Classifiers and some typological considerations

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Abstract
Classifiers, both nominal and verbal, must be taken into consideration as a parameter in typological studies of the numeral classifier languages. Building on previous work, we will show that nominal and verbal classifiers are mutually dependent both chronologically and in terms of their syntactic position. Cross-linguistic data in general, and Chinese in particular, illustrate this dependency: nominal classifiers develop before verbal classifiers and the word order of the two kinds of classifiers is in a complementary distribution, occurring before nouns and after verbs.

Keywords: classifier, typology, word order, complementary distribution

0. Introduction

Since Greenberg's (1963) works on language typology, discussions and studies of this topic have flourished in general linguistics, and the number of investigated languages has increased considerably. Dryer's (1992, 2003) studies of numerous typological characteristics, for example, are based on 625 language samples. According to Dryer, the Chinese language (contemporary Mandarin) is considered an atypical VO language. Some Chinese scholars have also tried to test the assumptions established by Greenberg and Dryer. Among them, Liu Danqing (2003) has analyzed Chinese languages, while Huang Xing (1996) has investigated non-Han languages in China. Their works confirm, for the most part, the ideas put forward by Greenberg (1966) and Dryer (1992). Numerous significant works have been published on different languages. The focus of previous research was predominantly on word order and its plausible implicational relationships with other features. The presence of classifiers in numeral classifier languages, however, was not a salient feature in these studies and their relevance for word order sometimes neglected. Only recent works by Haspelmath *et al.* (2005) and Comrie (2008) began to take classifiers into account as one of the typological parameters in noun phrases. Indeed, in languages with obligatory numeral classifiers, they play an important role in word order typology, at least in Asian languages. Since a majority of these languages belonging to the Sino-Tibetan, Altaic, and Austro-Asiatic families, are in close contact in China, it is interesting to compare how classifiers function and how they influence word order in Chinese (contemporary and classical) and in non-Han languages of China. Our work will build on the significant research results found in Chinese publications, such as Sun Hongkai (1988), Dai Qingxia and Jiang Ying (2004), Li Jinfang and Hu Suhua (eds. 2005), and others.

In this paper, we use 'nominal classifiers' in its usual interpretation: morphemes that denote the shape or class of the referent and used in conjunction with

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the numeral of an NP (Akhenvald, 2000:97). They are to be distinguished from 'measure words', which express measuring units of the referent of the noun. To give examples in Chinese, in (1), the noun *hua* 'flower' is modified by Num+CL, the different classifiers used give a different meaning: while *zhi* refers to flowers with a stem *duo* only refers to the flower itself.

(1) a. 三枝花
sān zhī huā
three CL flower
'three (single stem) flower'

b. 三朵花
sān duǒ huā
three CL flower
'three flowers (without the stem)'

In (2), we have examples of measure words:

(2) a. 三碗水
sān wǎn shuǐ
three MW water
'three bowls of water'

b. 三桶水
sān tǒng shuǐ
three bucket water
'three buckets of water'

While all languages have measure words of some sort, few have numeral classifiers. The term 'verbal classifiers', is used differently here. It is sometimes used as verbal affix referring to predicate argument (Akhenvald, 2000:149) and is found in some American Indian languages and languages of New Guinea and Australia (Akhenvald, 2000:169-171). We define the term as words that measure the action expressed by the VP. For example, in Chinese, (3a) is contrasted with (3b) in the use of verbal classifier.

（3）a. 我听过两次他的讲演
wǒ tīng-guò liǎng-cì tā de jiǎngyǎn
I listen-EXP two-time his POSS speech
'I have listened to his speech twice.'

b. 我听过两遍他的讲演
wǒ tīng-guò liǎng-biàn tā de jiǎngyǎn
I listen-EXP two-time his POSS speech
'I have listened to his whole speech twice.'

Both *cì* and *biàn* provides the unit for counting the number of times of the event. However *biàn* has the additional implication that the event takes place from the beginning to the end, in this case, the whole lecture twice. On the other hand the verbal classifier *cì* does not imply the whole process. It could well mean two times

and each time for a short period. In this sense, not all languages have verbal classifiers, only few languages like Chinese do.

