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

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<u>Current view in the literature</u>

The linguistic **mass-count** distinction **does not reflect** the cognitive distinction between entities which **homogeneous vs. discrete (atomic)**, hence it is **arbitrary**:

- There are mass nouns denoting discrete entities -- *furniture, jewelry, clothing,* e.g. a chair is furniture but part of a chair is not furniture (Chierchia 1998).

- There are count nouns denoting homogeneous entities -- *fence, line, bouquet,* e.g. two bouquets together may form one bouquet (Rothstein 2010).

<u>Our view</u>

The linguistic **mass-count** distinction is **not arbitrary**, but **reflect**s a cognitive distinction, not the one above but between entities with **unstable vs. stable units**.

- Mass nouns denote entities with inherently unstable units; e.g. *furniture* is bona-fide mass, since what counts as a unit of furniture in a given context is vague, it could be the whole sitting room set or just one of its parts (*This living room set is so much furniture!)*

- Count nouns have stable units in each given context (Chierchia 2009); e.g. *bouquet* is bona-fide count, and considering parts of a bouquet to be bouquets changes the context (*#This bouquet is so many bouquets!).*

Since the point in the last bullet was already made in Chierchia 2009, we will concentrate on the bullet above it: the units of e.g. *furniture* are unstable.

But first we argue, on the basis of Karitiana, for the general point that the mass-count distinction is a cognitive rather than a formal linguistic distinction.

Karitiana

In Karitiana (a Tupi-Arikém language spoken in Rondônia, Brazil), the mass-count distinction is not encoded morphologically. There is no number morphology in the language (1):

(1)   *Maria   Ø-nakam'at   gooj*
        Maria   3-decl-caus-make-nfut   boat
        'Maria built some boat(s).'

Yet the mass-count distinction is encoded distributionally. Count Nouns may be modified by numerals (2):

(2)   *Myhin-t   'ejepo   Ø-naakat   i'ot-Ø*
        one-obl   stone   3-decl-cop-nfut   participle-fall-cop.agr
        'One stone fell.'

and plurality can also be encoded by modifiers:

(3) 'ejepo   Ø-naaka-j   i-'ot-ot-Ø   myhin-t   myhin-t
     stone   decl-cop-fut   participle-fall-cop.agr   one-obl   one-obl
     'The stones will fall one at a time.'

whereas Mass Nouns cannot be modifed by numerals (4):

(4) Myhin-t *(kilo-t)   ouro   na-aka-t   i-'ot-ot-Ø
     one-obl kilo-obl   gold   decl-aux-nfut   participle-fall-con.cop
     'One *(kilo of) gold fell.'

Thus in Karitiana, the mass-count distinction among nouns directly reflect the individuability of units.

Count↔Mass "universal grinder" coercion if found as well, e.g. tree ↔ wood below:

Count

(5) 'ep   i-ti-pasagngã-t   João
     tree   3-inverse-count-nft   João
     'The trees, João is counting (them).'

Mass

(6) 'ep   Ø-na-aka-t   jepyry-t
     wood   3-decl-cop   club-cop.agr
     'The club is of wood.'

(7) atykiiri   Ø-naam-'a-t   ej   otom 'ep   tyym
     then   3-decl-make-nft   tomb   cover wood   too
     'Then they also make a cover of wood for the tomb'

 (8) ambi 'ep
      house wood
      'wooden house'

Hebrew

Hebrew has number morphology
(9)a. xatul   / xatul-im   b. tmun-a   /   tmun-ot
       cat-masc / cat-masc-pl   picture-fem / picture-fem-pl

Counting: one/two/several, with count but not mass nouns

(10)a. yéled exad   b. yelad-im axad-im   c. šney yelad-im
       boy   one   boy-pl   one-pl   two boy-pl
       'one boy'   'several boys'   'two boys'

(11)a. yald-a   axat   b. yelad-ot   axad-ot   c. štey   yelad-ot
       girl-fem   one.fem   girl-fem-pl one-fem.pl   two-fem girls-fem
       'one girl'   'several girls'   'two girls'

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(12)a. * *órez exad*   b. *   *dam-im axad-im*
      one   rice   bood-pl one-pl
      *'one rice'   *'several bloods'

(13)a. * *kutn-a   axat*   b. *   *rux-ot   axad-ot*
     cotton-fem one.fem   wind-fem.pl one-fem.pl
     'one cotton'   'several winds'

As in Karitiana, the mass-count distinction in Hebrew does not rely on morphology but on distribution (e.g. as we just saw, with numerals)

Number morphology does not provide a reliable distinction between Mass Nouns (MNs) and Count Nouns (CNs), as many Mass Nouns have plural morphology.

