifiable as being plural, see (22), (23) and (24).

3. They appear with the *count* quantifier *konni*, but not the mass quantifier *končam*, (25) vs (26).

4. They are not countable without the use of a measure phrase, see (27).

5. They show evidence of having non-divided extensions.

   (a) They do not combine with *prați*, see (29).

   (b) They do not combine felicitously with stubbornly distributive predicates, (28)

   (c) Comparison is done by volume, and not number, (30).

Properties 2 and 3 point towards the nouns being count nouns in Telugu, whilst properties 4 and 5 point towards them being mass nouns. Clearly, we face a bit of an impasse if we want to classify these nouns as being either a count noun or a mass noun, since they simultaneously exhibit properties of being both. In addition to posing the problem of classification for Telugu, these nouns also raise various theoretical issues that pertain to how the mass/count distinction is created. I turn to these issues in the next section, before pursuing an alternative explaination in section 5.

4 Implications for the syntactic creation of the mass/count distinction

The mass/count distinction has attracted a lot of attention over recent years, and there have been various different proposals advanced for how to analyze it. Here is not the place for a complete historical picture of research into the mass/count distinction, however, I will focus attention on one school of thought that has gained prominence in recent years, the idea that the mass/count distinction is created syntactically. This view, originally proposed by Borer (2005), and modified in Bale & Barner (2009) holds at its core the idea that roots are unspecified for being either mass or count, and that masshood and counthood is created by syntactic context.

The idea in brief states that roots at their most basic level denote undivided 'stuff' and that masshood is just a reflection of this, i.e. that the extension of a mass noun like *sand* is simply an undivided quantity of sand. Being count, by contrast results from the division of the 'stuff' that the root originally denotes. The division operation creates minimal parts

- parts that can't be divided any further and still truthfully satisfy the predicate. These minimal parts are used as the basis for counting, and make it possible for comparison by number instead of overall volume, since groups of distinct individuals can be created and compared. Borer (2005) and Bale & Barner (2009) differ in details, so I first describe the systems and point out the relevant differences, however it should be borne in mind that they both exemplify the same school of thought, that masshood is simply a reflection of the default meaning of the root.

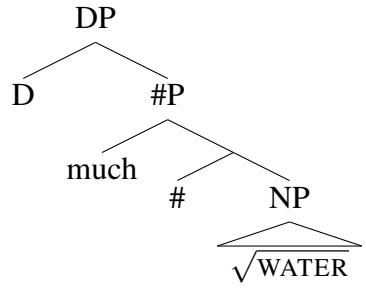
4.1 Borer (2005)

Borer (2005) argues in essence that masshood is the absence of counthood. Roots, as mentioned are unspecified for being either mass or count. Where this is created is through the presence or absence of a syntactic functional head that creates division, Cl(assifier)P. ClP takes the undivided stuff that is denoted by the root, and gives a divided output. Importantly at this point, is that roots are mass to begin with, and the absence of any dividing structure will yield a mass noun:

> "...recall that I suggested that listemes do not have any formal properties, and are, in this sense, tantamount to raw material 'stuff' which is poured into the structural mould to be assigned grammatical properties. If this metaphor has any formal substance to it, it follows that nouns, by themselves, are stuff, and that stuff, as such, is simply the absence of any grammatical specification. Should this stuff be divided, it would be, so to speak, cast into mould(s) which would in turn make counting possible. In the absence of such moulds, stuff will remain unformed, or differently put, it will revert to a mass interpretation. Importantly, by this logic mass is not a specification, lexical or grammatical, but the absence of one." Borer(2005:108)

Borer gives the structure of mass nouns as the following:[4]

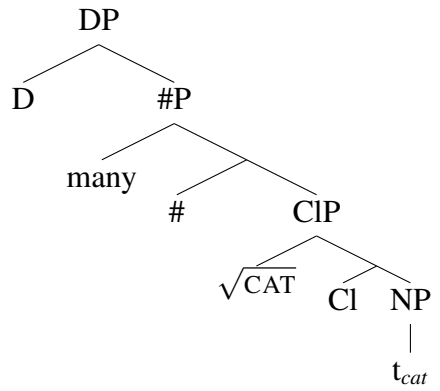
(34)



[4]In the diagram, *much* is there to highlight the fact that the structure is mass, and doesn't play any role greater than that here, see also *many* in (35).

