Abstract
This paper argues for the projections of both DP and NP for indefinite arguments in Mandarin Chinese. First, bare noun indefinites never occur in topic positions, and they are never specific, in contrast to complex indefinites. Thus bare noun indefinites in the language have the same distribution and semantics as those in non-classifier languages. Second, bare noun indefinites are NPs, rather than DPs. Third, for complex indefinites, an indefinite article is identified. Fourth, a head movement of a classifier to D is attested in the language. Bare Classifier Phrases are thus not independent arguments in the language. Therefore, indefinite arguments in a classifier language can be either NPs or DPs, depending on their formal properties, as in non-classifier languages.

Keywords bare noun, indefinite, classifier, specific, DP, Mandarin

1. Introduction
2. Bare noun indefinites in contrast to complex indefinites
   2.1 Syntactic positions that disallow bare noun indefinites
      2.1.1 The preverbal topic positions
      2.1.2 The post-BA and pre-coda positions
      2.1.3 The specific readings of the indefinites in the topic positions
   2.2 Syntactic positions that allow bare noun indefinites
      2.2.1 Non-topic preverbal positions
      2.2.2 Post-verbal positions
   2.3 The general nonspecific readings of bare noun indefinites
   2.4 Specificity and form complexity
3. Complex indefinites and the projection of DP
   3.1 Mou ‘certain’ and na ‘which’
   3.2 Identifying the null proform of the numeral YI
   3.3 Unstressed YI as one way to realize an indefinite D
   3.4 CL-initial forms contain YI<sub>pro</sub>
   3.5 CL-raising as another way to realize an indefinite D
   3.6 CL-initial constructions as nominal AUX-raising constructions
4. Consequences
5. Conclusions
References
1. Introduction

Syntactic arguments in Mandarin Chinese (MC), a numeral classifier (CL) language, can be in either a simple form (i.e., a bare noun) or a complex form. This paper discusses the formal properties of the two forms of indefinites in MC. On the one hand, Chierchia (1998) claims that the semantic type of bare nouns of CL-languages is fundamentally different from that of non-CL languages. Cheng & Sybesma (1999) claim that indefinites in MC are NumeralPs instead of DPs, for both simple and complex forms. Moreover, Bošković (2008, 2012) claims that article-less languages have no DP. On the other hand, Jenks (2018) shows that for definites, bare nouns are for unique definites and the complex forms are for anaphoric definites in MC, as well as in some other languages. A similar contrast in other CL-languages is reported in Simpson & Biswas (2016) and Simpson (2017). Jenks further argues that bare noun forms are just NPs and complex forms are DPs. Thus, the NP-DP division can be cut with respect to different structures in the same language and the same conditions on the division can be found in both CL- and non-CL-languages. With this background, this paper explores indefinites in MC, to search answers to the following issues: what are the semantic and syntactic categories of bare noun indefinites and complex indefinites in MC?

As generally assumed, a bare noun nominal means a lexical nominal with neither an overt D element of any kind, such as an article or demonstrative, nor any other functional element, such as a CL or numeral. Thus, the post-verbal nominal in (1a) is a bare noun, but those in (1b) and (1c) are complex ones.1

(1)

a. Alin xiang mai shu.  
   Alin want buy book  
   ‘Alin wants to buy (the) book(s).’

b. Alin xiang mai ben shu.  
   Alin want buy CL book  
   ‘Alin wants to buy a book.’

c. Alin xiang mai yi ben shu.  
   Alin want buy one CL book  
   ‘Alin wants to buy a book.’

For complex indefinites, we focus on CL-initial ones, as seen in (1b), and yi-initial ones, as seen in (1c). In MC, yi can be a real numeral, in contrast to another numeral, and it can also encode an indefinite meaning, in contrast to a definite reading (Chen 2003: 1171). I ignore other readings of yi here (see Chen 2003, Zhang 2013: 93, among others). Focusing on the three basic forms of indefinites, I do not discuss nomininals that have a numeral other than yi ‘one’. If such nomininals are purely quantity-denoting, they are represented by a functional category related to quantity, rather that DP (Li 1998). If they are individual-denoting, they may have a similar distribution as yi-initial ones. For example, to the immediate right of BA, either yi or another numeral may occur, as shown in (2). I also do not discuss possessive nomininals, and nomininals that have kind or generic readings.

(2) 阿林{一/兩}個行人撞倒了。  
   Alin ba {yi/liang} ge ren zhuang-dao-le.  
   Alin BA one/two CL person collide-fall-PRF  
   ‘Alin knocked down {one person/two persons}.’

1 Abbreviations: CL: classifier; BA: causative; DE: modification/nominalization; EXP: experiential; IMP: imperative; PRF: perfective; PRG: progressive; PRT: sentence-final particle; Q: question. Acknowledgements: xxxxx.
I intend to show that in MC, bare noun indefinites are NPs, but yi-initial indefinites can be DPs in which yi is an article, and CL-initial indefinites are DPs in which the CL moves from CLP to D.

In Section 2, I discuss the distribution and reading restrictions on bare noun indefinites, compared to complex forms in MC, and compared to bare noun indefinites in non-CL languages. In Section 3, I discuss the syntactic structure and categories of the two types complex indefinites: the yi-initial ones and CL-initial ones. The consequences of my analyses are discussed in Section 4. Section 5 concludes.

2. Bare noun indefinites in contrast to complex indefinites
2.1 Syntactic positions that disallow bare noun indefinites
2.1.1 The preverbal topic positions
Generally speaking, the preverbal matrix subject position does not allow a bare noun indefinite. A bare noun in such a position has a definite reading only (e.g., Chao 1968: 76; Liu 1997: 75). In (3a), for instance, the bare noun mao ‘cat’ has a definite reading only, and it cannot be followed by the question, which asks the identity of the referent of the bare noun. But if the bare noun is replaced with a yi-initial indefinite, as in (3b), the sentence can be followed by the same question. Yi-initial indefinite subjects are extensively discussed in Lee (1986) and Liu (1997a: 92), among others. However, as seen in (3c), a CL-initial indefinite is unable to occur in the matrix subject position (Lü 1990 [1944]: 170).

(3) a. 貓跑了進來. #你知道是誰家的貓嗎？
Mao pao-le jinlai. #Ni zhidao shi shei-jia de mao ma?
cat run-PRF in you know be who-home DE cat Q
‘The cat ran in. #Do you know which home’s cat it is?’
b. 一隻肥貓跑了進來.你知道是誰家的貓嗎？
Yi zhi fei mao pao-le jinlai. #Ni zhidao shi shei-jia one CL fat cat run-PRF in you know be who-home
de mao ma?
DE cat Q
‘A fat cat ran in. #Do you know which home’s cat it is?’
c. *隻肥貓跑了進來.
*Zhi fei mao pao-le jinlai.
CL fat cat run-PRF in

Since in such constructions the preverbal subjects are also topics in the language, we claim that it is the topic position that rejects a bare noun indefinite.

2.1.2 The post-BA and pre-coda positions
Two more positions also reject bare noun indefinites. The first one is found in the BA construction (see Li 2006 for an extensive discussion of this construction). In (4), the nominal to the immediate right of the functional element BA is (yi) feng xin ‘a letter’. (See Lü 1990 [1944]: 161 for more examples of post-BA CL-initial indefinites)

(4) 阿林剛才把(一)封信燒了.你知道是哪封信嗎？
Alin gangcai ba (yi) feng xin shao-le. Ni zhidao shi
Alin just.now BA one CL letter burn-PRF you know be
na fang xin ma?
which CL letter Q
‘Alin burnt a letter just now. Do you know which letter he burned?’

If a bare noun follows BA, it must have a definite reading. Thus, it is not appropriate to ask a question about the referent of the post-BA bare noun, as shown in (5). Therefore, BA rejects a bare noun indefinite to its immediate right. If an indefinite follows BA, it must be in a complex form, as seen in (4).

(5) 阿林刚才把信烧了。你知道是哪封信吗？
   Alin just.now BA letter burn-PRF you know be which 
   CL letter Q 
   ‘Alin burnt the letter just now. #Do you know which letter he burned?’

A post-BA nominal precedes a VP, although, according to Li (2006: 413), in some cases, the nominal may have moved from a VP-internal position. Thus, a post-BA indefinite is preverbal, out of a VP. Moreover, according to Cui (1995: 17), in the BA construction, the post-BA nominal must be a topic, and the VP to its right is the focus. This theory is elaborated and supported in Zhang et al. (2017). Thus, more precisely, again, it is the topic position that rejects a bare noun indefinite.

Another construction under our consideration is a construction where an indefinite is followed by an apparent attributive, which is non-eventive. The construction is called Existential Coda Construction (ECC) in Zhang (2008), (6) is an example. (see Zhang 2008: 18 and Jiang 2015: 336 for more examples of CL-initial indefinites in ECCs)

(6) 阿林娶了{*那個老婆/(一)個老婆/*老婆}不會做飯。
   Alin marry-PRF that CL wife/one CL wife/wife not able cook
   ‘Alin married a wife, who was not able to cook.’

In this construction, to the immediate right of the matrix verb, no definite nominal is allowed. Thus, na ge laopo ‘that wife’ in (6) is banned. Moreover, the right peripheral clause, called coda, looks like a relative clause. For example, bu hui zuo fan ‘not able to cook’ seems to modify (yi) ge laopo ‘a wife’ in (6).

This construction is discussed in Zhang (1977: sec. 3), Tai (1978: 291–293), Li & Thompson (1981: 611–619), Huang (1987), McCawley (1988: 451; 1989: 38–39, and Zhang (2008). It has long been noticed that the indefinite between the matrix verb and the coda may not be a bare noun (Huang 1987: 248). For example, (yi) ge laopo may not be replaced with laopo ‘wife’ in (6) above. We thus see a third position that rejects a bare noun indefinite.

Zhang (2008) argues that in an ECC, the matrix verb takes the whole string to its right as its internal argument, that this argument contains an empty category and a clause, and that the indefinite is a topic in the clause. So the constituency of (7a) is illustrated in (7b) (e is an empty category).

