WHERE—AND WHAT—IS NUMBER?[*]

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1.   Introduction

In this paper, we explore the syntactic position and semantic content of features of number in English and Mandarin, with brief excursions into Armenian and Cantonese. As the title suggests, we draw our inspiration in part from Ritter (1993), who posed the question "Where's gender?" The answer turned out to vary from one language to another—gender, Ritter argues, is on the lexical noun head in Hebrew, but on the inflectional number head in Romance. Clarke (in progress) makes a similar argument for aspectual features: features distinguishing events from states are in the verb phrase in Inuktitut and Japanese, but in I in English (Cowper 2005a) and Greek (Kyriakaki 2006).

Here, we will show that there is similar crosslinguistic variation in the position of number features: they can occur on lexical noun heads, or in the head of a separate inflectional projection (e.g., Ritter's (1992) Number Phrase, or #P). The semantic content of grammatical number features also varies from one language to another. We propose that the feature # itself encodes individuation, which can be elaborated in (at least) two different ways by dependent features. Plural morphology gives more information about how many individuals a nominal denotes, while classifiers give information about what sort of individual is being referred to.

2.   Features and contrast

We assume that morphosyntactic features are privative. Grammatical contrasts are thus encoded by the presence or absence of a particular feature, rather than by different values (+ or −) of the same feature. Crucially, the absence of a feature from a representation is meaningful only if the representation is within the scope of the relevant contrast (*sensu* Dresher, Piggott, and Rice 1994, Dresher 2009).

The difference between contrastive and non-contrastive absence of a feature can be seen throughout the grammar. In phonology, for example, in many languages, the absence of V is contrastive on obstruents, but not on sonorants. An obstruent without V differs from an obstruent with V and is realized as voiceless, while sonorants are not specified with V because they are all predictably voiced. In morphology, the absence of P in I is contrastive and is interpreted as non-past tense, while the absence of P on DP is non-contrastive.

Wiltschko (to appear) distinguishes between head features and adjunct features. Head features determine an inflectional paradigm, and the absence of a

given head feature where it could appear is contrastive and therefore meaningful; adjunct features are non-paradigmatic, and their absence is not contrastive. In a language with an adjunct feature specifying plurality, nominals can be either unspecified, with an interpretation that includes both singular and plural, or they can be plural. In languages in which plural is a head feature, nominals lacking the plural feature are contrastively singular.

We take as a starting point the assumption that Universal Grammar makes available (at least) the following features relevant to the semantic field of individuation and number (Cowper 2005b; Cowper and Hall 2006):

(1)   a.   #: individuated

      b.   >1: plural

A nominal from which # is contrastively absent is interpreted as mass. Plural (>1) is semantically dependent on #, and thus is interpretable only on count nominals. A count nominal from which >1 is contrastively absent is interpreted as singular. Languages differ as to which features are grammatically relevant and in how the features are mapped to syntactic structure.
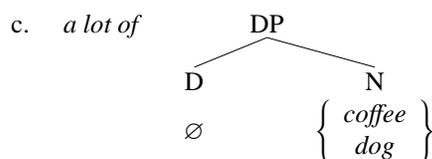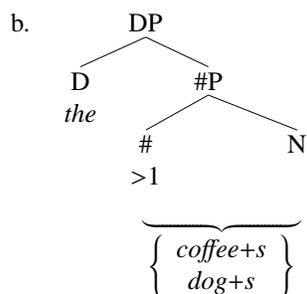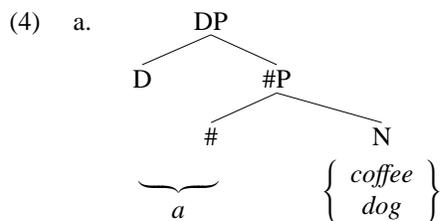
3.   Taxonomy of English nouns

English has often been described (by, e.g., Zwicky 2006, 2008) as permitting conversion between count and mass nominals. Contrastive underspecification permits another approach.

