

Marking (in)definiteness in classifier languages*

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Abstract: Nouns in Chinese-type languages behave differently in several salient ways from those in Germanic and Romance languages. To name a few: Chinese-type nouns do not have obligatory plural markers (-s/es) or articles (*a/an/the*), but they do have a unique, systematic inventory of classifiers, or words that obligatorily appear with nouns and numbers. Though Chinese-type languages have a great deal in common with one another in the nominal domain, we observe that these languages vary dramatically with respect to how definiteness and indefiniteness are encoded. This paper explores these differences and proposes a modified model of NPs based on Krifka (1995) and Chierchia (1998) to accommodate data from both Chinese-type languages and languages with obligatory plural marking.

Keywords: arguments, classifier languages, classifiers, determiners, (in)definite, kinds, Mandarin, noun phrases, numerals, predicates

1 General issues and puzzles about nominal phrases

The interpretation of a nominal phrase (NP), traditionally, can be clarified as being definite, indefinite, or generic.¹ For example, in (1a) the NP *the dogs* is interpreted as definite, denoting some particular dogs that both the speaker and the listener know; the NP *a dog* in (1b), by contrast, is interpreted indefinite and denotes any dog (a specific one or a nonspecific one) that the speaker saw but is not identifiable to the listener; in (1c), the NP *dogs* is interpreted as generic and means dogs in general.

- | | | |
|-----|----------------------------|--|
| (1) | a. I saw <u>the dogs</u> . | (definite: expressed by <i>the</i>) |
| | b. I saw <u>a dog</u> . | (Indefinite: expressed by <i>a</i>) |
| | c. <u>Dogs</u> bark. | (Generic/Kinds: expressed by \emptyset) |

In the literature, the article-like determiners (Ds), such as *the*, *a/an*, and a null D \emptyset , distinct from other members of the determiner family such as *that* or *this*, have been viewed as the source of different interpretations of NPs (e.g., Chierchia 1998; Longobardi 1994). Interestingly, languages show considerable variation at the level of D. Some languages have articles among their determiners and still allow nouns to be used in the bare form. For example, in English, although

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¹ NPs are used in a theoretically neutral way to mean nominal phrases in general in this paper and are not used in the sense of the debate between NPs (noun phrases) and DPs (determiner phrases).

singular count nouns cannot be used in the bare form (2a), plural count nouns and mass nouns are allowed to appear bare without Ds (2b).

- (2) a. *(The/A) dog is barking. (English: sometimes D)
 b. (The) dinosaurs are extinct.

Some languages, such as French (3), have articles but ban nouns from being used in the bare form.

- (3) a. *(La) baleine joue (French: always D)
 the whale plays
 “The whale is playing.”
 b. *(Les) baleines sont en train de disparaître.
 the whales are in the process of disappearing
 a. “The set of subspecies of whales is becoming extinct.”
 b. “Whales are becoming extinct.” (Vergnaud and Zubizarreta 1992)

Some languages, such as Russian and Hindi, do not have overt articles and freely allow nouns to be used in bare forms (4).

- (4) a. kamre meN cuuhaa hai (Hindi: never D)
 room in mouse is
 “There’s a mouse in the room.”
 b. kutte bahut bhau Nkte haiN
 dogs lot bark
 “The dogs/Dogs bark a lot.” (Dayal 2004)

The languages mentioned above share two features: they have morphological exponents of grammatical number obligatorily marking their count nouns. For example, in English, the question of whether we are talking about *one book* or *many* will determine the form of the noun we use: *book* versus *books*. In addition, numerals in the above languages combine directly with nouns: *one book* versus *two books*. We refer to languages such as the ones above as number marking languages (NMLs).

A question that immediately arises here is why some languages insist so much on having Ds while others do not. Unfortunately, this question cannot be fully understood if we focus only on NMLs. Not all languages are number marking: most Sino-Tibetan languages, such as Mandarin and most other East Asian languages, do not express grammatical number and, more importantly, do not allow numerals to combine directly with nouns. For example, in Mandarin, a “measure word” or “classifier” is required to connect a noun with a numeral regardless of whether the noun is conceptually count or mass (5).

- (5) a. *san xuesheng a'. san ge xuesheng (Mandarin)
 three student three Cl² student

² The following abbreviations are used in this paper: Cl = classifier; PERF = perfective; PAST = past tense; NOM = nominative; ACC = accusative; PROG = progressive; Top = Topic; 1P = first person; SPF = sentence final particle; 3sg = third person singular; ABL = ablative; INTR = intransitive.

		“three students”
b. * <i>yi</i>	<i>shui</i>	<i>b'.yi sheng shui</i>
one	water	one Cl _{liter} water
		“one liter of water”

Many authors establish a connection between the number morphology and the classifier (Borer 2005, a.o.; Cheng and Sybesma 1999; Doetjes 1997; T’sou 1976). They either observe that the use of number morphology and that of classifiers are in complementary distribution (T’sou 1976; cf. Borer 2005: 93) or argue that their roles are parallel—for example, classifiers and the number morphology both signal the presence of minimal parts (e.g., atoms/groups) (Doetjes 1997: 35). Based on either their complementary distribution or their parallel roles, those authors identify classifiers with the number morphology and propose that they appear in the same position in the structure. In this paper, we refer to languages with a typically extensive inventory of “measure words” or “classifiers” that must be used in combining a numeral with any noun as *classifier languages* and contrast them with NMLs.³

Most classifier languages do not possess overt articles; in fact, some authors have predicted that if a language has an obligatory classifier system, it will not develop articles such as *the* in English in its grammar (Bošković 2010; Chierchia 1998). All classifier languages that we know of allow their nouns to be freely used in bare forms (see, e.g., Chierchia 1998). An example from Mandarin is given in (6).

- (6) *wo kanjian-le gou.* (Mandarin)
 I see PERF dog
 “I saw the/a dog/dogs.”

