On Ge and Other Related Problems

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1. The Issue

Recent studies on the quantification in Chinese has brought to light many intriguing properties of the quantificational adverb dou ‘all’ (see, for example, Lee 1986, Cheng 1991, Liu 1991, and Cheng 1995). Two of the properties are particularly essential: dou's quantificational function, and its interaction with wh-words. Consider, for example, sentences (1a-c). In Chinese, dou may occur between a plural subject and its predicate, turning the subject into a quantificational element. Various types of NP are eligible for dou-quantification: plural definite NPs ((1a)), plural pronouns ((1b)), and conjoined NPs ((1c)). Dou may also quantify the typical quantificational NPs with mei- (every-) as the determiner, as shown in (2a). What is peculiar to the mei-phrases is that they cannot stand alone as subjects. They have to be--in a manner of speaking--"supported" by dou-quantification, as the contrast between (2a) and (2b) shows (Lee 1986, Liu 1991).

(1) a. Zhexie ren dou mai-le yi-dong fangzi. 
these person DOU buy-ASP one-CL house
‘All of these persons bought a house.’

b. Tamen dou mai-le yi-dong fangzi. 
they
‘All of them bought a house.’

c. Laowang he Laoli dou mai-le yi-dong fangzi. 
p.n. and p.n.
‘Laowang and Laoli all bought a house.’

(2) a. Meige ren dou mai-le yi-dong fangzi. 
every person
‘Every person bought a house.’

‘Every person bought a house.’
**Dou**-quantification isn't restricted to these types of NPs, however. **Dou** can also quantify the wh-words, resulting in universal quantification. In (3a-b), the wh-words shei ‘who’ and sheme dongxi ‘(lit.) what thing’) are interpreted as universal expressions rather than interrogative ones. According to Cheng (1991,1995) and Tsai (1994), this is so because **dou** may trigger the polarity usage of the wh-words and bind them unselectively.

(3)  

a. Shei dou mai-guo yi-dong fangzi.  
who DOU bought-ASP one-CL house  
‘Anyone has the experience of buying a house.’  

b. Sheme dongxi Laozhang dou chi-de yi-gan-er-jing.  
what thing p.n. DOU eat-DE one-dry-two-clean  
‘Laozhang swallowed anything so that nothing was left.’

In spite of all these, the present study is motivated by the following observation: although the typical quantificational NPs cannot occur without being properly licensed, it is by no means the case that only **dou** can serve the "supporting" function. (2a) remains grammatical even if **dou** is replaced by **ge** ‘each, respectively’, another quantificational adverb in Chinese, as shown in (4). In fact, (2a) and (1a-c) on the one hand, and (4) and (5a-c) on the other, are nearly synonymous to many speakers:

(4)  

Meige ren ge mai-le yi-dong fangzi.  
every person GE bought-ASP one-CL house  
‘Each person bought a house.’

(5)  

a. Zhexie ren ge mai-le yi-dong fangzi.  
these  
‘Each of these persons bought a house.’  

b. Tamen ge mai-le yi-dong fangzi.  
they  
‘Each of them bought a house.’

c. Laowang he Laoli ge mai-le yi-dong fangzi.  
p.n. and p.n.  
‘Laowang and Laoli each bought a house.’

Although Hou (1983) refers to **dou** as connoting totality, other researchers prefer regarding **dou** as connoting distributivity; e.g. Cheng's (1995) identification of **dou** as a "distributor". But if there is anything that is a distributor in Chinese, nobody will ignore **ge**,
as its meaning and usage imply. This may explain why many speakers consider (2a) and (1a-c), on the one hand, and (4) and (5a-c), on the other, nearly synonymous. But do the two adverbs exist with the identical semantic function? Indeed, there are differences that discriminate the two. As mentioned above, *dou* can quantify the wh-words, giving rise to universal quantification. *Ge*, however, obviously cannot, as shown by the ungrammaticality of (6a-b), contrasted with (7a-b):²

      who GE buy-ASP one-CL house
      ‘Each of anyone has the experience of buying a house.’

     b.  *Sheme cai Laozhang ge chang-le yi-kou.
        what dish p.n. GE taste-ASP one-mouth
        ‘Laozhang had a taste of each of any dish.’

(7)   a.  Laowang he Laoli ge mai-guo yi-dong fangzi.
        p.n. and p.n. GE buy-ASP one-CL house
        ‘Laowang and Laoli each has the experience of buying a house.’

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¹ For more discussion on the distributivity, see section 3. Tang Ting-Chi (p.c.) offers the following examples for illustration of the distributivity of *ge*:

(i) a.  Xiaoming he Xiaohua ge xihuan baba he mama.
        p.n. and p.n. GE like papa and mama
        ‘Xiaoming and Xiaohua like papa and mama, respectively.’

     b.  Laoli he Laowang ge mai-le yi-ding hong-se he liu-se de
        p.n. and p.n. GE buy-ASP one-CL red and green DE
        hat
        ‘Laoli and Laowang bought a red anf green hat, respectively.’

This types of sentences, however, will not be discussed in the present study, as they involve conjoined NP objects rather than simple indefinites, and the interpretation of *ge* here tends to be more like ‘respectively’ than ‘each’. Incidentally, some speakers don’t seem to accept such sentences as (ia), because there is no indefinites in the sentences. As we will see, the presence of an indefinite in the VP is a very strong requirement for the use of *ge*. It is not clear how such sentences as (ia), if grammatical, could fit the picture we are to construct.

² Note that (6a-b) are ungrammatical only with the universal interpretation of the wh-
    words. If the wh-words are interrogative, then they may be fine at least to some speakers.
    This is particularly clear with such wh-words as *naxie* ‘which (pl.)’:

(i) a.  Naxie ren ge mai-guo yi-dong fangzi?
        which person GE buy-ASP one-CL house
        ‘Which persons has bought a house each?’

     b.  Naxie cai Laozhang ge chang-le yi-kou?
        what dish p.n. GE taste-ASP one-mouth
        ‘Which dishes are such that Laowang has had a taste of each of them?’
b. Zhuo-shang mei-pan cai Laozhang ge chang-le yi-kou.  
    table-on every-CL dish p.n. GE taste-ASP one-mouth  
    ‘Laowang had a taste of each dish on the table.’

What factors prevent ge from quantifying the wh-words? And what other factors discriminate ge from dou? The effort to spell out the discriminating features leads to a whole story about ge not ever told. Although the story presented in this paper cannot be exhaustive, it is expected to shed some light on certain problems that remain unclear on the quantification in Chinese. Let's then begin with a general description of the behaviors of ge, taking dou as the point of reference when necessary.

2. A General Picture of Ge

2.1 Context-relatedness and the Indefinite (semi)object requirement

Although we said ge may quantify the typical quantificational NPs as dou does, it is a fact that some speakers feel uncomfortable, though not ungrammatical, with such sentences as (4-5). There seems to be something "missing" in each of the sentences. But once we add an explicitly specified context to each sentence with ge, the ill feeling disappears. Thus we have the following contrasts: the (a) sentences in (8-10) may sound somewhat strange in their isolation, yet become perfectly good when the contexts are explicitly offered, as the (b) sentences show. Note that the sentences with dou don't seem to be subject to such an worry, as evidenced by the acceptability of the (c) sentences in isolation.

