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Volume 255

Plurality
and Classifiers
across Languages
in China

Edited by
Dan Xu
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3 The Syntax and prosody of classifiers in Classical Chinese

Abstract: Based on Borer's theory of nominal structure (2005: 95), this paper offers a syntactic analysis of countable nouns in Pre-Archaic Chinese (ca. 1000 BC and before) and the development of classifiers in Archaic Chinese (1000 B.C.–200 A.D.). It is argued that the emergence of classifiers in Archaic Chinese, though syntactically licensed, was prosodically motivated and in turn, constructed a sub-case of a typological change from the synthetic property of Pre-Archaic Chinese (before 1000 BC) to the analytical characteristics of Post-Archaic Chinese, around the time of Eastern Han (25–220 AD).

Keywords: classifier, syntactic change, prosodic grammar, typological change of Classical Chinese

1 The Syntax of Countable Nouns and Classifiers

It is well known that nouns in Mandarin Chinese must co-occur with a classifier when counting. For example:

(1) a. 唐僧有三個徒弟
    Tāng sēng yǒu sān gè tūdì
    Tang Seng have three CL disciple
    ‘Tang Seng has three disciples.’

b. *唐僧有三个徒弟
    Tāng sēng yǒu sān tūdì
    Tang Seng have three disciple
    ‘Tang Seng has three disciples.’

1 I would like to express my sincere gratitude to Professor Cheng Zhang (張) not only for the inspiration of her insight on the grammatical nature of early classifiers in classical Chinese, but also for her generosity of providing access to her paper, on which some important statistics and conclusions of this current work are beneficially based. I would also like to thank Professor Hu Suhua (胡素華) for providing Modern Yi examples for the prosodic argument developed in this paper. All mistakes, of course, are mine.
Though classifiers like 个 are also called Measure Words (especially in pedagogically designed textbooks), there is a clear distinction between classifier and measurer in linguistic analysis, as shown in the following example:

(2)  
\[
\begin{align*}
\text{a. } & \text{ 三條魚} & \text{三尾魚} \\
& sān \ tiáo \ yú & sān \ wěi \ yú \\
& \text{three stripe fish} & \text{three tail fish} \\
\text{b. } & \text{三條魚} \\
& sān \ tiáo \ yú \\
& \text{three fish}
\end{align*}
\]

(3)  
\[
\begin{align*}
\text{a. } & \text{三條水} \\
& sān \ tōng \ shuǐ \\
& \text{three pail water} \\
& \text{'three pail of water'}
\end{align*}
\]

The parallelism between noun phrase syntax and verb phrase syntax is further developed and elaborated in Hagit Borer’s book *In Name Only* (2005: 95), as shown in the following structure:

(5)  
\[
\begin{align*}
\text{DP} \\
& \text{thre} \wedge \text{ge} \\
& \text{'three pail of water'}
\end{align*}
\]

In the above structure, it is claimed that the classifier head has an open value \(<e>_{\text{DIV}}\), and the \(\text{DIV}\) stands for 'divider'. The assumption behind this is that the plural suffix (as -s in English) and the independent classifier (as ge in Chinese) can both assign range to \(<e>_{\text{DIV}}\), and the distinction between them stems from the fact that the 'plural' marker is a spell-out of an abstract head feature \(<\text{div}>\) on a moved N-stem (i.e., 'cat-s' in [5]), whereas the 'classifier' is an independent F-morph (i.e., ge in [5]).

Within this system, plural morphology and independent classifier both have the grammatical function as a divider (\(<\text{div}>\) henceforth) for nouns in human languages. The crucial fact on which Borer's theory is based is this: “plural morphology and classifier morphology never co-occur” (Borer 2005). That is to say, the plural maker and classifier are in complementary distribution, which is

---

2 In our co-taught course “Historical Syntax of Chinese” at Harvard University, 2007.
2 The Challenge from Classical Chinese

A notable fact in Archaic Chinese is this: there were neither classifiers nor plural markers in the nominal structural system, as exemplified in (7).

(7) a. 人而無知，不知其可。(Odes, ca. 1000–600 BC)
    rén ér wú zhī, bú zhī qí kě.
    person but no sham, not know its accept
    ‘It is not acceptable that a man has no sham.’

b. 三人行，必有吾師。(Lunyu, ca. 400 BC)
    sān rén xíng, bì yǒu wú shī.
    three person walk, must have my teacher
    ‘Among three people, there must be a teacher for me.’

Given examples in (7), it follows that either Bore’s theory must be modified, or something else was going on with respect to the nominal system of Archaic Chinese. For the latter, Sagart (1999: 107) has suggested:

“It is tempting to regard the functions of *k* in verbs and nouns as being fundamentally one: *k* would serve for actions and objects that are well-delimited in time and space, and hence usually concrete and countable. If so, disappearance of *k* between the Old Chinese and Middle Chinese periods deprived Chinese of a means of distinguishing between count and mass nouns. This may have been a factor in the rise of numeral classifiers in Chinese during the same period.”

Although it has been seriously criticized and disbelieved by Professor Mei Tzulin, no insights and suggestions have been offered by him for why there is neither plural morphology nor classifiers in Archaic Chinese. On the other hand, Sagart’s hypothesis does bring fresh air into the vexed problem and motivate new investigations on the Archaic Chinese NP structures. As we will see below, the idea that there may be special makers employed in nominal structures of Archaic Chinese has inspired scholars to look closely into some peculiar nominal expressions in the language. For example: 有 *Gwūzǐ yǒu:*

(8) a. 盤庚遷于亳，民不適有居。(Shangshu, ca. 1000 BC)
    Pán Gēng qiān yú Bì, mín bù shí YÜ-jiū.
    Pan Geng move to Yin, people not suit YÜ-place.
    ‘Pan Geng had moved to Yin (but) the people were not comfort with that place.’