In this paper, we investigate NPs in classifier languages and aim to understand the correlation between various structures and different interpretations of NPs in classifier languages. We consider how the facts from classifier languages fit into and inform the general picture of NPs. This is a fundamental question for understanding language variation. Specifically, this paper aims to understand the following four puzzles: (1) For languages without articles, where do the different interpretations come from? (2) Is the category “article” absent in the grammar of all classifier languages? (3) Why are classifiers obligatory in languages such as Mandarin? and (4) What is language specific and what is language universal in the NP domain? Our proposal seeks to move away from a Eurocentric view of grammar, but we still adhere to the view that there is a universal core to all languages. This paper is organized as follows. Section 2 presents the typological properties of NPs in classifier languages. Section 3 shows the nature of the current debate on NPs and briefly review two main hypotheses and their problems. In Section 4, we propose a modified model of the structure and semantics of NPs based on one of the two hypotheses. Section 5 summarizes and concludes.

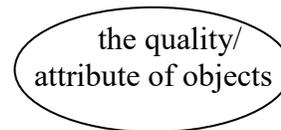
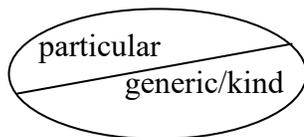
2 Typological properties of NPs in classifier languages

Before we proceed to discuss the properties of NPs in classifier languages, we briefly review some terminology crucial to our discussion. Nouns, as we know, can play two roles. First, nouns can denote entities or individuals and serve as *arguments* in the structure. The entities/individuals

³ For a more refined definition of “classifier languages,” see Jiang (2012).

that nouns denote can be particular, such as you, the readers, or us, the authors, or general or kinds (7a).⁴ Second, nouns can denote *properties* and serve as *predicates* in a sentence. Properties are the attribute of objects—something general to different individual objects rather than just one object (7b). For instance, the noun “firemen” serves as the argument in the sentence in (8a) and denotes general individuals, namely “firemen in general”; the adjective “brave” in (8a) serves as the predicate in this sentence and denotes the property that the references of the argument share. The noun “firemen” in (8b) serves as a predicate in this sentence; semantically, it denotes the property of the reference of the argument—that is, the two particular individuals “Bill and John.”

- (7) a. Entities/Individuals (serving as arguments) b. Properties (serving as predicates)



- (8) a. Firemen are brave.
 Argument: “firemen” (denoting generic individuals)
 Predicate: “brave” (denoting properties)
 b. Bill and John are firemen.
 Argument: “Bill and John” (denoting particular individual)
 Predicate: “firemen” (denoting properties)

In this paper, we focus on NPs in the argument position. The following subsection examines classifier languages without D, and we show that languages make different choices as to how definiteness and indefiniteness are encoded.

2.1 How do classifier languages without D manage?

In this sub-section, we first use Mandarin as the baseline to illustrate how these different interpretations are expressed, and then we extend our discussion to other classifier languages. Mandarin marks definiteness through bare nouns but not in any other expanded forms of nominal phrases (e.g., Chao 1968; Li and Thompson 1981).⁵ For example, the bare noun *gou* “dog” in (9) is interpreted as definite, referring to a dog that is salient in the situation/context.⁶

⁴ “Kinds” is understood as the plurality (or totality) of all instances that share some properties (see Carlson 1977: 173). References to kinds and characterizing (generic) sentences are two types of generic phenomena which share similarities but also differ in certain aspects. However, the differences between these two types of generic phenomena are irrelevant for the purpose of the current discussion, so we discuss them together; for the details of their differences, see Krifka et al. (1995: 1–8).

⁵ Here we are not concerned with cases in which definiteness is marked through the use of demonstratives; instead we are concerned with cases in which definiteness is marked through either some simple structure (i.e., bare nouns), some functional categories (say, D in languages that have articles), or dedicated word order. We disregard demonstratives because, in addition to expressing definiteness, demonstratives are linked to an act of demonstration, which produces gives “definiteness” additional content. Structurally, many authors have argued that demonstratives and articles, such as *the* in English, do *not* occupy the same position (Alexiadou et al. 2007, a.o.; Brugé 2002; Giusti 1997, 2002; Grohmann and Panagiotidis 2005; Panagiotidis 2000; Shlonsky 2004).

⁶ One of the reviewers provided an example in which a numeral classifier phrase is used to refer to an individual in a given context to show that, in addition to bare nouns, numeral classifier phrases in Mandarin are also interpreted as

- (9) *gou yao guo malu.* [bare nouns]
 dog want cross road
 “The dog wants to cross the road.” (Cheng and Sybesma 1999)

Indefiniteness in Mandarin can be expressed via bare nouns, bare classifier phrases [CI-NP] (i.e., phrases consisting of only a classifier and a noun without numerals), and numeral classifier phrases [Num-CI-NP] (e.g. Chao 1968; Cheng and Sybesma 1999, 2005; Li 1997, 1998).⁷ For instance, in (10), the bare noun *pingguo* “apple” refers to some apples (any apples) that the speaker saw when uttering this sentence; the bare classifier phrase *ben shu* “CI book” refers to a book (any one) that the speaker wants to buy; the numeral classifier phrase *san ben shu* “three CI book” refers to three books (any three) that the speaker wants to buy.

- (10) a. *zhuo shang you pingguo.* [bare nouns]
 desk top have apple
 “There are apples on the desk”
 b. *wo xiang mai ben shu.* [CI + N]
 I want buy CI book
 “I want to buy a book.”
 c. *wo xiang mai san ben shu.* [Num + CI + N]
 I want buy three CI book
 “I want to buy three books.”

As for the generic/kind reading, it can be expressed via bare nouns in Mandarin (e.g., Krifka 1995). For example, the bare noun *konglong* “dinosaur” in (11) refers to a kind of animal, the plurality/totality of instances with certain properties that distinguishes itself from any other kind of animals, such as “fish.”

definite. Cheng and Sybesma (2005) and Jiang (2012) both show that numeral classifier phrases in Mandarin cannot be definite. The type of examples provided by this reviewer indeed has been observed and discussed in Jiang (2012). For example, in (1a) below, the numeral phrases can refer to specific plural individuals in a provided context; however, as shown in Jiang (2012), numeral classifier phrases in Mandarin cannot be used anaphorically (1b). The fact that numeral classifier phrases in Mandarin lack anaphoric use shows that they cannot be used as true definites as NPs can in English. The main reason is that definite articles such as *the* in English are canonically thought to encode maximality, but the contextually referential cases cannot be used to encode maximality (see, e.g., Dayal 2012b). For detailed discussions on numeral classifier phrases in Mandarin, see Jiang (2012: 113–119).