(7) a. 阿林娶了(一)個老婆不會做飯。
   Alin marry-PRF one CL wife/wife not able cook
   ‘Alin married a wife, who was not able to cook.’
b. Alin married [DP e [a wife cannot cook]]

In this analysis, the indefinite itself is not the object of the verb to its left in an ECC. One argument in Zhang (2008) is that VP ellipsis may not strand the coda. In (8a), ye shi ‘also so’ in the second clause correlates with the string mai-le yi ge pibao hen da in the first clause. This string should contain a verb and its whole internal argument. If the coda hen da ‘very big’ were not included in the internal argument, one would expect (8b) to be acceptable. In (8b), the coda is not replaced by ye shi. The unacceptability of (8b) shows that the coda must be part of the internal argument of the verb mai-le ‘buy-PRF.’ In other words, the whole string yi ge pibao hen da is a constituent. In this string, the indefinite precedes the predicate hen da ‘very big.’

\[(8)\]

\[\text{a. 阿林買了(一)個皮包很大,莉莉也是.} \]
\[\text{Alin mai-le (yi) ge pibao hen da, Lili ye shi.} \]
\[\text{Alin buy-PRF one CL wallet very big Lili also be} \]
\[\text{Roughly: ‘Alin bought a wallet, which was very big, and Lili did so, too.’} \]

\[\text{b. *阿林買了(一)個皮包很大,莉莉也很小.} \]
\[\text{*Alin mai-le (yi) ge pibao hen da, Lili ye shi hen xiao.} \]
\[\text{Alin buy-PRF one CL wallet very big Lili also be very small} \]
\[\text{Intended: ‘Alin bought a wallet, which was very very big, and Lili also bought one, which is very small.’} \]

Thus, the indefinite in an ECC is preverbal in the local clause. Also, the local clause is not eventive, as seen in the examples. The topic status of the indefinite in the construction is argued for in Zhang (2008).

So far we have seen that if a bare noun occurs in a topic position, it must be definite; and thus bare noun indefinites are systematically excluded in topic positions, and thus the distributions of bare noun arguments is not as free in this CL-language as generally believed. Moreover, some non-CL languages have a similar constraint as well. For example, in Spanish, bare noun indefinites are also banned in preverbal positions (e.g., Cuervo 2014: 53; I thank Grant Armstrong for bringing this fact to me and David Basilico for the reference).

Note that, as seen in the examples in (4), (6) through (8), yi ‘one’ is optional in the preverbal positions in the two constructions. Thus, it is not true that CL-initial nominals may not occur in a preverbal position (contra Lü 1990 [1944]: 174).

2.1.3 The specific readings of the indefinites in the topic positions

In this section, we discuss the specificity of preverbal complex indefinites, which are able to occur where bare noun indefinite cannot. If the referent of an indefinite varies with a quantifier, the indefinite has a narrow scope, and thus is nonspecific; otherwise, it has a wide scope, and thus is specific. For an yi-initial nominal that occurs in a construction like (3b), it has to be specific, having an exclusively wide-scope reading (e.g., Lee 1986 and Liu 1997a: 92). In our example (9), the referent of the subject yi zhi fei mao ‘a fat cat’ does not vary with liang ci ‘two times’. Thus it never means that a fat cat entered the office once and a different fat cat also did so once. Therefore, B’s question is infelicitous.

\[(9)\]

\[\text{A: 一隻肥貓兩次跑進了辦公室. B: #是同一隻貓嗎?} \]
\[\text{A: Yi zhi fei-mao liang-ci pao-jin-le bangongshi.} \]
\[\text{one CL fat-cat two-time run-in-PRF office} \]
\[\text{‘A certain fat cat entered the office twice.’} \]
If an indefinite follows BA, it also must be specific (Liu 1997b, Li 2006: 423). Such an indefinites has a wide scope exclusively. In (10a), the bare noun diannao ‘computer’ may have a narrow scope with respect to liang ci ‘two times’, and thus it is possible that different computers were destroyed in the two times, and the number of the computers for each time is also underspecified. Therefore, B’s question is normal. In the BA construction in (10b), however, the complex indefinite has a wide scope only and thus the sentence entails that it was the same computer that was destroyed twice. Then, it is abnormal for B to ask the question.

(10) a. A: 阿林兩次弄壞了電腦. B: 是同一個電腦嗎?
A: Alin liang-ci nonghai-le diannao.
   ‘Alin destroyed {a computer/computers} twice.’
B: Shi tong yi ge diannao ma?
   ‘Is it the same computer?’

b. A: 阿林兩次把個電腦弄壞了. B: #是同一個電腦嗎?
A: Alin liang-ci ba ge diannao nonghai-le.
   ‘Alin destroyed a computer twice.’
B: #Shi tong yi ge diannao ma?
   ‘Is it the same computer?’

The indefinite in an ECC has also been recognized to be specific exclusively (Huang 1987: 249). (11a) is not an ECC, since the right edge lai-clause is purposive, not attributive. In this example, the bare noun xuezhe ‘scholar’ may have a narrow scope with respect to liang ci ‘two times’, and thus it is possible that different scholars were invited in the two times, and their numbers are also underspecified for each time. Therefore, B’s question is normal. In the ECC in (11b), however, the complex indefinite has a wide scope only and thus it was the same scholar that was invited twice. Therefore, B’s question is normal.

(11) a. A: 阿林兩次邀請了學者來演講. B: 是同一個學者嗎?
A: Alin liang-ci yaoqing-le xuezhe lai yanjiang.
   ‘Alin invited scholars to speak twice.’
B: Shi tong yi ge xuezhe ma?
   ‘Is it the same scholar?’

b. A: 阿林兩次邀請了個學者不會講中文. B: #是同一個學者嗎?
A: Alin liang-ci yaoqing-le ge xuezhe bu-hui jiang
   zhongwen.
   ‘Alin invited a scholar twice, who cannot speak Chinese.’
As in the examples in (4), (6) through (8), the complex indefinites in (10) and (11) can also be either CL-initial or yi-initial. Thus, if yi occurs in (10b) and (11b), the acceptability and semantic pattern remain the same. The above discussion shows that the complex indefinites in the post-BA position and in ECCs must be exclusively specific. In our examples, we use CL-initial nominals to show the point. Thus, CL-initial nominals can be specific (contra Cheng & Sybesma’s 1999: 527 claim that “indefinite [Cl + N] phrases cannot be interpreted as specific.”)

2.2 Syntactic positions that allow bare noun indefinites

2.2.1 Non-topic preverbal positions

There are preverbal positions where bare noun indefinites may occur. One is to the immediate right of a locative or temporal topic, as seen in reading (i) of the examples in (12). In contrast to the sentence in (3a), where the bare noun subject cannot be indefinite, the bare noun subject in (12a) and (12b) can be indefinite, with a nonspecific reading. In (12a), waimain ‘outside’ or yuanchu ‘far-place’ can be treated as a topic, and the rest of the sentence is predicated of this topic. Consequently, gou ‘dog’ is not a topic. Similarly, in (12b), jintian ‘today’ can be a topic, and then jinghca ‘cop’ is not a topic.

(12) a. {外面/遠處}狗在叫.
   {Waimian /Yuanchu} gou zai jiao.
   outside far-place dog PRG barking
   i. ‘Outside/Far away, dogs are barking.’
   ii. ‘Outside/Far away, the dog(s) is/are barking.’ (Yang 2001: 32)

   b. 今天警察抓人了.
   Jintian jingcha zhua ren le.
   today cop arrest man SFP
   i. ‘Today cops arrested some people.’
   ii. ‘Today the cop(s) arrested some people.’ (Yang 2001: 32)

In such examples, if the bare noun is replaced with an yi-initial nominal, only specific reading is available, as seen in (13a). On the other hand, if the bare noun is replaced with a CL-initial nominal, the sentence becomes unacceptable, as seen in (13b).

(13) a. {Waimian /Yuanchu} yi zhi gou zai jiao.
   outside far-place one CL dog PRG barking
   ‘Outside/Far away, a certain dog is barking.’

   b. *(Waimian /Yuanchu) zhi gou zai jiao.
   outside far-place CL dog PRG barking

We can see that for complex indefinites, their occurrence possibility and specificity in such constructions are the same as in the preverbal position seen in 2.1.1. For the exclusive specific reading of the yi-initial subject in (13a), one speculation is that the default reading of a preverbal yi-initial indefinite is specific (see 2.4). Since a subject position does not ban a specific reading, the default reading of such an indefinite emerges in (13a). As for the unacceptability of the CL-initial subject in (13b), one speculation is that in MC, CL-initial forms may not start a prosodic phrase (see 3.5).
Another preverbal position that allows bare noun indefinite to occur is the subject of a verbal small clause (SC) under a mental attitude verb (see Cinque 1995: 252 for this type of SC in Italian; see Zhang, to appear, sec. 2.2.6 for the nonfiniteness of SCs in MC).

(14) a. 我討厭[sc 客人在我家抽菸].
   Wo taoyan [sc keren zai wo-jia chouyan].
   i. ‘I dislike guests smoking in my home.’
   ii. ‘I dislike the {guest/guests} smoking in my home.’

b. 我討厭[sc 小孩在餐廳打鬧].
   Wo taoyan [sc xiaohai zai canting da’nao].
   i. ‘I dislike kids fighting in a restaurant.’
   ii. ‘I dislike the kids fighting in a restaurant.’

In (14a), the bare noun *keren* ‘guest’ is the subject of the verbal SC, and it allows a nonspecific reading. In reading (i), it is not about any certain guest or guests. Similarly, in reading (i) of (14b), it is not about any certain kids. According to Basilico (2003), all clauses have a topic, but for a verbal SC, the topic is an event or stage pro, rather than an individual-denoting nominal. Thus, the subject of a verbal SC is not a topic, unlike that of an adjectival SC (MC does not have non-verbal SCs; see Paul 2017). We thus see that as in the examples in (12), the bare noun indefinites in the examples in (14) also occur in non-topic positions, and they also have nonspecific readings.

A further preverbal position that allows a bare noun indefinite to occur is the subject of a conditional. In (15a), the subject *jingcha* ‘policeman’ in the conditional has either a nonspecific reading or a definite reading (also see Lee 1986: 90; Tsai 2001: 159). This example contrasts with (15b), in which the predicate in the conditional is an individual-level predicate, and *jingcha* has a definite reading only.

(15) a. 如果警察來了, 怎麼辦?
   Ruguo jingcha lai-le, zenme ban?
   i. ‘If policemen come, what shall we do?’
   ii. ‘If the {policemen come/policeman comes}, what shall we do?’

b. 如果警察不懂英文, 怎麼辦?
   Ruguo jingcha bu dong yingwen, zenme ban?
   if policeman not know English how do
   ‘If the {policemen do/policeman does} not know English, what shall we do?’

As in a verbal SC, we assume that the eventive conditional in (15a) has a null stage topic. Specifically, it is an imaginary stage topic, in the sense of Erteschik-Shir (1997: 67). Then, the bare noun subject *jingcha* ‘policeman’ itself is not a topic. In contrast, the individual-level predicate in (15b) does not have such a stage topic. Then, *jingcha* itself is a topic. Since a bare noun in a topic position must be definite (2.1.1–2.1.2), the exclusive definite reading of *jingcha* here is expected.

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2 Basilico’s (2003) claim that a verbal SC has an event or stage pro topic can be supported by the following fact in MC. For nonfinite clauses, while the complement clause under a control verb allows a topic (base-generated or fronted), a verbal SC does not (Zhang 2016a: 289, 299). If the topic position of such a SC has been taken, the rejection of an overt topic is explained.
So far, I have shown that a bare noun indefinite may not occur in a topic position, but it may occur in a non-topic position in various eventive contexts; and when it occurs, it is nonspecific. The generalization is stated in (16).