---

3 See Massam (2009) for an alternative analysis based on Bore’s theory.
4 The notion of individualization is not new: Actually, Lyons has already discussed the notion for the function of classifier as presupposing an individuated object (1977: 464). 夫何為者矣, Dahemel Kangian (1993) later used this notion to analyze Chinese nouns by claiming that the classifiers have the function of individualizing an entity. Liu (2008), on the other hand, argued that classifiers do not give more content information but merely individualize the noun they modify. Liu Hui (2009) further distinguishes event classifier from entity classifier arguing that both of them are used for individualization.
5 Of course the div can also be realized by other means such as dividing marker (分界标记 fenjie biaoji) or referential marker (特指标记 tizhi biaoji). I would like to thank the anonymous reviewer for pointing out the distinction between referentiality, plurality and classifier. This will be discussed when dealing with the data from classical Chinese in next section.

6 At the Harvard Symposium on Chinese Historical Syntax; April, 2008.
b. 有王維小，元子哉。（Shangshu, ca. 1000 BC)

YOU-wáng suí xiǎo, yuán zǐ zāì.

'You-Prince though little, first son prt.'

'Prince though little, is the first son.'

c. 撲有梅，其实七分。（Odes, ca. 1000–600 BC)

piào YOU-méi, qí shí qī xī.

fall YOU-plum, their prt. Seven prt.

'The plums are falling and only seven are left.'

It has long been recognized by traditional scholars (cf. Wang 1980) that you has (*Gwur?) behaves like a noun-prefix, though no precise grammatical function (or meaning) has been proposed in the literature. Based on the nominal theory given by Borer, and the hypothesis given by Sagart, I would like to argue for the possibility that the *Gwur? may be indeed a realization of the div in Proto-Chinese, and it became a remnant in Archaic Chinese. Examples given in (8) actually support this hypothesis. Let’s look at them again closely:

(9) a. Pán Gèng qiān yú Yìn, mín bù shí YOU-jú.

'Pan Geng had moved to Yin, (but) the people were not comfortable with that place.'

b. YOU-wáng suí xiǎo, yuán zǐ zāì.

'The Prince, though little, is the first son.'

c. piào YOU-méi, qí shí qì xī.

'The plums are falling and only seven are left.'

Obviously, all of *Gwur?有 used in the above environments have a referential property (i.e., referring to an entity in the sentence). It refers to Yin ‘the Capital City’ in (9a), Yuans ‘prince’ in (9b) and qí shí ‘the seven nuts’ in (9c), respectively.

There were also other prefix-like morphemes documented in Pre-Archaic Chinese, exhibiting a function akin to *Gwur?, like 唯/唯 (*Gwr/i/weí):

Whether or not all *Gw?/唯 in Pre-Archaic Chinese functioned like *Gwur? is another issue. Examples in (10) show quite clearly that *Gw? does have a function of specifying an individual entity in the sentence.

Regarding facts in (9)–(10),9 it is plausible that there may be a referentiality or specificity system in the nominal structure of proto-Chinese, even if only a few observable remnants are left in Archaic Chinese, due presumably to the typological change from syntheticity (before Archaic Chinese, 1000 BC) to analyticity (after Archaic Chinese, 200 AD).10

Given the possibility suggested above, I would like to argue that the morphosyntactic realization of div proposed by Borer must be further elaborated according to diachronic facts in Archaic Chinese. That is, div may also be realized

8 A kind of ritual vessel used for worship of god and ancestors in Archaic Chinese.
9 See also Redouane Djamouri 罗平 (2010) for further evidence about YOU as Divider marker in Archaic Chinese (even if he treats YOU as a plural marker which is technically different from the analysis given here.)
10 For more arguments on the typological change from Old Chinese to Middle Chinese see Zhang 1939, Xu 2006, Huang 2007 and Feng 2009.
by specificity and referentiality in terms of individualization of the entity in human languages through either independent morpheme or affixation in a language. That is to say, time and space can also be individualized as specific referential entities. Put differently: identifying an object and counting an object have the same effect of making the object an individual entity. Therefore, the two apparently different functions actually have the same effect structuralized as *div* seen in (5). If this is so, it will resolve the vexing problem raised by (Pre-)Archaic Chinese (a system with neither plural nor classifier) and encourage researchers to search for new discoveries about the old nominal systems from Pre-Archaic to Archaic Chinese, as well as to search for reasons for the newly developed classifiers, which will be explored in next section.

6 The Problems Involved in the Emergence of Classifiers

As seen in section one, the realization of *div* varies in different languages. In section two, we have argued that the *div* may be realized by specific and referential markers (特定/有限标記 *tezhi/youzhi biaoji*) in Proto- and Archaic Chinese. Given these facts, we are ready to see a parametric change from a referential-lexically realized *div*-system (Pre-Archaic Chinese) to a classifier-realized *div*-system (Post-Archaic Chinese). As pointed out in Wang (1980), Liu (1965), Peyraube (1998), Zhang C. (2009) and many others, the change of the nominal structure began roughly in the Shang dynasty (1600–1046 BC) and was basically established during the Wei-Jin Periods (ca. 400 AD). For example:

(11) **Ca. 11th Century BC, Shang-Zhou Dynasties**

[N Num N/CL]

a. 馬三匹
   *mǎ săn pǐ*
   horse three mate/CL
   ‘three horses’

---

206 BC–220 AD, Han Dynasty

[N Num CL]

b. 竹竿萬根 (*Shi Ji, Huozhi Liezhuan*)
   zhú gān wàn gè
   bamboo-pole ten-thousand CL
   ‘ten thousand bamboo poles’

[Num CL N]

c. 一個端兒 (*Guoyu Wuyu*)
   yī gè diān nán
   one CL legitimate son
   ‘a son of first wife.’

200–500 AD, Wei-Jin Period

[Num CL N]

d. 三個石柱 (*Sou Shen Ji*)
   săn gè shí zhù
   three CL stone pole
   ‘three stone poles.’