- (1) a. *san ge gongren zuotian yi-zhi gongzuo dao xianzai, wo yao haohao ganxie tamen.*
 three CI work yesterday have-been work until now I need good-good thank them
 “Three workers have been working from yesterday until now. I need to show my gratitude to them properly.”
 Context: the speaker hired three workers, the hearer knows about it but does not necessarily know who they are, and when uttering the sentence the speaker refers to these three specific workers rather than any three workers.
 b. *jizhe-hui shang lai le shi ge jizhe he ba ge xuesheng,*
 press conference top come PERF ten CI reporter and eight CI student
#(na) ba ge xuesheng wen le henduo wenti
 that eight CI student ask PERF man question
 “Ten reporters and eight students came to the press conference; the eight students asked many questions.”

⁷ Strictly speaking, bare nouns in Mandarin can receive a narrow scope existential reading instead of an indefinite reading, but this difference is not important for the purpose of the discussion here. For detailed discussions, see Jiang (2012); Li (2011); Yang (2001).

- (11) *konglong miehue le.*
 dinosaur extinct PAST
 “Dinosaurs are extinct.”

[bare N]

(Krifka 1995)

Turning to other classifier languages, many authors have observed that they employ various strategies to express definiteness and indefiniteness (Bhattacharya 1999; Cheng and Sybesma 1999, 2005; Dayal 2011b, 2012a; Jenks 2011; Kookiattikoon 2001; Li 2011; Liu 2010; Nguyen 2004; Simpson 2005; Simpson et al. 2011; Sio and Sybesma 2008; Trihn 2011; Jiang 2012, a.o.; Yang 2001). In this paper, we choose seven classifier languages carefully examined in previous research that differ from one another in expressing definiteness and indefiniteness: Min, Mandarin, Cantonese, Thai, Vietnamese, Japanese, and Bangla.⁸ These languages come from several different language families, and we classify them based on word order: Subject-Verb-Object (SVO) classifier languages, which include Min, Mandarin, Cantonese, Vietnamese, and Thai, and Subject-Object-Verb (SOV) classifier languages, which include Japanese and Bangla. A summary of the strategies they use to express definiteness and indefiniteness is in (12).

- (12) Summary of strategies to express (in)definiteness and kinds/generic (preliminary chart)

	SVO classifier language					SOV classifier language	
	Min	Mandarin	Cantonese	Thai	Vietnamese	Japanese	Bangla
Definite	bare Ns	bare Ns	?bare Ns bare CIPs	bare Ns Num-CIPs	?bare Ns bare CIPs Num-CIPs	bare Ns	?bare Ns bare CIPs word order
Indefinite	bare Ns Num-CIPs	bare Ns Num-CIPs bare CIPs (restricted)	bare Ns Num-CIPs bare CIPs (restricted)	bare Ns Num-CIPs	bare Ns bare CIPs Num-CIPs	bare Ns Num-CIPs	bare Ns Num-CIPs
Kind/ Generic	bare Ns	bare Ns	bare Ns	bare Ns	bare Ns	bare Ns	bare Ns

These classifier languages differ in how they express definiteness and indefiniteness. Some classifier languages uncontroversially allow their bare nouns to express definiteness (e.g., Min, Mandarin, Thai, and Japanese), but in some classifier languages, controversy exists as to whether their bare nouns can express definiteness (e.g., Cantonese, Vietnamese and Bangla, marked with a question mark in the table);⁹ some allow bare classifier phrases [CI-NP] to express definiteness

⁸ See the following references for each classifier language: Min (Cheng and Sybesma 2005); Mandarin (see Cheng and Sybesma 1999, 2005; Jiang 2012; Li 2011; Yang 2001); Cantonese (see Cheng and Sybesma 1999; Simpson et al. 2011; Wu and Bodomo 2009); Thai (see Jenks 2011; Kookiattikoon 2001; Piriawiboon 2010); Vietnamese (see Nguyen 2004; Trihn 2011); Japanese (Huang and Ochi 2011; Jiang 2012; Nemoto 2005); Bangla (see Bhattacharya 1999; Dayal 2011b, 2012a; Simpson et al. 2011).

⁹ Cheng and Sybesma (1999, 2005) claim that in Cantonese bare nouns are unable to express definiteness, but Wu and Bodomo (2009) and Simpson et al. (2011) show that if a certain context is provided, bare nouns in Cantonese can be read as definite. Regarding bare nouns in Vietnamese, Nguyen (2004: 1–2) claims that they can be interpreted as definite, but Trihn (2011) claims that they cannot be definite. As for Bangla, Dayal (2011b, 2012a)

(e.g., Cantonese and Vietnamese); some use numeral classifier phrases to mark definiteness (e.g., Vietnamese and Thai); in some classifier languages, definiteness is simply marked via a dedicated word order of numeral classifier phrases (e.g., Bangla). Although classifier languages differ greatly in how they express definiteness and indefiniteness, they systematically allow bare nouns to express kind/generic. Below, we present two generalizations concerning bare classifier phrases and numeral classifier phrases based on the table in (12) and illustrate them with examples.

The first generalization is about bare classifier phrases: not all languages allow bare classifier phrases [Cl-N]/[N-Cl]. Some classifier languages, such as Min and Japanese (13), ban them completely; some languages, such as Mandarin (14), allow bare classifier phrases in only one position with only one interpretation; some languages, such as Cantonese (15), freely allow them to appear in both subject and object positions with different interpretations.¹⁰

- (13) a. **kodomo ri-ga benkyoo shite-iru* (Japanese)
 child Cl-NOM study do-be
 Intended reading: “A/The child is studying.”
 b. **John-wa hong satsu-o katta*
 John-Top book Cl-ACC bought
 Intended reading: “John bought a book.” (Jiang 2012)

- (14) a. *wo xiang mai ben shu.* (Mandarin)
 I want buy Cl book
 “I want to buy a book.”
 b. **zhi gou xihuan chi rou*
 Cl dog like eat meat

- (15) a. *ngo soeng maai bun syu lei taai.* (Cantonese)
 I want buy Cl book come read
 “I want to buy a book to read.”
 b. *zek gau zungji sek juk.*
 Cl dog like eat meat
 “The dog likes to eat meat.” (Cheng and Sybesma 1999)

The second generalization concerns numeral classifier phrases: *all* languages have the indefinite use of numeral classifier phrases (16–19), but only some languages, such as Vietnamese and Thai (17), allow their numeral classifier phrases to be interpreted as definite as well as an indefinite, and some classifier languages, such as Bangla (18), allow numeral classifier phrases to employ different word orders to express different interpretations.