Nominal classifiers have been extensively examined and discussed, but verbal classifiers seem to be less studied. In this paper, we try to understand the syntactic distribution of nominal classifiers and verbal classifiers and their relationship. We believe that the order Numeral Noun (NumN) has to be studied together with classifiers (CL) in languages with obligatory NumCL. It appears that nominal CL generally develop before verbal CL and the distribution of nominal CL and verbal CL shows a mirror symmetric word order (see also Shi Yuzhi, 2006) and the same mirror word order will be shown to be true in cross linguistic data at hand. We will offer tentative explanations on why this is so at the end of this paper.

1. **Numeral and noun**

To examine the evolution of numeral classifier and verbal classifier, we will start with numeral classifier first and with the pre-numeral classifier stage, in which Num directly modifies Noun.

In the literature on typology (Dryer, 1992: 119), the pair NumN and NNum is left unclassified. NumN/NNum order clearly shows a correlation with VO/OV type except in languages of Africa. It is evident in Dryer's statistics that the order NumN strongly correlates with VO order cross-linguistically. Dryer states that "the two orders of numeral and noun are equally common among OV languages" (p118). Independently, Huang Xing's (1996) statistics based on 35 non-Han languages in China corroborate Dryer's observations. One phenomenon is striking in Huang's (1996: 12) table. In the Tibeto-Burman group, belonging to the OV language type, and the Altaic group, also of OV type, 17 languages use NNum order while no language uses NumN order. However, many Tibeto-Burman languages possess classifiers. Thus, these statistics without classifiers are more or less meaningless. The NumN or NNum order can help us better grasp the word order patterns in languages without an obligatory NumCL system. This is the case in Old Chinese (OC 11-1st centuries BC) when classifiers were not fully developed. OC is mainly a VO language (Shen Pei 1992, Peyraube 2000 among others). Does this NumN & VO pattern work for OC? See the following table established by Wu Dan (2005):

Table 1. NumN and NNum in Old Chinese

	NumN	NNum
詩經 *Shījīng* 11th-6th centuries BC	25	5
尚書 *Shàngshū* 5th century BC?	22	0
論語 *Lúnyǔ* 5th century BC	4	1
左傳 *Zuǒ zhuàn* 5th century BC[2]	54	6
孟子 *Mèng Zǐ* 4th century BC	35	7
Total	140	19

In this table, the order of NumN and NNum is significant, since at that period classifiers did not exist as a system. It is clear that the NumN order is predominant. NNum existed, but the proportion of its occurrence is only about one in seven. Consider these examples in OC in which the numeral precedes the noun:

[2] The statistics could vary: Wu Dan excludes postnominal numerals which can be interpreted as verbs.

(4) 三　人　行，必　有　我　師　焉（論語.述而）
sān rén xíng, bì yǒu wǒ shī yān（Lúnyǔ. Shù ér）
three man walk, certain have my master final-particle
Walking with two persons, I must have a teacher among them.

(5) 拔　二　城（戰國縱橫家書. 25 章[3]）
bá èr chéng（Zhànguó zònghéngjiā shū. 25）
conquer two city [Jing Ji] has conquered two cities.

(6) 大縣十七（戰國縱橫家書. 26 章）
dàxiàn shíqī（Zhànguó zònghéngjiā shū. 26）
county seventeenseventeen counties

The order NumN (ex. 4 and 5) is most frequent, while the NNum order (ex. 6) is rare in OC (see Table 2). Table 1 also confirms the statistics of Dryer (1992: 118): VO languages exhibit a strong tendency to be NumN. How about Middle Chinese (MC), after the Chinese language had undergone a typological change (Xu Dan 2006) starting in the Western Han (206 BC-23 AD)?

2. Word order change of Chinese nominal classifiers

According to previous scholars such as Wang Li (1958), Hashimoto (1977), Peyraube (1998) and others, classifiers began to develop during the Han. According to the commonly accepted view, there are three steps (simplified here) illustrating the use of classifiers in the Chinese noun phrase (the symbol ">" meaning "evolve toward") :

(7) NumN > NNumCL > NumCLN

Some comments are necessary to explain this change. The evolution is not linear (we will discuss this in more detail later). The schema of the first step (NumN) does not imply that NNum did not exist. This phenomenon is parallel to VO vs. OV word order in Chinese; the fact that Old Chinese was mainly a VO language does not exclude some OV order sentences, which existed but were not dominant (Xu Dan 2006). In Table 1, we saw that NumN order coexists with NNum, but the latter does not represent the prevalent word order tendency of that period. At a later time, the dominant order NumN stabilized. Table 2 is a summary of the distribution of NumN, NNum and NNumCL based on an excavated text of the 戰國縱橫家書 *Zhànguó zònghéngjiā shū* (*ZZJ* ± 195BC, hereafter *ZZJ*).