A striking phenomenon involved in the classifier development is the fact that generic classifiers were developed earlier than specific classifiers at the beginning of the emergence of classifiers. Zhang (2009) observed that in the Han dynasty documents, there were 55 nouns occurring with a general classifier (*mei*) whereas only 11 took either a specific classifier or a generic one among all the nouns that took classifiers. Up to the Wei-Jin Period, however, there were 75 nouns that co-occurred with a general classifier but 43 nouns that occurred with a specific classifier. That is:

(12) **Statistics of Classifiers in Han Period and Wei-Jin Period.**

<table>
<thead>
<tr>
<th></th>
<th><strong>Ns with</strong></th>
<th><strong>Ns with</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General classifiers</td>
<td>specific classifiers</td>
</tr>
<tr>
<td>Han Dynasty (206 BC–220 AD)</td>
<td>55</td>
<td>11</td>
</tr>
<tr>
<td>Wei-Jin Period (220–420 AD)</td>
<td>75</td>
<td>43</td>
</tr>
</tbody>
</table>

The statistics in (12) indicates that during the Han Dynasty, “generic classifiers were used for nouns that do not have a specific numerical classifier,” (Zhang 2009) whereas the ones that take a generic classifier in the Han Dynasty devel-
oped to occur with specific classifiers during the Wei-Jin Period. For example (taken from Zhang, 2009): 12

(13) List of Classifiers in Han Period and Six Dynasties

<table>
<thead>
<tr>
<th>Nouns</th>
<th>Han Period (206 BC–220 AD)</th>
<th>Six Dynasties (222–589 AD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>杯</td>
<td>杯 méi ‘stick’</td>
<td>头 tóu ‘head’</td>
</tr>
<tr>
<td>cup</td>
<td>夸 kuò ‘mouth’</td>
<td>只 zhī ‘single’</td>
</tr>
<tr>
<td>writing brush</td>
<td>杯 méi ‘stick’</td>
<td>方 méi ‘stick’</td>
</tr>
<tr>
<td>carriage</td>
<td>简 jīn ‘utensil’</td>
<td>简 jīn ‘utensil’</td>
</tr>
<tr>
<td>knife</td>
<td>杯 méi ‘stick’</td>
<td>简 jīn ‘utensil’</td>
</tr>
<tr>
<td>been</td>
<td>简 jīn ‘utensil’</td>
<td>简 jīn ‘utensil’</td>
</tr>
<tr>
<td>axe</td>
<td>杯 méi ‘stick’</td>
<td>简 jīn ‘utensil’</td>
</tr>
<tr>
<td>bow</td>
<td>杯 méi ‘stick’</td>
<td>简 jīn ‘utensil’</td>
</tr>
<tr>
<td>dog</td>
<td>杯 méi ‘stick’</td>
<td>简 jīn ‘utensil’</td>
</tr>
<tr>
<td>turtle</td>
<td>杯 méi ‘stick’</td>
<td>简 jīn ‘utensil’</td>
</tr>
</tbody>
</table>

12 Zhang has exhaustively calculated the classifiers used in 17 texts from Han to Wei-Jing and Southern-Northern Dynasties.
<table>
<thead>
<tr>
<th>Nouns</th>
<th>Han Period (206 BC–220 AD)</th>
<th>Six Dynasties (222–589 AD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>索</td>
<td>用 méi ‘stick’</td>
<td>章 zhàng ‘opening’</td>
</tr>
<tr>
<td>扁</td>
<td>用 méi ‘stick’</td>
<td>具 jù ‘utensil’</td>
</tr>
<tr>
<td>mat</td>
<td>颈 jǐng ‘collar’</td>
<td>领 lǐng ‘collar’</td>
</tr>
<tr>
<td>印</td>
<td>章 zhàng ‘stick’</td>
<td>章 zhàng ‘stick’</td>
</tr>
<tr>
<td>stamp</td>
<td>颈 jǐng ‘collar’</td>
<td>领 lǐng ‘collar’</td>
</tr>
<tr>
<td>鱼</td>
<td>頭 tóu ‘head’</td>
<td>頭 tóu ‘head’</td>
</tr>
<tr>
<td>fish</td>
<td>頭 tóu ‘head’</td>
<td>頭 tóu ‘head’</td>
</tr>
<tr>
<td>体</td>
<td>章 zhàng ‘stick’</td>
<td>細 niù ‘nugget’</td>
</tr>
<tr>
<td>pearl</td>
<td>章 zhàng ‘stick’</td>
<td>細 niù ‘nugget’</td>
</tr>
<tr>
<td>竹竿</td>
<td>个 gè ‘individual’</td>
<td>个 gè ‘individual’</td>
</tr>
<tr>
<td>bamboo pole</td>
<td>頭 tóu ‘head’</td>
<td>頭 tóu ‘head’</td>
</tr>
</tbody>
</table>

While there is no doubt, as Zhang has observed, that méi and ge were used as generic classifiers as long as they emerged as numerical-classifiers in the Han dynasty, a distinction between the two seems not have been recognized in the literature. For example:

- 枚 méi in Han Period

(14) a. 用十枝, 黃布禅衣一領... (EPT51-66)
   xù jǐn yì méi, huáng bù chán yì yì líng...
   ‘one cotton towel and one yellow buddhistic cloth gown.’

b. 用十枝。 (EPT59-124A)
   shēng shí méi
   ‘ten robes.’

c. 木十五枚...車二枚...軸一。 (EPT57-60)
   mù shí-wǔ méi...chē ěr méi...zhóu yì.
   ‘fifteen trunks...two carriages...one axle.’

d. 齐一枚。 (M6D13, Zheng)
   bǐ yì méi.
   ‘one (writing) brush.’

e. 具榆六枝, 绉十枝, 弓二枝, 笠二枝。 (Ju Jian: 383)
   jùzhù wǔ méi, gōu shí méi, gōng ěr méi,
   jùzhù wǔ méi, hook ten méi, bow two méi,
   nǚ ěr méi,
   cross-bow two méi,
   ‘there are six Juzhuang-s, ten hooks, two bows and two cross-bows.’

f. 梁王曰: “若寡人國小也, 尚有 (徑寸之珠照車前後各十二)
   聖者十枝 (奈何以萬乘之國而無寶乎?)”
   (Shi Ji, Tianjing Zhongwan Shijia)
   Liáng Wáng yuē: “ruò guǎ rén guó xiǎo yě, (…)
   Liang King say: though my country small prt.
   shàng yōu (…) shèng zhē shí méi (…).”
   still have (…) carriages Prt. ten méi (…).”
   ‘The King of Liang said: “though my country is smaller,
   I still have (…) sets of carriages (…).”’

