The cognitive basis of the mass-count distinction: evidence from bare nouns

Recent literature has mostly emphasized the non-reducibility of the linguistic mass-count distinction to the cognitive atomicity-homogeneity distinction. The claim is that although there is tendency for discrete objects to be denoted by count nouns, and homogeneous entities to be denoted by mass nouns, there are nevertheless mass nouns denoting discrete entities -- *furniture, jewelry, clothing* (Chierchia 1998), and count nouns denoting homogeneous entities -- *fence, wall* (Rothstein 2010).

The present paper argues on the basis of the distribution of bare nouns in two unrelated languages, Karitiana and (Modern) Hebrew, that the mass-count distinction does reflect the cognitive distinction of the individuability of units. Our view is close to that of Chierchia 2009, whereby mass nouns have inherently unstable units, unlike count nouns, where units can be determined relative to context and remain stable in any precisification of the context.

In Karitiana (a Tupi-Arikém language spoken in Rondônia, Brazil), the mass-count distinction is not encoded morphologically, as e.g. number morphology is not attested in the language (1a), but it is encoded distributionally: C(ount) N(oun)s may be modified by numerals, whereas M(ass) N(oun)s cannot (1b). Thus in Karitiana, the mass-count distinction among nouns directly reflect the individuability of units.

(1) a. *Maria nakam'at gooj*
Maria decl-caus-make-nfut boat
'Maria built some boat(s)'

b. *Myhint 'ejepo/ *(kilot) ouro naakat i'orot*
one stone kilo gold decl-aux-nfut participle-fall-nfut
'One stone/*(kilo of) gold fell'

Unlike Karitiana, Hebrew has number morphology. Yet number morphology does not provide a reliable distinction between MNs and CNs, as some mass nouns have plural variants. Some MNs cannot be pluralized (2a), others do not have singular form (2b), but must nevertheless be viewed as mass nouns since they cannot be counted (**šney šmarim* 'two yeasts')

(2)a. *xamcan* * *xamcan-im* b. *šmar-im* * *šémer*
oxigen oxigen-pl yeast-pl yeast

and yet others have both sing and pl forms, where the plural denotes "abundance plural" (Corbett 2000, Ojeda 2005, Tsoulas 2006, Acquaviva 2008), which, like the singular, cannot be counted (**šney xolot* 'two sands'/**šney šlagim* 'two snows'):

(3)a *xol xol-ot* b. *déše dša'-im* c. *šéleg šlag-im*
sand sand-pl grass grass-pl snow snow-pl

As in Karitiana, the mass-count distinction in Hebrew is reflected distributionally. Hebrew count nouns can be distinguished by necessarily appearing in the plural with quantifiers such as *harbe* 'much', *me'at* 'a little', *xóser* 'lack of', *ódef* 'a surplus of' and classifiers such as *kilo* 'a kilo'. MNs, on the other hand, can appear in the singular.

(4)a. *kilo tapuxim/ agasim* *harbe anavim* *me'at zeytim*
kilo apples/ pears much grapes a little olives

b. * *kilo tapúax/ agas* * *harbe anav* * *me'at záyit*
kilo apple/ pear much grape a little olive

(5) *kilo šum* *harbe peṭruzílya* *me'at nána*
kilo garlic much parsley a little mint

Some nouns which are normally considered CNs, and which all have countable plural forms, as shown in (6a), are found with these measure phrases in the singular (6b), and are thus actually MN:

(6)a. *xamiša gzarim / šney milonim / šiv'a bcalim/ asara tutim*
five carrots/ two melons seven onions/ ten mulberries

b. *kilo gézer / milon/ bacal/ tut*
kilo carrot/ melon/ onion/ mulberry

Thus, in Hebrew, nouns that cannot be counted are indeed mass nouns, but nouns that can be counted are not necessarily count nouns, since they often reflect the operation of the singulative type-shift. The nouns in (6) are mass nouns which refer to entities that allow the individuation of units. These will be called *fake* following Chierchia's 2009 terminology for English MN such as *furniture*. In Hebrew many fake MNs have corresponding singulative CNs (sometimes of a different morphological form, e.g. different gender, from the MN, as in (7), and sometimes homonymous to the MN, as in (8)).

	fake MN	CN singulative	CN-pl
(7)a	*se'ar*	*sa'ar-a*	*sa'ar-ot*
	hair.masc	hair-fem	hairs
b	*alv-a*	*ale*	*al-im*
	foliage-fem	leaf.masc	leaves
c	*rihuṭ*	*rahiṭ*	*rahiṭ-im*
	furniture	piece of furniture	pieces of furniture
(8)a	*gézer*	*gézer*	*gzar-im*
	carrot	carrot	carrots
b	*réxev*	*réxev*	*rexav-im*
	means of transport	vehicle	vehicles

Fake mass nouns seem an obstacle to the view that the mass/count distinction is cognitively based. Yet this is only apparent. Hebrew (and English) predicates such as *furniture, footwear, clothing, mail, silverware*, *means of transportation, weaponry* have perceptible units which are natural, such as a chair, a knife, a letter, a shoe, a sock, a car. Yet in many contexts we are not interested in these units, but in aggregates of them: a pair of shoes, a knife-fork-spoon set, a living-room set, the mailbox's content, a fleet of cars. Since all these may also count as units, within the same context, then the reference of these nouns does not have stable units after all, and the nouns are most naturally denoted by mass terms. Hebrew has additional fake mass nouns such as *carrot, melon, onion, mulberry, pea*. Here too there are units individuated in many contexts, but we are not normally interested in them, since the normal context for the use of these terms is the preparation of food, where we are normally interested in parts of these fruits/vegetables (melon, onion), or in aggregates of them (mulberry, pea). Since we may wish to count using different units within the same context, the units are not stable and thus these nouns are predicted to be MNs. The singulative morphology of Hebrew allows the selection of particular units, and thus turns these nouns into CNs.

In addition to showing that fake mass nouns are not arbitrarily mass, rather there is an inherently duality in the cognitive individuation of their units which makes units unstable, we will also show that homogeneous count nouns (Rothstein 2010) have stable units which remain stable in precisifications of the context.