- (16) *wo xiang mai yi ben shu.* (Mandarin)
 I want buy one Cl book
 “I would like to buy a book.” (Cheng and Sybesma 2005)

claims that its bare nouns are not read as definite, but Simpson et al. (2011) show that if a certain context is provided, bare nouns in Bangla can be definite as well.

¹⁰ For a fuller picture of the syntactic distribution and semantic interpretations of bare classifier phrases in more classifier languages, see Jiang (2014).

- (17) *Taro-wa hon san-satsu-o katta.* (Japanese)
 Taro-Top book three-Cl-ACC bought
 “Taro bought three books.” (Huang and Ochi 2011)
- (18) *nakrian song-khon ma laew* (Thai)
 student two-Cl come already
 (i) “The two students already came.”
 (ii) “Two students already came.” (Kookiattikoon 2001)
- (19) a. *ami du-To boi dekhechi* (Bangla)
 I two-Cl book seen-1P
 “I have seen two books.”
 b. *ami boi tu-to dekhechi*
 I book two-Cl seen-1P
 “I have seen the three books.” (Bhattacharya 1999)

As we can see, the sentence-level word order does not affect the word order of the numeral, classifier, and nouns in numeral classifier phrases: Mandarin and Thai are both SVO languages; however, Mandarin uses the word order [Num-Cl-Noun], while Thai uses the word order [Noun-Num-Cl]. Japanese and Bangla are both SOV languages; Japanese uses the word order [Noun-Num-Cl], but Bangla allows both word orders: [Num-Cl-Noun] and [Noun-Num-Cl].

There has been a widespread belief that classifier languages lack overt article-like determiners, although they do have specialized structures to express (in)definiteness, seen in the above examples. There is no doubt that this is a strong tendency. Chierchia (1998) proposes a theoretical account of this tendency based on the idea that nouns in classifier languages are kind-referring (i.e., entities; cf. also the classic Carlson 1977); he also speculates that classifier languages will not develop article-like determiners such as *the* in English in their grammar since these languages do not require these determiners to argumentize their nouns (see also Bošković 2010). So, is it true that classifier languages do not have overt article-like determiners? The answer is negative. The existence of a classifier language that does have a overt definite article has been documented (e.g., Jiang 2012; Jiang and Hu 2010). In the next subsection, we look into classifier languages with an overt D.

2.2 Classifier languages with Ds: Yi

Typologically, it is indeed rare for classifier languages to have overt Ds. But Yi is clearly an exception. Yi is the seventh-most-spoken language among the 55 ethnic minority groups in China, comprising 7.76 million speakers (according to China’s 2000 census). The northern branch, which is referred to as *Nuosu Yi*, is the standard as well as the best preserved of the Yi languages. Nuosu Yi is spoken in southern Sichuan and northern Yunnan provinces. The data presented in this paper are from Nuosu Yi. For the purpose of simplification, we refer to Nuosu Yi as Yi throughout this paper.

Yi is a Tibeto-Burman language that is part of the Sino-Tibetan family; it is a *head final* language with SOV word order. Like Mandarin, Yi is a classifier language and has an overt

definite article *su* (e.g., Jiang 2012; Jiang and Hu 2010). Below, we review the distribution of this determiner *su*.

Numeral classifier phrases in Yi are in the order [NP-numeral-Cl] and are interpreted as indefinite; without a classifier, a numeral cannot directly combine with a noun (20a). *Su* can combine with numeral classifier phrases, making them definite; it appears in the *final nominal* position following the numeral-classifier [NP-NumP-Cl *su*] (20b). [NP-NumP-Cl *su*] can be used *referentially* (21a) or *anaphorically* (21b) in any argument position.

- (20) a. *mu sɔ *(ma) li ndo o.* b. *mu sɔ ma su li ndo o.*
 horse three Cl lose PAST SFP horse three Cl the lose PAST SFP
 “Three horses got lost.” “The three horses got lost.” (Jiang and Hu 2010)
- (21) a. *sihni sɔ ma sini ssevo sɔ ma igo nyi,*
 girl three Cl and boy three Cl house sit,
sihni sɔ ma su dzi ndza. [anaphoric]
 girl three Cl Su very beautiful
 “Three girls and three boys are sitting in the house; the three girls are very pretty.”
 b. *tshɿ mu sɔ ma su ʃu bo o.* [referential]
 3SG horse three Cl Su look-for go SFP
 “He went to look for the three horses.” (Jiang 2012)

Yi *freely* allow bare classifier phrases [NP-Cl] in any argument position; Yi bare classifier phrases can be interpreted only as indefinite and as singular (22a, b). *Su* can combine with bare classifier phrases, making them definite (22c, d).

- (22) a. *tsho ma dza dzu ndzɔ.* c. *tsho ma su dza dzu ndzɔ.*
 person Cl rice eat PROG person Cl the rice eat PROG
 “A person is having meal.” “The person is having meal.”
 b. *tshɿ mu ma ʃu bo o.* d. *tshɿ mu ma su ʃu bo o.*
 3SG horse Cl look-for go SFP 3SG horse Cl the look-for go SFP
 “He went to look for a horse.” “He went to look for the horse.”
 (Jiang 2012)

Unlike “this” or “that” in English, *su* is not a demonstrative. Demonstratives in Yi are in two forms: *tshɿ* “this/these” and *a daɿ* “that/those”; they appear in the position between the noun and the numeral if there is one [NP-Dem Num- Cl] (23a) or between the noun and the classifier if there is no numeral [NP-Dem-Cl] (23b). Co-occurrence of demonstratives and *su* is banned (23c, d); this is similar to the case in English: demonstratives such as “this/that” and the definite determiner “the” cannot co-occur.

- (23) a. *tshɿ mu tshɿ/a daɿ sɔ ma ʃu bo o.*
 3SG horse this/that three Cl look-for go SFP
 “He went to look for these/those three horses.”
 b. *tshɿ mu tshɿ/a daɿ ma ʃu bo o.*
 3SG horse this/that Cl look-for go SFP
 “He went to look for this/that horse.”