g. 鳥一枚。 (Shuo Wen)
   niǎo yì méi.
   ‘one bird.’

h. ... 大柔十枚...。 (Shang Han Lun)
   ...dà-róu shí méi...
   ‘ten Darou herbs.’

i. ...取四方石一枚, 六方石一枚。 (Zhong Ben Qi Jing)
   ...qū sì-fāng shí yī méi, liù-fāng shí yī méi.
   ‘to take one quadrilateral stone one méi, hexagon stone one méi
   ‘to take one quadrilateral stone and one hexagon stone.’
- 简/个 gē in Han Dynasty
(taken from Zhang Cheng 2009, Hong Cheng 1963 and Da Zhengyu 2004)

(15) a. 其礼...少牢则羊左肩七个... (Liji, Shaoyi)
qi lǐ... Shàoào zé yáng zuǒ-jiān qī gē...
Its ritual... Shaolao then sheep left-shoulder seven ge
‘By Ritual, seven sheep left-shoulders are used for Shaolao worship.’

b. 譬如群竖然，一个负矢，群矢皆走。 (Guoyu, Wuju)
pírú qún shù rán, yī gē fù shǐ, qún shù jiē zǒu.
For group animal like, one ge get arrow, group beast all run.
‘Like animals, if one got shot, the others all run away.’

c. 一個婦女...，一個婦男...。 (Guoyu, Wuju)
yī gē fù-nǚ...，yī gē fù-nán...
one ge legitimate daughter...，one ge legitimate son.
‘one legitimate daughter...，one legitimate son.’

d. 竹竿萬个。 (Shi Ji, Huozhi liezhuan)
zhú-gān wàn gē.
bamboo-pole ten-thousand ge
‘Ten thousand bamboo poles.’

e. 麂皮四個。 (Guoyu, Qiyu)
lù pí sì gē.
deer skin four ge
‘four deer skins.’

- 个 gē in Wei-Jin Period (taken from Liu Shihu: 1965)

(16) a. ...取其剔齿 fraudulent一个。 
(Lu Yun, Yu Xiong Pingyuan Shu)
...qū qí tí-chǐ-qiàn yī gē
...take his pick-clean-teeth-stick one ge
‘...take one toothpick.’

b. 且寺内先有数个猛狗，但见一狼，狗无从就来吠噬。 
(Wang Zhao, Sheli Ganying Jiibu)
qiě sì nèi xiān yǒu shù gē měng gǒu,
Temple inside have several CL violent dog.
(17) Chronology and structure of classifiers in Han Period and Wei-Jin Period

<table>
<thead>
<tr>
<th>Chronology</th>
<th>Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Han Dynasty (and before)</td>
<td>[Noun Num CL (méi/gē)]</td>
</tr>
<tr>
<td>Wei-Jin Period (and after)</td>
<td>[Num CL (gē/méi) Noun]</td>
</tr>
</tbody>
</table>

This contrast, as we observe here, is extremely important for the development of classifiers in classical Chinese.

First, as argued in Wu Fuxiang, Feng Shengli and Huang Zhengde (2006), the structure of [N Num CL] (i.e., 人十個 rén shí gē 'people ten CL') and the structure of [Num CL N] (i.e., 十個人 shí gē rén 'ten CL people') are different. The former is a predicative structure while the latter is nominal, as evidenced in the following example (taken from Wu et al., 2006):13

(18) 賜米人五斛. (Quan jin Wen, Vol. 30)

cǐ mǐ rén wǔ Hú.
give rice person five Hu (a measure of grain)
‘give every person five Hu of rice.’

Though the [N + Num + (adverb) + CL] is a predicate structure shown by the example (18) before the Wei-Jin Period (220–420 AD), it does not logically mean that the same linear forms in (Pre-)Archaic Chinese should be analyzed the same as there are for the Wei-Jin Period, given the argument that Pre-Archaic Chinese may be a different type of language in terms of (1) its word order (i.e., an SOV language as Yu (1981), Feng (1995)… etc., have suggested), (2) its nominal system (i.e., a lexically-realized dìv type language as seen above) and (3) its typology (i.e., an synthetic language as SL. Zhang (1945), D. Xu (2000) and J. Huang (2010) have suggested). In addition to the above properties, Classifiers (or semi-classifiers) in Modern minority SOV languages (like the Yi language exemplified in [23]) also developed from the nominal structure of [N Num CL]. Taking all these considerations into account, it is plausible to consider the [N Num CL] structures in (Pre-)Archaic Chinese as remnants of the lexically-realized dìv system. In other words, it is possible that the [N Num CL] is analyzed as a nominal structure in the old SOV grammar in Pre-Archaic Chinese, and also as a predicate structure in the newly developed analytical language after the Eastern Han (Feng 2009). To illustrate this point, comparing the two syntactic analyses in (19):

(19) Earlier Structure

\[
\begin{array}{c}
\text{VI} \\
\text{give 贊} \\
\text{VP2} \\
\text{Adv} \\
\text{米 rice} \\
\text{人 person} \\
\text{[拾] V2 QP} \\
\text{Give}
\end{array}
\]

Later Structure

\[
\begin{array}{c}
\text{VI'} \\
\text{V2'} \\
\text{V2'} \\
\text{QP} \\
\text{H}
\end{array}
\]

(19) represents a structure of any phrases. The re-bracketing process is what ‘reanalysis’ is about and it happens all the time in the history of syntactic changes of human languages.14 Under the hypothesis given above, the [N Num

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13 The analysis and the tree diagram presented here were developed by J. Huang in Wu Fuxiang, Feng Shengli and J. Huang (2006), see also Liu (1965: 48–52) for more examples of this type. The following example also supports the predicate analysis:

(1) 肾有兩枚. (Shi Ji, Bianque Liezhuan)

shēn yǒu liǎng méi
kidney has two méi
‘there are two kidneys’

