Topicality and (Non-)Specificity in Mandarin

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Abstract

This paper presents arguments based on data from Mandarin Chinese for the idea that specific interpretations of indefinites arise when the domain of quantification for the indefinite is a topic. In particular, when the sentence has a topic (overt or covert) which represents a small fixed set or function from contextual parameters to sets, and an indefinite quantifies over this set, the indefinite will seem to get a fixed reference and have wide scope. The Chinese distributive marker *dou* is especially helpful in developing this hypothesis because it shows various complex interactions with indefinites, topics, and specificity; these interactions allow us to uncover evidence for crucial components of the analysis of specificity.

1 OVERVIEW: AN IDEA ABOUT SPECIFICITY

Current analyses of specificity are unable to provide an explanatory account for why specific and nonspecific uses of indefinites are available. While Abusch (1994), Reinhart (1997), and Kratzer (1998) provide successful mechanisms for deriving specific readings, they do not provide a fundamental explanation for the availability of this mechanism. This is due to the fact that specific indefinites are treated as involving an interpretive component or procedure unique to themselves: storage (Abusch) or choice functions (Reinhart and Kratzer),[1] for example. It would be preferable if specific indefinites could be understood as deriving from the use of independently motivated meaning components and interpretive mechanisms.

Here I will pursue the idea, building on Portner & Yabushita (1998), that specificity has to do with the indefinite's interaction with a topical domain (note similarities with the proposals of Enç 1991; Cresti 1995, and Schwarzschild 2002). In this conception, specificity is a matter of degree: the narrower the topical domain, the more specific

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[1] There are also analyses which treat all indefinites as choice functions (Winter 1997; von Heusinger 2000, for example), but of course in that case specific indefinites cannot be analyzed as deriving from a 'choice function reading'. I am not sure whether my ideas about topicality could be combined with this pure choice function view to give an explanation of the Chinese data parallel to mine.

the indefinite. More precisely, sentences containing specific indefinites will be understood as involving ordinary existential quantification in combination with a topical domain function. This may be semi-formally represented as in (1)–(2):

(1) [Top$_i$ [Mary met a$_i$ certain man]]
     $\exists x[(f_i \cap \text{man})(x) \& \text{met}(m, x)]$

(2) [Top$_i$ [Every professor rewarded every student who read some$_i$ book he had reviewed for the *New York Times*]] (Kratzer 1998)
     $\forall x[\text{professor}(x) \supset \forall y[(\text{student}(y) \& \exists z[(\text{book} \cap f_i(x))(z) \& \text{read}(y, z)]) \supset \text{rewarded}(x, y)]]$

This analysis is very similar to the choice function approach. The latter would have (2)$'$ in place of (2):[2]

(2)$'$ $\forall x[\text{professor}(x) \supset \forall y[(\text{student}(y) \& \text{read}(y, f_i(x))) \supset \text{rewarded}(x, y)]]$

The two ideas are equivalent in the case where $f_i(x)$ in (2) is the characteristic function of a singleton set. If it represents a larger set, the indefinite will be 'less specific'; it is hard to judge through intuition alone whether allowing this possibility is a good thing. Apart from this, the approach in (2) has the significant advantage of not needing to grant indefinites a novel type of meaning, one different from that which they exhibit in non-specific cases. Rather, specificity is the combination of the ordinary semantics for indefinites plus the independently needed pragmatic concept of topic.

2 EVIDENCE FROM MANDARIN CHINESE

Mandarin Chinese provides evidence that this approach to specificity is correct. At the most straightforward level, Wu (1998) points out contrasts of the form in (3):

(3)   (Wu 1998, ex. (1))
     a. You   yi   xie   xuesheng   chuxi.le   huiyi.
         exist one   CL   student   attend   meeting
         'There are some students who attended the meeting.'
     b. Xuesheng   you   yi   xie   chuxi.le   huiyi.
         student   exist one   CL   attend   meeting
         'Some of the students have attended the meeting.'

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[2] I leave aside the issue of whether choice functions are left as free variables (as in Kratzer's 1998 proposal) or existentially quantified (as in Reinhart's 1997 and Winter's 1997). See Chierchia (2001) and Matthewson (1999) for relevant discussion.