Table 2. NumN and NNum and NNumCL in the *ZZJ* (± 195BC)

N and Measure Word[4]	NumN	NNum	NnumCL

[3] 戰國縱橫家書 *Zhànguó zònghéngjiā shū* (*ZZJ* ± 195BC) [Letters of Strategists in the Warring States period].

[4] Measure words (MW) exist in all languages such as 'a cup of tea' in English or 'une tasse de thé' in French. These words helped the development of classifiers in Chinese but they must not be considered as classifiers. In this paper we distinguish MW and CL. Tables based on other scholars' works does also make this distinction.

Common noun	65	3	0
MW 里 *lǐ* half kilometer	15	0	0
MW 乘 *shèng* 'chariot'	8	0	2
MW 年 *nián* 'year'	7	0	0
MW 月 *yuè* 'month'	4	0	0
MW 歲 *suì* 'year' (age)	2	0	0
MW 丈 *zhàng* measure word	2	0	0
MW 仞 *rèn* measure word	2	0	0
Total	105	3	2

Excluded from this table are proper nouns such as 三晉 *Sān Jìn*，三梁 *sān Liáng* and so forth. The word 乘 *shèng* 'chariot' is different from other measure words. It can be used as a noun (8 occurrences) and classifier (twice). The only two examples of NNumCL involve *shèng*:

(8) 臣 以 車 百 五十 乘 入 齊（戰國縱橫家書.第 8 章）
chén yǐ jū bǎi wǔshí shèng rù Qí（ZZJ. 8）
I take chariot hundred fifty CL enter Qi
I will take one hundred fifty chariots to go to the State of Qi.

(9) 於氏（是）為 長安 君 約 車 百 乘
（戰國縱橫家書.第 18 章）
yúshì(shì) wèi Cháng'ān jūn yuē jū bǎi shèng (ZZJ 18)
then for Chang-An prince arrange chariot hundred CL
Then [Empress Zhao] arranged one hundred chariots for her son Chang An.

The statistics in Table 2 are self-evident. The order NumN is the most attested at that period in this excavated text. Many linguists such as Peyraube (1998) are right to indicate that measure words were used first, and classifiers showed up later in the same slot. We distinguish measure words from common nouns in order to better see their development. Measure words like *lǐ* 'half kilometer', *nián* 'year' and *yuè* 'month' are most frequently seen in this text. The order NNumCL is found twice. This is due to the text's style. In the same tomb, other texts about medicine were excavated. According to Zhang Junzhi and Zhang Xiancheng (2002: 220), the order NNumCL/MW is attested more than 100 times in the 五十二病方 *Wǔshí'èr bìng fāng* 'fifty-two prescriptions' (almost the same period as the *ZZJ*). It is unfortunate that the authors did not distinguish measure words from classifiers. In fact, more than 60% measure words in their data are included in their statistics. In any case, their studies confirm that the order NNumCL began to develop around the Han period[5]. Observe two examples drawn from this excavated text.

[5] The study of Wei Desheng (2000: 128) shows the same tendency, NNumCl order is not rare in the 睡虎地秦墓竹簡 *Shuì hǔ dì Qín mù zhújiǎn*, an excavated text on bamboo slips dated from around the 3rd century BC.

(10) 烏豙（喙） 十四 果（顆）（五十二病方）
wū y ì（hu ì） *sh ́ ì* *guǒ（kē）（Wǔshí'èr bìng fāng）*
aconitum fourteen CL
fourteen aconitum

(11) 龍須（鬚） 一 束（五十二病方）
lóng xū（xū） *yī* *sh ù*
rush one CL
one bundle of rush

Recent studies such as Sun Yan (2000), Wu Dan (2005), Wu Fuxiang (2006) among others show that the order NumN without classifier was the dominant order until the Tang Dynasty (618-907). According to Wu Dan and Wu Fuxiang (2006: 556-557), during 5th century AD, NNum or NumN[6] without a classifier made up 90% of cases in transmitted texts. This situation remained the same until the Yuan Dynasty (1271-1368). It is clear that the situation drastically changed beginning in the Yuan, as indicated in Table 3 below. In other words, classifiers became obligatory much later than current studies suggest. Here are two examples from transmitted texts:

(12) 出一編書 (史记 55)
chū yī biānshū (Shǐjì)
take out one CL book
[He] took out one book.