3.1   The usual pattern

Most English nouns are lexically unmarked for individuation, although their non-featural semantics may make them seem canonically mass (e.g., *coffee*) or count (e.g., *dog*). With a number projection, nominals are interpreted as count, as in (2) and without a number projection, they are interpreted as mass, as in (3).

(2)   a.   I'd like a [#P coffee], please.

      b.   They grow several different [#P coffees] in East Africa.

      c.   There were [#P dogs] in the yard.

(3)   a.   The cup was full of [NP coffee].

      b.   There's a lot of [NP dog] in the yard.

As shown in (4), the nouns *coffee* and *dog* are unspecified for the count-mass property. # projects syntactically in (4a) and (4b), giving a count nominal. The contrastive absence of the # projection in (4c) gives rise to a mass interpretation.

(4) a.

$$
\begin{array}{c}
\text{DP} \\
\diagup\diagdown \\
\text{D} \qquad \text{\#P} \\
\diagup\diagdown \\
\text{\#} \qquad \text{N} \\
\underbrace{\quad}_{a} \qquad \left\{\begin{array}{c} coffee \\ dog \end{array}\right\}
\end{array}
$$

b.

$$
\begin{array}{c}
\text{DP} \\
\diagup\diagdown \\
\text{D} \qquad \text{\#P} \\
the \qquad \diagup\diagdown \\
\text{\#} \qquad \text{N} \\
{>}1 \\
\overbrace{\left\{\begin{array}{c} coffee\text{+}s \\ dog\text{+}s \end{array}\right\}}
\end{array}
$$

c. *a lot of*

$$
\begin{array}{c}
\text{DP} \\
\diagup\diagdown \\
\text{D} \qquad \text{N} \\
\varnothing \qquad \left\{\begin{array}{c} coffee \\ dog \end{array}\right\}
\end{array}
$$

Under this view, there is no featural distinction between nouns like *coffee* and nouns like *dog*. They are equally capable of appearing in count and mass nominals, and no coercion is required in either case. (Cf. Borer (2005a), who proposes that individuation is universally syntactic, though she attributes individuation and plurality to different syntactic heads.)

3.2   Deviations from the norm

3.2.1 Furniture, footwear, and equipment

Furniture and a few other nouns superficially resemble canonically mass nouns (such as *coffee*), in that they can occur as bare singulars with an unspecified-amount interpretation, as shown in (5).

(5)   a. The room is full of furniture.
      b. How much furniture did he bring?
      c. How many pieces of furniture do we have?

However, they strenuously resist individuation by syntactic number, as can be seen in (6). While *coffees* can be interpreted as 'servings of coffee' or 'kinds of coffee,' *furnitures* is simply ungrammatical.

(6)   a.   *I ordered a new furniture from Ikea. It has three knobs on the front.

     b.   *Of all the furnitures in the world, he had to pick Louis XV.

Syntactically, *furniture* looks like a mass noun that peculiarly resists 'coercion.' Semantically, however, it denotes a collection of discrete entities.

3.2.2   Cattle and livestock

Nouns like *cattle* and *livestock* share some, but not all, properties with those in the *furniture* class. They cannot be pluralized, as shown in (7a); they cannot be used with the indefinite article *a(n)*, as shown in (7b); and they can appear as bare nouns, as in (7c).

(7)   a.   *How many cattles will she buy?

     b.   *A cattle is lowing.

     c.   Mr. Jones is away buying cattle.

They also resist being counted, as shown in (8), though some people find (8a) and (8b) marginal rather than fully ungrammatical. (8c), which resembles classifier constructions in Chinese, is consistently found to be grammatical.

(8)   a.   *$^{(?)}$We expect three cattle to be delivered tomorrow.

     b.   *$^{(?)}$There are six livestock in the barn.