14 It is always possible that an early-structure, say A, can be reanalyzed as a late-structure B in two different asynchronous systems. For example, the SOV word order in Archaic Chinese (cf. 汝何所 rú hé zǐ ‘You what know’) is a remnant structure from Proto-Chinese and it was reanalyzed within the SOV system of Archaic Chinese by movement of the wh-object to a preverbal position (Feng 1996).
mei] and [Num ge N] will be treated differently from previous analysis because if [N Num mei] is a nominal structure (of the old SOV system), it will be different from the nominal structure of [Num CL N] (of the new SVO grammar). If, on the other hand, the [N Num mei] is a predicate structure (through a reanalysis on the old structure by new generations of the Late Han dynasty), it will also be different from the nominal structure of [Num CL N] as well. That is:

\[
\begin{align*}
(20) & \quad \text{[N Num mei]_{\text{vp}} (Pre-Archaic)} \neq \text{[Num ge N]_{\text{vp}}} & \text{typological difference} \\
& \quad \text{[N Num mei]_{\text{vp}} (Post-Han)} \neq \text{[Num ge N]_{\text{vp}}} & \text{structural difference}
\end{align*}
\]

The above hypothesis is strongly supported by a stunning fact given in (17): as far as chronology and the original property of generic classifiers are concerned, the generic classifier positions are almost in complementary distribution. Before Han, generic classifiers (overwhelmingly mei) occur in [N Num CL], while after Han, generic classifiers (mainly ge) occur in [Num CL N], in each of their early stages of classifier developments.

These facts raise some interesting and important questions with respect to previous analysis.

First, if mei, as a generic classifier, developed from a [Num CL] predicate structure before (or during) Han according to Wu et al. (2006), but ge, as a generic classifier, originated from the [Num CL N] nominal structure during and after Han as seen before, how could the two different structures produce a same result of generic classifiers? This question is difficult to answer by treating the [N Num mei] as a predicate structure (Wu et al. 2006), because within that structure (i.e., the [Num mei] predicate), mei cannot be a classifier since there is no noun for which a classifier is needed. Put differently, there is no classifier position within the [Num mei] predicate, and this inevitably leaves us with a “predicate-classifier” contradiction. Obviously, the predicate-hypothesis cannot explain why generic classifiers like mei developed in a [N, [Num mei]_{\text{predicate}}] structure. On the other hand, the plausible answer, as suggested above, may be this: the [N Num mei] may indeed be a nominal structure of the SOV system in Pre-Archaic Chinese before (and around) the 11th century BC, and accordingly, a generic classifier like mei could legitimately be developed in that position.

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15 Actually, there is evidence showing that a head-initial nominal structure in archaic Chinese (cf. 锺彼中林 zhong bi zhong lin = look at middle wood 'look at the inside of woods') changed to a head-final structure such as zhong lin 中林 'inside woods' > lin zhong 林中 'woods inside'. Examples like this support the argument made here for the word order change of Classifiers-nominal structures from archaic Chinese to medieval Chinese. I would like to thank the anonymous reviewer for pointing this out for me.

Given this analysis, it becomes plausible why generic classifiers were first developed in the final position of the nominal structure and the predicate-classifier contradiction can be resolved as well. Of course, under this analysis the structure given in (18) will be taken as a result of reanalysis by later generations (SVO speakers) on the old SOV system.

While the predicate-classifier contradiction can be resolved as seen above, there is still an empirical question difficult to resolve by traditional analysis, namely, why generic, rather than specific classifiers were created in the beginning (but not later on) of classifier developments? The general view of classifier development is that specific classifier/s developed first and then more general classifiers, building upon the specific ones, developed later on. However, the actual fact is just the opposite: a generic one [like mei] appeared in the beginning and specific ones followed. Why is that so?

In fact, Zhang has clearly recognized the question and made an interesting suggestion: it was the requirement of grammar, not that of semantics as some scholars have believed, that gave rise to the category of numeral classifier which emerged and formed in the period of Late Archaic Chinese (200 AD). This syntactic explanation, as I would like to argue, has significantly advances our understanding of the development of classifiers in Chinese because it provides deeper insight of the grammatical requirements: the classifier is required by syntax, thus the generic one/s is/are favored to fill up the classifier position wherever and whenever there is one.

Though the syntactic approach has brought a significant insight into the study of Chinese classifier developments, it encounters a serious challenge when we scrutinize the data exemplified as follows ((21a) is repeated from [16b]).

\[
\begin{align*}
(21) & \quad \text{a. 且寺內先有數個猛狗, 但見一狼, 狼無不競來吠聲。} \\
& \quad \text{Wang Zhao, Shi\'e Ganyin Ji\'ibie}\text{u} \\
& \quad \text{qi\'e s\'i n\'e xi\'an y\'ou sh\'u g\'e m\'eng g\'ou,} \\
& \quad \text{Temple inside have several CL violent dog,} \\
& \quad \text{d\'an jian yi\'e lang, g\'ou wu\'bu jing ai fei\'e ni\'e.} \\
& \quad \text{sudden see one wolf, dog all even come bark bite.} \\
& \quad \text{The temple has several violent dogs and when they suddenly saw a} \\
& \quad \text{wolf, all of them barked and came out to fight.'}
\end{align*}
\]

\[
\begin{align*}
(21) & \quad \text{b. 七杖鐵丸\ldots 八杖鐵丸。(Fa yuan zhu lin)} \\
& \quad \text{qi\'e mei te tie w\'an\ldots shi ba tie w\'an} \\
& \quad \text{seven CL hot iron ball\ldots ten-eight iron ball} \\
& \quad \text{‘(there are) seven hot iron balls... (and) eighteen iron ball...’}
\end{align*}
\]
If, as one would expect, the general classifier is required by grammar, why does the grammar not equally require a/the general classifier in the same environment? This question cannot be adequately answered with a purely syntactic approach. The dilemma we are facing is this: there must be a grammatical requirement otherwise it is difficult to explain why a general classifier was developed in the early stages of classifier developments. Yet, there must not be such a requirement, otherwise it is difficult to explain why there are nouns that do not need a classifier in the same syntactic environment by the same writer. To put it differently, there is hardly a syntactic reason why mèng gòu 猴狗 ‘violent dog’ needs ge 個, while lóng 龍 ‘wolf’ does not in (21a); and why rì tè wán 热丸 ‘hot iron ball’ needs méi 枚 when there are seven, while tiě wán 鐵丸 ‘iron ball’ does not when there are eighteen in (21b). If there is no syntactic reason for why some nouns need a classifier méi/ge but some others do not, the emergence of general classifiers cannot be attributed to a requirement of grammar, because there is no grammar (categorical requirement) required in examples like (21).