(13) 馬三匹（左傳.莊公 16）
mǎ sān pǐ (Zuǒ zhuàn. Zhuāng gōng 16)
horse three CL
three horses

Now let us observe statistics from other scholars. The following table suggests that the order NumN (with some NNum) lasted at least until the Tang, while the order NNumCL began to develop in the Han and coexisted with NumN. In other words, the development was not linear from the first stage to the second stage, but with overlaps.

Table 3. Proportion of noun phrases (NP) without CL to NP with CL (by Wu Fuxiang 2006 based on Wu Dan 2005)

Periods	N Num and Num N (without CL)	N Num CL and Num CL N
	(figures represent relative frequency, not tokens)	
先秦 Xiān Qín ca. 8th-3rd c. BC	10	1
漢代 H àn d ài 206 BC-220 AD	9	1
魏晉南北朝 W èi-J ì n Án-Běi-Ch áo ca. 3rd-6th c. AD	10	1
唐代 T ángd ài 618-907	4	1

[6] The authors did not give the statistics on either NumN or NNum.

宋代 Sòngdài 960-1279	3	1
元代 Yuándài 1271-1368	2	1
明代 *Míngdài* 1368-1644	1	5
清代 *Qīngdài* 1644-1911	1	7

The boundary between the second and third steps (NNumCL>NumCLN) does not appear to have taken place earlier than the Tang. Studies by Wang Li (1958), Hashimoto (1977), Peyraube and Wiebusch (1993), Sun Yan (2000), Wu Dan (2005) and Wu Fuxiang (2006) converge to the same conclusion. Consider the following table by Wu Fuxiang (2006: 559) based on Wu Dan (2005):

Table 4. *Relative frequency* of NumCLN and NNumCL

Periods	Num CL N	N Num CL
先秦 *Xiān Qín* ca. 8th-3rd c. BC	1	5
漢代 *Hàn dài* 206 BC-220 AD	1	3
魏晉南北朝 *Wèi-Jìn Nán-Běi Cháo* ca. 3rd-6th c. AD	1	1
唐代 *Tángdài* 618-907	5	1
宋代 *Sòngdài* 960-1279	9	1
元明清 *Yuán Míng Qīng* 1271-1911	15	1

The independent observations of Sun Yan (2000: 407) based on a text from the late Tang confirm the above statistics, i.e. NNumCL is attested more than NumCLN even though the two orders coexisted. All of these studies show that the Chinese language became a NumCL language after the Tang Dynasty, and the order NumCLN won as a dominant order only around the 13th century AD.

Monographs and articles on classifier development are numerous. Scholars note that fully-fledged classifiers are almost all monosyllabic. At the first step, echo classifiers are found on bone inscriptions. Many Tibeto-Burman languages still use echo classifiers. Li Yuming (2000) indicates that this type of classifier is a primitive phase in classifier development. We can say at least that the reverse process, i.e. a classifier becoming an echo classifier, is not reported. When general classifiers are formed or become mature, echo classifiers become restricted and eventually disappear. As scholars have pointed out, measure words were first used with numerals, and by analogy classifiers took the same position later in noun phrases. We will not deal with all these details in this paper.

3. Development of verbal classifiers compared with nominal classifiers

In some numeral classifier languages, verbal classifiers are also attested. In general, verbal CL develop after nominal CL and are apparently much less numerous. Now we examine how verbal classifiers evolved in Chinese and compare its development with nominal classifiers. It is a well known fact that in Chinese verbal classifier is obligatory and shows in postverbal position, as in VNumCL. But it did

not start this way. Scholars agree in general[7] that verbal classifiers develop in these three steps:

(14) NumV > VNum > VNumCL

Again, each step is not without some exceptions, but the main tendency is illustrated by these steps. According to several different studies, the order NumV was dominant before the Han:

(15) 吾 日 三 省 吾 身 （論語.學而）
wú rì sān xǐng wú shēn (Lúnyǔ.Xué ér)
I day three introspect I body
I examine myself three times a day.