(16) Bare noun indefinites are banned in topic positions, but they may occur in non-topic positions, with nonspecific readings.

Diesing (1992) claims that indefinites can be nonspecific if they are within a VP, but they cannot be nonspecific if they are higher than a VP (see Carlson 2003 for a further discussion of the claim). Her evidence comes from the reading contrasts of the same bare plural indefinites in different syntactic positions in German. In (17a), *Linguisten* ‘linguists’ follows the particle cluster *ja doch*, which marks the left-edge of VP, and the bare plural has a nonspecific reading only. In (17b), however, the bare plural precedes the particle cluster, and it has a generic reading only (Diesing 1992: 36).

(17) a. ... weil ja doch [Linguisten Kamermusik spielen] since PRT PRT linguists chamber-music play ‘...since there are linguists playing chamber music’
b. ... weil Linguisten ja doch [Kamermusik spielen] since linguists PRT PRT chamber-music play ‘...since linguists (in general) play chamber music’

In English, bare plural subjects may have a nonspecific reading in an episodic aspect. For instance, in (18), *carpenter ants* has a nonspecific reading (similar examples in Italian can be found in Longobardi 2003: 241, 244).

(18) Carpenter ants destroyed my viola da gamba. (Diesing 1992: 16)

Diesing (1992: 12, 20) claims that in English, a bare noun in a nonspecific reading has undergone an LF-lowering, and thus the reading can be licensed in VP by existential closure. In contrast, in German, as seen in (17), the nonspecific reading of a bare noun subject must be licensed in a VP-internal position in the surface order, and thus no LF-lowering occurs. Erteschik-Shir (1997: 35f), however, proposes that for eventive clauses, a stage topic occurs, and the whole sentence is predicated of this topic. In other words, the whole sentence is focused. She claims that the proposal makes Diesing’s LF-lowering unnecessary. Our generalization in (16) is compatible with her proposal. It is a (preverbal) topic position, rather than a preverbal position, that bans a bare noun indefinite. Such an indefinite may occur in a non-topic preverbal position, as seen in (12), (14), and (15a) (also the English example (18)). Moreover, it is a topic position that is incompatible with the nonspecific reading of a bare noun indefinite. Thus, the preverbal bare noun indefinites have only nonspecific readings.

One might wonder why a null stage topic has to occur in embedded clauses in MC, as in verbal SCs and conditionals, whereas such a topic may occur in matrix clauses in English (see (18)). So far, with Erteschik-Shir (1997), we have seen the cross-linguistic existence of such a null topic, although we have not explained the constraints on its occurrence in a specific language, such as MC or German. I leave the latter issue for future research.

2.2.2 Post-verbal positions
Various forms of indefinites may follow a verb, but their readings may differ in specificity. Bare noun indefinites in MC have a narrow scope only (Huang 1987, Liu 1997a, Cheng & Sybesma 1999, Yang 2001, Tsai 2008). If a syntactic position allows both a bare noun and a
complex indefinite, the former must have a narrow scope, whereas the latter may have a wide scope. We have seen this pattern in preverbal positions ((12) vs. (13a)). We now consider post-verbal positions. In all the examples in (19), the transitive gu ‘hire’ is under the modal verb yao ‘want’. In (19a), the bare noun zhuli ‘assistant’ follows gu. In this context, the bare noun cannot scope over the modal, and thus the first sentence cannot be followed by the sentence wo yiqian jian-guo ta ‘I saw him/her before’. Instead, the sentence can be followed by shenme ren dou keyi ‘anyone can’. This shows that the bare noun has a nonspecific reading only. In (19c), however, the yi-initial indefinite yi ge zhuli ‘an assistant’ follows gu, and the sentence is ambiguous. If it is followed by shenmen-ren dou keyi ‘anyone will do’, as in (19a), the indefinite is nonspecific. But if it is followed by the sentence wo yiqian jian-guo ta, the one rejected by (19a), the indefinite is specific. We discuss (19b) shortly.

(19)  a. 阿林要僱助理. {甚麼人都可以./#我以前見過他.}
     Alin yao gu zhuli. {Shenmeren dou keyi./#Wo yiqian jian-guo ta.
     before see-EXP 3SG
     ‘Alin wants to hire an assistant. {Anyone is fine./#I saw him/her before.}’

     b. 阿林僱個助理. {甚麼人都可以./#我以前見過他.}
     Alin yao gu ge zhuli. {Shenmeren dou keyi./#Wo yiqian jian-guo ta.
     before see-EXP 3SG
     ‘Alin wants to hire an assistant. {Anyone is fine./#I saw him/her before.}’

     c. 阿林僱一個助理. {甚麼人都可以./我以前見過他.}
     Alin yao gu yi ge zhuli. {Shenmeren dou
     Alin want hire ONE CL assistant anyone all OK I
     yiqian jian-guo ta.
     before see-EXP 3SG
     ‘Alin wants to hire an assistant. {Anyone is fine./I saw him/her before.}’

Similarly, in the realis context in (20a), the bare noun object zhuli in its indefinite reading also receives a nonspecific interpretation exclusively. Also, the yi-initial indefinite in (20c) behaves the same as in (19c).

(20)  a. 阿林僱了助理. {但我不知道是誰./#我以前見過他.}
     Alin gu-le zhuli. {Dan wo bu-zhidao shi
     Alin hire-PRF assistant but I not-know be
     shei./#Wo yiqian jian-guo ta.
     Who/ I before see-EXP 3SG
     ‘Alin hired an assistant. {But I don’t know who s/he is./#I saw him/her before.}’

     b. 阿林僱了個助理. {但我不知道是誰./我以前見過他.}
     Alin gu-le ge zhuli. {Dan wo bu-zhidao shi
     Alin hire-PRF CL assistant but I not-know be
     shei./#Wo yiqian jian-guo ta.
     Who/ I before see-EXP 3SG
     ‘Alin hired an assistant. {But I don’t know who s/he is./I saw him/her before.}’

     c. 阿林僱了一個助理. {但我不知道是誰./我以前見過他.}
Alin gu-le yi ge zhuli. {Dan wo bu-zhidao shi shei./#Wo yiqian jian-guo ta.  
Who/ I before see-EXP 3SG  
‘Alin hired an assistant. {But I don’t know who s/he is./I saw him/her before.’}

In (19b) and (20b), we see that the CL-initial indefinite *ge zhuli* behaves differently, depending on the context. It must be nonspecific in the irrealis context in (19b), patterning with the bare noun indefinite in (19a). However, it can be either specific or nonspecific in the realis context in (20b), patterning with the yi-initial indefinite in (20c). The inconsistency of CL-initial indefinites neither supports Cheng & Sybesma’s (1999: 527) claim that both bare noun indefinites and CL-initial indefinites are nonspecific, nor supports Jiang’s (2015: 335) claim that yi-initial and CL-initial indefinites have the same semantics (nevertheless, Cheng & Sybesma 1999: 527 is right to state that CL-initial form are not simple reduction of yi-initial ones, considering the possible semantic differences of the two forms).

Therefore, bare noun indefinites have nonspecific readings consistently, regardless of their positions (also see (10a) and (11a)). Yi-initial indefinites are exclusively specific in preverbal positions, but are either specific or nonspecific in post-verbal positions. As for CL-initial indefinites, if they can occur, they are specific in preverbal positions; but in post-verbal positions, they are nonspecific in irrealis contexts, but are either specific or nonspecific in realis contexts. We summarize the various patterns in (21).

(21) A comparison of the three forms of indefinites in MC: position and specificity

<table>
<thead>
<tr>
<th></th>
<th>Topic position</th>
<th>Non-topic position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Preverbal</td>
<td>Post-BA/Pre-coda</td>
</tr>
<tr>
<td>Bare noun indefinites</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>CL-initial indefinites</td>
<td>*</td>
<td>Specific only</td>
</tr>
<tr>
<td>Yi-initial indefinites</td>
<td>Specific only</td>
<td>Specific only</td>
</tr>
</tbody>
</table>

2.3 The general nonspecific readings of bare noun indefinites

In the last section, we showed that bare noun indefinites in MC are never specific. In this section, we show that this restriction on bare noun indefinites is not related to the existence of CLs in the language.

In addition to various specificity restriction on indefinites with respect to syntactic positions (e.g., Diesing 1992) and information structure positions (e.g., Erteschik-Shir 1997), Carlson’s (1977) specificity restriction on indefinites with respect to the forms also plays a role in the syntax and semantics of indefinites. Carlson (1977) notes that bare plurals tend to take narrow scope relative to other NPs or operators within the sentence. For instance, (22a) does not mean that certain spiders were not found by Yella.

(22)  a. Yella didn’t find spiders in her bed.  b. Everyone read books about slugs.

Thus, in English, bare plurals do not have a specific reading (Carlson 1977; Diesing 1992: 64; Wilkinson 1996: 213; Kratzer 1998: 171). Summarizing Van Geenhoven and McNally (2005),
Zamparelli (2005: 928) gives the table in (23). One can see that the bare plural object *rabbits* has a nonspecific reading only, denoting \(<e,t>\).

<table>
<thead>
<tr>
<th>Example</th>
<th>Verb type</th>
<th>Object denot.</th>
<th>Specific reading</th>
<th>Existence Presupp.</th>
<th>Verb meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>John caught a rabbit</td>
<td>extens.</td>
<td>(&lt;e&gt;)</td>
<td>yes</td>
<td>yes</td>
<td>(\lambda y \lambda x [\text{catch}'_v(x,y)])</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(&lt;e,t&gt;)</td>
<td>no</td>
<td>yes</td>
<td>(\lambda P \lambda x \exists y [\text{catch}'_w(x,y) \land P_w(y)])</td>
</tr>
<tr>
<td>John caught rabbits</td>
<td>extens.</td>
<td>(&lt;e,t&gt;)</td>
<td>no</td>
<td>yes</td>
<td>(\lambda P \lambda x \exists y [\text{catch}'_w(x,y) \land P_w(y)])</td>
</tr>
<tr>
<td>John is looking for a rabbit</td>
<td>intens.</td>
<td>(&lt;e&gt;)</td>
<td>yes</td>
<td>no</td>
<td>(\lambda y \lambda x [\text{find}'_w(x,[\text{find}'_w(x,y) \land P_w(y)])])</td>
</tr>
<tr>
<td>John is looking for rabbits</td>
<td>intens.</td>
<td>(&lt;e,t&gt;)</td>
<td>no</td>
<td>no</td>
<td>(\lambda P \lambda x [\text{find}'_w(x,[\text{find}'_w(x,y) \land P_w(y)])])</td>
</tr>
</tbody>
</table>

As in English, bare noun indefinites in MC also have a narrow scope only (see the references cited and the table in (21) in 2.2.2). Comparing bare nouns in MC and bare plurals in English, Liu (1997a: 73) concludes that the only difference is that the former allows a definite reading whereas the latter does not. If we consider indefinites only, in both English and MC, bare nouns reject a specific reading.