Of course, the random emergences of some syntactic features (cf. the déjà in the present case) may reflect an unstable rate of grammatical change that varies in time and place as it is sometimes observed in diachronic syntax in different languages. However, it is crucial to note that the rate-variation of a new grammar generally results from (or determined by) various linguistic factors, including (1) different syntactic environments, (2) different semantic fields, (3) different stylistic devises (文體的差 wén-bǐ-zhī-chà), (4) different genre (文體的區別 wén-tí de qūbié), (5) different register (語體的不同 yǔ-tǐ de bùtóng), or even different grammars between two generations (cf. diglossia).16 Unfortunately, there were no obvious examples that would be considered as factors that could give rise to the classifier variations in classical Chinese. What we actually found are free variations like the following.

(22) a. 夫人曰: 我今與汝百枚金錢。其婢報曰: 我不須。
夫人復答: 與汝二百枚乃千枚金錢。
(Zengyi’tah’an jīng)
fù-rén yuè: wǒ jīn yǔ rù bāi méi
Madam say: I now give you hundred méi
jīn-qían. Qí bì bāi méi yuè:
gold-money. Her slave-girl reply say:

wǒ bù xū. Fù-rén fù gào: yǔ rú ěr bāi!
I not need. Madam again tell: give you two hundred!
Nǎi zhī quàn méi jǐn-qían.
Even up to thousand méi gold-money.
'The madam said: “now I give you one hundred (pieces of gold) money.” Her slave-girl replied: “I don’t need it”. Madam tell her again: “give you two hundred!” (The number of money) even (goes) up to one thousand.'

b. (苗栗探長用五百銀錢，盡用之。霍木君) 華極真數錢，乃展五千。貧其銀寶，與五百華，自留兩枚。
(Tai Zi Ruiying benqí jīng Shang)
(Pāsā) tān náng zhòng wǔ bāi jīn-qían,
Buddha search bag inside five hundred silver-money,
jiāng yòng yǔ zhī. Qū Yì niàn: huá jī
all use give her. Qu Yi think: flower outmost
zhī shù quàn, nǎi gǔ wǔ bāi: tān
worth few money, even spend five hundred crave
qí yín-bāo, yǔ wǔ jīng huá, zì liú. ěr méi
its silver-gem, give five stem flower, self keep two méi
‘Buddha searched out five hundreds of silver-money from his bag and gave them all to Ju Yi. Ju Yi thought that the flowers cost outmost a few pieces of silver, he even spent five hundred for it. But she is greedy for the money, so she gave five flowers to Buddha and kept two for herself.’

As seen in (22a) and (22b), méi appears randomly with the same noun: jīn-qían 金錢 ‘gold-money’ or yín-qían 銀錢 ‘silver-money’. It shows clearly that the alternative usages of the generic classifier have nothing to do with the different types of nouns, and hardly any genre or style are responsible for the variations as well. This, once again, causes a problem for the syntactic account.

Now we are facing a syntactic dilemma again: on the one hand, the appearance of general classifiers indicates a change of grammatical system of the numerical structure NP; on the other hand, the non-categorical (or random) usages of the general classifiers give no condition for the syntactic approach to be held. The problem then is: why there are general classifiers randomly appearing in the same syntactic environments in the beginning of their development?

Based on the facts given before and regarding the syntactic problems outlined above, I would like to propose that the emergence of the general classifiers is motivated by the grammar of prosody. That is to say, a classifier is required or
at least preferred in environments where prosody is defective and thus a classifier is used to overcome the prosodic defect. This implies that in environments where prosody is satisfied, no metrical help is necessary and thus a classifier is optional. This hypothesis explains, as seen in next section, why there are variations between \([N \text{ [Num]}_1 \lbrack \text{CL}_A \rbrack] \) and \([N \text{ [Num]}_2 \lbrack \text{__} \rbrack \) in the (Pre-)Han times, and between \([\text{[Num]}_3 \lbrack \text{CL}_B N \rbrack] \) and \([\text{[Num]}_3 \lbrack \text{__} \rbrack N \) during and after Han dynasties (ca. 206 BC–220 AD), during the process of the change. In other words, whether or not the nominal structure in early stages of their developments is formed with a classifier, is a reflection of the prosodic requirement, a topic that will be explored in details in next section.

7 Prosodically Motivated Classifiers in Archaic Chinese

How could prosody affect the emergence of classifiers in a nominal structure? Before we answer this question, it is worthwhile to look at the prosodic behavior of the classifiers in Modern Yi, a minority language spoken in southern China (tested by Hu).

(23) Mandarin Modern Yi
a. wù gè rén a'. co nga yuo a". co * nga
five CL people people five CL people five
'five people'

b. wūshí gè rén b'. co nge-ci yuo b". co nge-ci
fifty CL people people fifty CL people fifty
'fifty people'

b. wū gè rén c'. co -ma * nge c". co -ma nge ci
five CL people people CL five people CL fifty
'five people'

What we can see from the above examples is clearly a prosodic effect on the numerical forms in its nominal structure.\(^{17}\)

\(^{17}\) In Yi, the CL for 'people' varies depending on the number and phonological environment, but they will not affect the argument presented here.

(24) i. In the structure of \([N + \text{monosyllabic numerical form}] \), if the NF (numerical form/number) is monosyllabic, then the NF is not acceptable (23a');

ii. In the \([N + \text{monosyllabic numerical form + CL}] \), if the NF + CL form is a disyllabic unit, then the result is acceptable (23a').

iii. If the NF is disyllabic itself, the result is also acceptable (i.e., \([N + \text{disyllabic numerical form + __} ] \) even if there is no CL (23b'/c').