(16) 曷為 三 遇 齊 王 而 不 言 事 ？（荀子.大略 35）
héwèi *sān* *yù* *Qí* *wáng* *ér* *bù* *yán* *shì* *？（Xúnzǐ. Dàlüè35）*
why three meet Qi king Conj Neg talk
Why did he not mention affairs of state after three audiences with the king of Qi ?

A few instances of the order VNum are also found (cf. Tang Yuming [1990], 2002). Here is a table illustrating verbal quantification expressions in OC, from Tang Yuming ([1990], 2002: 203).

Table 5. NumV and VNum in Old Chinese

	NumV	VNum
尚書 *Shàngshū* 5th century BC?	4	1
詩經 *Shījīng* 11th -6th centuries BC	1	0
左傳 *Zuǒ zhuàn* 5th century BC	126	9
論語 *Lúnyǔ* 5th century BC	8	0
孟子 *Mèngzǐ* 4th century BC	13	0
荀子 *Xúnzǐ* 4th-3rd centuries BC	39	0
墨子 *Mòzǐ* 5th century BC?	43	0
莊子 *Zhuāngzǐ* 4th-3rd centuries BC	38	1
韓非子 *Hánfēizǐ* 3rd centuries BC	62	2
戰國策 *Zhànguócè* first century BC	52	5
禮記 *Lǐjì* first century BC	26	9

[7] Hong Yifang (2000) notes the order 'Num CL V' in her data. This order appears twice in the texts of Tulufan (4th-8th centuries) (p.69), while in the texts of Dunhuang (8th-10th centuries), it occurs half of the time of the 'V Num CL' order, i.e. 33 'Num CL V' (p.129) vs. 61 'V Num CL' in the Dunhuang Bianwen (p. 127). Is it due to the style of these texts or other factors? It is worth noting that in the texts of Dunhuang, the order 'Num CL N' is more frequent than 'N Num CL', i.e. 375 vs. 246 (pp. 110-111). It seems that the word order was undergoing changes during this period.

It is clear that the occurrences of NumV represent the predominant order in OC while a few instances of VNum can be seen. In the earliest examples with VNum given by Tang, we notice that in most of them (7 out of 10) the verb is limited to 笞 *chī* 'flog, beat with bamboo stick', or 鞭 *biān* 'flog'. This finding is further confirmed by the statistics of Wen Desheng (2000: 127-128) from the 睡虎地秦墓竹簡 *Shuì hǔ dì Qín mù zhújiǎn* (*SHD*）, an excavated text on bamboo slips dated from around the 3rd century BC. Wei noted that there are six instances of VNum order, all with the verb 治(笞) *chī* 'flog'. The order NumV, in contrast, is used 17 times. Here is an example with VNum order given by Tang in OC:

(17) 當 笞 五十（睡虎地秦墓竹簡）
dāng *chī* *wǔshí*（*SHD*）
must beat.with.bamboo.stick fifty
This merits fifty beatings with a bamboo stick.

In example (17), the order VNum is used. But this order is not frequent in OC. Real verbal CLs are found in the Wei-Jin period. Observe example (18):

(18) 讀 書 百 遍 而 義 自 見。（三國志）
dú *shū* *bǎi* *biàn* *ér* *yì* *zì* *xiàn*.（*Sānguó zhì*）
read book hundred CL Conj meaning self to become visible ?
Reading a book one hundred times, the meaning itself becomes clear.

In Table 6 we have roughly sketched classifier evolution in Chinese:

Table 6. Synthesis of the nominal CL and verbal CL development

先秦 *Xiān Qín*	漢代 *Hàn dài*	魏晉 *Wèi-Jìn*	唐宋 *Táng Sòng*	元 *Yuán*
NumN	NumN	NumN	NumN	NumN
(NNumCL)	NNumCL	NNumCL/ NumCLN	NumCLN	NumCLN
NumV	VNum (VNumCL)	VNumCL	VNumCL	VNumCL

Parentheses mean that the order began to exist. The absence of some orders such as NNum or VNum does not imply that they did not exist, but they were not representative at these periods. In comparing classifier development in Chinese, we notice that nominal CLs and verbal CLs began to develop from the same origin but ended up in different places:

(19) NumN > NNumCL > NumCLN
NumV > VNum> VNumCL

Table 6 shows that
(1) At the beginning, Num preceded either N or V;
(2) The verbal CL began to develop when CL was fully-fledged in the NP;
(3) The order NumCL in NPs became prenominal, while NumCL in a VP remained in the postverbal position.