Count nouns are treated differently. Count interpretation, as noted is obtained through the merging of dividing structure, ClP, into the syntax. In the following, we can see the extra layer of complexity that exists in count nouns:

(35)



In the tree, $\sqrt{\text{CAT}}$ moves up to Spec,ClP. Borer proposes that this is the case in languages like English, which indicates (plural) count nouns morphologically. For Borer, plural inflection is the "realization of an abstract feature which assigns range to the open value that heads a classifier phrase." Borer does not assume a DM approach to morphology, where *-s* would realize the feature [plural] in English. Rather she assumes a Word and Paradigm type model for inflection at least. The details are not too important here, and I do not discuss them further, but the salient point is that plural inflection is only possible when there is a ClP, hence plural inflection entails being a count noun.

The presence or absence of ClP can be detected in different ways. In English and languages like it, it is spelled out as plural morphology. In languages like Chinese where there is no number morphology, it gets spelled out as a classifier.[5] Since Telugu however is a language with regular plural inflection, like English and not a classifier system, then we will not discuss classifiers any more here.

At this point, the problem for Borer's system ought to be obvious. Since *niiLLu* and *paalu* in Telugu are clearly plural nouns, in Borer's system it *must* be the case that they occur in a count structure like (35), since plural inflection comes about through ClP. Since ClP is in the structure, we would expect that the denotation of *niiLLu* and *paalu* is like any other count noun, with division. However, as shown by the discussion above, *niiLLu* and *paalu* do not show any sign of being divided; recall that these nouns are not countable,

[5] The argument for treating classifiers as the equivalent of plural morphology is that in languages like Chinese, it is necessary to use a classifier in order to count the noun, whilst in English, plural morphology is necessary. Treating both of these things as the spellout of the Cl allows Borer to have a uniform syntax for different languages as well as explaining why it is overwhelmingly, with few exceptions, the case that classifiers and plural morphology are in complementary distribution across languages.

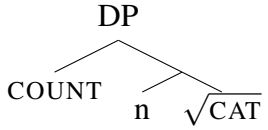
do not combine with *praṭi*, do not combine felicitously with stubbornly distributive predicates, nor do they allow for comparison by number, only by volume. They are practically the definition of an undivided noun if we take all of these properties to be indicative of division.

Now, one could argue that ClP is not present with *niiLLu* and *paalu*, and that the plural morphology is a decoy. Supposing that the plurality on the noun is inherent to the root, and not regular plural inflection that comes about through the syntactic structure, then it is possible in principle to maintain the view that *niiLLu* and *paalu* occur without ClP. However, there is an additional problem in that the presence of the count structure with *niiLLu* and *paalu* is also shown by the quantifier selection. Recall that some quantifiers are sensitive to whether the nouns they quantify over is mass or count; *many* for instance will only go with count nouns. Borer treats this in terms of phrasal selection; because the mass/count distinction is created syntactically, and not through lexical properties, then quantifier sensitivity to the mass/count distinction must also be a sensitivity to syntactic environment. Borer says that *much* is a mass quantifier because it selects a phrasal complement that is mass; i.e. it does not have ClP. *Many* on the other hand is a count quantifier because the *many* selects for a phrasal complement that contains ClP. Applied to *niiLLu* and *paalu* the problem that arises is the fact that *konni* surfaces with *niiLLu* and *paalu*, but *končam* doesn't, showing that ClP *must* must be in the structure; in Borer's system it is not possible for *konni* to come about through any inherent factors.