(8) a. Meige kehu ge ding-le yi-dong fangzi.  
    every client GE order-ASP one-CL house  
    ‘Each of the clients ordered a house.’

b. Zai zuotian de zhanlanhui shang, meige kehu ge ding-le yi-dong fanzi.  
    at yesterday of exhibition on  
    ‘In the exhibition yesterday, each of the clients ordered a house.’

c. Meige kehu dou ding-le yi-dong fangzi.  
    DOU  
    ‘Every client ordered a house.’
(9)  
a. Meige shibing ge shasi-le shi-ming diren.  
every soldier GE kill-ASP ten-CL enemy  
‘Each of the soldiers killed ten enemies.’
b. Zuotian de zhandou zhong, meige shibing ge shasi-le shi-ming diren.  
yesterday of battle during  
‘During the battle yesterday, each of the soldiers killed ten enemies.’
c. Meige shibing dou shasi-le shi-ming diren.  
DOU  
‘Every soldier killed ten enemies.’

(10)  
a. Meige qiangfei ge fendao-le san-baiwan.  
every robber GE share-ASP three-million  
‘Each of the robbers got three millions as his share.’
b. Shang xingqi qiangjie zi-hou, meige qiangfei ge fendou-le san-baiwan.  
last week robbery after  
‘After the robbery last week, each robber got three millions as his share.’
c. Meige qiangfei dou fendao-le san-baiwan.  
DOU  
‘Every robber got three million dollars as his share.’

Therefore, the not-so-comfortable feeling with ge when it is used to support the typical quantificational NPs represents the need of ge for an explicitly or implicitly specified context. So a first characteristic of ge is its context-relatedness, which requires ge to be related to some explicitly or implicitly specified context.3

Now we may go on for more examples of ge. The typical examples of ge-quantification, in addition to those already given, involve sentences of the following sort:

(11)  
worker-PL GE kick-ASP this-CL dog two-CL  
‘Each of the workers kicked the dog twice.’

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3 This, of course, doesn't mean that the sentences with dou like (8c-10c) can be uttered without any context. Any sentence must be properly situated in certain context so that it can be adequately understood. The point is that the sentences with ge must presuppose contexts which offer the settings necessary for the plural NPs quantified by ge to be properly defined. See section 3.2 for detailed discussion, where we relate the context-relatedness to the requirement that ge must quantify over domain that are extensionally existent and enumerable.
b. Meige xuesheng ge renshi yi-ge jiaoshou.
   every student GE know one-CL professor
   ‘Each of the students knows one professor.’

c. Xiaowu he Xiaozhang ge pao-le san-shi fenzhong le.
P.n. and P.n. GE run-ASP three-ten minute ASP
   ‘Xiaowu and Xiaozhang each has run for thirty minutes.’

d. Zhe liang-zuo jinzita ge chunzai wu-qian nian le.
   this two-CL pyramid GE exist five-thousand year ASP
   ‘These two pyramids each has been existing for five thousand years.’

Basically, ge may co-occur with all kinds of verbs: for example, ge co-occurs with the transitive active verb ti ‘kick’ in (11a), the transitive stative verb renshi ‘know’ in (11b), the intransitive active verb pao ‘run’ in (11c), and the intransitive stative verb chunzai ‘exist’ in (11d). Notice that in (11c-d), where ge co-occurs with the intransitive verbs, a measure adverbial is deliberately adjoined to each VP. This is no accidence. Look at the following contrast:

(12) a. Na san-ge keran dou dao le.
   that three-CL guest DOU arrive ASP
   ‘All of those three guests have arrived.’

   b. *Na san-ge keran ge dao le.
      GE
   ‘Each of those three guests has arrived.’

   c. Na san-ge keran ge dao-le shi fenzhong le.
      ten minute ASP
   ‘Each of those three guests has been here for ten minutes.’

As is clear from the contrast between (12a) and (12b), while dou may co-occur with a "bare" intransitive verb, here dao ‘arrive’, ge cannot. To improve the sentence, we have to adjoin an object-like adverbial to the predicate, e.g. the measure phrase shi fenzhong ‘(for) ten minutes’. Moreover, the (semi)object must be an indefinite. Thus there appears to be an indefinite (semi)object requirement on ge-quantification: the predicate (or VP) which co-

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4 Thanks to Wei-Tien Dylan Tsai for discussions on the relevant phenomena.
occurs with ge must contain an indefinite object or something of the sort. Consider the following examples:

(13) a. Tamen ge kan-le yi-bu dianying.
    they GE watch-ASP one-CL movie
    ‘Each of them watched a movie.’

       this-CL
    ‘Each of them watched this movie.’

(14) a. Meige xuesheng ge ai-shang-le yi-wei dianying mingxing.
    every student GE love-up-ASP one-CL movie star
    ‘Each of the students fell in love with a movie star.’

       Robert De Niro
    ‘Each of the students fell in love with Robert De Niro.’

(15) a. *Zhuowan tamen ge kai che lai.
    last-night they GE drive car come
    ‘Each of them drove car here last night.’

    b. Zuowan tamen ge kai san-shi fenzhong de che lai.
       thirty minute of
    ‘Each of them spent thirty minutes driving car here last night.’

5 The term "(semi)object" covers the regular objects and those expressions that do not have argument status but are closely related to the verbs, like the frequency and duration phrases. Whatever it is, however, it must be indefinite.

The indefinite (semi)object requirement, for some speakers, may even be satisfied by idiomatic indefinite objects, as the following examples show:

(i) a. Tamen ge xia-le yi-tiao.
    they GE shock-ASP one-jump
    ‘Each of them got a shock.’

    b. Tamen ge chi-le yi-jing.
    they GE eat-ASP one-shock
    ‘Each of them got a shock.’

Here the objects yi-tiao ‘(lit.) one-jump’ and yi-jing ‘(lit.) one-shock’ constitute part of the idiomatic expression xia-yi-tiao and chi-yi-jing, both meaning something like ‘get shocked’. Though the indefinites are not regular (semi)objects, they can be considered as representing frequency of events, and in this case related to the ge-quantification. Thanks to James Huang for pointing out this possibility.
In (13b) and (14b), the objects are respectively a definite expression and a name, and the sentences are unacceptable. It is interesting to note the unacceptability of (15a), where a bare NP appears as the object of the main predicate. Bare NPs in Chinese have many properties that are different from the ordinary indefinites, one of which is that they can be used as the subjects of generic sentences, denoting generic classes. We will return to the related problems in section 3. For the present purpose, it suffices to know that only the typical indefinites, such as the NPs with weak determiners yi-ge ‘a’, mou-ge ‘some’, and numerals (cf. Milsark 1974), can satisfy the indefinite (semi)object requirement of ge. So we find (15b) is grammatical as its predicate contains a measure phrase san-shi fenzhong ‘thirty minutes’ with a numerical determiner.

A reasonable conjecture of the origin of the indefinite (semi)object requirement of ge, is that it arises from the dual status of ge. In addition to being a quantificational adverb, ge can also be used as a determiner, meaning ‘various’ by Chao (1968). The followings are two examples of ge used as determiner:

   GE-country government same-tongue blame unclear test
   ‘Each and every government uniformly blames nuclear tests.’
   GE-person self whisk door-front snow
   ‘Every person only sweeps the snow in front of his own door [Idiom: every person only cares about his own matter].’