The development of classifiers in Chinese may lead us to conclude that nominal classifiers develop before verbal classifiers in NumCL-obligatory languages. It is interesting to see that the distribution of nominal CL and verbal CL are complementary. Sun Hongkai (1988: 351), Tang Yuming ([1990], 2002: 206) and Shi Yuzhi (2006: 192-193) have already noted this phenomenon. We will add some pieces of evidence to contribute to the discussion.

4. Cross-linguistic complementary distribution of nominal classifiers and verbal classifiers

In section 3, we showed that nominal classifiers and verbal classifiers ended up taking complementary positions in Chinese syntax. One point has to be noted: at the beginning, their distribution was not complementary. A numeral could precede a noun as well as a verb; and NumCL started out at the same side of noun or verb: post nominal and post verbal. Now let us observe the distribution of nominal CL and verbal CL in non-Han languages and in cross-linguistic data. As we have just mentioned above, scholars noticed the complementary distribution of nominal classifiers and verbal classifiers in Tibeto-Burman languages and in the history of Chinese. Here we provide a larger sample of languages, which goes beyond Tibetan-Burman languages to include Altaic and Austro-Asian languages. A linguistic map of languages of China is provided as Appendix I at the end.

Table 7. Complementary positions of classifiers in cross-linguistic data

Languages	VO/ OV	NumCLN NNumCL	other orders	VNumCL NumCLV	other orders	Sources
Tibeto-Burman groups of Sino-Tibetan languages						
Tibetan						
Maqu Zang	OV	NCLNum		CLNumV		Zhou 2003
Cangluo	OV	NCLNum	NNum	CLNumV		Zhang 1986
Menba	OV	NCLNum	NNum	CLNumV		Lu 2002
Baima	OV	NCLNum	NNumCL	CLNumV		Sun 2007
Yi (Lolo)						
Yi (Xide)	OV	NNumCL		NumCLV		*ZGDYY* 2007
Lahu	OV	NNumCL		NumCLV		Chang *et al.* 1986
Naxi	OV	NNumCL	echo CL : N1NumN2	NumCLV		He & Jiang 1985
Sangkong	OV	NNumCL		NumCLV		Li YS. 2002
Kazhuo	OV	NNumCL		NumCLV		Mu 2003
Rouruo	OV	NNumCL		NumCLV		Sun *et al.*

						2002
Bai	VO	NNumCL	NCL or echo CL	VNumCL		Xu & Zhao 1984
Jingpo						
Sulong	OV	NNumCL NCLNum	NNum	CLNumV		Li DQ. 2004
Jingpo	OV	NCLNum	NNum	NumCLV		Dai & Jiang 2004
Geman	OV	NCLNum	NNum	CLNumV		Li DQ. 2002
Anong	OV	NNumCL	echo CL	NumCLV		Sun & Liu 2005
Mian						
Langsu	OV	NNumCL		NumCLV		Dai 2005
Achang	OV	NNumCL		NumCLV		*ZGDYY* 2007
Zaiwa	OV	NNumCL		NumCLV		*ZGDYY* 2007
Qiang						
Qiang	OV	NNumCL	NNum when Num=1	NumCLV		Liu 1998
Pumi	OV	NNumCL	NNum	NumCLV		Lu 2001
Rgyal rong (Jiarong)	OV	NNumCL	NNum		NumV	Xiang 2008
Shixing	OV	NNumCL		NumCLV		Xu 2009
Tai (Dong-Tai) languages						
Lakkia (Lajia)	VO	NumCLN		VNumCL		Mao *et al.*1982
Zhuang (Wuming)	VO	NumCLN		VNumCL		Zhang *et al.* 1999
Dai (Dehong)	VO	NNumCL	NCLNum when Num=1	VNumCL		Zhou & Luo 2001
Mak (Mohua)	VO	NumCLN	CLNNum when Num=1	VNumCL	VCLNum when Num=1	Yang 2000
Lachi (Laji)	VO	NumCLN		VNumCL		Li YB. 2000
Biao	VO	NumCLN		VNumCL		Liang & Zhang 2002
Mulam (Mulao)	VO	NumCLN		VNumCL		Bo 2003
Buyang	VO	NumCLN		VNumCL		Li JF. 1999
Hmong-Mien (Miao-Yao) languages						
Miao	VO	NumCLN		VNumCL		Wang *et al.* 1985
Mien (Mian)	VO	NumCLN		VNumCL		Mao 2004
Bunu	VO	NumCLN		VNumCL		Mao *et al.* 1982