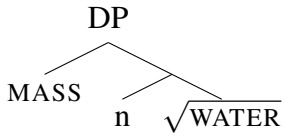
4.2 Bale & Barner (2009)

Bale & Barner (2009) offer a related proposal to capture the mass/count distinction, but do so in a way that masshood is not simply the absence of dividing structure in the phrase. Their approach builds on the idea that masshood is simply the default meaning of a nominal root, and that count interpretation comes about through syntactically created division. This is acheived in a different way to Borer however. Recall that for Borer there is in essence only one bit of functional structure relevant for the mass/count distinction, ClP. Nouns that occur in a syntax without ClP are mass, and nouns that combine with ClP are count. Bale & Barner (2009) propose instead that there are two functional heads, COUNT and MASS that are relevant, with each head contributing a different semantic operation. Thus, the structures that are involved in their approach are as follows, with (36) giving a count noun, and (37) giving a mass noun:

(36)



(37)



According to Bale & Barner (henceforth B&B), COUNT is the head that is responsible for division. Nominal roots still have mass denotations in the absence of anything to divide them. The COUNT head performs this role, and is a semantic function from unindividuated semilattices into individuated ones. Thus, the COUNT head, when applied to a nominal root, will always yield an output where the semantic denotation of the noun in question contains minimal, atomic parts. In other words, the reason why count nouns are semantically divided is because COUNT ensures that their denotation will have minimal parts in it. Mass nouns on the other hand do not contain individuated semilattices. Unlike Borer, who proposed that this happens when nothing is done, B&B still argue for the existence of a MASS head. However, MASS is simply an identity function. Thus, the input to MASS is also the output; when an undivided noun root combines with MASS, then the result is still a denotation without minimal parts. [6]

In B&B's system, COUNT is essentially a gateway to count syntax; it creates the minimal parts needed for combination with NumP (where numerals and plural morphology are introduced), as well as serving as the selectional property of quantifiers. Quantifiers that go with count nouns select for COUNT, whilst mass quantifiers select for MASS. Herein again lies the problem for this approach to the mass/count distinction raised by the Telugu data here. The fact that *niiLLu* and *paalu* combine with *konni*, the count quantifier and not *kончam*, the mass quantifier shows that COUNT must be in combination with the noun. With this in mind, it ought to then be the case that *niiLLu* and *paalu* are interpreted as if they had been divided like other count nouns, since the COUNT head obligatorily gives rise to an individuated output:

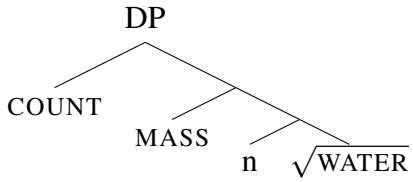
> "(Underspecified) interpreation of count noun functional head: $[\![n, c]\!]$ = IND where *IND* is a function from semi-lattices to semi-lattices. The domain of *IND* does not include any individuated semi-lattices. The range of *IND* only includes individuated semi-lattices. ((Bale & Barner 2009, 241))"

However, we have already seen that this is not the case for *niiLLu* and *paalu*; these nouns are clearly not interpreted as being individuated. Since B&B have two functional

[6] There is a loophole in all of this, which isn't too relevant here. B&B argue that some roots are inherently divided, thus do not require combination with COUNT in order to be interpreted as if they are divided. The cases in question are count-mass nouns, which are on the surface mass nouns, but semantically act as though they are count nouns (in essence, the reverse situation of what we find in Telugu). B&B propose that it is their inherent individuatedness which makes them seem as though they are count nouns, even though they combine with MASS.

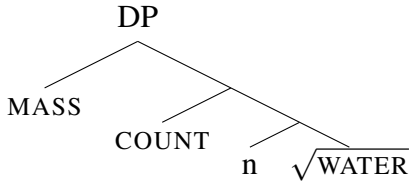
heads, one for creating counthood and one for creating masshood, it is in principle possible for both to co-occur on the same noun. However, there are two problems with this. Firstly, supposing that the two heads could co-occur, it seems reasonable to assume that COUNT would be the uppermost head, since this would be the one most local to the quantifier for means of selection. *NiiLLu* and *paalu* both appear with the count quantifier, therefore, when the count quantifier merges into the structure, it can only do so with a noun that is count. In order to prevent mass quantifiers from occurring with *niiLLu* and *paalu*, it is necessary to rule out optionality if two heads coexist, therefore it seems reasonable to assume that the highest head wins, as is standard with things like agreement.[7]Thus, the surface behaviour of the nouns leads us to expect the following:

(38)



However, supposing that this were possible, when this gets sent to the semantics, we still expect division, since COUNT will always yield an individuated interpretation to what it applies to. In fact, the problem is more general; since MASS is an identity function, then whenever COUNT is in the structure we will still get division. Even if the order of COUNT and MASS were reversed, as in (39) then MASS will map an individuated semi-lattice to itself. No matter what we do, with MASS being an identity function, anything with COUNT will yield division.