The striking fact about the classifier structure in Modern Yi is that in the final position of the numerical expressions, whether or not there is a classifier depends on the prosodic qualities of the numerical form. If it is monosyllabic, a CL is needed for otherwise the \([N + \text{Num}] \) form is prosodically ineffectible. If, on the other hand, the numerical form is disyllabic, then the result of \([N + \text{Num}] \) is grammatical without the CL. Doubtlessly, prosody affects the use of the classifier.

Given the prosodically constrained classifier in Yi, I would like to suggest that the emergence of classifiers in classical Chinese may also be affected by the same force of prosody. This hypothesis is supported by the following facts. First, like the examples in Yi, when the numeric word is monosyllabic, it hardly occurs at the end of the NP. For example, there are hardly any cases like the following in our data:\(^{18}\)

(25) a. *左肩七 (cf. [15a])

* zuōjiān qī
left-shoulder seven'

b. *竹竿万 (cf. [15d])

* zhúgān wàn
bamboo-pole ten-thousand'

---

\(^{18}\) We are well aware that there are a few counterexamples like the following found in classical documents Zuo zhuan (左传, 定公年):

(ii) 公子地有白马四。
Gōng zǐ dì yǒu bái mǎ sì
'Gongzi Di has white-horse four
'Gongzi Di has four white-horses.'

However, it is undeniable that monosyllabic numbers often occur with a classifier in a nominal structure as seen above and the exceptions are sporadically few. Nevertheless, more work is needed to account for the exceptions in future research.
c. *僧中一间 (cf. [14a])
   *xù-jìn yì
cotton-twale one'

Secondly, monosyllabic numeric words seem also to be excluded from the [Num] [NN] structure, hence there are almost no examples like (26).

(26) a. *一负矣 (cf. [15b])
   *yì fù shǐ
one got shoot'

b. *一嫡男 (cf. [15c])
   *yì dí-nán
one legitimate-son'

c. *数猛狗 (cf. [16b])
   *shù měng-gǒu
few violent-dog'

d. *三石柱 (cf. [16d])
   *sān shí-zhù
three stone-pole'

e. *千金钱 (cf. [22a])
   *qiān jīn qián
thousand gold-money

Given the "non-existent" evidence and the pros-o-syntactic hypothesis above, it is expected that monosyllabic numerical words should commonly occur with a classifier in [N Num CL] before (and during) Han and in [Num CL N] during (and after) Han. This prediction is born out as shown in examples seen above and given below.

(27) - [N Num + CL]
a. 斧二枝。(Dunhuang Hanjian: 690)
   fǔ èr mèi
axe two mèi
'two axes'

b. = (14e) 具植六枚，钩十枚，弓二枚，弩二枚。(Jujian: 383)
   júzhuāng liù mèi, gōu shí mèi, gōng èr mèi, nú èr mèi.
   'there are six Juzhuang-s, ten hooks, two bows and two cross-bows.'

c. 買狗四枚。(Jujian: 343)
   mǎi gǒu sì mèi
buy dog four mèi
'To buy four dogs.'

d. 非植一枝。(Jujian: 516)
   fēi-shù yì mèi
fei-tree one mèi
'one Fei tree.'

e. = (16c) 一個嫡女...一個嫡男...。(Guoyu, Wuju)
   yī gè dí-nǚ..., yī gè dí-nán...
one ge' legitimate daughter..., one ge' legitimate-son.
on 'one legitimate daughter..., one legitimate-son.'

f. = (16c) 善法寺...有两个桿桿...。
   (王劭 Wang Zhao, 舍利感應記別錄 Sheli Ganying Jibie lu)
   Shànfa sì... yǒu liǎng gè Huà shù... 
   Shanfa Temple... has two ge' Huà tree
'There are two Huà trees in (...) Shang fasì.'

g. = (16d) 堂屋西壁下...有三个桿桿。 (Sou Shen jì, Vol. 1)
   táng-wū xī bì xià... yǒu sān gè shí zhù.
central-room west wall under... have three ge' stone pole
'the three stone poles... under the west wall of the central room.'

The commonly observed classifiers almost all occur after a monosyllabic numerical word, indicating strongly that it is prosody that motivates the use of classifier in the very beginning of their developments.

Although we don't have native speakers to provide grammatical judgments on the prosodic structures (as we have for the Modern Yi examples), the examples given in (25) and (27) are quite self-evidenced: a classifier emerges when the number is monosyllabic (such as er 'two', qī 'seven', bāi 'hundred', qiān 'thousand'), while it can be omitted if the number is disyllabic (such as èr-bāi
The Syntax and prosody of classifiers in Classical Chinese

(29) zuò mèng 作夢 (Fayuanzhulin, Vol. 76)
a. 其夜作夢, 見有人來。
 qi yè zuò mèng, jiàn yǒu rén lái
that night make dream, see have men come
‘(He) had a dream that night, (in the dream) he saw a man coming.’
a’. (顆) 夜夢之曰 (Zuozhuang)
(kē) yè mèng zhì yuè
(Ke) night dream him say...
‘One night, Ke dreamed about him saying...’

b. 作婿 (Fubenxinya, Vol. 17)
b. 仁者何工用巧之人作婿為?
 rēn zhē hé yòng gōng qiǎo zhī
benevolent man why need artistry ‘s
rēn gōng zuò hūn wěi
man together make-marriage Question-Particle
‘Why a benevolent man need to marry a artistry’s daughter?’

b’. 與作婿 (Shi Ji, Sima Xiangru Liezhan).
(Shi Ji, Sima Xiangru Liezhan).
xiàngru yǔ Zhuo Shī hūn, rào yǔ cáo.
(Xiangru) with Zhuo Ms. marriage, rich on fortune
‘Xiangru got married with Ms. Zhuo (who made him) a great fortune.’

(29) zuò yǒu 作友 (Fubenxinya, Vol. 25)
c. 我不與汝作友
 wǒ bù yòng rǔ yǔ wǒ zuò yǒu.
I not need you with me make friend
‘I don’t need to make a friend with you.’
c’. 不作友者 (Lunyu, Xue Er)
 wǔ yǒu bù rǔ jǐ zhě.
not friend no as self one.
‘(One) should not make a friend with one who is not as good as you.’