Buni (Jiongnai)	VO	NumCLN		VNumCL		Mao and Li 2002
Altaic languages						
Salar (Sala)	OV	NNumCL NumCLN	NNum	NumCLV	NumV	Lin 1985
Korean	OV	NNumCL NumCLN	NNum NumN	NumCLV	NumV	Jin 2005
Manchu	OV	NNumCL	NumN	NumCLV		Wang 2005
Austro-Asiatic languages						
Kemie	VO	NumCLN	echo CL	VNumCL		Chen 2005
Mang	VO	NumCLN	CLN when Num=1	VNumCL	VCLNum when Num=1	Gao 2003
Gin (Jing)	VO	NumCLN		VNumCL		Ouyang *et al.* 1984
Bolyu (Lai)	VO	NumCLN		VNumCL		Li XL. 1999
Bugan (Bugeng)	VO	NumCLN NNumCL		VNumCL		Li YB. 2005
Buxing	VO	NumCLN NNumCL		VNumCL		Gao 2004
Khmu (Kemu)	VO	NumCLN NNumCL		VNumCL		Chen 2002

The classification of languages in Table 7 is from 中國的語言 Zhōngguó de yǔyán (2007). Languages are chosen more or less randomly in one subgroup; recently studied languages and less-known languages have also been added. The list is not exhaustive. In Tibeto-Burman, most groups from Tibetan, Yi, Jingpo and Qiang are represented here. Some languages belong to the Tai (Dong-Tai) and Hmong-Mien (Miao-Yao) groups, as well as the Altaic and Austro-Asiatic families. We can observe the following based on Table 7:

1. The VO or OV order is pertinent for language subgroups (correlates with NumCL and N order) except Bai and Dai (Dehong). Two OV patterns are found, in Tibetan-Burman and Altaic. Two VO patterns are also attested, in Tai-Hmong Mien and Austro-Asiatic. In the Altaic languages, the Mongolic group is absent because it seems that this group does not use CL (measure words are excluded here); a numeral can directly modify a noun.
2. The Num+CL group shows up in the reverse order with N and V respectively, whereas the internal order of the group remains constant (rare exceptions for numeral 1, see also Shi Yuzhi 2006). More precisely, if nominal CLs are on the right of nouns in a language, verbal CLs will be on the left of verbs, and vice versa, regardless of the internal order of Num and CL. According to Sun Hongkai (1988: 341), classifiers are not abundant in languages in which the CL precedes the Num. Dai Qingxia and Jiang Ying's (2004) article confirms that classifiers in the Jingpo language - having a CLNum order in the NP - are at a very primitive stage. In OV languages, NumCL in Yi and Qiang groups and CLNum in Tibetan and Jingpo groups tend to be

postnominal and preverbal. VO languages, except the dialect of Dai cited in the table and some Austro-Asiatic languages, clearly prefer the NumCL order. NumCL occur in prenominal and postverbal position in most of the VO languages studied.

3. Four patterns of the complementary position of classifiers are seen in Table 7.

(a) Tibetan-Jingpo type: NCLNum and CLNumV.

(b)Yi-Qiang type: NNumCL and NumCLV

(c)Tai (Dong-Tai) and Hmong-Mien (Miao-Yao) type: NumCLN and VNumCL.

(d)Mixed type: distribution of Num and CL is less neat. This is displayed in some Austro-Asian and Altaic languages.

Two subtypes, (a) and (b), can be distinguished for OV languages. Likewise, VO languages have two subtypes, namely (c) and (d). Contemporary Chinese (Mandarin) belongs to type (c).

4. Some exceptions exist for the complementary position of classifiers. The Bai language has NumCL order to the right of both noun and verb. In the Dai dialect (Dehong), the distribution is not neat either. NumCLN and NumCLV coexist in Korean, an OV language, and in Buxing, Kemu and Bugeng, three VO languages of the Austro-Asiatic family according to scholars' descriptions (see Table 7). The Buxing or Kemu speakers have close contact with Dai people. This may provide us an explanation why Dai and these languages do not present a complementary distribution of classifiers. In these languages, word order may be continuing to change due to complex contacts between languages.