- c. *mu tshɿ/a daŋ sɔ ma su li ndo o.
horse this/that three Cl the lose PAST SFP
- d. *mu tshɿ/a daŋ ma su li ndo o.
horse this/that Cl the lose PAST SFP

(Jiang 2012)

One might wonder whether *su* is a case marker in Yi since in the cases above, all *su*-marked phrases appear either in the external argument or the internal argument position. However, the fact that *su* can freely appear with case markers excludes the possibility that *su* is a structural case marker (24).

- (24) *su* can freely occur with case markers
Aka bbapga ma su ta la.
Aka village Cl the ABL come
“Aka comes from the village.”

Based on these data and others like them, it is legitimate to claim that *su* has the same role as elements that are uncontroversially assumed to be definite articles (e.g., English “the”) and that it should be analyzed as such. Interestingly, *su* cannot combine with bare nouns (and demonstratives cannot either).

- (25) *mu su li ndo o.
horse the lose PAST SFP
Intended meaning: “The horse(s) got lost.”

(Jiang and Hu 2010)

Based on the above Yi data, an updated summary of ways to express (in)definiteness and genericity/kinds is given in (26).

(26) Summary of strategies to express (in)definiteness and kinds/generic (final table)

	SVO classifier language					SOV classifier language		
	Min	Mandarin	Cantonese	Thai	Vietnamese	Japanese	Bangla	Yi
Definite	bare Ns	bare Ns	?bare Ns bare CIPs	bare Ns Num-CIPs	?bare Ns bare CIPs Num-CIPs	bare Ns	?bare Ns bare CIPs word order	bare Ns an overt D
Indefinite	bare Ns Num-CIPs	bare Ns Num-CIPs bare CIPs (restricted)	bare Ns Num-CIPs bare CIPs (restricted)	bare Ns Num-CIPs	bare Ns bare CIPs Num-CIPs	bare Ns Num-CIPs	bare Ns Num-CIPs	bare Ns bare CIPs Num-CIPs
Kind/ Generic	bare Ns	bare Ns	bare Ns	bare Ns	bare Ns	bare Ns	bare Ns	bare Ns

With this final table, we would like to know what classifier languages can tell us concerning how nouns become arguments and how nominal arguments receive various interpretations. In order to

answer these questions, in the next section, we review the nature of the debate regarding nominal argument formation.

3 The nature of the debate

3.1 The traditional view of noun phrases

The traditional view of NPs treats nouns in English as *predicates*, denoting properties. According to this view, the article determiner (a/an/the) is analyzed as a “converter” that turns nouns into arguments (e.g., Abney 1987; Longobardi 1994; Szabolcsi 1994). As a consequence, the structure of NPs can be analyzed as in (27), in which the functional head D merges with an NP, forming a determiner phrase (DP) {D, NP}.¹¹ Here, we use the definite NP *the doctor* to demonstrate the structure and the semantics of NPs. In the semantics, the definite interpretation of *the doctor* is computed in the following way: the iota operator ι , the canonical Frege-Russell definition of which is “the largest member of X if there is one (else, undefined),” combines with the predicate “doctor” and turns it into an argument with a definite interpretation (27b) (for a detailed analysis of the semantics of English definite determiner, see, e.g., Sharvy 1980; Chierchia 1998).¹²

- (27) a. Structure of noun phrases (in the syntax)
- {D, NP} (Arguments: definite, indefinite, or generic/kind)

```

graph TD
    A["{D, NP} (Arguments: definite, indefinite, or generic/kind)"] --- B["D"]
    A --- C["NP"]
    B --- D["the"]
    C --- E["doctor (Predicates)"]
    
```
- b. Meaning of noun phrases (in the semantics)
- ι (Pred) \rightarrow Argument with a definite interpretation

Next, let us turn to two main hypotheses concerning nouns, reviewed and discussed in Section 3.2.

3.2 The debate between two main hypotheses

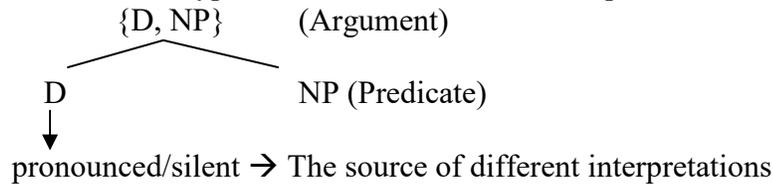
How nouns become arguments has been subject to much debate. Some authors claim that nouns across languages have fixed denotations across languages (e.g., *properties*) and must co-occur with an article-like determiner, distinct from other members of the determiner family such as *that* or *this*, in order to serve as an argument (e.g., Abney 1987; Borer 2005; Longobardi 1994). Other authors claim that languages vary in how they categorize their nouns and that whether nouns require Ds when serving as arguments is a language-specific property, such that some languages require Ds for all their argumental nouns, and others do not (e.g., Chierchia 1998; Dayal 2004; Bošković 2008, 2010). Another way to conceive of this debate is as a difference in whether Determiner Phrases (DPs) are universally projected across languages. Only the latter group of authors allows for variation and parameterization in the obligatory status of D.

¹¹ Although here we have adopted the framework of *bare phrase structure* (Chomsky 1994, 1995, 2000, 2001, 2004) to illustrate the structure of noun phrases, not much would change if we adopted the standard X-bar theory.

¹² On the semantics of other kinds of NP denotations and principles of type-shifting that link various kinds of NP denotations, see Carlson (1977); Chierchia (1984); Heim (1982); Partee (1987); Reinhart (1997); and Winter (1997).

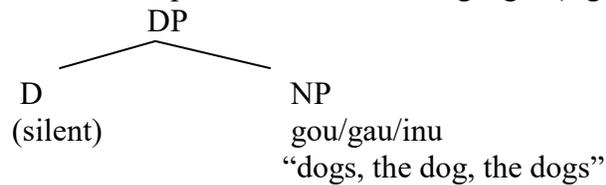
According to the first universal structure hypothesis (aka DP Hypothesis), noun phrases across languages have a uniform structure {D, NP}, as in (28), and it is the functional head D that contributes to the different interpretations of NPs. Importantly, in this hypothesis, the D head can be realized in either a pronounced form or a silent form, depending on the language.