If a bare noun has a nonspecific reading, it is of type \(<e,t>\). If it is the object of a transitive verb, it saturates the predicate via some type-shifting operation, in order to assimilate the argument to the appropriate type (e.g., nominalization in Chierchia 1998). The result of the type shift is of type \(e\). In other words, the type shift operation makes it possible to saturate a semantic argument position with a nominal of type \(<e,t>\). In this respect, there is no evidence to show that bare noun indefinites in MC are different from those in non-CL languages. In contrast to both English and MC, Cape Verdean Creole does allow a bare singular noun to encode a specific indefinite (Baptista 2007: 76–77). In (24a), *xefri* ‘leader’ is specific, and so is *mudjer* ‘woman’ in (24b).

(24) a. Nu tenha xefri ki ta leba libru ku nos.  
we had leader COM TAM take book with us  
‘We had a leader who would take book(s) with us.’

b. Djedje atxa mudjer bibu, kuazi mortu lago.  
Djedje find woman alive almost dead there  
‘Djedje found a woman alive, she was nearly dead over there.’

Thus, bare nouns allow specific readings in some languages but not in others, and the contrast does not correlate with whether a language is a CL-language or not.

Bare nouns also have a non-referential use in many languages, typically found in incorporation or incorporation like constructions (e.g., Carlson 2003; Espinal 2010, Dayal 2011). Such nominals undergo Predicate Restriction in Chung & Ladusaw (2004). See the Mokilese examples in (25) (Mithun 1984: 849). In (25a), the object of *kohhoa* ‘grind’ contains a demonstrative, but in (25b), the object is the bare noun *oaring* ‘coconut’, which is not referential. Such constructions may be formed by root combination (cf. Wiltschko 2009).
I grind coconut-these I grind coconut
‘I am grinding these coconuts.’ ‘I am coconut-grinding.’

Bare nouns in MC also have this use (Liu 1997a: 74–77). One example is bing ‘ice’ in (26a) (Liu 1997a: 75). (26b) shows that a complex indefinite may not be used in this way.

(26)  a. 我們去溜冰,好不好?
Women qu liu bing, hao-bu-hao?
we go skate ice good-not-good
‘Shall we go skating?’

b. *我們去溜一塊冰,好不好?
*Women qu liu (yi) kuai bing, hao-bu-hao?
*we go skate one CL ice good-not-good

Syntactically, a bare noun in this use follows a verb in MC; and semantically, it is scopeless (Liu 1997a: 76) or scope neutral (Carlson 2003: 200). It does not saturate any argument position of the verb; instead, it modifies the verb’s denotation to create a more specific event type (Carlson 2003: 201; Chung & Ladusaw 2004).

So far, we have discussed the facts that bare noun indefinites in MC never occur in a topic position, that such nominal may occur in non-topic positions with a nonspecific reading, and that they may occur in incorporation/root-merger constructions. We have also shown that all of these are also true of non-CL languages. The relations between the forms, specificity, and positions of bare noun indefinites are summarized in (27). There is thus no direct correlation between CL-languages and the properties of bare noun indefinites.

(27)  A comparison of bare noun indefinites between CL and non-CL languages

<table>
<thead>
<tr>
<th>Bare noun indefinite in MC</th>
<th>Topic</th>
<th>Non-topic argument</th>
<th>VP-internal: incorporation/root-merger</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td>*</td>
<td>Nonspecific only</td>
<td>Scopeless</td>
</tr>
<tr>
<td>Bare noun indefinite in some non-CL languages</td>
<td>*</td>
<td>Nonspecific only</td>
<td>Scopeless</td>
</tr>
</tbody>
</table>

If bare noun indefinites behave consistently differently from complex indefinites, they are plausibly just NPs, rather than DPs. Based on her study of bare singular noun arguments in Spain and Catalan, Espinal (2010: 987) argues that a DP projection is not necessary for such arguments (cf. Longobardi 2001, 2003). Following Espinal, I claim that bare noun indefinites in MC are just NPs (or nPs, if it is n that categorizes a nominal), rather than any higher projection that has both a null head and a null specifier, such as DP, or NumeralP (cf. Cheng & Sybesma 1999: 528).

2.4 Specificity and form complexity
We have shown that the properties of bare noun indefinites in MC are not CL-language specific. Instead, it is the use of the combination of a CL and a noun that is CL-language specific, obviously (although some CL-languages do not have such a form, e.g., Min, Japanese). The definite version of such a combination in some other CL languages has been studied in Simpson (2005, 2017), Simpson & Biswas (2016), among others. We explore the indefinite version here. (28) shows that CL-initial indefinites share some properties with bare noun indefinites, and share some other properties with yi-initial indefinites, as shown by the arrows, depending on the syntactic and semantic contexts.
The pattern of CL-initial indefinites in (28) is also seen in other CL-languages. In Cantonese, Wu, and Vietnamese, CL-initial indefinites are also absent in preverbal topic positions (Cheng & Sybesma 1999: 525; Li & Bisang 2012: 340; Tri-Dat Lam, p. c.), although I have not seen any discussion on such nominals in preverbal non-topic positions. The form of CL-initial indefinites is more complex than that of a bare noun, but is simpler than that of yi-initial ones.

In MC, indefinites can also be in a more complex form, i.e., in the order [modifier-de-numeral-CL-NP]. Such indefinites must be specific (Zhang 2006, 2015). Zhang calls the construction OMN (Outer-Modifier-Nominal). In (29a), the direct object of the verb is not an OMN, since the modifier *hen nianqing ‘very young’* follows the CL *ge*. In (29b), the parallel direct object is an OMN, since the modifier precedes *yi ‘one’. In (29a), the indefinite object is compatible with either a nonspecific or specific reading, as indicated by the two possible contexts: I don’t know him (nonspecific context) and I have seen him before (specific context). In (29b), however, the OMN object is compatible with the second context only, and thus the indefinite must be specific.

In Zhang (2015), OMNs are derived by the raising of the modifier from NP to a functional projection that is much higher than the projection that hosts a numeral. Thus, OMNs have a more complex form than other forms of indefinites. On the other hand, bare noun indefinites, which must be nonspecific/nonreferential, have the simplest form. Between these two extremes, *yi*-initial indefinites have a more complex form than CL-initial ones, and the former is specific by default, whereas the latter is nonspecific by default. We thus see that for
an indefinite, the degree of the form complexity correlates with the degree of specificity markedness. This is shown in (30).³

(30)  
<table>
<thead>
<tr>
<th>OMN</th>
<th>yi-initial</th>
<th>CL-initial</th>
<th>bare noun</th>
</tr>
</thead>
<tbody>
<tr>
<td>specific</td>
<td>specific only, unless</td>
<td>nonspecific only, unless</td>
<td>nonspecific/specific only</td>
</tr>
<tr>
<td>only</td>
<td>post-verbal</td>
<td>preverbal &amp; realis contexts</td>
<td>nonreferential only</td>
</tr>
</tbody>
</table>

In this section, we have reached two major conclusions. First, the syntax and semantics of bare noun indefinites in MC are not CL-language specific. This conclusion on bare noun indefinites is parallel to Jenks’s (2018) conclusion on bare noun definites in MC. In neither of the two cases, the occurrence of bare noun arguments is free. Any parameter theory to make a correlation between CL-languages and an assumed free occurrence of bare noun arguments is misleading. Instead, Jenks reports a cross-linguistic consistent distribution of bare noun definite arguments (unique reference vs. others). Simpson & Biswas (2016) and Simpson (2017) report a similar observation of other CL languages. Also, available accounts for the distribution and semantics of bare noun indefinites in non-CL languages (e.g., Carlson, Diesing, and Erteschik-Shir’s) apply to MC. Second, CL-initial indefinites share properties with both bare noun and yi-initial indefinites, depending on the syntactic and semantic contexts.

3. Complex indefinites and the projection of DP
If a bare noun indefinite is just an NP, what is the category of an yi-initial indefinite and what is the category of a CL-initial indefinite? We answer these questions in this section. We first show that certain elements have to be hosted by DP (3.1). Then we argue that yi-initial indefinites are DPs and CL-initial ones are derived DPs, in the rest of the section.

3.1 Mou ‘certain’ and na ‘which’
In MC, a complex indefinite may be initiated with the word mou ‘certain’ or the interrogative na ‘which’.

(31) a. 某一個字
mou yi ge zi
‘a certain character’

b. 某幾個字
mou ji ge zi
‘certain characters’

(32) a. 哪一個字
na yi ge zi
‘which character’

b. 哪幾個字
na ji ge zi
‘which characters’

Mou is a specific indefinite marker (Liu 1997a), like a certain in English (Fodor and Sag 1982, Hintikka 1986). It is not an adjective, since it never occurs with the functional particle de, whereas adjectives allow or require de (In English, the string a certain is analyzed as a complex determiner in Kratzer 1998: 168). The same is true of na ‘which’, which is called demonstrative determinative, together with demonstratives, in Chao (1968: 565). Also, like the demonstrative zhe ‘this’ or na ‘that’, mou and na are not specified with any number or quantity

³ Nonreferential nominals do not have to be bare nouns, cross-linguistically. In Maori, there are two indefinite articles: tētahi and he, and the latter is for this non-referential use (Chung & Ladusaw 2004: 73). In St’a’timcs, indefinite article ku is used for non-referential indefinites, in contrast to another complex indefinite article (Chung & Ladusaw 2004: 72). One can see that the form of a nonreferential nominal is also simpler than that of another type of nominal, in these languages.
information. Thus, in (31a), since the numeral yi ‘one’ occurs, the nominal is singular; and in (31b), the vague plural numeral ji ‘several’ occurs, the nominal is plural.

But where is the syntactic position of na and mou, which signal the indefinite status of the hosting nominal? Neither NP nor Cheng & Sybesma’s (1999: 528) NumeralP for indefinites in MC is able to accommodate these elements. They must be hosted by DP. I assume they are merged as SpecDP (Liu 1997a: 68–69 calls mou a logical determiner. The word which is analyzed as the WH counterpart of a determiner or demonstrative in the literature, e.g., Adger 2003: 346; also see Liu 1997a: 153 for discussion and references). Thus, at least for mou-initial and na-initial indefinites, DP is attested in this CL-language.

In the following part of this section, I argue that DP is also projected in other complex forms of indefinites in MC. But I will first argue for the existence of a null proform in the next subsection.

3.2 Identifying the null proform of the numeral Yi
I assume that in addition to the overt numeral yi ‘one’, MC also allows a silent proform for this numeral. A CL may follow a demonstrative directly (Chao 1968: 565–566), as in (33a), although it usually follows a numeral directly, as in (33b). The examples in (34) show that mei ‘every’, mou ‘certain’, and na ‘which’ are also followed by an optional yi.