According to Wu, the indefinite in (3a) is non-specific, while that in (3b) is specific. What we see in (3b) is that the common noun in a quantificational structure may be overtly topicalized, and this leads to a reading involving a pre-established domain of quantification, 'specific' in Enç's sense. (Portner & Yabushita 1998, discuss similar cases in Japanese.) However, this type of data provides only indirect evidence for the idea that specific indefinites without overt topicalization can be explained in a similar way. In this paper, I'll look for further support based on the interpretation of indefinites whose common noun part has not been overtly topicalized.

I will discuss two types of data involving a semantic interaction between indefinites and another quantificational element, the distributive operator *dou*. In section 2.1, I will examine the interpretation of indefinites in the scalar *lian . . . dou* 'even . . . all' construction. While the indefinites in the *lian . . . dou* construction are not specific, their semantics provides evidence for one key idea: that the domain of quantification for indefinites may be represented by a covert topic. In section 2.2, I will consider some interactions among *mei* 'every', *dou* 'all', and indefinites, and the effects of these interaction on specificity. The pattern of interpretation uncovered there argues that specificity is based on the properties of the domain of quantification for an indefinite. Between them, sections 2.1 and 2.2 thus provide evidence for two key ideas which underlie the main hypothesis that specificity arises when an indefinite's domain is a narrow topical set.

It is important to keep in mind some key properties of Mandarin:

1. Mandarin commonly employs topics, both overtly and covertly.
2. Mandarin does not show scope ambiguity in ordinary active sentences (e.g., Huang 1981, 1982; Aoun & Li 1993; Liu 1997).
3. Cases of apparent scope ambiguity in such sentences actually involve specificity (Huang 1982; Liu 1997; contra Huang 1996).
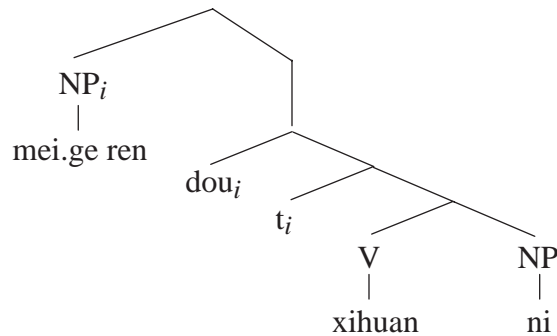
The type of specificity relevant to point 3 (labelled *G-specificity* by Liu) at first glance seems rather broad for our purposes, in that it also includes phrases like mei + NP 'every NP'. However, given their occurrence with the distributive marker *dou*, Lin (1998) shows that these are better treated as involving reference to (or in some cases indefinite quantification over) a group. For example, *mei* ('every') + NP refers to the supremum of the set denoted by the NP, $SUP(\| NP \|)$.

(4) Mei   ge   ren /   zhe xie ren   dou   xihuan ni.
     every CL   person this CL   person DM   like   you
     'Everyone likes you./everyone in this group of people likes you'

This means that Mandarin lacks a true universal determiner. In (4), the quantificational force comes from the distributive marker *dou*, with the following semantics (here 'C' represents a contextual restriction on the quantificational domain.):

$$\|dou\| = [\lambda P \cdot \lambda G \cdot \forall \gamma[(C(\gamma) \& G(\gamma)) \supset P(\gamma)]]$$

An example:

$$\|[dou([\lambda x \cdot \text{like}(x, \text{you})])](mei(\text{person}))\|$$
$$\approx \forall \gamma[(C(\gamma) \& \text{SUP}(\text{person})(\gamma)) \supset \text{like}(\gamma, \text{you})]$$

As noted by Liu (1997), the ability to associate with the distributive marker *dou* can be seen as diagnostic for specificity, except for some complex cases which we will discuss in section 2.1. In addition, *dou* has some other properties we will need to keep in mind. The example in (5)–(12) below are from Liu:

4.   The associate of *dou* can be a sentence-initial topic:

(5)   Quanbu de   laoshi   wo   dou   yujian.le.
      all   DE   teacher I   DM   meet.ASP
      'I met all of the teachers.'