(28) Universal Structure Hypothesis: the structure of noun phrases across languages



A series of consequences follows from this universal hypothesis. First, NPs across languages have a universal structure, Determiner Phrases (DPs). Second, bare nouns in classifier languages are not really bare—that is, its structure is more than just a bare noun. In other words, these classifier languages also have determiners, which just exist in a silent form (e.g., Li 1998, 1999). For instance, the nouns *gou*, *gau*, and *inu*, “dog” in Mandarin, Cantonese, and Japanese, all have a silent D in the structure to combine with them (29). From this point of view, the existence of language like Yi might be expected.

(29) Structure of noun phrase in classifier languages (e.g., Mandarin, Cantonese, Japanese)



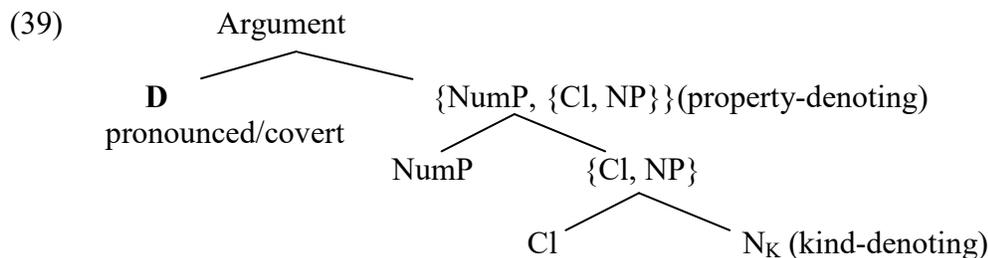
Classifier languages raise two main problems in this Universal Structure Hypothesis. The first is an empirical one raised by Yi and Cantonese, namely, why the definite D *cannot* freely combine with bare nouns in these two languages. As we have seen above, Yi has a definite determiner *su* that can freely combine with numeral classifier phrases and bare classifier phrases. According to this hypothesis, *su* should be able to combine with bare nouns in Yi; however, this is not the case. *Su* is banned from combining with bare nouns, as we have seen in (25) (as repeated in (30)). Similarly, if all classifier languages have Ds, we would expect that the silent D could turn bare nouns in Cantonese into arguments with various interpretations and that Cantonese bare nouns could freely be interpreted as definite. However, this prediction is not borne out. Generally, Cantonese bare nouns are not interpreted as definite (Cheng and Sybesma 1999), although with certain contextual restrictions they could still be interpreted as definite, as with bare nouns in Mandarin (e.g., Simpson et al. 2011; Wu and Bodomo 2009).

(30) **mu su li ndo o.* (Yi)
 horse the lose PAST SFP

The second problem is that this universal analysis says nothing about classifiers, that is, why are classifiers obligatory in classifier languages? These two problems make us consider a second hypothesis.

Since kinds are functions from situations to (possibly plural) individuals (see, e.g., Chierchia 1998: 349), by applying them to a “resource” situation (for an analogue of domain selection, see Elbourne 2001; von Stechow 1994), we get a situation restricted individual e_i . SR, then, can be viewed as a function from kinds to situation-restricted kinds, type $\langle e, e_i \rangle$. It restricts a kind to a specific situation and obtains the *maximal* members in that situation provided by the context. In a sense, SR is analogous to the iota operator (ι).¹⁴

Turning to Ds in classifier languages, if article-like determiners are universally property-taking functions (of, say, type $\langle et, e \rangle$), we should not expect them to combine with bare nouns in classifier languages, as in (36). Nevertheless, if some higher nominal projections above the bare noun, namely bare classifier phrases and numeral classifier phrases, are of a predicative type ($\langle e, t \rangle$), Ds become relevant and may well develop to turn them into arguments (39). Hence, our analysis predicts that if a classifier language develops Ds in its grammar, they will be able to apply only at the level of numeral classifier level, which are property-denoting (40a), but not at the level of bare nouns, which are kind-denoting, given type theoretic considerations (36).



- (40) a. *mu sɔ ma su li ndo o.* (Yi)
 horse three Cl the lose PAST SFP
 “The three horses got lost.”
 b. *mu ma su li ndo o.*
 horse Cl the lose PAST SFP
 “The horse got lost.”

In (40a), the definite D *su* in Yi turns the numeral-classifier phrase into arguments with a definite interpretation; in classifier languages that allows their numeral classifier phrases to be interpreted as definite as well as indefinite, the definite reading of their numeral phrases can be viewed as applying a covert D to their numeral classifier phrases (39). If an intermediate projection between $\{\text{NumP}, \{\text{Cl}, \text{NP}\}\}$ and bare nouns that is of type $\langle e, t \rangle$ (e.g., a bare CIP) is available, Ds can apply at this level as well (40b).

Now, we look at the third question, why the bare classifier phrase in the form of $\{\text{Cl}, \text{NP}\}$ is freely allowed in some languages (Cantonese, Vietnamese, Yi, and Bangla), restricted but allowed in some languages (e.g., Mandarin), and completely banned in some other languages (e.g., Min, Thai, and Japanese). As mentioned above, the universal use of classifiers is its “transitive” use—that is, they require a noun and a numeral in their semantics to complete a *numeral-taking* classifier phrase $\{\text{Num}, \{\text{Cl}, \text{NP}\}\}$. The noun and the numeral can be regarded as two semantic arguments of classifiers. In order to derive *numeral-less* bare classifier phrases $\{\text{Cl}, \text{NP}\}$, a property attested only in *some* classifier languages, an extra operation becomes necessary

¹⁴ One might also note that reference to the maximal sum in a situation here plays a role similar to reference to stages in Carlson’s (1977) theory.

to “remove” one of the two arguments (i.e., the numeral) from the semantics of classifiers. Below, we consider two such processes: the first one is employed by classifier languages, which allow bare classifier phrases in a restricted manner (e.g., Mandarin), the second one is employed by classifier languages and gives rise to unrestricted bare classifier phrases (e.g., Cantonese, Vietnamese, Yi, and Bangla).