In this regard, we find a proposal of Higginbotham's (1985) revealing. Higginbotham proposes to treat the relation between a determiner and the N' it restricts as one of binding. So, as in (17a) below, the determiner the in the DP the butterfly, being an operator, binds the variable introduced by the nominal predicate butterfly. The same analysis can be adopted for such DPs as ge-guo zhengfu ‘each and every government’. In (17b), ge is treated as an operator, too, restricted by guo ‘country’, binding the variable introduced by the NP zhengfu ‘government’. The result is a tripartite logical structure of Heim's (1982) style. Now suppose ge retains the variable-binding requirement when it assumes the adverb status. As vacuous quantification is generally prohibited in natural languages (cf. Kratzer 1989, for example), there must be a variable for ge to bind inside the VP to which ge adjoins. So we have the structure (17c). (On the adjunction sites of ge, see the next subsection.)

(17) a. \[ [\text{DP} \text{the}_x [\text{NP/N} \text{butterfly}_x ]] \]
b. $[\text{DP } \text{ge}_x \ [\text{CIP } \text{guo} ~ (x) \ [\text{NP } \text{zhengfu}_x ]]]$

c. $[\ldots[\text{VP } \text{ge}_x \ [\ldots[\text{DP } \text{Det}_{weak} \ldots \text{N}_x ]]]$

One thing worth mentioning: Cheng (1991), along the line of Heim (1982) and Diesing (1992), argues that the indefinites in Chinese lack inherent quantificational force, and should be regarded as variables rather than quantifiers. This proposal fits the picture of (17c): in (17c), the DP headed by the weak determiner introduces a free variable within it, so the notion of binding by ge does make sense. Remember that the (semi)objects in the sentences with ge cannot be names or definite expressions. The ban can be explained by the variable-binding requirement of ge: as names and definite expressions introduce variables closed off by the definite determiners, or don't introduce variables at all, they cannot satisfy the indefinite (semi)object requirement.

2.2 Constituency

In this subsection we try to demonstrate that ge, as an adverb, cannot adjoin to a site higher than VP. The method used is a plain one: we sort out the possible adjunction sites of ge relative to other elements, and determine its possible structural positions. It will be shown that ge can only adjoin to VP or V', much more restricted than dou, which, as Cheng (1995) shows, may adjoin to positions as high as Asp' and as low as V'.

2.2.1 The sentence-level elements

The sentence-level elements include modals, sentence adverbs, negation markers, and the aspect. It takes no effort to find that ge can only appear after modals and sentence adverbs:

18) a. Meige xuesheng hui ge jiao yi-pian zuowen gei wo. every student will GE hand one-CL composition to me
     ‘Each of the students will hand me a composition.’
   b. *Meige xuesheng ge hui jiao yi-pian zuowen gei wo.
   c. Nimen yinggai ge jiao yi-pian zuowen gei wo.
      you(pl.) should
     ‘Each of you should hand me a composition.’
   d. *Nimen ge yinggai jiao yi-pian zuowen gei wo.
(19) a. Xiaoli he Xiaowang shang-xingqi ge jiao-le yi-pian zuowen gei wo. p.n. and p..n. last-week ASP
‘Xiaoli and Xiaowang each handed me a composition last week.’
b. *Xiaoli he Xiaowang ge shang-xingqi jiao-le yi-pian zuowen gei wo.
c. Xiaoli he Xiaowang hen-buqinguan-di ge jiao-le yi-pian zuowen gei wo.
   very-reluctantly
‘Xiaoli and Xiaowang each reluctantly handed me a composition.’
d. *Xiaoli he Xiaowang ge hen-buqinguan-di jiao-le yi-pian zuowen gei wo.

As for the negation markers and the aspect, the situations are somewhat complicated. Consider the negation markers first. In Chinese, the negation marker *bu ‘not (neutral and volitional)’ and *mei- ‘not (perfective)’ typically adjoin to the verbs. So we cannot find any sentence with the sequence *bu ge or *mei ge, as shown by (20a-b). But when the negation markers adjoin to the verbs, the *bu-V and *mei-V (typically you ‘have’) sequences can only occur before ge.

(20) a. *Laozhang he Laoli bu ge xiuli yi-jia dianshiji. p.n. and p.n. not GE repair one-CL TV
‘Laozhang and Laoli each didn't (want to) repair a TV.’
b. *Laozhang he Laoli mei ge xiuli yi-jia dianshiji. haven't
‘Laozhang and Laoli each hasn't repaired a TV.’

(21) a. Tamen bu-xihuan ge shoudao yi-zhang fadan. they not-like GE receive one-CL notification-of-fine
‘They don't like it that each of them received a notification of fine.’
b. Tamen mei-you ge shoudao yi-zhang fadan. haven't
‘It was not the case that each of them receive a notification of fine.’
d. *Tamen ge mei-you shoudao yi-zhang fadan.

If the negation markers adjoin to a sentence-level position, say, Asp' or I', these phenomena can be explained with the assumption that ge adjoins to a position no higher than VP. In other words, (21c-d) are ungrammatical simply because ge adjoins to an unacceptably high position. We could, furthermore, assume that these sentences are unacceptable because the negation markers, being operators themselves, trigger inner islands when they occur after ge.
Remember that ge has to bind an indefinite inside the VP it adjoins to. If there is a negative operator intervening between ge and its bindee, the inner island created therewith will block the binding relation, and the indefinite (semi)object requirement of ge cannot be satisfied, resulting in ungrammaticality.

Next consider the progressive aspect marker zai ‘(lit.) at’, the only aspect marker that can occur preverbally. Unlike the negation markers, zai doesn't need to adjoin to the verb; VP adverbs may separate it from the verb ((22b)). What is more, ge has to occur before it, but not after ((23a-b)):

(22) a. Laowang zai kan dianshi.
   p.n. at watch TV
   ‘Laowang is watching TV.’

b. Laowang zai jingjing-de kan dianshi.
   quietly
   ‘Laowang is quietly watching TV.’

(23) a. Laozhang he Laoli ge zai ting yi-ge guangbuo jiemu.
   p.n. and p.n. GE at listen one-CL broadcast show
   ‘Laozhang and Laoli each is listening to a broadcasting show.’

b. *Laozhang he Laoli zai ge ting ti-ge guangbuo jiemu.

If ge must adjoin to a position no higher than VP, why can it occur before the aspect marker zai, a supposed sentence-level element? The key to the answer lies in the general behaviors of the aspect markers in Chinese. It is often assumed that the derivation of V-ASPECT sequences in Chinese involves lowering of the aspect markers rather than raising of the verbs (Cheng (1991); also cf. Chiu (1993)). The rationale is, if raising is involved, the VP adverbs should appear after the verbs, contrary to the facts:

(24) a. Laowang henhende zou-le Lisi.
   p.n. fiercely bust-ASP p.n.
   ‘Laowang busted Lisi fiercely.’

b. *Laowang zou-le henhende Lisi.

a'. Laowang [Asp e_i [VP henhende zou-le, Lisi]]

b'. *Laowang [Asp zou-le_i [VP henhende e_i Lisi]]

We can apply this rationale to the problem at stake. Now let's add a VP-adverb to a sentence with the aspect marker zai. If zai occurs before the VP adverb, then it still has the chance of
being in a sentence-level position; if it occurs after the VP-adverb, then it lowers down to a position inside the VP, probably adjoins to the verb, on a par with the perfective marker le and the experiential marker guo. We find both options exist:

(25) a. Laowang zai jingjing-de kan dianshi.  
   p.n. at quietly watch TV  
   ‘Laowang is quietly watching TV.’  
   b. Laowang jingjing-de zai kan dianshi.