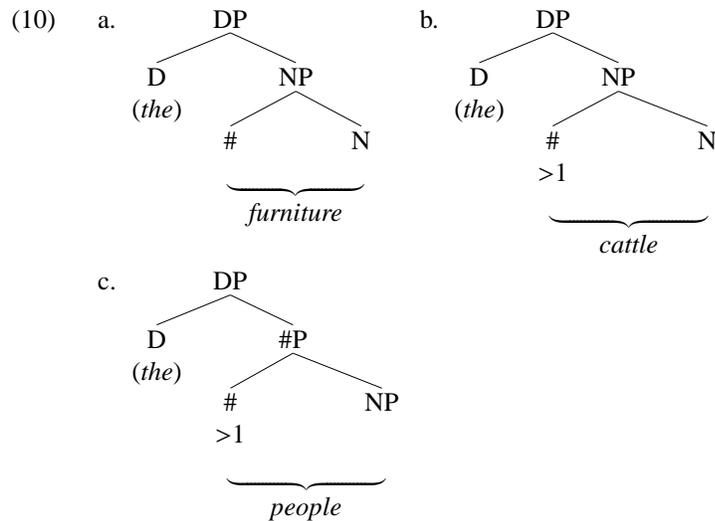   c.   We expect three head of cattle to be delivered tomorrow.

Interestingly, however, despite not being able to take plural morphology, and despite not being generally countable, nouns like *cattle* trigger plural agreement on verbs, and are referred to with plural pronouns, as shown in (9).

(9)   a.   *Cattle is grazing in the meadow.

     b.   [The cattle]$_i$ are pushing and shoving [one another]$_i$. They$_i$ must be hungry.

Cattle and *livestock* are different from ordinary irregular plurals like *people* and *geese.* Irregular plurals have corresponding singular forms (*person, goose*); *cattle* and *livestock* do not. (*Cattle* potentially encompasses a mixture of cows, bulls, steers, and calves, and *livestock* is more general than *cattle* but more specific than *animals.*) Irregular plurals also have no difficulty combining with numerals (*two people, three geese*); cf. (8a, 8b).

3.3   Structures

We propose that the English nominals discussed in §3.2 have the structures shown in (10).

(10) a.

```
            DP
           /  \
          D    NP
        (the)  / \
              #   N
              \___ ___/
                  furniture
```

b.

```
            DP
           /  \
          D    NP
        (the)  / \
              #   N
             >1
              \___ ___/
                  cattle
```

c.

```
            DP
           /  \
          D    #P
        (the)  / \
              #   NP
             >1
              \___ ___/
                  people
```

The major difference between (10a) and (10b) on the one hand, and (10c) on the other, is that # is an adjunct to N in (10a,b), while it projects syntactically in (10c).

This proposal exploits Wiltschko's distinction between head features and adjunct features. However, in this case the feature that appears as an adjunct on a lexical head is also part of the grammatical system of the language. The presence of # as an adjunct precludes its appearance as a separate head in the same nominal projection. Just as an event can be delimited only once (Tenny 1994), a nominal can be individuated only once. (See also Borer (2005a, 2005b).)

While the bundling of # with N as in *furniture* and *cattle* occurs in English only on a few exceptional lexical items, this pattern is more prevalent in other languages.

4.   Mandarin

4.1   Count nouns and classifiers

In Mandarin, most nouns are lexically categorized as mass or count, as argued by Cheng and Sybesma (1999). However, in order to actually be counted, Mandarin count nouns must appear with a classifier, as shown in (11).

(11)   Mandarin (Cheng and Sybesma 1999: 514)

   a. *san   ben shu*
      three   book
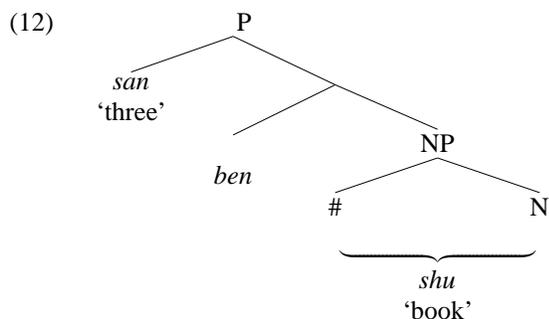   'three books'

   b. **san shu*

We propose that count nouns in Mandarin are structured like *furniture*-class nouns in English. They bear the feature # as an adjunct to N. The ungrammaticality of the Mandarin **san shu* is thus similar to that of **one furniture* in English. As we shall see, in both cases the syntactic projection whose specifier hosts the numeral is missing. However, while in English it is #P that hosts the numeral, in Mandarin numerals are found in a projection headed by a classifier.