Regarding the restricted bare classifier phrases in Mandarin, two main views have been proposed that are opposite in nature. One treats Mandarin bare CIPs as one-deletion from [*one* CI-N] (Borer 2005; Chao 1968; Huang 2014; Jiang 2012; Li 1997; Li and Feng 2013; Lü 1944; and others), the other argues against one-deletion analysis and treats [CI-N] as an independent phrase with no relation to [*one* CI-N] (Cheng and Sybesma 1999; Li and Bisang 2012). For a detailed review of these two views, see Jiang (2012: 193-205). In this paper, we argue for the first view, that the restricted bare classifier phrase in Mandarin is the result of a process that applies in a *restricted* form, via a PF *one*-deletion rule along the lines first pursued in Lü (1944). Below we show the semantic interpretations and the scope behavior of Mandarin bare CIPs, which, as we will see, are similar to those of [*one* CI-N]; these similarities show that Mandarin bare CIP [CI-N] and [*one* CI-N] are closely related. Then we present the phonetic and semantic conditions for eliding *one*, which can also explain how [CI-N] and [*one* CI-N] differ.

Regarding the interpretations of numeral-less classifier phrases [CI-N] in Mandarin, it is widely accepted that they are usually interpreted as nonspecific (see Chao 1968; Chen 2004; Cheng and Sybesma 1999; Huang 2014; Li 1997; Lü 1944; and others), as exemplified below.

- (41) a. *Men-qian you ge ren.*
 door-front have CI people
 “There is someone outside the door.” (Cheng and Sybesma 1999)
- b. *Gangkuan qu zhao (yi) ge ren lai, shenme ren dou xing.*
 Hurriedly go find one CI person come any person all fine
 “Hurry up and get somebody; anybody will be just fine.” (Chen 2004)

The specific interpretation of [CI-N], however, can emerge easily in constructions that require specific interpretations. Below we illustrate this point with two tests. The first test for specificity comes from Lü (1944), Sybesma (1992, 1999) and Chen (2004), who illustrated that the Mandarin *ba* construction requires the nominals that follow it to be interpreted as either definite or specific. Lü (1944: 161) and Chen (2004) have demonstrated that [CI-N] can appear in *ba* construction and has to be interpreted as specific. The two examples in (42) illustrate this point. In (42), *(yi) liang che* “(one) CI car” and *(yi) ge ren* “(one) CI man” must be interpreted as specific rather than nonspecific.

- (42) a. *wo ba (yi) liang che gei diu le*
 I Ba one CI bike give lose Asp
 “I lost a bike.”
- b. *wo ba (yi) ge ren gei dezui le*
 I Ba one CI man give offend Asp
 “I offended a person.”

Another test for specificity is from Huang (1987), who showed that Mandarin bare nouns cannot appear in the secondary predication sentences as in (43a), but the numeral phrase [*one* CI N] can (43b). This test shows that bare nouns do not allow a specific reading and behave differently from numeral phrases.

- (43) a. **wo jiao-guo xuesheng hen congming.*
 I teach-EXP student very intelligent
 b. *wo jiao-guo yi-ge xuesheng hen congming.*
 I teach-EXP one-CI student very intelligent
 “I once taught a student who was very intelligent.” (Huang 1987)

The [CI-N] expression can appear in the secondary predication sentence, which behaves like [*one* CI N] rather than bare nouns and receives a specific interpretation, as exemplified in (44).

- (44) a. *wo kan le (yi) ben shu te you-yisi.*
 I read PERF one CI book rather interesting
 “I read a book that is rather interesting.”
 b. *ta jiao le (yi) ge nüpengyou hen piaoliang.*
 he make PERF one CI girlfriend very pretty
 “He has a girlfriend who is very pretty.”

In addition to being interpreted as either nonspecific or specific, Mandarin bare CIPs share the same scope behavior as the [*one* CI-N] phrase. As shown in Jiang (2012), Mandarin numeral phrases [Num-CI-N] have an island-escaping ability and are interpreted as having a long-distance scope as well as a narrow scope. Mandarin bare CIPs [CI-N], as shown in (45), exhibit the same island-escaping ability as [*one* CI-N] and can be interpreted as having the same long-distance scope.

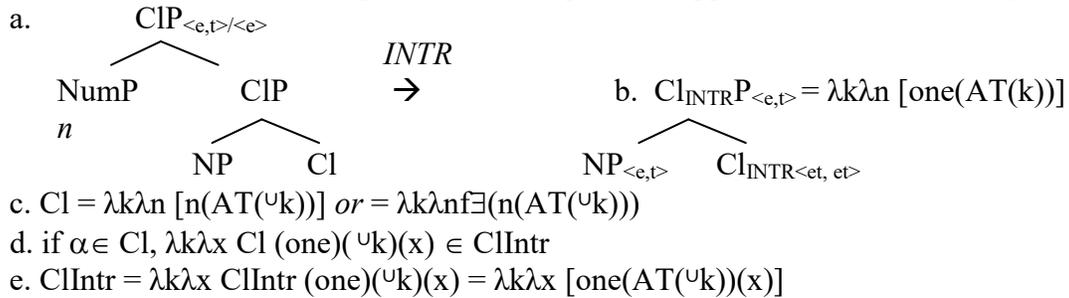
- (45) a. [*ruguo ni neng dai (yi) ge nüsheng lai wo-de paidui de-hua*],
 if you can bring one CI girl come my party if
ni he duoshao wo dou mai-dan.
 you drink much I All pay-bill
 “If you can bring one girl to my party, no matter how much you drink I will pay for it.” [a girl > if], [if > a girl]
 b. *mei ge youke dou bei (yi) ge nühai-r huyou mai le yi bu shouji.*
 every CI visitor all Pass one CI girl hoodwink buy Asp one CI cellphone
 “Every tourist was hoodwinked by a girl to buy a phone.” [a girl > \forall], [\forall > a girl]

In (45a), for example, under the wide scope reading ([a girl > if]), (*yi*) *ge nüsheng* “(one) CI girl” is interpreted as *a specific girl*, and the speaker will pay for the hearer’s drink if the hearer brings that specific girl to the party. In contrast, under the narrow scope reading ([if > a girl]), (*yi*) *ge nüsheng* “one CI girl” is interpreted as nonspecific, and the hearer’s drink will be paid for *as long as* he/she can bring a girl (*any one*) to the party. Admittedly, the prominent interpretation of the [CI-N] phrase is the narrow scope nonspecific reading; however, the wide scope specific reading is still available and becomes prominent when the verb or the noun is stressed or when the sentence is produced with a rising intonation.