What is crucial to our problem is: when ge appears, only the latter option is available. That is, zai must occur after the VP adverb, or the sentence will be ungrammatical:

(26) a. Laowang he Xiaoli ge jingjing-de zai ting yi-ge guangbuo jiemu.  
   p.n. and p.n. GE quietly at listen one-CL broadcast show  
   ‘Laowang and Xiaoli each is quietly listening to a broadcasting show.’  
   b. *Laowang he Xiaoli ge zai jingjing-de ting yi-ge guangbuo jiemu.

Since lowering must take place when ge appears, as (26a-b) indicate, sentence (23a), where ge appears before zai, doesn't really pose a problem. Namely, it is the case that zai undergoes lowering, not that ge adjoins to a sentence-level position. So the proposal that ge cannot adjoin to positions higher than VP is still maintained.

2.2.2 VP-level elements

VP-level elements in Chinese include ba-phrase (in the "disposal" construction), bei-phrase (in the passive construction), and goal, source, manner, and instrumental adverbials. It is easy to find that ge can occur either before or after all of these elements except the manner and instrumental adverbials:

(27) (Manner and instrumental adverbials)  
   a. Gongren-men ge henhen-de zou-le Lisi yi-dun.  
      worker-PL GE fiercely bust-ASP p.n. one-CL  
      ‘Each of the workers gave Lisi a firece bust.’  
   b. ??Gongren-men henhen-de ge zou-le Lisi yi-dun.
c. Mama-men ge yi shueiguo-dao qie-le yi-ge pingguo.
   mother-PL GE with fruit-knife cut-ASP one-CL apple
   ‘Each of the mothers cut an apple with a fruit knife.’

d. ??Mama-men yi shueiguo-dao ge qie-le yi-ge pingguo.

(28) (Goal and source phrases)
   a. Meige guojia ge cong Riben-ren nar xuedao-le yi-dian dongxi.
      every country GE from Japanese there learn-ASP one-CL thing
      ‘Each of the countries learns something from the Japanese.’
   b. Meige guojia cong Riben-ren nar ge xuedao-le yi-dian dongxi.
   c. Tamen ge xiang Laowang-de zhaopian ju yi-ge gong.
      they GE to p.n. -of picture bow one-CL bow
      ‘Each of them made a bow to the picture of Laowang.’
   d. Tamen xiang Laowang-de zhaopian ge ju yi-ge gong.

(29) (ba and bei-phrases)
   a. Naxie gongren ge ba Laowang zou-le yi-dun.
      those worker GE BA p.n. bust-ASP one-CL
      ‘Each of those workers gave Laowang a bust.’
   b. Naxie gongren ba Laowang ge zou-le yi-dun.
   c. Meige xuesheng ge bei Li jiaoshou ma-le yi-dun.
      every student GE BEI p.n. professor blame-ASP one-CL
      ‘Each of the students got a blame by Professor Li.’
   d. Meige xuesheng bei Li jiaoshou ge ma-le yi-dun.

Although ge cannot appear after the manner and instrumental adverbials, other examples, in particular the case of ba-phrase in (29a-b), suffice to establish that ge may adjoin to V'. Ba-phrase is generally assumed to be base-generated in the Spec position of VP (e.g. Huang 1988, 1992). If ge can occur after it, ge must have the option to adjoin to V'.

A related issue here. When ge adjoins to V', it may quantify the PP object that appears before it, as (30a-d) show. In this respect, consider what Lee (1986) and Cheng (1995) call the "blocking effect" of dou. In (31a-b), when dou occurs after the ba and bei-phrase. it cannot skip over either to quantify the subject:

(30) a. Laowang cong meige ren nar ge xuedao yi-dian dongxi.
   p.n. from every person there GE learn one-CL thing
   ‘Laowang learned something from each of the persons.’
b. Laowang xiang mei-zhang zhaopian ge ju yi-ge gong.
   p.n. to every-CL picture GE bow one-CL bow
   ‘Laowang made a bow to each of the pictures.’

c. Xiaoli ba mei ge gongren ge zou-le yi-dun.
   p.n. BA every worker GE bust-ASP one-CL
   ‘Xiaoli gave a bust to each of the workers.’

d. Xiaoli bei mei ge gongren ge zou-le yi-dun.
   BEI
   ‘Xiaoli got a bust by each of the workers.’

(31)  

a. Xuesheng-meni ba womenj dou*ij xiuru-le yi-fan.
   student-PL BA we DOU insult-ASP one-CL
   ‘The students made an insult upon everyone of us.’
   Not: ‘Every student made an insult upon us’

b. Xuesheng-meni bei womenj dou*ij xiuru-le yi-fan.
   BEI
   ‘The students got an insult by everyone of us.’
   Not: ‘Every student got an insult by us.’

Cheng (1995) proposes to explain the blocking effect by the Principle of Economy of Derivation (Chomsky 1991): the proposed dou-adjunction has to move the minimal way to, in this case, the ba/bei object; the longer movement, in this case to the subject, violates the Principle of Economy of Derivation. As to the case of ge, on the other hand, we observe no blocking effect, as the grammaticality of (29b,d) evidences. This may mean that ge doesn't move in LF, though more study has to be done for further understanding.

2.3 Locality restrictions and rightward quantification

When discussing the locality restrictions on dou-quantification, Cheng (1995) points out several characteristics of dou: dou occurs preverbally; dou quantifies the plural NP to its left; dou does not have to be adjacent to this NP, but the NP must occur in, or originate from, the same clause. As a consequence of these restrictions, an object has to be preposed, either to the local or to some higher topic position, to be quantified by dou.
(32) a. *Laozhang dou\textsubscript{i} chi-le pingguo\textsubscript{j} le.
p.n. DOU eat-ASP apple ASP

b. Pingguo\textsubscript{i}, Laozhang dou\textsubscript{j} chi-le e\textsubscript{j}.
   ‘The apple, Laozhang ate them all’

c. Pingguo\textsubscript{i}, wo ting Xiaoli shuo [Laozhang dou\textsubscript{j} chi-le e\textsubscript{j}]
   I hear p.n. say
   ‘The apples, I heard Xiaoli said that Laozhang ate them all.’

d. *Xuesheng-men\textsubscript{j} shuo [Laozhang dou\textsubscript{j} chi-le pingguo le].
   student-PL say

Now let's turn to ge. We find that the NP ge quantifies also need not be adjacent to ge: it can quantify an NP in some higher topic position, provided the NP originates from the same clause:6

(33) a. Na san-ge pingguo\textsubscript{j}, Laozhang ge\textsubscript{i} yao-le e\textsubscript{i} yi-kou.
   that three-CL apple p.n. GE bite-ASP one-mouth
   ‘Those three apples, Laozhang made a bite upon each of them’

b. Na san-ge pingguo\textsubscript{j}, wo ting Xiaoli shuo [Laozhang ge\textsubscript{i} yao-le e\textsubscript{i} yi-kou].
   I hear p.n. say
   ‘Those three apples, I heard Xiaoli said Laozhang made a bite upon each of them.’

c. *Xuesheng-men\textsubscript{j} shuo [Laozhang ge\textsubscript{i} chi-le yi-ge pingguo].
   student-PL say p.n. GE eat-ASP one-CL apple

\footnotesize{6 But the clause-mateness of dou- and ge-quantification may not be so absolute. As James Huang points out (p.c.), the following examples show that the quantified expressions can be something that originate from a deeper clause, rather than a clause-mate of dou or ge:

(i) a. Naxie shu, wo dou rending [ ta kan-bu-dong e ].
   those book I DOU conclude he read-not-understand
   ‘All of the books, I firmly believe that he cannot understand a bit.’