(33) a. 這本書
zhe ben shu
DEM CL book
‘this book’

b. 這一本書
zhe yi ben shu
DEM one CL book
‘this book’

(34) a. 每(一)本書
mei (yi) ben shu
every one CL book
‘every book’

b. 某(一)本書
mou (yi) ben shu
certain one CL book
‘a certain book’

c. 哪(一)本書
na (yi) ben shu
which one CL book
‘which book’

However, examples like (33a) and the yi-less versions of the examples in (34) show a semantic constraint: their interpretations must be singular. This is pointed out by Greenberg ([1972] 1990: 188): “in Mandarin the classifier ben required with shu ‘book’ with any number (e.g., i ben shu ‘one book’, san ben shu ‘three books’) occurs with the demonstrative also (che ben shu ‘this book’) but only in the singular.”

The missing of yi in (33a) and the yi-less versions of the examples in (34) cannot be the result of deletion. Ellipsis needs an antecedent (Chomsky 1965: 144). (35) shows that if san ‘three’ occurs in the first clause, qualified to be an antecedent for an assumed deletion, the missing numeral in the second clause should be san. However, the implied numeral meaning in the second clause is ‘one’ consistently.

(35) 阿林買了這三本書,阿嬌買了那本書.
Alin mai-le zhe san ben shu, Ajiao mai-le na ben shu.
Alin buy-PRF this three CL book Ajiao buy-PRF that CL book
‘Alin bought these three books, and Ajiao bought that book.’

Instead of a deletion hypothesis, I claim that the meaning of ‘one’ in examples like (33a) is encoded by a null form of the numeral Yi. I label this null form Yi_pro. In principle, if the
encoded meaning is backgrounded, an element can be alternated with a (null) proform. The same is true of the numeral YI. In (33a), the singular numeral meaning is not foregrounded. Like other null elements, YI\textsubscript{pro} is never focused. It is never associated with a focus marker, as seen in (36b), compared with (36a), which has the overt numeral yi ‘one’. In (36b), zhi ‘only’ can be associated with the demonstrative zhe ‘this’, and thus the first clause contrasts with clause α, which contains na ‘that’. This focus marker can also be associated with the noun shu ‘book’, and thus the first clause contrasts with clause β, which contains zazhi ‘magazine’. However, the focus marker is not associated with the implicit numeral for ‘one’, and thus the first clause may not be followed by clause γ, which contains the contrastive san ‘three’. Since no null element is focused, the restriction that YI\textsubscript{pro} is never focused is expected.

(36) a. 阿林只買了這一本書, 不是三本.
   Alin zhi mai-le zhe yi ben shu, bushi san ben.
   Alin only buy-PRF this one CL book not three CL.
   ‘Alin bought only this one book, not three.’

   b. 阿林只買了這本書, {α 不是那本書/β 不是這本雜誌/γ # 不是三本書}.
   Alin zhi mai-le zhe ben shu, {α bushi na ben
   Alin only buy-PRF this CL book not that CL
   shu/ β bushizhe ben zazhi/ γ # bushi san ben shu.
   book/ not this CL magazine/ not three CL book
   ‘Alin bought only this book, {α not that one/β not this magazine/γ # not three}.

Moreover, like the pro for a whole nominal argument in the language, YI\textsubscript{pro} is also discourse-oriented (i.e., it is a radical pro). Unlike an elided element, it does not need a linguistic antecedent. Instead, it is licensed whenever the meaning of ‘one’ is considered to be obvious to the speaker. Furthermore, like a pro in other contexts, it may be replaced with the correlated overt form, as seen in (33b) and (34).

The syntactic position of this YI\textsubscript{pro} is the same as that of its overt counterpart. Cross-linguistically and even within the same language, numerals can be either in a head position or a Spec position (e.g., Danon 2012, Simpson & Syed 2016 and the references therein; see Zhang 2013: 214 for more discussion and references). In MC, unlike some head elements such as verbs, and like phrasal elements such as adverbs, a numeral does not license ellipsis, as shown in (37) (Zhang 2013: 215, 253). We thus assume that a numeral is phrasal in MC.

(37) 他買了六本書, 我也買了六 *(本書).
   Ta mai-le liu ben shu, wo ye mai-le liu *(ben shu).
   he buy-PRF six CL book I also buy-PRF six CL book
   ‘He bought six books, and so did I.’

In MC, a numeral is usually followed by a CL or another kind of unit word (we discuss CLs only in this paper). However, there is evidence showing that the syntactic relation between a numeral and a CL is not a Spec-head relation in MC. First, between the two elements, a DegP

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4 A demonstrative may also combine with a reduced yi ‘one’, deriving zhei (zhe + yi ‘this + one’) and nei (na + yi ‘that + one’) (e.g., Cheng & Sybesma 1999: 530 fn. 17). However, because of reanalysis, zhei and nei can also function as pure demonstratives, followed by a numeral other than yi ‘one’. So (i) is acceptable (Bisang 1999: 145). The opaque function of yi in zhei in (i) is similar to the opaque function of et ‘and’ in the phrase and etcetera, where two conjunctions (and, et) occur in a row, and etcetera means ‘the rest’ (see Zhang 2013: 144).

(i)  zhei san feng xin
    DEM three CL letter
    ‘these three letters’
may be projected, headed by a degree element such as da ‘big’ and xiao ‘small’ (Luo et al. 2017). In (38), da intervenes between the numeral san ‘three’ and the CL tiao. Since the Spec-head relation may not be interrupted by any element, a numeral and a CL do not seem to have this relation. Second, if a degree element such as da occurs, it scopes over the unit word and the NP exclusively (Luo et al. 2017). We have found that such a degree element never scopes over a numeral. The meaning of (38) must be that each fish, rather than the combination of three fish, is big. If da scoped over the numeral, the following reading would be allowed: one or two of the three fish are small, but the combination of the there is big. The fact that this reading is not available indicates that the numeral must be base-generated higher than the DegP.

(38) 三大條魚
san da tiao yu
‘three big fish’

Semantically, numerals introduce a cardinality function, independent of the functions or properties of other elements of a nominal (e.g., Munn & Schimitt 2005: 825, cited in Espinal 2010: 987 and Zamparalli 2005: 924). Adopting Cheng & Sybesma (1999: 529) and Simpson & Syed (2016: 758), among others, I thus assume that a numeral is hosted in a projection higher than the one that hosts a CL. Specifically, I claim that a numeral is at SpecQuantP and a CL heads CLP in MC. DegP, if it occurs, is projected between QuantP and CLP. On the other hand, a CL and its associated noun must have a local relation, because the former selects the latter. Thus, (38) has the structure in (39). As for the dependency between a numeral and a CL, we assume that the former must c-command the latter.

(39)  ... [QuantP san [Quant' ∅ [DegP [Deg' da [CLP [CL' tiao [NP yu ]]]]]]]

Accordingly, the position of Yi_pro is SpecQuantP. The structure of (34b) is (40), where no DegP is projected.

(40)  

\[
\begin{array}{c}
\text{DP} \\
\text{mou} \\
\text{D'} \\
\text{D} \\
\text{QuantP} \\
\{yi/Yi_pro\} \\
\text{Quant'} \\
\text{Quant} \\
\text{CLP} \\
\text{CL} \\
\text{NP} \\
\text{ben} \\
\text{shu}
\end{array}
\]

In addition to MC, Zhuang also has nominals in which a demonstrative occurs with a CL directly, without a numeral, as shown in (42), compared with (41) (Ma 2003: 711). The same pattern is seen in Thai, Lao, Bouyei, Maonan, and many other languages (Lu 2012: 146–148).
In contrast, in some other CL-languages, a demonstrative may not occur with a CL directly, and the occurrence of a numeral is obligatory, e.g., Korean, Japanese (Yi 2011: 267), and Yi (Jiang 2018: 8). I claim that in these languages, there is no null form for ‘one’.

One constraint on Yi pro is that it must be right next to a CL. Unlike the numeral Yi, Yi pro may not be separated from a CL by an adjective, as shown by the acceptability contrast between (43a) and (43b). Recall the hierarchy in (39). In (43b), Yi pro is in QuantP and the CL zhang is in CLP, but they are separated by xiao. (43c) and (43d) have the same problem.

Yi pro is a reduced form of the numeral Yi. Cross-linguistically, the reduced form of the numeral for ‘one’ can also be a bound form. In Malay, the numeral ‘one’ has both a free and a bound form: satu and se-, as shown in (44a). Importantly, the prefix se- must be next to a CL, whereas the free form satu does not have to, as shown in (44b) (Nomoto 2013: 13). We thus see the same constraint on reduced forms of the numeral for ‘one’ in CL languages.

Another constraint on the reduced form for the numeral for ‘one’ in MC is that it occurs only in the presence of a D-element. The demonstrative zhe ‘this’ in (33a), mei ‘every’ in (34a), mou ‘certain’ in (34b), and na ‘which’ in (34c) are all D-elements. In (45), there is no D-element, and thus an intended occurrence of Yi pro is not licensed.

In this section, I have identified \( \text{YI}_{\text{pro}} \) as a null form for the numeral ‘one’ in D-element constructions in MC. My analysis differs from Akhenvald (2000: 183), who suggests that the CLs with demonstratives and without any overt numeral in MC can be “deictic” CLs (I thank Byeong-uk for Yi for bringing Akhenvald’s theory to my attention). In my approach, it is the form of the numeral, rather than the CL, that is special in the constructions.

### 3.3 Unstressed YI as one way to realize an indefinite D

The overt \( yi \) ‘one’ in MC has several usages (e.g., Zhang 2013: Ch. 3). In this section, I argue that it can also be used as an indefinite article. Lü (1990: 174; adopted in Chen 2003: 1171) claims that the cluster \( yi \) and a CL is an article. However, it is unlikely for every \( yi \)-CL cluster to be an article, since there are a lot of CLs in the language. More plausibly, if \( yi \) occurs at the left-edge of a nominal, it alone can be an indefinite article. I label this overt element \( \text{YI}_D \). \( \text{YI}_D \) can be identified by three diagnostics.