According to Cheng and Sybesma (1999: 515), classifiers "name the unit in which the entity denoted by the noun naturally occurs."

We propose that classifiers, like plural marking in English, spell out a dependent feature of # that elaborates a semantic facet of individuation. The English plural suffix spells out >1, which is a grammaticalized representation of the *number* of units being referred to. Classifiers, on the other hand, spell out a grammaticalized representation of the *type* of unit. We will use the label   to represent the feature or features involved in classification.

Each of these features is semantically dependent on #, which encodes individuation itself. In English, # is ordinarily a separate head, and the feature >1 appears on this head. In Mandarin, the dependency of   on # maps onto a selection relation: is a head that requires an individuated complement—i.e., one that bears the feature #. In principle, this requirement could be satisfied by an English-style #P, or by an inherently individuated noun of the *furniture* type. However, # does not project syntactically in Mandarin, leaving inherently individuated nouns as the only possible complement for   .

We implement this with the structure in (12).

(12)

```
              P
            /   \
         san      \
        'three'    \
                  /   \
                ben    NP
                      /  \
                    #      N
                    _____/
                      shu
                     'book'
```

in English and   in Mandarin are thus closely related projections, both of which participate in individuation in the nominal domain. We assume that numerals appear in the specifier of   P in Mandarin, in parallel to their position in English in the specifier of #P.

The structure in (12) immediately raises the following question: if count nouns in Mandarin have exactly the same structure as *furniture*-class nouns in English, why can't *furniture*-class nouns in English appear with numerals?

The crucial difference is in the syntactic status of the dependents of # in the two languages. We assume that languages differ as to which grammatical features may serve as heads of syntactic projections. C   in Mandarin is semantically analogous to >1 in English, in that both are semantically dependent on #. However,

the features of individuation exhibit very different syntactic properties in the two languages. In Mandarin, # does not project syntactically, while   does. A Mandarin   P allows a numeral (the specifier of   P) to combine with a count noun (the complement of   ). In contrast, # in English is normally the head of a syntactic projection, and numerals appear in the specifier of #P. However, in a nominal containing a noun like *furniture,* # cannot project syntactically, because it appears as an adjunct to N, as illustrated in (10a). English >1, unlike Mandarin   , does not itself project syntactically; it appears only as a dependent of #, wherever # appears. In an English nominal phrase containing a *furniture*-class noun, there is thus no intermediate projection between NP and DP whose specifier could contain a numeral.

4.2 Mass nouns and massifiers

Not all Mandarin nouns are lexically specified with the feature #. Those that lack #—mass nouns—cannot appear with classifiers, as predicted by the analysis sketched above.

Individuation of a mass noun in Mandarin requires more than simply a morpheme naming the unit of individuation. Both individuation itself and identification of the unit of individuation are required. This is accomplished by means of what Cheng and Sybesma (1999) call "massifiers," as shown in (13).

(13) a. *san ping   jiu*
          three   -bottle liquor
          'three bottles of liquor'

     b. *san ba   mi*
          three   -handful rice
          'three handfuls of rice'

     c. *san wan   tang*
          three   -bowl soup
          'three bowls of soup'

Massifiers have several interesting properties. First, they create, rather than simply name, a unit of measure, and can thus take mass nouns as complements. This suggests that they carry the feature #, and thus behave, in part, like count nouns. However, they are not simply count nouns, because they can be counted without a classifier. This suggests that, like classifiers, they carry the feature   .