b. Na san-ge fan-ren, fa-guan ge cai-chu [ e mingtian-qi yiwu.
   that three-CL criminal judge GE rule tomorrow-since obligatory
   laodong san-ge yue ]
   labor three-CL month
   ‘Those three criminals, the judge ruled each obligatory labor for three
   months, since tomorrow.’}
But on further reflection, we find that, interestingly enough, *ge* doesn't conform to the leftward quantification restriction as *dou* does; that is, it can quantify rightward, as the following examples evidence:

(34) a. Laowang \( ge_i \) ti-le mei-zhi gou\( _i \) yi-jiao.  
   p.n. GE kick-ASP every-CL dog one-foot  
   ‘Laowang took a kick upon each of the dogs.’

b. Wo \( ge_i \) rensi tamen\( _i \) wu nian le.  
   I GE know they five year ASP  
   ‘I have known each of them for five years.’

c. Xiaozhang \( ge_i \) qiao-le tamen\( _i \) yi-bi zhugang.  
   p.n. GE strike-ASP they one-CL bamboo-stick  
   ‘(Idiom.) Xiaozhang took advantage of each of them’

d. Wo \( ge_i \) xia-le tamen\( _i \) yi-tiao.  
   I GE shock-ASP they one-jimp  
   ‘I shocked each of them.’

In (34a-d), the quantified NPs occur to the right of *ge*, yet the sentences are acceptable. As the indefinite (semi)object requirement must be obeyed, rightward quantification of *ge* can only be observed either in sentences with transitive verbs plus adjunct phrases or in the double-object construction. Now a question arises: since there are two available positions for *ge* to quantify in these structures, is either position available to *ge*-quantification? The answer is no. Consider the following contrast (*i* representing *ge*-quantification, *j* representing (indefinite) binding):

(35) a. Laoli \( ge_{i(j)} \) song-le yi-ben shu\( _{j} \) gei meige laoshi\( _{i} \).  
   p.n. GE send-ASP one-CL book to every teacher  
   ‘Laoli sent a book to each of the teachers.’

b. *Laoli \( ge_{i(j)} \) song-le mei-ben shu\( _{i} \) gei yi-ge laoshi\( _{i(j)} \).  
   every-CL book to one-CL teacher  
   ‘Laoli sent each of the books to a teacher.’

c. Laoli \( ge_{i(j)} \) song-le meige laoshi\( _{i} \) yi-ben shu\( _{j} \).  
   every teacher one-CL book  
   ‘Laoli sent each of the teachers a book.’
d. *Laoli ge_{(j)} song-le yi-ge laoshi_{(j)} mei-ben shu_{i}.
   one-CL teacher every-CL book
   ‘Laoli sent a teacher each of the books.’

In the contrast between (35a,c), on the one hand, and (35b,d), on the other, we see that, in a double-object construction, *ge can only quantify the dative object and bind the direct object, but not the reverse. This then poses a problem. If we are to strictly adhere to the Larsonian analysis of the phrase structures (Larson 1988, 1990; also cf. Aoun and Li 1989, 1993), the direct objects, i.e., the indefinite bindees, in the grammatical (33a,c) should be ranked higher than the dative objects in D-structure. But we also find that, in (34a-d), the (measure) indefinites bound by *ge are combined with the main verbs forming complex predicates, thus should be lower than the objects in D-structure, as Huang (1988, 1991, 1992) argues. (36a) and (36b) represent the partial structures of (34a) and (35a), respectively:

\[(36)\quad a.\]

```
    VP
     |
    ge_{(j)}
     |
     Spec
      |
       V'
        |
         V
          |
           kick
            |
            Spec
             |
              V
               |
                V'(Complex predicate)
                 |
                  NP
                   |
                    every dog
                     |
                      V
                       |
                        XP
                         |
                          one foot_{(j)}
```

17
In (36a), *ge* binds the indefinite which is lowest in hierarchy. This leads us to expect that *ge* must bind the indefinite closest to the verb in *D*-structure. In (36b), however, *ge* binds the indefinite higher up in the (lowest) VP Spec. This seems to indicate that *ge* has to bind the indefinite closest to the verb at *S*-structure. There is a dilemma, then, and we don't know what the rule is to explain the ungrammaticality of (33b,d).

Although we can't offer a firm solution to this problem presently, a possibility comes to mind when we see the following sentences:

(37)  a. Laowang ge<sub>i</sub> (j) zai zhe san-zhang zhuo-shang<sub>1</sub> fang yi-pen hua<sub>1</sub>.  
   p.n. GE at this three-CL table-on put one-CL flower  
   ‘Laowang put a vase of flower on each of the tables.’

b. *Laowang ge<sub>i</sub> (j) zai yi-zhang zhuo-shang<sub>1</sub> fang zhe san-pen hua<sub>1</sub>.  
   one-CL table-on put this three-CL flower  
   ‘Laoli put each of the three vases of flower on a table.’

c. Xiaowang ge<sub>i</sub> (j) cong zhe san-jia dian-li<sub>i</sub> tou-le yi-ge huaping<sub>1</sub>.  
   p.n. GE from this three-CL shop-in steal-ASP one-CL vase  
   ‘Xiaowang stole a vase from each of the three shops.’

d. *Xiaowang ge<sub>i</sub> (j) cong yi-jia dian-li<sub>i</sub> tou-le zhe san-ge huaping<sub>1</sub>.  
   from one-CL shop-in steal-ASP this three-CL vase  
   ‘Xiaowang stole each of the three vases from a shop.’
*Fang* ‘put’ and *tou* ‘steal’ are verbs with selected adverbial phrases, for *fang* a locative, and for *tou* a source phrase. We find that, in the grammatical (37a,c), the selected adverbial phrases appear before rather than after the verbs. This indicates that the Larsonian analysis of the phrase structures, in fact, isn’t strictly observed in Chinese— if it were, the adverbial phrases in (37a,c) should have appeared after the verbs, as the thematic hierarchy (Larson 1988, 1990) requires them to. But even so, we still find that (direct) objects can only be bound, but not quantified, by *ge*. In (37a,c), the (direct) objects, though not the lowest element, nonetheless are the closest elements to the verbs in D-structure, as shown by (38), a partial structure of (37a):

(38)

![Diagram of (38)](image)

The closeness may be defined in various ways: m-command, sisterhood, theta-marking, etc.. Which of them is true requires further justification. The next move is to suppose that, since the selected adverbial phrases in (37a,c) need not be close to the verbs as the Larsonian analysis predicts, the dative PP phrase in (35a) should have the chance of hanging on a higher position, probably right-adjoin to V’ or VP. If so, then the direct object is still the closest element to the verb in D-structure, and, therefore, eligible for *ge* to bind it, on a par with the cases in complex predicate structures. As to (35c), we may follow Li (1985, 1990) in supposeing that the [V-I(ndirect)O(bject)] sequence undergoes reanalysis, forming a single unit to license the appearance of the direct object. The reanalyzed category then counts as the closest element the indefinite has to approach. If all these are feasible, the
ungrammaticality of (35b,d) can now be explained: (35b) is ungrammatical because the indefinite indirect object isn't close enough to the verb in D-structure, and (35d) is ungrammatical because the reanalyzed category constitutes an opaque domain such that binding into it is impossible.

Of course, these analyses are no more than suggestive. More evidence has to be put forward before the problem could truly be claimed solved.