First, the overt numeral \( YI \) may bear stress, whereas \( \text{YI}_D \) never does so. In (46a), \( yi \) contrasts with another numeral, \( liang \) ‘two’, and it bears a stress. The NP \( \text{chushi} \) ‘chef’ does not contrast with another NP such as \( siji \) ‘driver’ here. In (46b), however, \( yi \) does not contrast with any numeral, and it is not allowed to bear a stress. It is \( \text{chushi} \) that contrasts with \( siji \), and bears a stress.

\[(46) \quad \text{a.} \quad \text{阿林要僱一位廚師.不是兩位.} \]

\[\text{Alin yao gu yi wei chushi, bushi liang wei.}\]

\[\text{Alin want hire one CL chef not two CL}\]

\[\text{‘Alin wants to hire one chef, not two.’}\]

\[\text{b.} \quad \text{阿林要僱一位廚師.不是司機.} \]

\[\text{Alin yao gu yi wei chushi, bushi siji.}\]

\[\text{Alin want hire one CL chef not driver}\]

\[\text{‘Alin wants to hire a chef, not driver.’}\]

Second, the numeral \( YI \) is able to be in construal with a focus marker such as \( zhi \) ‘only’, but \( \text{YI}_D \) is not. In (47a), \( yi \) is stressed, and \( zhi \) must be in construal with it. This \( yi \) is a numeral. In (47b), however, \( yi \) is not stressed, and \( zhi \) is in construal with the stressed noun \( \text{chushi} \) ‘chef’, instead of the closer element \( yi \). This \( yi \) is not a numeral.

\[(47) \quad \text{a.} \quad \text{阿林只僱了一位廚師.（不是兩位.）} \]

\[\text{Alin zhi gu-le yi wei chushi (bushi liang wei).}\]

\[\text{Alin only hire-PRF one CL chef not two CL}\]

\[\text{‘Alin hired only one chef (rather than two).’}\]

\[\text{b.} \quad \text{阿林只僱了一位廚師.（不是司機.）} \]

\[\text{Alin zhi gu-le yi wei chushi. (bushi siji).}\]

\[\text{Alin only hire-PRF one CL chef not driver}\]

\[\text{‘Alin hired only a chef (rather than a driver).’}\]

Third, the numeral \( YI \) licenses a numeral-oriented adverb, such as \( yigong \) ‘totally’, \( zonggong \) ‘totally’, and \( zuiduo \) ‘at most in number’, but \( \text{YI}_D \) is not able to do so. In (48a), \( yi \) licenses \( zonggong \), but the \( yi \) in (48b) does not.

\[(48) \quad \text{阿林總共要僱一位廚師.{不是兩位.}#不是司機.}\]
Alin zonggong yao gu YI wei chushi, (bushi liang wei)
Alin totally want hire one CL chef not two CL
/#bushisijiji.
/not driver
‘Alin wants to hire only one chef in total {not two/#not a driver}.

b. 阿林(*總共)要僱一位廚師.不是司機.
Alin (*zonggong) yao gu yi wei chushi, bushi siji.
Alin totally want hire one CL chef not driver
‘Alin wants to hire a chef (*in total), rather than a driver.’

We are thus able to attest the differences between the numeral YI and YI<sub>D</sub> in their intrinsic phonological and information structure properties, and their ability to license a numeral-oriented adverb. These differences are also seen between a numeral and an article in other languages. I thus claim that YI<sub>D</sub> is a realization of D, in contrast to the numeral YI, which is at SpecQuantP (see (40)).

Let us see how my YI<sub>D</sub> proposal explains the three contrasts above. First, unlike a numeral, an indefinite article never bears stress. This explains the first contrast. Second, a focus marker is never associated with an article. This explains the second contrast.

When YI<sub>D</sub> is followed by a CL, as in (47b), I claim that YI<sub>pro</sub> occurs between them. This claim is compatible with the conclusion reached in 3.2: D-elements license YI<sub>pro</sub>. Specifically, YI<sub>D</sub> heads a DP, and it c-commands a YI<sub>pro</sub>. Accordingly, it is YI<sub>pro</sub> that licenses the CL in a YI<sub>D</sub> nominal. Thus, yi wei chushi ‘a chef’ in (47b) has the structure in (49):

\[(D_{i} yi [Quant_{i} YI_{pro} [Quant_{j} \emptyset [CLP [CL y [NP chushi]]]]]]\]

The structure in (49) explains the third contrast presented above: a numeral can license a numeral-oriented adverb, but YI<sub>D</sub> cannot. In this structure, YI<sub>pro</sub> is c-commanded by YI<sub>D</sub>. Theoretically, a null numeral should be able to license a numeral-oriented adverb (cf. a PRO agent can license an agent-oriented adverb). However, this covert numeral is buried in a DP, as proposed in (49). If a numeral is embedded in a DP, it is unable to establish a dependency with a numeral-oriented adverb. This is similar to the case where a numeral is contained in a nominal that has a demonstrative, or mou ‘certain’, or na ‘which’. In this case, the numeral is also unable to license a numeral-oriented adverb, as seen in (50a). Similarly, a numeral contained in an OMN is also unable to license a numeral-oriented adverb, as seen in (50b) (Zhang 2015: 420). The adverb-numeral dependency is established only in the absence of any nominal-internal element that is higher than the numeral.

\[(50)\]
\[\begin{align*}
a. & \quad \text{*阿林總共看了[哪{一/三}本書]？} \\
& \quad \text{Alin zonggong kan-le [na {yi/san} ben shu]？} \\
& \quad \text{Alin totally read-PRF which one/three CL book} \\
b. & \quad \text{*阿林總共看了[阿美喜歡的{一/三}本書].} \\
& \quad \text{Alin zonggong kan-le [Amei xihuan de {yi/san} ben shu].} \\
& \quad \text{Alin totally read-PRF Amei like DE one/three CL book}
\end{align*}\]

We now complete our argumentation for the article or determiner status of YI<sub>D</sub>. Chierchia (2011: xiv) is right to point out that the existence of CL-languages with determiners is possible. In addition to MC, indefinite articles are also found in other CL-languages. In Zhuang, for example, the indefinite article ?deu’ occurs at the right edge of a nominal, similar to a demonstrative, but different from a numeral, which precedes a CL, as shown in (51) through (53) (Ma 2003: 711). Similarly, in other Kam-Tai languages, a numeral precedes a CL
consistently, but an indefinite article is always allowed to follow a CL, and is required to do so in some languages of the family (Lu 2012: 142–146) (in both Ma and Lu’s work, the article is glossed as ‘one’, and treated as a special numeral).

(51) a. ko1 fai4 ?deu1 CL tree a
   b. tu2 pja1 ?deu1 CL fish a
   [Zhuang]

(52) a. son1 ko1 fai4 CL tree b. pjt1 tu2 pja1 CL fish
   ‘two trees’ ‘eight fish’

(53) a. ko1 fai4 nei4 CL tree this
   b. tu2 pja1 han4 CL fish that
   ‘this tree’ ‘that fish’

Cross-linguistically, it is common that an indefinite singular article is developed from the numeral for ‘one’ (Givón 1981). According Dryer (2013), the numeral for ‘one’ is used as indefinite articles in at least 112 languages. In German, for example, the article ein ‘a’ still looks very similar to the numeral eins ‘one’. Even in English, the word one can be used either as a numeral or as an indefinite determiner (e.g., She arrived one rainy morning. Also see Kratzer 1998: 177f). Parallel to this, a definite article is developed from a demonstrative in many languages. Jenks (2018: Sec. 6) claims that “Mandarin is at the starting point in this historical chain.” The identical forms between the numeral YI and the indefinite article YID suggest that MC may also be at the starting point of the historical chain from the numeral for ‘one’ to an indefinite article.

Like an indefinite article in other languages, YID has a generalized quantifier interpretation (<<e,t>,t>). Indefinites as choice function variables may be existentially closed at any point, and thus they have no constraints on their scope interactions with other operators (Reinhart 1997, Winter 1997, Kratzer 1998). See 2.2.2 for examples in which a post-verbal yi-initial indefinite is ambiguous between a wide-scope and narrow scope reading. This property of yi-initial definites is well-recognized (e.g., Lee 1986, Liu 1997, Tsai 2008).

The distinctions between YID and the numeral YI suggest that not all nominal-initial yis have the same formal properties or occur in the same structural position. The distinctions also rule out the possibility that an yi-initial indefinite is derived by the raising of the numeral YI to D. As we stated in 3.2, a numeral is hosted at SpecQP in MC. It is impossible for a Spec element to move to a head position.

In (49), YID occurs with YI pro, which is a proform of the numeral YI. The co-occurrence of an indefinite article with a numeral for ‘one’ is also seen in languages such as Jingpo. Gu (2009) convincingly shows that in this language, mi is an indefinite article and it may occur with the numeral langai ‘one’ in the same nominal, as seen in (54).

(54) chyahkan langai mi [Jingpo; Gu 2009: 226]
    crab one a
    ‘a crab’

We have argued that MC has an indefinite singular article, but its occurrence is not obligatory for singular indefinites, since other strategies are available, e.g., mou ‘certain’ for specific indefinites (see 3.1).

So far, we have discussed three YIs: the numeral YI, which is able to bear a stress, a null YI (YI pro), which is the null proform of the numeral YI, and the unstressed YI, which is an
indefinite singular article (YI). The first two YIs are at SpecQuantP, and the last one heads a DP.

3.4 CL-initial forms contain YI_pro

Having discussed yi-initial indefinites, we now turn to CL-initial ones. I claim that YI_pro occurs in a CL-initial nominal. In such a nominal, there is no overt numeral. However, it denotes a singular entity consistently. Plausibly, it is YI_pro that is responsible for the singular meaning. Therefore, not only the QuantP in (55a) has YI_pro, as shown in (56a) (3.3), but also the QuantP in (55b) has YI_pro, as shown in (56b) (the structure higher than QuantP in (56b) will be elaborated in (70) later).

(55)  a. 他拿出一張照片.
Ta nachu yi zhang zhaopian. (no stress on yi)
    ‘He showed a photo.’

   b. 他拿出張照片.
Ta nachu zhang zhaopian.
    ‘He showed a photo.’

(56)  a.  [DP[det]YI] QuantYI_pro[Quant’∅][CLP[CL’zhang][NP zhaopian

   b.  … QuantYI_pro[Quant’∅][CLP[CL’zhang][NP zhaopian

As we reported in 3.2, the ‘one’ reading of YI_pro is not focused, and thus it is not allowed to contrast with another numeral. As expected, the ‘one’ reading of the assumed YI_pro in a CL-initial nominal is also not focused, and thus it not allowed to contrast with another numeral, as seen in (57).

(57)  他拿出隻手套, {不是隻襪子/#不是兩隻手套}.
Ta nachu zhi shoutao, {bushi zhi wazi/#bushi liang zhi shoutao}.
    ‘He showed a glove, {rather than a sock/#rather than two gloves}.’

Moreover, as we reported in 3.2, the ‘one’ reading of YI_pro is never associated with a focus marker; as expected, if the focus marker zhi ‘only’ occurs with a CL-initial nominal, it is in construal with the NP, instead of the implicit ‘one’ meaning. This is shown in (58). The constructions with another focus marker, lian ‘even’, show the same point, as seen in (59).

(58)  阿林只僱了位廚師.
Alin zhi gu-le wei chushi.
    A: ‘Alin hired only a chef (rather than another kind of person).’
Not B: ‘Alin hired only one chef (rather than more than one).’