These conclusions are entirely consonant with Cheng and Sybesma's (1998) claim that massifiers are nouns that move from N to   within   P. For us, this would give a structure like the one in (14).

(14)

P
san
'three'

NP

N ← t_N

NP
tang
'soup'

N

wan
' -bowl'
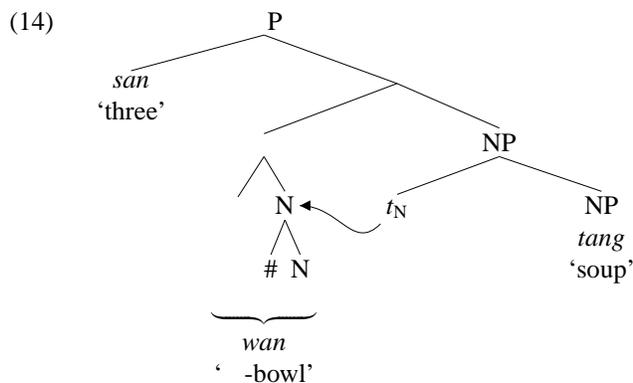
Count nouns can also appear with massifiers, as shown in (15).

(15) *liang xiang shu*
two -box book
'two boxes of books'

This nominal has the structure given in (16). Notice that the construction includes two instances of #, one in the massifier *xiang* and the other in the count noun *shu*.

(16)

P
liang
'two'

NP

N ← t_N

NP

N

N

xiang
' -box'

shu
'book'
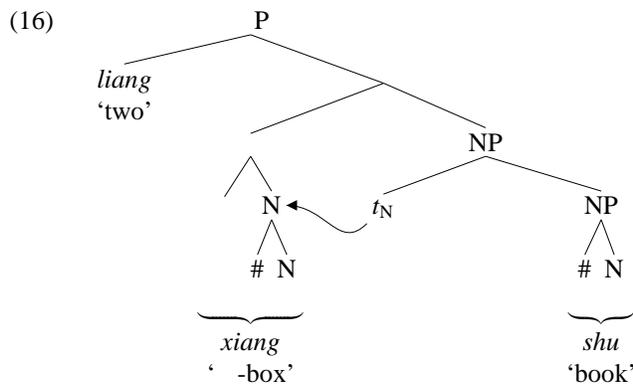
At first glance, it might seem that the two instances of # in (16) would violate the prohibition against multiple individuation of a single nominal. However, there are actually two nominals in (16). The higher one is a P, with the massifier *xiang* as its head noun, and the lower one is a bare NP complement of *xiang*.

5. On the nature of individuation

We have proposed that both >1 and are dependents of #. However, it has been repeatedly noticed that languages that use classifiers seem not to use the singular-plural distinction, and vice versa. Why should this be?

We suggest that plurality and classification are different dimensions of individuation, just as location, time, and person are different dimensions of deixis. Ritter and Wiltschko (2005) argue that deictic anchoring of the clause is the core function of I   , and that languages can differ as to whether that anchoring is temporal, spatial, or personal. They show that Blackfoot anchors clauses using personal deixis, and Halkomelem uses spatial deixis, while English uses the more well-known temporal deixis. Louie (2008) explores in detail the consequences of this difference for the representation of events and aspect in Blackfoot.

Returning to individuation, we can see the difference between English and Mandarin nominals as analogous to the difference between the I   s of Blackfoot, English, and Halkomelem. English elaborates individuation using plurality, while Mandarin elaborates it using classification.

Are the two ways of elaborating # mutually exclusive? Languages with classifiers are often described as lacking "number." From the data presented in §4, Mandarin does not appear to make use of the grammatical feature >1 (although of course it has words that lexically express particular numbers of entities), and English does not appear to make use of   (although it has words that lexically express various kinds of units). Do any languages combine the two?

5.1   Armenian

Armenian has both a classifier and an inflectional plural suffix, as illustrated in (17). The Armenian data are from Borer (2005a: 94–95).