Some final words before concluding this section. We said earlier that leftward quantification is generally assumed to be one of the characteristics of _dou_. But is this really the case? Look at the following sentences:

(39)  
   a. Laozhang dou ba chuanghu da-kai le.  
       p.n. DOU BA window open ASP  
       ‘Laozhang managed to open all of the windows.’
   b. Zhihuiguan dou fang na-xie fulu zou le.  
       commander DOU release those captive leave ASP  
       ‘The commander allowed all of the captives to leave.’
   c. Wo muqian bu-keneng dou gei nimen qian.  
       I presently no-possible DOU give you money  
       ‘I cannot give all of you money presently.’
   d. Dou rang tamen likai ba!  
       DOU let they leave PRT  
       ‘Let all of them leave!’

For many speakers, including the author, _dou_ in these sentences can be understood as referring to the plural NP to the right of it. Of course, as Lee (1986) and many others have pointed out, _dou_ in sentences without overt (leftward) quantifiable NPs may be understood as quantifying over time and location. But this reading is barely available for (39a-d). Take (39a) for example. If the aspect marker _le_ is removed from the sentence, it can mean ‘Laozhang always opens the windows’. But the presence of the aspect marker _le_, here marking the change of state (the inchoative reading), bans such a construal. The rightward reading of _dou_ is particularly salient in such imperative sentences as (39d). If this sentence is uttered by a commanding officer issuing an order to a jailor, _dou_ in this sentence cannot quantify anything other than the pronominal _tamen_ ‘they’, supposedly the prisoners. Thus _dou_ also gets the chance to quantify rightward, though the precise nature and the conditions for the rightward quantification are yet to be sorted out.
Now a short summary is in order. So far we have observed a number of characteristics and particular properties of *ge*, with *dou* as the point of reference. We find that *ge*

- when used its domain must be explicitly/implicitly specified; in our term, it must be context-related
- must have an indefinite in the VP/predicate which co-occurs with it; the indefinite (semi)object requirement
- may only adjoin to VP or *V*', and
- may quantify rightward, provided that the indefinite (semi)object requirement is observed.

*Dou*, on the other hand,

- doesn't need a very specific domain
- doesn't need an indefinite in the VP/predicate that co-occurs with it
- may adjoin to any positions from *Asp' to V*', and
- typically quantifies leftward.

In the following discussion, we will be concentrated on the first and the second properties of *ge* and *dou*, namely, the context-relatedness and the indefinite (semi)object requirement of *ge*, and their absence in *dou*-quantification. The other properties, i.e., adjunction sites and rightward/leftward quantification, are too complex to cover in this study. We leave them for future research. In the following discussion, we will show that the difference between *ge* and *dou* with respect to the presence vs. absence of a specific domain and indefinite (semi)object can be related to two deeper factors: whether the quantifier is a *distributor* or not, and whether the quantifier has an *extensional* nature or not. It will be shown that *dou* actually is not a distributor as many has identified it, though *ge* is. It will also be shown that *ge*, but not *dou*, is an extensional operator, in the sense that its domain must be extensional entities. it is these two factors that really distinguish the two quantifiers.

3. Further Problems

This section is devoted to some issues around the question: what semantic properties distinguish *ge* from *dou*? Let's begin with the problems with distributivity and the supporting function of *dou* and *ge*.
3.1 Distributivity and the supporting function

In this subsection we are going to explore two problems: the distributivity of ge and dou, and the nature of the supporting function. Let's begin with the problems on distributivity.

Earlier we've said that although dou is commonly regarded as a distributor, ge is even more qualified. As a matter of fact, what ge performs is a "pairing" function: in each of the relevant examples seen hitherto, ge pairs each individual, the sorting key in Choe's (1987) sense, in the set denoted by the plural NP with a distributed share denoted by the indefinite expression, hence resulting in a set of pairs which relate the individuals in the domain and the quantity in the range. In Choe's (1987) theory, a distributivity relation needs three components: a sorting key, a distributed share, and a co-argument requirement. For example, consider the following examples:

(40)  a. The boys bought a balloon each
    b. Three interpreters each were assigned to the visiting diplomats

In (40a-b), the nominals with each (the shift-each of Choe (1987), or the "binominal" each of Safir and Stowell (1989)) are the distributed share, which denote the quantity to be distributed to the other nominals, the sorting key, which distribute over the share. Furthermore, Choe argues, the sorting key and the distributed share must be in a co-argument relation; that is, they must be arguments of a same verbal element. This reminds us of the case of ge in Chinese. According to Choe's theory, the expression quantified by ge is the sorting key of the distributivity relation, and the indefinite ge binds the distributed share, and, furthermore, the indefinite (semi)object requirement is almost identical to the co-argument requirement. The conclusion, then, is that the function ge performs is a genuine distributivity relation. The distributivity relation relates an individual and a quantity, even in those cases where we have indefinite objects that seem to denote ordinary individuals. For example, in sentence (41a-b), each individual member of the group tamen ‘they’ is actually paired with a quantity, no matter it is a quantity of concrete or abstract things:

(41)  a. Tamen ge mai-le yi-dong fanzi.
    they GE buy-ASP one-CL house
    ‘Each of them bought a house.’
    b. Tamen ge pao-le wu-qian gongchi.
       run-ASP five-thousand meter
    ‘Each of them has been running for five thousand meters.’
In this sense *ge* is a distributor par excellence, since it distributes each individual member of the domain over the quantity in range isomorphically. On the other hand, however, the idea that *dou* is a distributor isn’t equally clear. If Cheng’s (1995) proposal is correct, then *dou* in (42a,b) will adjoin to the subject *tamen* ‘they’, and the whole cluster in turn undergoes QR in LF, yielding the logical interpretations as (42a’,b’):

(42) a. Tamen dou shui-zhao le.
    they DOU fall-asleep ASP
    ‘Everyone of them fell asleep.’

   a’. ∀(dou_i (they(x_i))) [fall-asleep(x_i)]

---

7 Although *ge* is very similar to the shift or binominal *each* in English, we still have to be cautious in identifying the two as one and the same operator in the two languages. There are other factors that distinguish them. In Lin (1997), I argue that the quantificational elements in languages are subject to parametric variation with respect to the syntactic level on which the quantificational force is effective; i.e., the Quantificational Force Parameter (QFP), initiated by Tsai (1994) and others. Under the regulation of the QFP, *ge* in Chinese and *each* in English may have very different behaviors that cannot be subsumed under the single notion of distributivity. This is why we follow an independent line of discussion of *ge* in Chinese. Incidentally, as having pointed out earlier, the expressions that may satisfy the indefinite (semi)object requirement of *ge* include non-arguments such as frequency and duration phrase. So we will adhere to this term rather than adopt the term "co-argument" of Choe (1987).
b. Tamen dou mai fangzi le.
    they DOU buy house ASP
    ‘Everyone of them bought a house.’

b'. \( \forall (dou)_i \ (they(x_i)) \ [\text{buy-house}(x_i)] \)

To say that *dou* is a distributor means that it is a truth-conditional operator—that is, it is true of (41a) iff for each \( \alpha_i \) in \( D = \text{Context}(\text{they}), \text{fall-asleep}(\alpha_1) \land \text{fall-asleep}(\alpha_2) \land \ldots \land \text{fall-asleep}(\alpha_n) \). But there're some problems with this view on *dou*. First of all, wherever *dou* occurs, there are always some other quantificational adverbs that may co-occur with it. Moreover, *dou* can be deleted in this case without affecting the grammaticality of the sentence. The example is (43a). Second, *dou* obviously can be used non-distributively, as evidenced by (43b-c). Thus, in the case of (43b), that the entire bridge collapsed doesn't imply each bricks collapsed, and, in the case of (43c), that all the scores of the students' are very close doesn't mean that each score of the students is very close--there would be a missing argument if *dou* here is construed distributively. In short, if *dou* in (43b-c) is to be understood as representing distributivity, the two sentences evidently cannot be interpreted adequately.

\[
(43) \quad \begin{aligned}
    \text{a. Tamen} & \quad \begin{cases}
    \text{fenbie 'separately'} \\
    \text{gezi 'each - self'} \\
    \text{quanbu 'all'} \\
    \text{tongtong 'uniformly'}
    \end{cases} & \quad \text{(dou) dai-le yi-ding lü maozi.}
    \\
    \text{they} & \quad \text{DOU wear-ASP one-CL green hat}
    \\
    \text{‘They respectively / individually / all / uniformly wore a green hat.’}
\end{aligned}
\]

    whole-CL bridge DOU fall-down ASP
    ‘The whole bridge collapse.’

c. Xuesheng-men de chengji dou hen jiejin.
    student-PL of score DOU very close
    ‘All the scores of the students' are very close.’