(59)  a. 他連*(一)個小孩都管不了,更別提兩個小孩了.
Ta lian *(yi) ge xiaohai dou guanbuliao, geng bie
    he even one CL kid even not.manage more not
    ti liang ge xiaohai le.
    say two CL kid PRT
    ‘He cannot deal with even one kid, don’t mention two kids.’

   b. 他連個小孩都管不了,更別提管大人了.
Furthermore, if a CL-initial indefinite contains Yi_pro, the acceptability contrast between an example like (60a) and an example like (60b) is explained. (60b) is ill-formed because the degree adjective xiao must be right next to a CL, but Yi_pro also must be right next to a CL (3.2).\footnote{If xiao in (60b) follows the CL, as in (i), the form will be acceptable; but in that case, the adjective is a regular modifier of the noun, rather than a degree element; also in (60b), if de follows the CL zhang, as in (ii), i.e., the acceptability improves, but the syntactic structure will be changed; it will not form a minimal pair with (60a). (i) Ta nachu zhang xiao zhaopian. (ii) Ta nachu xiao zhang de zhaopian. he show CL small photo he show CL DE photo ‘He showed a small photo.’ ‘He showed {small photos/the small photo(s)}.’}

(60)  
a. 他拿出一小張照片.  
Ta nachu yi xiao zhang zhaopian  
he show one small CL photo  
‘He showed a small photo.’

b. *他拿出小張照片  
*Ta nachu xiao zhang zhaopian  
he show small CL photo

If we assume that CL-initial nominals are bare CLPs or NumeralPs (Cheng & Sybesma 1999: 528), we are not able to explain the consistent singular reading of such nominals. We have also not seen how these theories address the acceptability contrast in (60).

If we assume that CL-initial nominals are derived by yi-deletion (e.g., Lü 1990 [1944]: 166; Wang 1989: 109), some problems appear, as pointed out by Zhang (2013: 140-143). One of them is that the assumed elided part has no antecedent. (61) shows that if wu ‘five’ occurs in the first clause, qualified to be an antecedent for an assumed deletion, the deleted numeral in the second clause should be wu. However, the implied numeral meaning in the second clause is ‘one’ consistently.

(61) 寶玉拿出五個蘋果, 黛玉也拿出個蘋果.  
Baoyu nachu wu ge pingguo, Daiyu ye nachu ge pingguo.  
Baoyu show five CL apple Daiyu also show CL apple  
‘Baoyu showed five apple, and Daiyu also showed an apple.’

Moreover, if a CL-initial nominal were derived by yi-deletion, the contrast between (60a) and (60b) would be unexpected.\footnote{Cantonese has a parallel version of (33) and (34) (Sze-wing Tang, p.c.), and it has CL-initial forms, as in MC. In Wu, CL-initial nominals occur, and Yi_pro following a demonstrative is obligatory (Zhang 2013: 144). In languages such as Korean and Japanese, there is no null form for ‘one’ in a complex nominal (Yi 2011: 267; p.c.), and there is no CL-initial nominal, either. This is also true in Taiwan Southern Min (Tang 2007: 980). In languages such as Thai, a null form for ‘one’ exists in demonstrative nominals (see Lu 2012: 147), but they have no counterpart of CL-initial nominals (Simpson 2005: 823). However, we have not found a language in which CL-initial nominals exist in the absence of a null form for ‘one’. Thus it is possible for a CL-initial nominal to have a null form for ‘one’, but if a language has such a null form, it does not have to have CL-initial nominals. I thank my informants xxxx.}

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\footnote{5 If xiao in (60b) follows the CL, as in (i), the form will be acceptable; but in that case, the adjective is a regular modifier of the noun, rather than a degree element; also in (60b), if de follows the CL zhang, as in (ii), i.e., the acceptability improves, but the syntactic structure will be changed; it will not form a minimal pair with (60a). (i) Ta nachu zhang xiao zhaopian. (ii) Ta nachu xiao zhang de zhaopian. he show CL small photo he show CL DE photo ‘He showed a small photo.’ ‘He showed {small photos/the small photo(s)}.’

6 Cantonese has a parallel version of (33) and (34) (Sze-wing Tang, p.c.), and it has CL-initial forms, as in MC. In Wu, CL-initial nominals occur, and Yi_pro following a demonstrative is obligatory (Zhang 2013: 144). In languages such as Korean and Japanese, there is no null form for ‘one’ in a complex nominal (Yi 2011: 267; p.c.), and there is no CL-initial nominal, either. This is also true in Taiwan Southern Min (Tang 2007: 980). In languages such as Thai, a null form for ‘one’ exists in demonstrative nominals (see Lu 2012: 147), but they have no counterpart of CL-initial nominals (Simpson 2005: 823). However, we have not found a language in which CL-initial nominals exist in the absence of a null form for ‘one’. Thus it is possible for a CL-initial nominal to have a null form for ‘one’, but if a language has such a null form, it does not have to have CL-initial nominals. I thank my informants xxxx.}
3.5 CL-raising as another way to realize an indefinite D

Instead of the problematic bare CLP, NumeralP, and yi-deletion analyses, in this section, I argue that in a CL-initial nominal, the CL has moved to D.\(^7\)

One argument for this CL-to-D movement comes from a contrast in ellipsis. Recall that numerals in MC, as phrasal elements, do not license ellipsis (see (37)). Yi\(_D\), like the article \(a\) in English, also does not license ellipsis of the element to its right, as seen in (62). It has been recognized that not all functional heads license ellipsis. For example, the infinitive \(to\) licenses VP ellipsis in a control construction but does not do so in an ECM construction (e.g., Lasnik 1992). Thus, an article’s inability to license ellipsis is not surprising.

\[(62)\] 阿林僱了一位廚師,不是司機.*他們也僱了一.

\[
\begin{array}{ll}
\text{Alin} & \text{gu-le \ yi \ we \ chushi, siji.} \\
\text{Alin} & \text{hire-PRF \ one \ CL \ chef \ not \ driver \ they \ also} \\
\text{gu-le \ yi.} & \text{hire-PRE \ one} \\
\end{array}
\]

Intended: ‘Alin hired a chef, rather than a driver, and so did they.’

Now consider the minimal pair in (63). In (63a), in the presence of \(yi\), the CL \(ben\) does not move and is able to license ellipsis. In contrast, in (63b), in the absence of \(yi\), the same CL loses its ability to license ellipsis (Lü 1990 [1944]: 170. Sec. (b)). Thus, a nominal edge CL and Yi\(_D\) are similar in this respect. It is possible that when a CL adjoins to D, since D does not license ellipsis, the whole cluster CL-D is unable to license ellipsis.\(^8\)

\[(63)\]  a. 他買了一本辭典, 我也買了一本.

\[
\begin{array}{ll}
\text{Ta} & \text{mai-le \ yi \ ben \ cidian, \ wo \ ye \ mai-le} \\
\text{he} & \text{buy-PRF \ one \ CL \ dictionary \ I \ also \ buy-PRF} \\
\text{yi \ ben.} & \text{one \ CL} \\
\end{array}
\]

‘He bought a dictionary, and so did I.’

b. 他買了本辭典, *我也買了本.

\[
\begin{array}{ll}
\text{Ta} & \text{mai-le \ ben \ cidian, \ *wo \ ye \ mai-le \ ben.} \\
\text{he} & \text{buy-PRF \ CL \ dictionary \ I \ also \ buy-PRF \ CL} \\
\end{array}
\]

Another argument for the CL-to-D movement comes from a contrast in CL-stranding. Like the article \(a\) in English, Yi\(_D\) cannot be stranded, as seen in (64).

\[(64)\] 廚師,我們不缺.司機,我們倒想僱一*位).

\[
\begin{array}{ll}
\text{Chushi, women bu-que.} & \text{Siji, women dao xiang gu \ yi *(wei).} \\
\text{chef \ we \ not-lack \ driver \ we \ rather \ want \ hire \ one \ CL} & \text{‘As for chefs, we do not lack. But drivers, we’d like to hire one.’} \\
\end{array}
\]

\(^7\) The CLs discussed in this paper are not restricted to \(ge\). The CL \(ge\) has some special uses, e.g., it may occur in a secondary predicate (see Lü 1990 [1944]: 153–154, Zhang 2016b). This paper does not discuss any special uses of the expressions that start with \(ge\).

\(^8\) Note that in a CL-initial nominal, the ellipsis of the post-\(de\) part is licensed by \(de\), as seen in (i).

(i) Mai \(ge\) hao \(de\) ba!

\[
\begin{array}{ll}
\text{buy \ CL \ good} & \text{DE \ IMP} \\
\end{array}
\]

‘Buy a good one!’
Now consider the minimal pairs in (65) and (66). In (65a), in the presence of *yi, the CL *ben can be stranded. In contrast, in (65b), in the absence of *yi, the same CL cannot be stranded. Thus, a nominal edge CL and YI*D are similar in this respect. It is possible that when a CL adjoins to D, since D cannot be stranded, the whole cluster CL-D cannot be stranded, either. The contrast in (66) shows the same point.

(65) a. 辭典,他買了一本.
    Cidian, ta mai-le yi ben.
    ‘As for dictionaries, he bought one.’

b. *辭典,他買了本.
    Cidian, ta mai-le ben.
    ‘As for dictionaries, he bought one.’

(66) a. 他辭典買了一本.
    Ta cidian mai-le yi ben.
    ‘As for dictionaries, he bought one.’

b. *他辭典買了本.
    *Ta cidian mai-le ben.
    ‘As for dictionaries, he bought one.’

A further argument for the CL-to-D movement comes from a contrast in bearing a contrastive focus. As shown in 3.3, like the article *a in English, YI*D never bears a contrastive focus. Now consider the minimal pairs in (67). In (67a), in the presence of *yi, the CL ba in the second clause can contrast with the CL chuan in the first clause. However, in (67b), in the absence of *yi, the same CL cannot do so. Thus, a nominal edge CL and YI*D are similar in this respect. It is possible that when a CL adjoins to D, since D is unable to bear a contrastive focus, the whole cluster CL-D is not able to do so, either. (68) shows that in the absence of a contrastive focus, the CL-initial form in the second clause of (67b) is well-formed.

(67) a. 他拿出一串鑰匙,不是一把鑰匙.
    Ta nachu yi chuan yaoshi, bushi yi ba yaoshi.
    ‘He showed a bunch of keys, rather than one key.’

b. 他拿出串鑰匙,*不是把鑰匙.
    Ta nachu chuan yaoshi, *bushi ba yaoshi.
    ‘He showed a bunch of keys, rather than one key.’

(68) 他拿出一把鑰匙.
    Ta nachu ba yaoshi.
    ‘He showed a key.’

Based on the above arguments, I claim that a nominal edge CL has always moved from CLP to DP. My hypothesis is in (69).

(69) A nominal edge CL surfaces at the same position as YI*D in Mandarin Chinese.
(70)  a.  他拿出張照片.
Ta nachu zhang zhaopian.
He showed a photo.

b.  [DP [D 'zhang' QuantP Yi pro [Quant 'zhang' [CLP [CL 'zhang' [NP zhaopian ]]]]]]

Thus, there is no Yi-deletion for a CL-initial nominal. Instead, if a CL surfaces at the left-edge of a nominal, it has moved from CL to D. In such a nominal, DP is projected.