5.   Contrasting with (5), *dou* must follow its associate:[3]

(6)   ★Wo   dou   yujian.le   quanbu   de   laoshi.
       I   DM   meet.ASP   all   DE   teacher

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[3] As pointed out by an anonymous reviewer and Lu (1980) (cited in Lee (1986)), in certain dialects this restriction appears not to hold when the associate is a wh word, as in (i). As we will not deal with such cases, their exact analysis needn't concern us, but see Zhang (1997) and Li (1997) for two views.

(i)   Dou   shei   lai   le?
      DM   who   come   ASP
      'Who all have come?'

6.   *Dou* is obligatory with certain determiners, notable *mei* ('every') (with an exception to be discussed in section 2.2):

(7)   Mei   ge   ren   ⋆(dou)   xihuan   Laowang.
      every   CL   person   DM   like   Laowang
      'Everybody likes Laowang.'

7.   *Dou*'s associate can be a referential noun phrase:

(8)   Women   dou   mai.le   yi   zhang   hua.
      We   DM   buy.ASP   one   CL   picture
      'We all bought a picture.'

8.   *Dou*'s associate must be plural, mass, or admit of a partitive interpretation[4] (with certain exceptions discussed in section 2.1 below):

(9)   ⋆Wo   dou   mai.le   yi   zhang   hua.
      I   DM   buy.ASP   one   CL   picture

9.   With a few interesting exceptions to be discussed below, *dou*'s associate must be specific. This explains the facts in (10)–(12). First, *liang ge xuesheng* ('two CL student') in (10) can only be interpreted as 'both students', not as 'two students':

(10)   Liang   ge   xuesheng   dou   pao.le.
       two   CL   student   DM   run.ASP
       'Both students ran.'

Second, a bare noun associated with *dou* is interpreted as definite:

(11)   Xuesheng   dou   zou.le.
       student   DM   leave.asp
       'The students all left.'

And third, appoximative quantifiers like 'around three to five' are impossible, as they are plausibly incompatible with a specific interpretation:

(12)   ⋆San   dao   wu   ge   xuesheng   dou   pao.le
        three   to   five   CL   student   DM   run.ASP

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[4] Here, 'partitive interpretation' refers to cases likes the following from (Lee 1986: 12):

(i)   Zhe   zhang   zhi   dou   hua   le   mao.
      this   CL   paper   DM   draw   ASP   cat
      'All of this sheet of paper has been drawn with cats.'

2.1   *The* lian . . . dou *construction*

Though in general *dou* does not associate with singular NPs, in a few cases in may. The scalar *lian . . . dou/ye* construction in (13) is one example; also possible are similar sentences without *lian*, as in (14).

(13) Lian wo dou/ye zhidao.le, ta dangran zhidao
   even I DM/also know.ASP he of course know
   'Even I have come to know it, of course he knows it too'
               (Liu 1997: 96)

(14) Wo yi ge ren dou bu jie dai.
   I one CL person DM neg host
   'I didn't host a single person.'

The central claim of this section is that these indefinite + *dou* constructions show that the domain of quantification for indefinites may be represented via a (possibly covert) topic, thus supporting the proposed analysis of specificity.

I will build an account of these examples based on the idea that *dou* can be seen as having its ordinary meaning, but contributing this meaning to the sentence's implicature, rather than its truth–conditional semantics. Thus, the *dou* of the *lian . . . dou* construction and the distributive marker *dou* can be seen as having very closely related, but ultimately distinct, lexical meanings.[5] We'll focus on the examples with *lian* here.

Example (15a) shows an instance in which dou, in a *lian . . . dou* structure, appears to associate with, and quantify over, the sentence's topic. (15b) is a similar case in which the topic is, according to Liu (1997), covert:

(15) a. Wo de pengyou lian yi ge dou mei lai.
    I DE friend even one CL DM NEG come
    'As for my friends, not even one has come.'
   b. (Wo) lian yi ge ren dou bu jian
    I even one CL person DM neg see
    'I don't even see a single person.' (Liu 1997: 97)

The meaning of (15a) seem to involve quantification over the set of my friends, denoted by the initial topic phrase.

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[5] For this reason, the differences between distributive *dou* and the *dou* in *lian . . . dou* discussed by Sybesma (1996) and Zhang (1997) are not troubling for this analysis.