(17)   a.   *Yergu had hovanoc uni-m.*
two   umbrella have-1
'I have two umbrellas.'

b.   *Yergu hovanoc-ner uni-m.*
two   umbrela-   have-1
'I have two umbrellas.'

These two forms of individuation, however, cannot be combined:

(18)   * *Yergu had hovanoc-ner uni-m.*
two   umbrella-   have-1
'I have two umbrellas.'

This suggests that while a single language may make use of both   and >1, a single nominal cannot.

5.2   Plural marking in Chinese?

5.2.1 Cantonese *di*

A potential objection to the hypothesis that   and >1 cannot co-occur is that Cantonese has a classifier *di* that is often described as marking plurality, and which

is, in some contexts, incompatible with a singular reading. For example, Cheng (2009) notes that in (19), "it is necessarily more than one sweater":

(19) *Wufei di laangsaam*
Wufei   sweater

'Wufei's sweaters' (Cheng 2009)

However, *di* displays other characteristics that are less consistent with the notion that it spells out >1. It can be used with mass nouns without imposing a count interpretation, as in (20), and it cannot combine with numerals greater than one, as shown in (21).

(20) *jat di seoi*
one   water

'some water' (Cheng 2009)

(21) a. *Ngo mai zo jat di wun.*
I   buy   one   bowl

'I have bought a number of bowls.' (Au-Yeung 2007)

  b. * *Ngo mai zo saam di wun.*
I   buy   three   bowl

'I have bought three numbers of bowls.' (Au-Yeung 2007)

This contrasts sharply with the English plural, which, as illustrated in (22), entails individuation and is compatible with numerals greater than one.

(22) There were two coffees, a tea, and five waters left on the table.

Au-Yeung (2007: 4) notes that *di* encodes a "fuzzy" expression of quantity and has

> [. . .] a non-collective property that prohibits its countability. This property unspecifies how the referents denoted by the noun phrase group together and the grouping does not provide a shape or unit for counting.

We conclude that *di* is a massifier, and that it does not encode plurality. Rather, it indicates a very non-specific unit of individuation, one that is compatible with mass and count nouns alike, but that is not concrete enough to permit enumeration.

5.2.2 Mandarin *-men*

Another potential example of >1 in a classifier language is the Mandarin morpheme *-men,* which looks very much like a plural suffix. It appears on pronouns, as in (23), and also on nouns, as in (24).

(23) Mandarin pronoun paradigm:
    wo 'I'   *women* 'we'
    ni 'you (sg.)' *nimen* 'you (pl.)'
    ta 'he/she'   *tamen* 'they'

(24) *Wo qu zhao haizi-men.*
    I   go find child-

    'I will go find the children.'

However, the distribution and interpretation of *-men* suggest that it is not an ordinary plural marker. It appears only on nominals referring to animate (and usually human) beings, such as those in (25):

(25) (from Li and Thompson 1989)
    laoshi-men   'teachers'
    xuesheng-men 'students'
    pengyou-men   'friends'
    xiongdi-men   'brothers'
    jiemei-men   'sisters'

While the absence of *-men* on pronouns is contrastive, its absence on nouns is not; the pronoun *wo* in (23) is singular, rather than neutral as to number, but the noun *haizi* in (26) is simply unspecified for plurality.

(26) *Wo qu zhao haizi.*
    I   go find child

    'I will go find the/some child/children.'

Furthermore, *-men* is incompatible with numerals (and with classifiers), as illustrated by the ungrammaticality of (27).

(27) * *san ge xuesheng-men*
    three   student-*men*

    'three students'

Finally, the semantic contribution of *-men* appears to include something more than just plurality. A nominal with *-men* is always interpreted as definite, and so, for example, *-men* cannot be used in existential constructions like the ones in (28).

(28) a. *You ren.*   c. *Mei you ren.*
        have person   not have person

        'There is/are some per-   'There is nobody.'
        son(s).'

    b. * *You ren-men.*   d. * *Mei you ren-men.*
        have person-   not have person-

Li (1999) argues that *-men* appears in D, not in #. Nouns can be marked with *-men* only if they move to D, which is impossible if a classifier is present.