True, some MNs cannot be pluralized (14):

(14)a. *xamcan * xamcan-im*   b. *xacac *xacac-im*   c. *boc - *boc-im*
      oxigen   oxigen-pl   gravel   gravel-pl   mud   mud-pl

But others do not have singular form (15):
(15)a. *máy-im   *may*   b. *'atiq-ot   * 'atiqa*   c. *šimur-im *šimur*
      water-pl   water   antiquities   (Adj ok)   canned goods

  d.   *šmar-im   * šémer*   e. *megurim *megur*
      yeast-pl   sng   habitat   sng

but must nevertheless be viewed as mass nouns since they cannot be counted (16a), and do not show reciprocal ambiguity (16b) unlike plural count nouns (16c) (cf. Gillon 1992)
(16)a. **šney šmarim*
       two yeasts

   b. *qurey ha-akaviš ve-ha-atiqot domim   ze la-ze*
     the spider webs and-the-ruins resemble each other
     non-ambiguous

   c. *ha-xatulim ve-ha-xatulot   domim   ze la-ze*
     the-cats   and-the-cats.fem resemble each other
     ambiguous

Many MNs have both sing and pl forms:
(17)a *xol xol-ot*   b. *géšem gšam-im*   c. *šéleg šlag-im*
     sand sand-pl   rain   rain-pl   snow snow-pl

   d. *déše dša'-im* e. *ašpa   ašpat-ot*   f. *adama adamot*
     grass grass-pl   garbage garbage-pl   land   land-pl

where the plural denotes "abundance plural" (Corbett 2000, Ojeda 2005, Tsoulas 2006, Acquaviva 2008).

These too are MNs, as e.g. they cannot be counted

(18)a *šney xolot   b. *šney šlagim
        two sands   two snows

A second distributional criterion for the mass-count distinction:
CNs can be distinguished by appearing with plural morphology when they appear
with quantifiers such as *harbe* 'much', *me'at* 'a little', *xóser* 'lack of', *ódef* 'a surplus of'
and classifiers such as *kilo* 'a kilo'.

Count Nouns
(19)a. *kilo tapuxim/ agasim*   b. *harbe anavim*   c. *me'at zeytim*
          kilo apples/   pears   much grapes   a little olives

    d. *xóser adašim/agvaniyot*   e. *ódef   boṭnim/duvdevanim/šezifim*
          lack   lentils/ tomatoes   surplus peanuts/cherries/plums

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

    d.*xóser adaša/agvaniya*   e. * ódef   bóṭen/duvdevan/šezif*
          lack   lentil/tomato   surplus peanut/cherry/plum

MNs, on the other hand, can appear in the singular.
Mass Nouns
(21)a. *kilo šum*   b. *harbe peṭruzílya*   c. *me'at nána*
          kilo garlic   much parsley   a little mint

    d. *xóser téred*   e. *ódef   šu'it*
          lack   spinach   surplus bean

Paradox
We find some nouns which are normally considered CNs, and are indeed all countable
as shown in (22):

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

          šmona míšmišim/ ánanasim/ tírasim / kruvim / avaṭixim
          eight   apricots / pineapples/ corncobs/ cabbages/ watermelons

yet are found with measure phrases in the singular (23), which is a MN characteristic:
(this is **not** with the "universal grinder" interpretation)

(23)   *kilo gézer / milon/ bacal/ tut*
          kilo carrot/ melon/ onion/ mulberry

          ódef   míšmiš / ánanas   / tíras
          surplus apricot/ pineapple / corn

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(24)　If I got to the market, it is natural to say to me (a) but not (b)
　　a　*tiqni gézer / tut   /   míšmiš*
　　　　buy carrot / mulberry/ apricot
　　　　'Buy carrots/ mulberries/ apricots.'

　　b# *tiqni tapú'ax/ agas/ tapuz/   agvaniya/ šezif*
　　　　buy apple/   pear/ orange/ tomato / plum
　　# 'Buy an apple/a pear/ an orange/ a tomato/ a plum.'

Again, this is **not** the "universal grinder" interpretation, it is an additional interpretation:

(25)a. *rov   ha-gézer   raquv*　　　　b. *rov   ha-tapúax   raquv*
　　　 most (of) the carrot   is rotten　　　　 most (of) the apple   is rotten
　　　 'Most of the carrot(s) is/are rotten.'　　 'Most of the apple is rotten.'

(26)a. *yeš   gézer   b-a-tiq*　　　　b. *yeš   tapúax   b-a-tiq*
　　　 there (is) carrot   in-the-bag　　　　 there (is) apple   in-the-bag
　　　 'There is (a) carrot/are carrots in the bag.'　 'There is (an) apple in the bag.'

(27)　*ani ohevet gézer   / *tapúax / tapuxim*
　　　 I   love   carrot /   apple / apples

(28)　*mic   gézer / *tapúax / tapuxim*
　　　 juice carrot /   apple   / apples

(29)　*maraq   bacal / *agvaniya / agvaniyot*
　　　 juice   onion / tomato   / tomatoes

We would like to claim that the nouns in (22)—(23) are MNs of the type which has been called *fake* by Chierchia 1989, 2009, like English MNs such as *furniture*. In Hebrew, *carrot, melon, onion, mulberry, apricot, corn* are all fake MNs. They have units which are 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, apricot). 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.