As the thorough discussion of the properties of *dou* exceeds far beyond the scope of the present study, we will not go into the relevant problems. In Lin (1996) I argue for a view which considers *dou* as universal quantifier over situations (cf. Heim 1990, Cheng and
Huang 1994). It is argued there that such examples as (43a) and others suggest that *dou doesn't assign quantificational force to the subject it is said to quantify; rather, it is the quantificational adverbs that do so. If there's no overt quantificational adverb that co-occurs with *dou, there's an empty one. If that proposal is correct, then *dou cannot be a first-order universal quantifier as assumed hitherto, and it has nothing to do with the notion of distributivity we are talking about. In the following discussions, however, we will keep a naive position on this problem, simply noting that *ge is more suitably treated as a distributive operator. For detail on the related issues, cf. Lin (1996).

A second problem to be addressed in this subsection is concerning the supporting function of *dou and *ge. We said that the typical quantificational NPs with the determiner *mei- ‘every’ cannot appear alone without the quantification of *dou or *ge. Thus we have the contrast between (44a), on the one hand, and (44b-c), on the other:

   every person buy-ASP one-CL house
b. Meige ren dou mai-le yi-dong fangzi.
   DOU
   ‘Everyone bought a house.’
c. Meige ren ge mai-le yi-dong fangzi.
   GE
   ‘Each of the persons bought a house.’

The question to be asked is: what's the nature of the supporting function? Put another way: why does the typical quantificational NPs need to be supported? In this connection, let us take a look on Cheng (1991) and Tsai's (1994) proposal concerning the licensing of the subjects in Chinese. It has long been known that the subjects in Chinese must be either definite or specific (e.g. Li and Thompson 1981). Along the spirit of Diesing's (1992) mapping hypothesis, Cheng and Tsai argue that the subjects in Chinese must be

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8 *Dou as a quantifier over situations, I think, is most clear in the case of generic/habitual sentences. Consider the following contrast:

(i) a. Laowang chi gou-rou.
   p.n. eat dog-meat
   ‘Laowang eats dog meat.’
b. Laowang dou chi gou-rou.
   DOU
   ‘Laowang eats dog meat [in every situation s to be specified].’
quantificationally or context-anaphorically marked, since existential closure only applies on the VP/predicate level (Heim 1982, Diesing 1992, Tsai 1994), and cannot license the subjects when they are indefinites. Thus we have the following contrast: in (45a), the indefinite subject is unmarked, therefore the sentence is ungrammatical; in (45b), the indefinite subject is properly marked by the existential quantifier you ‘have, exist’, therefore the sentence is grammatical:

(45)  

a.  *San-ge ren lai le.  
   three-CL person come ASP  
   ‘Three persons came.’

b.  You san-ge ren lai le.  
   have  
   ‘There are three persons who came.’

In the same vein, we may regard the mei-phrases as something that needs to be marked. In other words, the relationship between dou and meige ren ‘every person’ in (44b) is simply on a par with that between you ‘have’ and san-ge ren ‘three persons’ in (45b). One piece of evidence in favor of this view is the complementary distribution of dou and you. Look at (46a-d). (46a) is a sentence whose indefinite subject is unmarked, so it is ungrammatical. In (46b) and (46c), the indefinite subjects are marked by you and dou, respectively, so they are grammatical. Notice that when supported by dou, the indefinite subject is obligatorily turned into denoting a specific group of guests, meaning ‘three (designated) guests’, due to the universal character of dou. What is revealing is the ungrammatical (46d), where the indefinite subject is supported by both you and dou.9

9 James Huang (p.c.) suggests that sentences with both you and dou may not be all ungrammatical:

(i)  You san-ben shu wo dou hen xihuan.  
    have three-CL book I DOU very like  
    ‘There are three books all of which I like.’

But James Huang also suggests that there can be a topic/subject distinction involved here: in (46d), we have a subject simultaneously quantified by you and dou, but in (i), what is quantified by the two quantifiers is a topic. I don't have an explicit explanation for the grammaticality of (i) at this point.

For further discussion, see Schubert and Pelletier (1989) and Lin (1996).
(46) a. *San-ge keren dao le.
   three-CL guest arrive ASP
   ‘Three guests arrived.’

b. You san-ge keren dao le.
   have
   ‘There are three guests who arrived.’

c. San-ge keren dou dao le.
   DOU
   ‘All of the three guests arrived.’

d. *You san-ge keren dou dao le.
   have
   ‘*There are all of the three guests who arrived.’

(46d) is ungrammatical because the subject indefinite is simultaneously bound by the existential quantifier you and universal quantifier dou, resulting in semantic conflict. If we posit that the supporting functions of you and dou are complementary, then the semantic conflict of (46d) can be retrieved to multiple markings of the subject indefinite. Notice that the notion of semantic conflict by itself cannot explain the ungrammaticality of (46d).

Consider the following sentences:

(47) a. San-ge ren ge mai-le yi-dong fangzi.
   three-CL person GE buy-ASP one-CL house
   ‘Each of the three persons bought a house.’

b. You san-ge ren ge mai-le yi-dong fangzi.
   have
   ‘There are three persons each of whom bought a house.’

Like dou, ge can mark the indefinite subject, as in (47a), and likewise the indefinite subject is enforced a specific reading. But (47b) shows that ge can co-occur with you without resulting in ungrammaticality. If the notion of semantic conflict is the ultimate explanation for the ungrammaticality of (46d), then the grammaticality of (47b) becomes mysterious. Under the approach we would like to adopt here, it is not mysterious at all: (46d) is ungrammatical because of multiple markings, and (47b) is grammatical because of the following reason. Ge, by itself, is insufficient in serving the supporting function, because it must be related to some explicitly/implicitly specified context--the context-relatedness characteristic. But you here in (47b) supplements it with the required extra information. The
consequence is that (47b) is an acceptable sentence, and, moreover, it doesn't need to presuppose any additional context, as the intuition evidences.

Another piece of evidence in favor of our view is the case when the mei-phrases are used as the subjects of sentences without explicit supporting from dou or ge. Consider the situations when the mei-phrases appear alone as subjects:\(^{10}\)

(48) a. **Meige ren** zuo yi-bai-xia fudi-tingshen!
every person do one-hundred-CL push-up
    ‘Everyone do one hundred push-ups!’

    b. **Meige ren** gei wo yi-bai kuai, wo jiu fang nimen zou!
every person give I one-hundred dollar I then let you leave
    ‘Everybody give me one hundred dollars, and I'll let you leave!’