(39)



Two options present themselves at this point. The first option would be to define MASS in such a way such that MASS destroys division, and is a function that maps any type of lattice to an unindividuated semilattice. However, this then would give an apparent paradox in that the semantics would suggest that (39) is the correct structure whilst the morphology suggests that (38). Furthermore, moving outside of Telugu, this approach would then fail to account for count-mass nouns in English, which would then be expected

[7]This problem is circumvented if quantifier selection is done with reference to whichever head is closest to the root. However, this strikes me as *ad hoc* and unmotivated. In addition, the problem with COUNT and MASS co-occuring in a meaningful way will remain.

to be unindividuated, contrary to fact, see Doetjes (1997), Bale & Barner (2009) and Smith (2014) for discussion.

4.3 Summary

The approaches listed above face two major problems. Firstly, a problem that is limited to Borer (2005) and doesn't affect B&B too much is that plural inflection in Borer's system entials that ClP, the head that creates division is there. This means that *any* noun that is marked as plural must be divided. We have already seen that there are cases where there are plural mass nouns in other languages, and here it seems that the plural inflection does play a role. In the singulative systems, plural inflection is regular plural inflection (though division is done elsewhere). In the languages where a plurality of mass nouns gives rise to an abundance reading, it's fairly intutive that plrual marking has created some division, even though it may be vague, since it has apparently served to introduce some standard amount that can be compared to. However, this is not the case in Telugu; there is no evidence that any kind of division at all has been created. Therefore, there is serious doubt that ClP is in the structure at all.

A second issue that affects both of these approaches comes from linking quantifier selection to the presence of a head in the structure. For both Borer and B&B, the fact that *niiLLu* and *paalu* both combine with *konni* entails that the head that creates division must be in the syntax. Thus, when it gets interpreted we expect a divided interpretation, which doesn't happen. The problem seems to be that both approaches are too coarse in tying count quantifiers strictly to divisibility. An approach that is to prove satisfactory needs to at least include the following two components. Firstly, MASS and COUNT need to be able to combine in a meaningful way; and secondly, COUNT needs to be in the structure whilst only being relevant for the morphosyntax, and not semantics. In the next section I move towards an account which can handle this.

5 Towards a solution

In this section I outline a tentative analysis of how *niiLLu* and *paalu* can be reconciled with the syntactic creation of the mass/count distinction.

5.1 Preliminaries

We have seen that one of the main problems for Borer and B&B's approaches is that, for both, the dividing head must be in combination with *niiLLu* and *paalu*, and hence means

that the noun must be interpreted as having minimal parts. What I will begin to outline in this section of the paper is a way of allowing whatever it is that creates division to be present on the noun, but only relevant for the morphosyntax and not having any import into the semantics. Thus, we see why CNPs behave as though they are semantically plural, whilst the morphology treats them as singular: those are the features that are sent to each interface.

I will adopt an approach to features as outlined in Smith (2012, 2013), whereby within a single feature, the value that is read by the semantics and the value that is read by the morphosyntax can be distinct. This is shown in British (and other non-American) dialects of English, with collective nouns such as *committee*, where the surface form of the collective noun (CNP henceforth) is morphologically singular, but it controls plural agreement on the verb.

(40) The committee are deciding on the matter now.

With collective nouns in these contexts showing that they are interpreted as being plural, due to their combination with predicates like *gather*, Smith argues that their number specification is split in the sense that they are morphologically singular but their semantic number is plural. The number feature for a CNP is analyzed as being split into two halves, with the morphologically interpretable (*u*F) being valued as singular, and the semantically interpretable (*i*F) feature being plural, in a manner akin to the copy privileging of Bobaljik (1995, 2002). Thus, the value for number on CNPs in English is as follows:

(41) ϕ_{number} = [*u*F:singular, *i*F:plural]

Smith proposes that during the syntax, the features are together, but at spell-out, they are sent to distinct interfaces. The [*i*F]s are sent to the semantic interface, where they are relevant for semantic interpretation, whereas the [*u*F]s are sent to the morphological interface where they are relevant for agreement. With respect to the number value of CNPs, (42a) is seen by the morphological component, and (42b) is seen by the semantics.