What Hebrew has that English doesn't is **singulative morphology** which allows the selection of particular units, and thus shifts these nouns into CNs.

In Hebrew many fake MNs have corresponding singulative CNs (sometimes of a different morphological form, e.g. different gender, from the MN, as in (30), and sometimes homonymous to the MN, as in (31)).

	fake MN	CN singulative	CN-pl
(30)	*se'ar*	*sa'ar-a*	*sa'ar-ot*
	hair.masc	hair-fem	hairs

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	fake MN	CN singulative	CN-pl
(31)a	*gézer*	*gézer*	*gzar-im*
	carrot	carrot	carrots
b	*réxev*	*réxev*	*rexav-im*
	means of transport	vehicle	vehicles

We do not want to say that all noun roots are basically mass, since we find both marking of CN and MN. Both markings are attested.

MN is marked:

(32) deriving a collective MN by the fem suffix was productive in Biblical Hebrew:

	CN	CN-pl	collective MN
a	*dag*	*dag-im*	*dag-a*
	fish.mas	fish-pl	fish-fem
b	*ale*	*al-im*	*alv-a*
	leaf.masc	leaves	foliage-fem
c	*afun*	*afun-im*	*afun-a*
	pea.masc	peas	pea-fem
d	*oréax*	*orx-im*	*orx-a*
	traveller.masc	travellers	caravan-fem
e	*gole*	*gol-im*	*gol-a*
	exiled.masc	exiled-pl	exile-fem

(33) Argument Structure Nominal morphology (ASN) sometimes marks collective MN as well, which makes sense, since Grimshaw 1990 shows ASN have the distributional properties of MN:

	CN	CN-pl	MN derived by ASN suffix
a.	*béged*	*bgad-im*	*bigud*
	garment	garments	clothing-ASN
b.	*ná'al*	*na'al-áyim*	*han'ala*
	shoe	shoes (dual)	footwear-ASN
c.	*rehiṭ*	*rehiṭ-im*	*rihuṭ*
	piece of furniture	pieces of furniture	furniture -ASN

CN is marked

again by the fem. suffix, this time marking the singulative (nomen unitatis) (in Arabic and Neo-Aramaic this is productive). Thus it seems that the interpretation of the derivational fem. affix depends on whether the root is count or mass, which might argue for the root being classified as to the count-mass distinction.

(34)   MN   CN singulative   CN-pl
       se'ar   *sa'ar-a*   *sa'ar-ot*
       hair.masc   hair-fem   hairs

       sá'ar   *se'ar-a*   *se'ar-ot*
       storm.masc   storm-fem   storms

       ómer   *imr-a*   *imr-ot*
       saying.masc   saying-fem   sayings

       xófeš   *xufš-a*   *xufš-ot*
       freedom.masc   vacation-fem   vacations

       mavet   *mit-a*   *mit-ot*
       death.masc   death.event-fem   deaths

Singulative marking is productive in Neo-Aramaic (Christian Barwar, Khan 2008:343):

(35)   MN   CN singulative   CN-pl
   a   *tu-θe*   *tuθ-ta*   *tuθ-yaθa*
       mulberries-pl   mulberry-fem   mulberries

   b   *ṭarp-e*   *ṭarəp-θa*   *ṭarəp-yaθa*
       leaf-pl   leaf-fem   leaves

   c   *dəndəkk-e*   *dəndək-θa*   *dəndək-yaθa*
       seed-pl   seed-fem   seeds

We have called the nouns in (30)—(31) *fake* MN. The singulative type-shift derives CNs (though the singulative here does not have a fem exponent):

(36)   fake MN   CN singulative   CN-pl
       gézer   *gézer*   *gzar-im*
       carrot   carrot   carrots

       milon   *milon*   *milon-im*
       melon   melon   melons

       léxem   *léxem*   *lexam-im*
       bread   loaf of bread   loaves of bread

       réxev   *réxev*   *rexav-im*
       means of transport   vehicle   vehicles

       néšeq   *néšeq*   *nešaq-im*
       weaponry   weapon   weapons

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What are fake mass terms? These are predicates P such that given a context c which individuates units of P, it is nevertheless natural to view parts or aggregates of these units as units as well for P in the same context.

Examples: furniture, footwear, clothing, mail, silverware, means of transportation

These predicates have perceptible units which are natural, like a chair, a knife, a letter, a shoe, a sock. Yet in most contexts we are not interested in these units, but in aggregates of these units: a pair of shoes, a knife-fork-spoon set, a living-room set, the contents of my mailbox at a given time. Since we want all these to also count as units, within the same context, the right type of predicate would be a mass term.

Additional examples: carrot, melon, watermelon, 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, watermelon), or in aggregates of them (mulberry, pea).

Fake mass terms are different from homogeneous count nouns (Mittwoch 1988, Rothstein 2010), such as wall, fence, table, mountain, line, sequence, bunch, which are count nouns. The units of these predicates are individuated in dramatically different ways in different contexts, but in a given context, whatever is part of a unit does *not* fall under the predicate, though it could in a different context.

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