We propose that in Mandarin, the features D ( ), π, , and N can be syntactic heads. These features are shown in (29) with their dependent features and the vocabulary items that realize them.

(29) Heads, features, and vocabulary items:

a.   D   b.   π   ⇔ *ta*

A   >1 |

                   #

      ⇕ |

    -men   P   ⇔ *ni*

                 |

                S   ⇔ *wo*

c.   d.   N

    ⋮   (#)   N

    ⇕

(various)   ⇕

                 (various)

The suffix *-men* spells out a D head with dependent features A ( ) and >1; any nominal with *-men* will be interpreted as animate, definite, and plural. The vocabulary items *ta, ni,* and *wo* spell out features at different levels in the person dependency structure in (29b): *wo* realizes S , *ni* is used for non-speaker participants, and *ta* is used for non-participants. Mandarin pronouns have the structure shown in (30), in which a D head takes a πP complement. If D is specified with both A and >1, then *-men* is inserted; otherwise, the D head is not overtly realized.

(30)   Structure: Examples:

      D P   *ta*   'he/she/it' / 'they' (inan.)

               ta-men 'they' (anim.)

    D   πP   *wo*   'I'

               wo-men 'we'

The proposal that *-men* spells out both A and >1 correctly predicts an interesting quirk in the distribution of third-person pronouns: while *ta* 'he/she/it' can be used to refer to both animate and inanimate objects, *tamen* 'they' is used only for animates (Ng 1997). For plural inanimates, *ta*, not *tamen*, is used. Citing Chao (1968), Ng says that "this non-use of *tamen* for inanimate things is the reason why a Chinese student of English will say *These pears have spoiled; better throw **it** away*."

When *-men* appears with a lexical noun, the structure is as shown in (31). The plural feature on D selects a count noun, since >1 is semantically dependent on #.

(31)   Structure: Examples:

D P   *haizi-men*   'the children'
D '   *na-xie xuesheng-men* 'those students'
D   NP
A   >1

For completeness, the structure we propose for classifier phrases is shown in (32).

(32)   Structure: Examples:

P   *san ge haizi*   '(the) three children'
{ dem }   ,   *zhe-xie ge ren*   'these people'
{ nmrl }   *san ba mi*   '(the) three handfuls of rice'
NP

Since >1 and   are different elaborations of individuation, only one of them can appear in a given nominal. Thus, if >1 is present on D, the nominal cannot contain a   projection. Since numerals are merged in Spec/ P, we predict that the plural suffix *-men* cannot appear with a numeral.

6.   Conclusion

There are three dimensions of variation that affect how number manifests itself in a given language. First, languages can differ as to which of the features UG provides are grammatically active. Thus,   is grammatically active in Mandarin, but not in English. Second, languages differ as to which features are capable of projecting syntactically. # can project in English but not in Mandarin, though both languages make use of the feature. Finally, a feature may be either an adjunct or (part of) a syntactic head. Thus, >1 is part of a head in most English nominals in which it appears, but part of an adjunct in nouns like *cattle*. The interaction of these dimensions provides a rich set of surface patterns, some of which can be seen in English and Mandarin.

The number of possibilities is, however, constrained by certain universal principles. First, Universal Grammar makes available a finite—and, we assume, relatively small—set of possible number features. Second, a given nominal can be individuated at most once. And finally, it seems from the data so far considered that within a single nominal, individuation can be elaborated in only one way— either the type of unit ( ) or the number of units (>1) may be grammatically encoded, but not both at once. It remains to be seen whether this generalization

holds true universally. Plural marking has been reported to co-occur with classifiers in more cases than those discussed in §5, and it will be interesting to see what results from considering such data in light of the analysis of English and Mandarin proposed here.

References

Au-Yeung, Ben. 2007. Cantonese classifier *di* and genericity. In *Studies in Cantonese Linguistics II*, eds. J. Sio, and S. W. Tang, 1–16. Hong Kong: The Linguistic Society of Hong Kong.