Notice that *lian* + indefinite is typically a negative polarity item (NPI):[6]

(15) c. *Wo lian yi ge ren dou jian.
         I even one CL person DM see

(15c) shows that it will not quite do to say simply that *dou* in (15a) quantifies over the set of friends. If we simply say that (15a) means 'all of my friends haven't come', there is no reason why (15c) could not be interpreted in a similar way as 'I see everyone'. Instead, we need to take into account the scalar nature of *lian*, making clear that the NP marked by *lian* is ranked as 'least likely' of all of the elements quantified over by *dou*. This works out in a reasonably straightforward fashion with (13), where the element marked by *lian* is referential. Here, the speaker is the least likely person to know it. But in the *lian* + indefinite cases like (15a), it's unclear how to place the quantifier *yi ge (ren)* ('a person') into a scale with the set of individuals (or quantifier) denoted by *wo de pengyou* ('my friends'). The quantificational NP denotes a set of properties, and thus is of an entirely different semantic type than the individual in the set of my friends. Thus, a more sophisticated account is called for.

A clue to the analysis of this construction comes from the fact that there are some cases (which many speakers find difficult to interpret at first) in which *lian* + indefinite is not an NPI:[7]

(16) a. Zhangsan lian yi/ban kou fan dou chi–xia–qu le.
         Z.   even one/half CL rice DM eat-down ASP
         'Zhangsan ate even a/half-a mouthful of rice.' (Shyu 1995)
     b. Ta lian yi xie jiu baozhi dou baocun.
         he even one CL old newspapers DM keep
         'He even keeps some old newspapers.'

The difference between these examples and (15a–b), where *lian* + indefinite is an NPI, has to do with the nature of the scale marked

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[6] As pointed out to me by Jingqi Fu (p.c.), example (15c) can occur on an modalized reading like 'I am willing to see even one person.' In such a case, the implicit modal would presumably licence *lian yi ge ren*. A slight modification of (15)c which disallows such an interpretation is (i):

(i) Lian yi ge ren dou kan *(bu) jian.
     even one CL person DM look neg see

[7] Thanks to an anonymous reviewer for pointing out these cases. He or she describes the relevant readings as always involving a specific interpretation, and whereas specificity is clearly one way of allowing the right type of scale (e.g. the specific old newspapers he keeps are less likely things to keep than the other things he keeps), such a reading may not be necessary. Indeed, Shyu states that (16)a has a non–specific interpretation. The second example is the reviewer's.

by *lian*. In (15b), the sentence presupposes a scale based on quantity: 'I didn't see even a single person, much less two or three.' The quantity scale leads the *lian* phrase to be an NPI. In contrast, the examples in (16) presuppose scales pertaining either to the kind of thing denoted by the common noun or to the denotation of the NP as a whole; for instance, (16b) might mean '(He keeps everything old.) He even keeps old newspapers, in addition to such less surprising things as old books and old furniture.' Such *lian* + indefinite phrases are not NPIs. The analysis given below correctly links the NPI status of *lian* + indefinite to the presence of a quantity scale.

(17) outlines a basic semantic analysis for *lian* ... *dou* based on the idea that *dou* quantifies over a presupposed (topical) set of alternatives to the focalized phrase marked by *lian*.

(17) $D_i[[lian\ X][_{\text{PRED}}\ldots dou_i\ldots]]$, D an implicit topical set of alternatives to X and X at the extreme end of a contextually given scale on D:

   (i) asserts $\text{PRED}(X)$.
   (ii) implicates $\forall x \in D[\text{Pred}(x)]$.

In the cases we are interested in, where *lian* + indefinite is an NPI, the set D which *dou* quantifies over contains alternative domains of quantification for the indefinite; these domains are ordered by the inclusion relation. For example, in (15b) the topical set consists of alternative domains of quantification for *yi ge ren*. Via *lian*'s scalar implicature, each of these is wider than the original domain *person* $\cap$ *C*, the set of people relevant in the context. Then, *dou* quantifies over this set, as illustrated in the following analysis of (15b):

(18) Assertion: $\sim \exists \gamma[\text{person} \cap C(\gamma)\ \&\ \text{see}(I, \gamma)]$
      Implicature: $\forall X \in D[\sim \exists \gamma[\gamma \in X\ \&\ \text{see}(I, \gamma)]]$,

   where $D \subseteq \{X : X \text{ is a group of people}\}$ and the elements of D are ranked as in: $\langle \text{person} \cap C < \ldots < \{x : x \text{ is a person of whatever sort}\}\rangle$.