(42) a. ϕ_{number} = [*u*F:singular]
b. ϕ_{number} = [*i*F:plural]

Representing features in this manner allows for differences between how the morphology sees some item and how the semantics sees it. Its relevance for the matter at hand, where we need a noun to be morphologically count but semantically mass, is clear, and I now return to *niiLLu* and *paalu* in Telugu to move towards an analysis of these plural mass nouns.

5.2 A feature split approach to *niiLLu* and *paalu*

Returning to Telugu, I now build on the analysis given in Smith (2014), for count-mass nouns in English, where the plural value is inherent to the nouns, but does not imply the presence or absence of divided syntax. The presence of *konni* also does not imply that the division head is in the structure. Quantifier selection will be treated via agreement, and I will show that *konni* is possible if it can agree with [*u*F:-singular] on a noun.

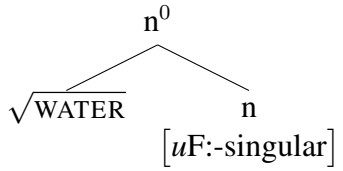
The first thing of note is that Telugu fills a hole in the typology predicted by Smith (2014). There it is argued that count-mass nouns – nouns like *furniture* and *mail* in English – are not really mass nouns at all, but rather are made to *look* mass by virtue of being semantically plural, but lacking in a morphological specification for number. This meant that they were essentially count nouns in terms of their semantic behavior, but mass nouns in terms of their morphological behavior. We then predict that the converse mismatch is then possible: that there exist a set of nouns that are semantically mass yet morphologically count. This is apparently unattested in English[8] but stands as a prediction made by the approach where the surface and semantic behavior of mass and count can diverge. Telugu seems to fill in this typological prediction with *niiLLu* and *paalu*, as shown in the following table.

(43)

		Semantics	
		+Count	**+Mass**
Morphology	**+Count**	Regular count noun	*niiLLu* and *paalu*
	+Mass	Count-mass nouns	Regular mass noun

I propose that we understand Telugu in the following way. The plural specification on *niiLLu* and *paalu* is not regular plural inflection like it is with a count noun, but rather arises because they are inherently *morphologically* plural. Following Kramer (2014), Smith (2014) I assume that inherent features are contained on category defining nodes, in this case *n*. *niiLLu* and *paalu* thus obligatorily combine with [*u*F:-singular] by virtue of them combining with a *n* that carries this feature. Note that there is no semantic contribution of this feature; *niiLLu* and *paalu* are not semantically plural but only morphologically. Since they combine with [*u*F:-singular], they appear with the plural suffix.

(44)



[8]To the best of my knowledge, though *suds*, as pointed out by Acquaviva (2008) stands as a possible candidate.

We still must explain the facts about quantifiers. Recall that the biggest problem for the approaches of B&B and Borer (2005) was that the presence of an apparently count quantifier necessarily entailed the presence of a syntax that produces semantic division. A central argument of Smith (2014) is that the fact that English count-mass nouns appear with apparent mass quantifiers does not entail the fact that they appear with the functional head that prevents division (i.e. MASS). Apparent selection of quantifiers for masshood and counthood was treated as allomorphy of the quantifier MANY, which has the allomorphs *much* and *many*. There, it was proposed that we were dealing with suppletion, however, here I assume that the quantifier agrees with its noun in terms of number. The allomorph of the quantifier in English is determined by the following Vocabulary Insertion (VI) rules, operative in English. In short, *many* only appears when the noun that it appears with is morphologically plural (the same as with *few*):

(45) $\sqrt{\text{MANY}}$, [*u*F:-singular] ⇔ many
$\sqrt{\text{FEW}}$, [*u*F:-singular] ⇔ few
$\sqrt{\text{MANY}}$ ⇔ much
$\sqrt{\text{FEW}}$ ⇔ little