Why does the covert (zero) lightverbs in Archaic Chinese become overt (i.e., phonetically realized) during (and after) Eastern Han? Other than external
(social or cultural) reasons, Feng (2008) argues that the phonetically realized
lightverb syntax in late Archaic Chinese is motivated by prosody. Consider the
following examples:

(30) a. 不鼓而鸣。(Fobenxing JiJing)
   bù gǔ ér míng.
   Not drum but sound
   ‘The drum sounded without drumming it.’

b. 是彼大眾...或复騰鐘, 或鼓手。(Fobenxing JiJing, Vol. 8)
   shì bǐ dà-zhòng... huò fǔ tén gěng, huò
time these people... some again toss bell, some
   fǔ dà gǔ.
   again beat drum
   ‘At that time, those people... some tossed bells and some drummed
drums again’

c. 复鼓打鼓揚鐘, 遍告城內人。(Fobenxing JiJing, Vol. 14)
   fǔ jiāo dà gǔ yáng zhēng, biàn gǎo chéng-nèi rén.
   again let beat drum shake bell, everywhere tell city-inside people
   ‘Let them beat the drum and shake the bells again, telling the city
   people everywhere.’

d. 天魔軍眾忽然集, 處處打鼓震地鳴。(Fobenxing JiJing, Vol. 29)
   Tiān mó jūn zhòng hū-rán jí, chū-chū
   Heaven evil army many sudden gather, everywhere
   dà gǔ zhēn dì zào.
   beat drum shake earth noisy
   ‘The army of the heaven-evil suddenly gathered. They drummed
everywhere and shaken the earth so noisy.’

f. 不久打鼓, 明星欲出。(Fobenxing JiJing, Vol. 36)
   bù jiǔ dà gǔ, míng xīng yú chù.
   not-long beat drum, bright star almost out
   ‘After while, (they) beat drums and then the bright stars come out.’

In (Pre-)Archaic Chinese, nouns like fǔ gǔ ‘drum’ can easily be verbalized
(i.e., denominative) through a head-movement to the empty position ‘v’ shown
in (30a); In Late Archaic Chinese, however, the empty v must be filled up with
a phonetically realized (light-) verb in order to meet the prosodic grammar of
the language. The prosodic requirement for phonetically realized lightverb is
evidenced by the fact that there was hardly any covert lightverb-operation used
as an independent foot in the environments where overt lightverbs were used
(‘()’ represents footing group):20

(31) a. *(或又) (鼓 _)
   huò fǔ gǔ
   some again drum
   ‘some drummed drums again’

b. *(或鼓) (鼓 _) (揚鐘)
   fǔ jiāo gǔ yáng zhēng
   Again let drum shake bell
   ‘Let them beat the drum and shake the bells again.’

c. *(處處) (鼓 _) (震地) (鳴)
   Chū-chū gǔ zhēn dì zào.
   everywhere drum shake earth noisy
   ‘They drummed everywhere and shaken the earth so noisy.’

d. *(不久) (鼓 _), *(明星) (欲出)
   bù jiǔ gǔ, míng xīng yú chù.
   Not long drum, bright stars almost come.
   ‘After while, (they) beat drums and then the bright stars almost
come out.’

---

20 Note that the gǔ in (30a) is not used as an independent foot, instead, it forms a foot with
bù which licenses its denominative process prosodically.
The “non-existent” examples in (31) can be systematically accounted for by their defective prosody, that is, ǔ‘drum,’ as a monosyllabic word, cannot stand along under the disyllabic foot requirement of the language at that time. As a result, (31) confirms the hypothesis that it is prosody that motivates the covert lightverbs to become overt in environments where prosody is defective, which parallels to examples (23) and (28).

Given all the arguments above, it becomes quite convincing that prosody may not only trigger the overt light nouns to appear, but also the covert light verbs to become overt. If this is so, the syntactic operations of the phonetically realized Ꝍ (i.e., lightverbs) and the morphologically realized div (i.e., lightnouns or classifiers) receive a unified explanation: both of them are activated by a prosodic factor in the Late Archaic Chinese grammar.

8 Final Remarks and Conclusion

Regarding the prosodic analysis of the newly developed lightverbs and lightnouns in classical Chinese given above, one may ask why there are parallel proso-syntactic changes between the two functional categories during and after Late Archaic Chinese. The answer, as I would like to suggest, lies in the theory of diachronic syntax. First, according to recent studies on diachronic syntax (Kroch 2000, Ian 2008), internal syntactic changes are subject to a parametric setting (or choice) similar to synchronic variations among different languages. This theoretical assumption entails that there should be no impossible variation allowed by UG (Universal Grammar). Informally speaking, new grammars in the course of syntactic change are hidden operations of the computational system of the language and potentially ready for activation by a next generation of native speakers through relevant (internal or external) factors in the language. Under this scenario and given the fact that independent classifiers and overt lightverbs were newly developed in Late Archaic Chinese, a legitimate question then is: What is/are the factor/s that activates the syntactic operation of the overt lightverbs and lightnouns? More specifically, what is/are the factor/s that activates the div system for the new classifier operation, and, by the same token, motivates the phonological system to spell out the empty lightverbs as well? As I have suggested above, it is prosody that triggers the change of the grammar not only for the syntax of light verbs and nouns, but also other prosodic grammars such as the newly developed disyllabic VV compounds, the [bei VV] structures, the VR structures, and the ba-construction... etc., which are all motivated under the same force of prosody. As a result, the newly developed classifiers in the present study are merely a sub-case of a global change activated by prosody, and thus provide additional evidence for the hypothesis that prosody has changed the Old Chinese from a synthetic language (with a system of segmental-phonological morphology) to an analytical language (with a system of suprasegmental-phonological morphology), around the time of Eastern Han (Feng 2009).

If the theory presented here is correct and acceptable, it will explain not only some diachronic syntax in terms of a prosodic parameterization, but also some changes of literary forms in terms of their poetic prosody (cf., the four-syllable-per-line poem changed into five- and seven-syllable-per-line poems after Han; Feng 2010b), an interesting and interdisciplinary area for future research.

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