5. Discussion

In section 4 we saw that in some languages, against the general trend, nominal and verbal classifier distributions are not in complementary positions. We propose that if in one language a nominal CL and a verbal CL are on the same side with respect to a noun or to a verb, then classifiers in this language should be in a developing stage. This could be the situation in Bai, which is influenced by Chinese and always presents atypical characteristics in the Yi group. In other words, we think that Bai is still undergoing transition in terms of word order change in regard to numeral classifiers. In some Austro-Asiatic languages, two orders often coexist; this also suggests that a word order change is taking place. We hope that further studies of these languages will shed light on this issue.

We have looked at Chinese classifier evolution to try to understand the reason why nominal CL and verbal CL tend to be in opposite positions in most languages. Table 6 shows that the orders NNumCL/NumCLN and VNumCL coexisted during the Wei-Jin, and only from the Tang did nominal NumCL and verbal NumCL become complementary. Is the phenomenon found in contemporary Austro-Asiatic languages and in some Dai dialects parallel to the evolution of classifiers in Middle Chinese?

In fact, when nominal quantification and verbal quantification take the same form, i.e. at the same side of a noun or verb, confusion is possible:

(20)	诵	《诗》	三	百（論語.子路）
	sòng	*《shī》*	*sān*	*bǎi（Lúnyǔ. Zǐ lù）*
	recite	Odes	three	hundred

Recite the three hundred Odes

This example is cited by Ye Guichen and Luo Zhifeng (2007). The authors argue that verbal CLs were formed to distinguish themselves from nominal quantification[8]. Here the NP "read-poem-three-hundred" refers to the first *Odes Shījīng* which contains 305 poems. But as Ye and Luo pointed out, nothing in this phrase's syntax would prevent interpreting "three-hundred" as verbal quantification ('three hundred times'). The following example is used by Tang Yuming ([1990] 2002):

(21) 黎明，围 宛 城 三 匝。（史記. 高祖本紀）

l ́m ńg， wə̂ Wǎn ch éng sān zā. (*Shǐjì. Gāozǔ běnjì*)

dawn, surround Wan city three circuit

At dawn, [the army of Liu Bang] circled the City of Wan three times/ in three concentric circles.

This example shows that if nominal CL and verbal CL take the same syntactic position (both at the same side of a noun or of a verb), ambiguities may arise. Tang cited Liu Shiru (1965) who had indicated that the word 匝 zā 'circuit' is a nominal classifier of 城 *ch éng* 'city' rather than a verbal *classifier* of the verb 围 *wə̂* 'surround'. One can suggest that possible confusions between a nominal CL and a verbal CL require readjustment of word order.

The Bai language is another language with such a possible, but unrealized confusion. In a string of words Verb-Noun-CL-Num, it is possible to interpret CL-Num as part of noun phrase or as verbal modifier.

(22) ɑ^{31}ti^{33} ŋv^{55} ɑ^{31}mo^{33} suɑ^{44} lɑ^{42} tõ^{21} kɑ^{33} tshɛ̃^{55}

Dad O.M.[9] mom speak Past speech several NCL

"To Dad, Mom said a few sentences."

(23) ɑ^{31}ti^{33} ŋv^{55} ɑ^{31}mo^{33} suɑ^{44} lɑ^{42} tõ^{21} kɑ^{33} tɑ̃^{21}

Dad O.M. mom speak Past speech several VCL

"To Dad, mom spoke several times."

However, there are no ambiguous classifiers in the language, at least we have not found any ambiguous classifier in Bai.

In conclusion, two possibilities explain the non-complementary distribution of nominal CLs and verbal CLs in some languages. (1) The language has yet to complete a word order change during a historical stage; (2) There is no chance of confusion when nominal CL and verbal CL are on the same side of a noun or verb. However, nominal classifiers and verbal classifiers present a word order in complementary distribution in most languages investigated in our paper.

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[8] We do not agree with their assertion that verbal CLs were already being used in the Qin Dynasty.

[9] O.M. represents object marker.

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Appendix I． Linguistic Map of China
http://schiller.dartmouth.edu/chinese/maps/map2b.html