Notice that *yi ge ren* ('one person') is interpreted under the scopes of negation and *dou*, so that *dou* quantifies over the set of alternative domain sets. Though *dou* is not quantifying over the object's denotation $\|yi\ ge\ ren\|$, this noun phrase must nevertheless precede it. I propose that this is so for syntactic reasons: in general, *dou* must follow a noun phrase associated with what it quantifies over. On *dou*'s ordinary usage, this noun phrase directly denotes the set which *dou* quantifies over, as

in (4)–(12). But in the pragmatic *lian … dou* case, *dou* quantifies over a set of contextually given alternatives based on the focus structure of this 'associate' noun phrase. And when this associate is an indefinite, the alternatives are typically sets or properties which function as alternative domains of quantification.

The semantic analysis outlined above is supported by the ungrammaticality the corresponding non-negative sentence (15c). Given that we are working with a quantity scale based on the inclusion relation, if the sentence is non-negative, its implicature will be entailed by what it asserts. This is so because, if I see a person relative to some small domain D_1 (the assertion), I necessarily see a person relative to any wider domain D_2 (the implicature). This explains *lian yi ge ren*'s status as an NPI.

2.2   *A constraint on specific readings*

Huang (1996) points out that *mei* 'every' may occur without *dou* if an indefinite occurs in its scope:

(19)   Mei yi ge haizi dou mi   yi ge gexing.
        every one CL child DM take-fancy one CL singing-star
        'Every child takes a fancy to a singing star.' (Huang 1996: 48–9)
(20)   Mei   yi   ge   haizi mi   yi   ge   gexing.
        every one CL   child take-fancy   one   CL   singing-star
        'Every child takes a fancy to a singing star.'

Moreover, while (19) allows *yi ge gexing* 'a singing star' to have a specific interpretation, (20) does not. Thus, it appears that a non-specific indefinite can (but a specific indefinite cannot) serve whatever need of *mei* that *dou* otherwise does.

This section aims to support the following hypothesis: The fact that only non-specific indefinites license *mei* can be explained in terms of the idea that this licensing sets up a dependency between the *mei* NP and the indefinite. More specifically, I claim that this dependency can be represented using the notion of domain function. This point in turn supports the analysis of specificity in terms of the properties of such a domain function.

Huang takes this pattern as evidence that specific readings in Mandarin are actually cases of wide scope indefinites. She proposes that *mei* 'every' must have an indefinite in its scope and assumes that *dou* is a
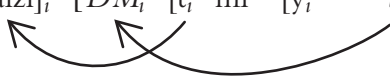
type of temporal indefinite. Her idea runs counter to the arguments that Mandarin SVO sentences do not, in general, exhibit scope ambiguity.[8]

Supporting evidence comes from *ba* sentences. Using *ba* allows an object to be positioned before the verb, and requires that this object receive a specific or definite interpretation:

(21) Mei   yi   ge   xuesheng   ⋆(dou)   ba
      every one   CL   student   DM   BA
      yi/zhe   ge   laoshi   dezui.guo
      one/this CL   teacher upset.ASP
       'Every student upset a/this teacher.'

Yi ge laoshi is always specific in this structure, as confirmed by the fact that *dou* is obligatory. Yet it is able to vary with the subject, and on this reading the sentence implies that each student has upset a particular teacher, e.g. just one in her/his life. This shows that the sense of specificity for the object associated with the presence of *dou* is not wide scope, but rather is better analyzed in terms of a functional relationship, as in the present theory or the choice-function approach.

In terms of the idea that *dou* is typically needed in conjunction with *mei* because *mei* requires a distributor, we would interpret (19)–(20) as showing that non-specific indefinites can introduce a distributive operator parallel to *dou*. This might be something like a phonetically null version of *each* in *The girls met a boy each*, though I leave open its syntactic status. In order to quantify over the *mei* phrase correctly, this covert distributive marker will need to move out of the indefinite and onto some clause level projection.