“one” that is deleted from [*one* Cl-N], the [Cl- N] phrase can only be interpreted as singular.¹⁵ With regard to the distribution of bare CIPs in Mandarin (e.g., (14)), it could be viewed as the result of either some phonological restrictions (e.g., Jiang 2012; Li and Feng 2013; Lü 1944) or some syntactic restrictions, such as government (e.g., Cheng and Sybesma 1999; Huang 2014; Li and Bisang 2012).

To account for the *unrestricted* bare classifier phrases allowed in some classifier languages, we adopt a simple-minded stand on this issue and propose that this could be due to a process that derives them in an unrestricted manner, via a *lexical* “intransitivization” process (INTR) for classifiers, as illustrated in (48).

(48) Lexical Rule *INTR*, deriving bare classifier phrases (applied in unrestricted way)¹⁶



In (48a), the number-taking classifier phrase is the main function of classifiers across classifier languages, and the unrestricted numeral-less CIP use (48b) is derived from the numeral-taking classifier phrases via a *lexical* rule that removes the numeral *n* from the classifier phrases (48c–e). Or this lexical rule of classifiers is tantamount to plugging in a silent “one.” Such a lexical rule is subject to *parameterization* and exists only in some languages. This lexical rule accounts for the variable property of classifier languages, explaining why some languages freely allow bare CLPs (e.g., Yi, Cantonese, and Bangla) and some don’t (e.g., Min, Japanese, and Korean).¹⁷

This proposed analysis of the syntax and semantics of NPs in classifier languages gives us three parameters [$\pm D$, $\pm \text{Cl}_{\text{INTR}}$, $\pm \text{one-deletion}$]. Since nothing in the theory predicts a one-to-one correspondence in the presence of *D*, the lexical rule of classifiers and the one-deletion of CIPs, these parameters predict eight types of classifier languages, as shown in (49).

¹⁵ We take the view that the numeral *one* in bare CIPs is either realized in a phonetically null form or is deleted during the process of externalization in the PF; the difference between the two does not make a difference for the purpose of our discussion.

¹⁶ It might be appealing to propose another analysis for bare CIPs in Yi: unlike Mandarin, Yi allows *one*-deletion everywhere given that “one” is sandwiched between N and Cl in Yi, that is, what comes immediately before the nominal in Yi does not matter, because that element is not adjacent to the numeral “one.” However, such an analysis, although also applicable to Bangla, will not apply to other classifier languages like Cantonese, i.e., its numerals precede both N and Cl, but bare CIPs are also freely allowed.

¹⁷ Regarding how bare CIPs are turned into arguments and how the definite and indefinite interpretations of bare CIPs come about in different classifier languages, see Jiang (2014) for a detailed discussion.

(49) Predicting classifier languages with $[\pm D, \pm Cl_{INTR}, \pm one\text{-deletion}]$

	Classifier language	D	Cl_{INTR}	<i>One</i> -deletion
(i)	Mandarin,	–	–	+
(ii)	Min, Japanese	–	–	–
(iii)	Yi, Bangla, Vietnamese	+	+	–
(iv)	Cantonese	–	+	+
(v)	Thai	+	–	–
(vi)	?	–	+	–
(vii)	?	+	–	+
(viii)	?	+	+	+

In (49), the first five types of classifier languages have been attested, but the last three types, to our knowledge, have not been attested yet. The sixth type of classifier language does not have the functional category D in its grammar or the *one*-deletion of classifier phrases but does have the lexical intransitivization rule of classifiers (i.e., $[-D, +Cl_{INTR}, -one\text{-deletion}]$), and we expect this type of classifier language to have four main properties. First, its bare nouns should denote kinds and behave like those in Mandarin and the other classifier languages. Second, their numeral-classifier phrases should behave like those in classifier languages such as Mandarin and Cantonese in being interpreted as indefinite. Third, it should allow unrestricted bare CIPs by virtue of having the lexical intransitivization rule of classifiers. Fourth, it should disallow the application of *one*-deletion to its numeral-classifier phrases in a restricted manner during the process of externalization in the PF.

The seventh type of classifier languages has the functional category D and *one*-deletion but does not have the lexical intransitivization rule (i.e., $[+D, -Cl_{INTR}, +one\text{-deletion}]$ CILs), and we also expect this type of classifier language to have the four main properties. The first two properties should be the same as in Mandarin and other classifier languages; its third property is that it does not allow unrestricted bare CIPs but does allow bare CIPs in restricted positions; fourth, since the only type of property-denoting nominals is numeral-classifier phrases, D should be detected only at this level, turning numeral-classifier phrases into arguments that are interpreted as definite.

The eighth type of classifier language has the functional category D, the lexical intransitivization rule of classifiers as well as *one*-deletion (i.e., $[+D, +Cl_{INTR}, +one\text{-deletion}]$ CILs); this type of classifier language should have the following four main properties. Its bare nouns and numeral-classifier phrases should behave as in other classifier languages. Its bare CIPs should be freely allowed in the argument position. Ds are detected at both the numeral-classifier phrase level and the bare CIP level. *One*-deletion should be expected to apply to its classifier phrases in a restricted manner during the process of externalization in the PF.

5 Conclusion

In this paper, we have presented data on the syntactic distribution and the semantic interpretations of three types of nominal arguments in several commonly discussed classifier languages: bare nouns, bare numeral-classifier phrases, and bare CIPs. We drew a series of

generalizations about these nominals based on these data; the data and generalizations inform us about the language universals and variation in the nominal domain and show that we need a sophisticated approach to NPs in classifier languages. The newly discovered data from Yi broadens the debate on NPs, but, at the same time, we can still hold on to a universalistic (and ultimately quite simple) view on how nouns work across languages. After reviewing two main hypotheses on nouns, we proposed a modified model of the syntax and the semantics of NPs based on Krifka (1995) and Chierchia (1998). We have provided an account of how the functional category D can arise in classifier languages, a proposal on the source of definiteness across languages and a proposal of bare CIPs. The proposed parameters predict three more types of classifier languages that await verification in future research. This paper only discussed bare nominal arguments in a small number of classifier languages and does not discuss modified nominal arguments. The study of more classifier languages with different nominal systems and modified nominal arguments might lead to an essential reorganization of the current picture. For the time being, however, studying the classifier languages explored here has helped us take a step closer to a general theory of nominal argument formation.

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