We can also apply this same idea to Telugu to understand the quantifier facts, and see that the same pattern emerges; *kончam* and *konni* are not separate quantifiers in Telugu that are sensitive to the mass or count status of the nouns that they combine with, but rather they are allomorphs of a single quantifier FEW that are sensitive to the morphological number value of the noun that they combine with. I assume again that an agreement relation is established between the quantifier and the noun, and the quantifier contains a number feature that gets valued by the noun. Since *niiLLu* and *paalu* are valued as [*u*F:-singular], then we expect that they pattern with count nouns in terms of which quantifier they appear with due to the following VI rules for Telugu:

(46) $\sqrt{\text{KONNI}}$, [*u*F:-singular] ⇔ konni
$\sqrt{\text{KONNI}}$ ⇔ kончam

With these VI rules, we can see why *niiLLu* and *paalu* behave the way that they do in Telugu. What makes them appear to be count nouns - the plural morphology and the fact that they combine with an apparently count quantifier - is really a result of them being inherently morphologically plural.

6 Conclusions

In this paper I have outlined the mass/count distinction in Telugu, and shown that it does have an mass/count distinction in the same manner that a language like English does. I have further shown that there are mass nouns, that are clearly semantically mass yet are morphologically plural, as well as controlling plural agreement. These nouns pose a problem for the theories of Borer (2005) and Bale & Barner (2009) since those approaches would predict that the nouns were divided, since plural morphology and the apparent selection for *konni* means that they should be in combination with a head that creates division. That these nouns are interpreted as if they are not divided evidenced the need for a more fine grained analysis of the mass/count distinction, where a noun is able to show the surface properties of being count, but the semantic properties of being mass.

References

Acquaviva, Paulo (2008) *Lexical Plurals: A morphosemantic approach.* Oxford Studies in Theoretical Linguistics, Oxford University Press.

Bale, Alan C. & David Barner (2009) The Interpretation of Functional Heads: Using Comparatives to Explore the Mass/Count Distinction. *Journal of Semantics* **26**(3): 217–252.

Barner, David & Jesse Snedeker (2005) Quantity judgements and individuation: evidence that mass nouns count. *Cognition* **97**: 41–66.

Bobaljik, Jonathan D. (1995) *Morphosyntax: The Syntax of Verbal Inflection*. Ph.D. thesis, MIT.

Bobaljik, Jonathan D. (2002) A-Chains at the PF-Interface: Copies and Covert Movement. *Natural Language and Linguistic Theory* : 197–267.

Borer, Hagit (2005) *Structuring Sense vol 1: In Name Only*. Oxford University Press.

Cheng, Lisa, Jenny Doetjes, & Rint Sybesma (2008) How universal is the Universal Grinder? *Linguistics in the Netherlands* : 50–62.

Doetjes, Jenny (1997) Mass and Count: syntax or semantics? *Proceedings of meaning on the HIL* : 34–52.

Kramer, Ruth (2014) Gender in Amharic: A Morphosyntactic Approach to Natural and Grammatical Gender. *Language Sciences* **43**: 102–115.

Krishnamurti, B. & J. Gwynn (1985) *A Grammar of Modern Telugu*. Oxford University Press.

Lima, Suzi (2014) *The grammar of individuation and counting*. Ph.D. thesis, University of Massachusetts Amherst.

Maldonado, Violeta Vázquez Rojas (2012) *The syntax and semantics of Purépecha noun phrases and the mass/count distinction*. Ph.D. thesis, NYU.

Smith, Peter W. (2012) Collective (dis)agreement: on a 3/4 pattern of British English Collective NPs. *Proceedings of ConSOLE XX* : 229 – 253.

Smith, Peter W. (2013) The syntax of semantic agreement in British English. *Manuscript, University of Connecticut* .

Smith, Peter W. (2014) Count-mass nouns, inherent number and the unmasking of an imposter. *50th Annual Meeting of the Chicago Linguistics Society.* .

Tsoulas, George (2007) On the grammar of number and mass terms in Greek. *MIT Working Papers in Linguistics* **49**: 239–266.

Wiltshko, Martina (2008) The syntax of non-inflectional plural marking. *Natural Language and Linguistic Theory* **26**: 639–694.

Wiltshko, Martina (2012) Decomposing the Mass/Count distinction: Evidence from languages that lack it. In *Count and Mass across languages*, Oxford Studies in Theoretical Linguistics,, Oxford University Press, 120–146.