(22) [Mei yi   ge   haizi]$_i$ [DM_i [t$_i$ mi   [y$_i$ t$_i$ ge gexing]]]

      every one CL   child   DM   *t*   fancy one   *t*   CL singer

Here, the movement of *dou* and its coindexation with the subject represents the dependency between universally quantified subject and indefinite object which licenses the subject and simultaneously renders the specific reading unavailable. Note that the derivation in (22) leads

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[8] See Liu (1997: 54–63) for a clear discussion. A compelling point is that if we replace *yi ge gexing* with an NP that does not support specificity, the result is not ambiguous in the way (18) is:

(i) Meige   xuesheng   dou   dadui.le   shiduodao   ti.
     every   CL student   DM   answer-correctly.ASP ten:more:CL   question
     'Every student answered about ten or more questions correctly.' (Liu 1997: 63)

to a structure in which the subject in coindexed with a trace inside the indefinite (as well as its own trace inside the verb phrase).[9],[10]

I propose that such a trace is interpreted as an argument of the indefinite's domain function (roughly, 'a singer particular to t_i'). Thus, if the indefinite is associated with a topical domain function, we have the following:

(23) TOP_j[Mei.yi.ge haizi]$_i$[DM$_i$ [$t_i$mi [yi$_j$ t_i ge gexing]]]
    DM($[\lambda x \cdot \exists \gamma [(f_j(x) \cap \mathrm{singer})(\gamma) \,\&\, \mathrm{fancy}(x, \gamma)]])(mei(\mathrm{child}))$
    $= \forall x[(C(x) \,\&\, \mathrm{SUP}(\mathrm{child})(x))$
        $\supset \exists \gamma[(f_j(x) \cap \mathrm{singer})(\gamma) \,\&\, \mathrm{fancy}(x, \gamma)]]$

The fact that the topical domain function takes as an argument the variable x universally bound by the distributive marker pragmatically implicates that the function varies with x. That is, it is strongly preferred that f_j provides different singers for different choices of children. But this means that the various children do not all fancy the same singer; that is, the indefinite cannot be specific in the strong sense.[11]

One issue which might be seen as problematical has to do with cases parallel to (20) but with a referential subject instead of a universally quantified one:

(24) Zhe   xie   haizi   xihuan   yi   ge   laoshi.
    this   CL   child   likes   one   CL   teacher
    'These children like a teacher.'

Given the analysis above, one might expect that a covert distributive marker inside *yi ge laoshi* could raise to the VP and provide the subject with a distributive interpretation. However, such a reading is not available. I propose that this is because the necessary movement of the distributive marker would not be syntactically licensed. More precisely, given that *zhe xie haizi* ('this CL child'), in contrast to a universally quantified subject like *mei yi ge haizi* ('every one CL child') in (20)/(22), does not syntactically require a distributive marker, there is no syntactic motivation for such a movement in (24). Thus, the only way to get a distributive reading of the subject in (24) would be to have the distributive marker *dou* directly generated on VP.

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[9] Aoun & Li (1993) argue, based on the lack of scope ambiguity in SVO sentences, that Chinese subjects originate in the IP domain. If this is correct, a slightly more complex interpretation for the distributive marker in (21) would be needed.

[10] I would also point out that treating the relationship between the indefinite and DM in terms of movement is only a matter of convenience. We could express the same analysis in terms of the idea (Choe 1987) that when distributivity is marked (here on the 'distributed share', in Choe's terminology), this simply signals that a distributive operator is to be introduced in the semantics.

[11] It could, however, be intermediate-scope specific like (2)

3 CONCLUSION

We have seen evidence that (i) an overtly topical domain for an indefinite leads to specificity, (ii) the co-occurrence of *dou* with indefinites can be understood in terms of an alternative-set of domains covertly represented in sentence-initial position, and (iii) the fact that specific indefinites cannot licence *mei* 'every' can be explained in terms of introducing a dependency between the *mei* NP and the indefinite's domain function. Together these three points lend support to the hypothesis that a topical domain function is often present with indefinite NPs in Mandarin, and that specificity or non-specificity results from its properties.

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