Borer, Hagit. 2005a. *In Name Only*. Oxford: Oxford University Press.

Borer, Hagit. 2005b. *The Normal Course of Events*. Oxford: Oxford University Press.

Chao, Yuen-Ren. 1968. *A Grammar of Spoken Chinese*. Berkeley, CA: University of California Press.

Cheng, Lisa Lai-Shen. 2009. Counting and classifiers. Presented at the Mass/Count Workshop, University of Toronto, February 7–8, 2009.

Cheng, Lisa Lai-Shen, and Rint Sybesma. 1998. yi-wan tang, yi-ge tang: Classifiers and massifiers. *Tsing-Hua Journal of Chinese Studies* 28:385–412.

Cheng, Lisa Lai-Shen, and Rint Sybesma. 1999. Bare and not-so-bare nouns and the structure of NP. *Linguistic Inquiry* 30:509–542.

Clarke, Sarah. In progress. Aspects of aspect. Doctoral dissertation, University of Toronto.

Cowper, Elizabeth. 2005a. The geometry of interpretable features: Infl in English and Spanish. *Language* 81:10–46.

Cowper, Elizabeth. 2005b. A note on number. *Linguistic Inquiry* 36:441–455.

Cowper, Elizabeth, and Daniel Currie Hall. 2006. Argumenthood, pronouns, and nominal feature geometry. Presented at the Workshop on Determiners, Winnipeg, November 2006. To appear in Jila Ghomeshi, Ileana Paul, and Martina Wiltschko, eds. *Determiners: Variation and Universals*.

Dresher, B. Elan. 2009. *The Contrastive Hierarchy in Phonology*. Cambridge: Cambridge University Press.

Dresher, B. Elan, Glyne L. Piggott, and Keren D. Rice. 1994. Contrast in phonology: Overview. *Toronto Working Papers in Linguistics* 13:iii–xvii.

Kyriakaki, Maria. 2006. The geometry of tense, mood and aspect in Greek. M.A. thesis, University of Toronto.

Li, Charles N., and Sandra A. Thompson. 1989. *Mandarin Chinese: A Functional Reference Grammar*. Berkeley, CA: University of California Press.

Li, Yen-hui Audrey. 1999. Plurality in a classifier language. *Journal of East Asian Linguistics* 8:75–99.

Louie, Meagan. 2008. Atemporal anchoring of individuals, events and sub-events in Blackfoot: Consequences for the syntax–semantics interface. M.A. thesis, University of Toronto, Toronto, ON.

Ng, Say Kiat. 1997. A double-specifier accoung of Chinese NPs using head-driven phrase structure grammar. M.Sc. thesis, University of Edinburgh, Edinburgh.

Ritter, Elizabeth. 1992. Cross-linguistic evidence for number phrase. *Canadian Journal of Linguistics* 37:197–218.

Ritter, Elizabeth. 1993. Where's gender? *Linguistic Inquiry* 24:795–803.

Ritter, Elizabeth, and Martina Wiltschko. 2005. Anchoring events to utterances without tense. In *Proceedings of the 24th West Coast Conference on Formal Linguistics*, eds. John Alderete, Chung-hye Han, and Alexei Kochetov, 343–351. Somerville, MA: Cascadilla Proceedings Project.

Tenny, Carol L. 1994. *Aspectual Roles and the Syntax–Semantics Interface*. Dordrecht: Kluwer Academic Publishers.

Wiltschko, Martina. To appear. What's in a determiner and how did it get there? In *Determiners: Variation and Universals*, eds. Jila Ghomeshi, Ileana Paul, and Martina Wiltschko, Linguistik Aktuell. Amsterdam: John Benjamins.

Zwicky, Arnold. 2006. Plural, mass, collective. *Language Log* Http://itre.cis.upenn.edu/ myl/languagelog/archives/003879.html.

Zwicky, Arnold. 2008. Countification. *Language Log* Http://languagelog.ldc.upenn.edu/nll/?p=501.