My arguments for the CL-raising also rule out another analysis of CL-initial nominals. One might assume that Yi pro is base-generated at the head of QuantP (instead of SpecQuantP), and it is Yi pro that moves to D, leaving the CL in situ. Assume that in all examples in (65), (66), and (67), Yi pro occurs, and in the a-forms, the overt yi is Yi D. The Yi pro raising analysis is unable to explain why the CL behaves so differently when Yi pro moves in the b-forms. Yi pro structurally higher than a CL, and thus the raising of the former should not affect the properties of the latter.

Now back to our two ways of indefinite D-realization. They have different morphological properties. It has been noted in the literature that CL-initial indefinites cannot occur at the left-edge of a prosodic phrase, as seen in (71a) (= (13b)), or as a non-initial conjunct, in MC (Lü 1990 [1944]: 167, Li & Feng 2015: 4, among others), as seen in (71b).

(71)  a.  外面*(一)隻狗在叫.
Waimian *(yi) zhi gou zai jiao.
‘Outside, a dog is barking.’

b.  他想買本書和*(一)張紙.
Ta xiang mai ben shu he *(yi) zhang zhi.
‘He wants to buy a book and a piece of paper.’

It seems that a CL surfacing at D needs a proper morphological host to its immediate left in MC, behaving like an enclitics. In (71a), if yi does not occur, the CL zhi will occur at the left-edge of a prosodic phrase, without any morphological host to its left. In (71b), the conjunction he ‘and’, similar to other conjunctions cross-linguistically, is hard to host a bound form (Haspelmath 2002: 151; see Zhang 2010: 39 for further discussion of the issue).

There are also various other stylistic and prosodic constraints on the occurrence of CL-initial nominals in MC. See Li & Feng (2015).

Our (69) excludes ungrammatical examples like (72a), where the base-generated Yi D competes with the raised CL ba in the D head position. It also excludes ungrammatical examples like (72b), where DP, if it is projected, is not singular, and thus the raising of the CL is not motivated.

(72)  a.  *把一椅子
*ba yi yizi
CL one chair

b.  *把三椅子
*ba san yizi
CL three chair

If the CL in a CL-initial nominal has moved to D, D is not empty in the nominal. However, null indefinite D may still exist in MC, though. For instance, the indefinite subject in (73) does not have an overt D. Note that the null D in such a case does not need any overt head element licensor (cf. Longobardi 1994). In this respect, MC is again not different from
other languages (see the English translation of (73)). Null D is also seen in (34b)/(40), where the SpecDP is taken by mou ‘certain’.

(73) 兩個胖胖的小孩走了過來.
Laing ge pangpang de xiaohaizou-le-guolai.
two CL fat DE kid walk-prf-over
‘Two fat kids came over.’

3.6 CL-initial constructions as nominal AUX-raising constructions
In this section, we try to look at the alternation between yi-initial indefinites and CL-initial indefinites from a broader perspective.

CLs are nominal auxiliaries (e.g., Chao 1948, 1968: 584; Zhang 2013: 208–211). In the verbal domain, auxiliary raising is well-recognized. For instance, in English, a conditional clause can be introduced either by the complementizer if or by the raising of an auxiliary. The two examples in (74) mean the same.

(74)  a. If I had any inkling of this, I would have acted differently.
    b. Had I any inkling of this, I would have acted differently.

As stated in Huddleston & Pullum (2002: 971), not every auxiliary may initiate a conditional clause. The auxiliary is, for example, may not do so. But the complementizer if does not have a restriction on the auxiliary of the clause. Thus, the if-conditional are unmarked and the auxiliary-initial conditionals are marked. Similarly, there are contexts where an yi-initial indefinite may occur but a CL-initial may not (Lü (1990 [1944], Li & Feng 2015). Also, the possible specificity patterns of CL-initial indefinites are covered by yi-initial indefinites (see (28)). Thus, yi-initial indefinites are unmarked and CL-initial indefinites are marked. We thus see a parallelism between the verbal domain and the nominal domain: if there is an alternation between a construction that is headed by a base-generated element and a construction in which the same head position hosts a raised auxiliary, the former construction is unmarked and latter one is marked.

Nominals that are composed of a CL and a noun are CL-language-specific, although some CL-languages do not have such nominals (e.g., Min, Thai, Khmer, Burmese, Indonesian; see Simpson 2005: 823). In languages such as Cantonese and Vietnamese, such nominals can be definite, as well as indefinites (e.g., Cheng & Sybesma 1999: 524; Tri-Dat Lam, p. c.). For the definite version, Simpson (2005) also argues for a CL-to-D raising. It is possible that CL-to-D raising can be triggered by different features, cross-linguistically and in the same language.

In this section, we have reached the following major conclusions. First, MC has a null proform for ‘one’. Second, yi can be used as an indefinite article in MC, and thus DP exists in this CL-language. Third, a CL-initial indefinite is derived by a CL-to-D movement, and thus such a nominal is a derived DP. Jenks (2018) concludes that a complex definite in the language must be a DP, and we have concluded that a complex indefinite must also be a DP.

4. Consequences
The research of this paper has four consequences, with respect to the semantic and syntactic categories of indefinite arguments in a CL-language. First, the research of bare nouns here does not support the idea that bare nouns in CL-languages are typologically different from other languages. Chierchia (1998, 2011: xv) claims that bare nouns are intrinsically of type e, denoting names of kinds, in CL-languages, in contrast to non-CL languages.
Chierchia’s (2011: xiv) assumptions:
a. Numerals universally combine with properties (of type <e, t>)
b. If nouns (Ns) must enter the syntactic derivation as kind denoting (eK), they cannot directly combine with numerals. A functional category is needed to turn kinds into properties. This may be the role of classifiers. Classifiers are of type <eK, <e, t>> (or, possibly, of type <eK, <n, <e, t>>>), where n is the type of numerals.

Chierchia’s theory is influential (see, e.g., Huang 2006, Jiang 2015, 2018). In Section 2, we showed that bare noun indefinites in MC have the same distribution and semantics as in non-CL languages. Thus, the function of CLs is not to change an assumed type eK into type <e, t>, since bare noun indefinites are already <e, t>, having a nonspecific reading, as in other languages. Bare nouns can also be predicates in MC, without a CL-support, as in (76).

(76) Alin yao dang laoshi.
    ‘Alin wants to become a teacher.’

Jenks (2018) argues that bare noun definites in MC are also of type <e, t>, before they are type-shifted to e via the operator t in semantics. This paper shows that bare noun indefinites in MC, as in other languages, are also of type <e, t>, before they undergo any semantic operation such as Existential Closure (or Chung & Ladusaw’s 2004 Predicate Restriction, with the associated verb, if the bare noun is nonreferential). From both perspectives, bare nouns are not of type eK intrinsically in the language.

If bare nouns in MC enter the syntactic derivation as elements of type <e, t>, as argued here, CLs cannot be <eK, <e, t>>, or <eK, <n, <e, t>>>>. In Liao & Wang (2011) and Jenks (2018), among others, CLs are <<e, t>,<e, t>>>. For instance, (77a) has the structure in (77b). It is generally agreed that the semantic type of the combination of a CL and a N is the same as that of a count noun in languages such as English, i.e., <e, t> (Chierchia 1998, 2011) (Chierchia’s type n is used for the numeral in (77b); see Partee 2002: 370 and Carlson 2003: 204 for other semantic analyses of numerals).

(77) a. san ben shu
    three CL book
    ‘three books’
    b. QuantP <e, t>
        san Quant’ <n, <e, t>>
        n
        Quant CLP<e, t>
        <<e, t>, <n, <e, t>>> CL NP
        ben shu
        <<e, t>, <e, t>> <e, t>

As in non-CL languages, mass nouns in MC reject size and shape modifiers (Zhang 2013) and reject collective unit words (e.g., pair, group, set), but other nouns do not. The use of CL does not mean the language does not distinguish mass and other nouns. The obligatory use of a CL with a numeral may have another account (see Zhang 2013: 251–254 for a critical review of Wilhelm’s 2008 account based on the semantics of numerals). Numerals, including
In MC, although a numeral and a unit word can be separated by a degree element (Luo et al. 2017), a numeral needs a “unit word support”, without any semantic reason (unless in calculating numerals). For example, unlike in English, bare numerals are unable to occur as fragment answers in MC. In (78), as an answer to A’ question, B is possible, C is not, and D is marginally possible because bai ‘hundred’ itself can be treated as a unit word. But a research of the CL issue is beyond the scope of this paper.  

(78) A: Zhuo-shang you ji ben shu?  
‘How many books are there on the table?’  
B: Si ben.  
C: *Si.  
D: ?Si-bai.  

Second, MC does have DP arguments. We have argued in Section 3 that for complex singular indefinites, D is realized in one of two ways: to merge an indefinite article, YI_D, under D, and to move CL to D. MC is thus not a language without articles, as generally believed, and it is not true that a CL-language does not have DP.

Third, since bare noun indefinites are semantically and distributionally different from complex indefinites, as shown in Section 2, it is implausible for them to have the same structural richness as complex indefinites. Bare noun indefinites are just NPs (or nPs) (2.3).

Fourth, CL-initial nominals are DPs, in which the CL has moved to D. Thus, there is no bare CLP argument in MC. Such nominals are also not NumralPs.

These points support Jenks’s (2018: Sec. 6) claim that “bare nouns lack DP structure in Mandarin,” but complex nominals involve full DP structure. “As such, the debate about whether a language is a ‘DP language’ or an ‘NP language’ is not on quite the right track. Instead, we must ask under which semantic contexts languages are required to project DP.”

5. Conclusions
This paper has explored the relation between indefinite D and CL in MC, a CL-language that has no definite article. I have argued for the projections of both DP and NP for indefinite arguments in MC, with the following six conclusions.

◆ Topic positions reject a bare noun indefinite, and thus the distribution of bare noun indefinites is not free. Bare noun indefinites have the same distribution and semantics as those in non-CL languages.

◆ As in non-CL languages, bare noun indefinites may occur in preverbal non-topic positions, with nonspecific readings.

◆ It seems that for indefinites, the degree of the form complexity correlates with the degree of specificity markedness.

◆ Indefinite arguments in a bare noun form are NPs, rather than DPs.

◆ A null form for the numeral for ‘one’ is identified.

◆ An indefinite article in the form of yi ‘one’ is also identified.

◆ A head movement of a CL to D is attested for CL-initial forms. Thus, NP and DP are independent arguments in the language, but CLP is not.

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9 MC allows monosyllabic fragment answers, as in (i). Thus the acceptability contrast in (78) is not phonological.

(i) A: Ni neng kai-che ma?  
you can drive-car Q  
‘Can you drive a car?’  
B: Neng.  
‘Yes, I can.’


32