When (48a) and the first half of (48b) are construed as descriptions of events, they are unacceptable. But when (48a) is uttered, say, by a sergeant issuing command to the rookie soldiers, and when (48b) is uttered by a robber to a group of victims, they are imperative sentences and sound perfectly good. When (48a-b) are uttered imperatively, the subject mei-phrases must be focused, and the mei-phrases must refer, or, in a manner of speaking, be anaphoric, to a group of persons who are present in front of the speakers. Thus, In this case, the mei-phrases receive support from the focus and immediate context. If this line of thinking is on the right track, then the typical quantificational NPs resort to all possible source to secure their subject status. Focus as a source of subject-marking, in the quantificational sense, can also be found in the following sentence, supposedly uttered by a secretary to her/his boss:

(49) **Yi-weixiaojie** gangcai da-dianhua zhao ni, keshi ni bu-zai
one-CL lady just-now call search you but you not-at
    ‘A lady called you just now, but you weren't here’

In (49), the indefinite subject ‘a lady’ isn't quantified by you, yet this sentence is acceptable if appropriate focus is put on the indefinite subject, turning it into something specific, denoting some specific lady.

If the analyses presented so far are feasible, then the supporting function of dou and ge is no different from the (quantificational) subject marking as proposed by Cheng

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\(^{10}\) Thanks to Chiu Huei-Tze for bringing these sentences to my attention.
(1991) and Tsai (1994). In other words, the typical universal quantificational NPs with the determiner *mei-* ‘every’ are more like indefinites than their English counterparts. That is, they don’t have inherent quantificational force, and don’t undergo QR in LF. They are variables.

A final question. What if the typical quantificational NPs appear in the object position within the VP? How can they be interpreted if they don’t undergo QR? It is obvious they cannot be interpreted via existential closure, due to their universal character. As Cheng (1995) observes, the *mei*-phrases in the object position are very weird without being focused. Although more research has to be done, it is possible that the focus induces binding from some contextual operator. At any rate, the object *mei*-phrases don’t raise to the sentence-initial position, since, in the following sentences, (50a) with *dou*, (50b) *ge*, (50c) *you*, and (50d) with the focus, the object *mei*-phrases do not interact with the subject quantification in any way. Here the object *mei*-phrases sound like being interpreted "in-situ" by some contextual features, in accordance with what we have seen in (48a-b) when they do not receive any overt support.

(50) a. Na san-ge jingcha dou zou-le meige liumang yi-dun. that three-CL policeman DOU bust-ASP every gangster one-CL ‘All of the three policemen gave a bust to every gangster.’
   b. Na san-ge jingcha ge zou-le meige liumang yi-dun.
      GE ‘Each of the three policemen gave a bust to every gangster.’
   c. You san-ge jingcha zou-le meige liumang yi-dun have ‘There are three policemen who gave a bust to every gangster.’
   d. **San-ge jingcha** zou-le meige liumang yi-dun ‘The three policemen gave a bust to every gangster.’

3.2 On genericity and extensionality

We said earlier that both *dou* and *ge* quantify plural NPs. But is every plural NP quantifiable by either one? The answer is negative. *Ge* can quantify the plural definites, plural pronominals, and conjoined names. These expressions are also eligible for *dou*-quantification. There are, however, two classes of expressions which can be quantified by *dou* but hardly by *ge*; they are bare NPs and DPs with non-standard determiners such as
*henduo* ‘many’ and *daduoshu* ‘most’. Let's consider the bare NPs first. Bare NPs in Chinese may occur as the subjects of generic sentences. Also, they can be quantified by *dou* while retaining the generic construal, as shown by (51a-b).

(51)  

a. *Laohu chi ren.*  
tiger eat human  
‘The tiger eats human being.’

b. *Laohu dou chi ren.*  
DOU

‘Every tiger eats human being.’

On the other hand, however, if *dou* in (51b) is replaced by *ge*, the sentence becomes ungrammatical, as shown by (52a) below. The ungrammaticality of (52a) cannot be completely explained away by the assumption that, for some unknown reason, the bare NP object in the (52a) doesn't satisfy the indefinite (semi)object requirement of *ge*, since, as shown by (52b), if the bare NP object is replaced by a normal indefinite, the generic reading of the sentence is also gone therewith. In other words, (52b) can only mean that each tiger in some specific group of tigers has eaten a person, or would have a share of meal which consists of a person.

(52)  

a. *Laohu ge chi ren.*  
tiger GE eat human  
‘Each of tigers eats human being.’

b. *Laohu ge chi(-le) yi-ge ren.*  
eat-ASP one-CL human

‘Each of (a certain class) of tigers ate a human being.’

Thus, it is not actually true that *ge* cannot quantify the bare NPs; it is that *ge* cannot quantify the bare NPs if they denote generic classes. In other words, *ge* cannot be used generically, while *dou* can be so used.\(^\text{11}\)

In addition to the bare NPs, we also find the same situation in other expressions which are often used to denote generic classes. For example, the morphologically

\[^{11}\text{James Huang (p.c.) suggests that with the distributor analysis, it is possible that generic expressions denote singular entities--kinds for Carlson (1977)--so that they cannot be quantified by *ge*. This is so because singular entities cannot enter into distributivity relation with the shares.}\]
reduplicated expression renren 'lit. person-person) every person'. Renren can be
quantified by dou in a generic sentence, as in (53a). But, again, we find that when dou is
replaced by ge, as in (53b), the generic reading disappears; we must supply certain context
for the sentence to secure the subject status of renren, for example, on Mars:

(53) a. Renren dou you yi-shuang yianjing.
     everyone DOU have one-pair eye
     ‘Everyone has a pair of eyes.’
     b. (Zai Huoxing shang,) renren ge you yi-shuang yianjing.
     at Mars on GE
     ‘Each person on Mars has a pair of eyes.’

We have resorted to "context" in various places during the discussion, but we
haven't offered a clear picture as to what the nature of the context is. In this regard, consider
what makes an generic NP different from a non-generic NP. Put briefly, a generic NP
denotes a class of elements that may not be extensionally existent; the elements can be
something in the present, in the past, in the future, or imaginary. In other words, generic
NPs are intensional expressions. (Carlson 1989). Interestingly enough, we find that the
contrast between (53a) and (53b), as well as between (51b) and (52b), fit well in with the
intensional/extensioanal distinction.\(^\text{12}\) In (53a), the expression renren can mean anybody,

\(^\text{12}\) There are two possible definitions of the intensionality and extensionality referred to in
this study. The first is Carlson's (1977, 1989) definition. According to Carlson, an entity is
intensional if it enters into a relation R that yields "realizations" of that entity. Thus, the
realization of a kind (which is what a generic expression denotes, according to Carlson) is
an individual of that kind, and the realization of an ordinary individual under R is a "stage"
of that individual. Entities that are not so realized are extensional, namely individuals as they
are. The second definition is a philosophical one. When we use generic expressions, we are
not referring to a truth-conditional conjunction with definite number of individuals and their
properties, as shown by the examples provided in the text. For example, we have sentence
(ia), which states the universal truth that every person is mortal. Now, if we are living in a
world with only finite persons, say p₁, p₂, ..., pₙ, then it would be possible to construct a
conjunction in the form of (ib), which exhausts the individuals.

(i) a. Mei-ge ren dou hui si.
     every-CL person DOU will die
     ‘Every person will die.’
     b. F(p₁)\land F(p₂)\land F(p₃)\ldots \land F(pₙ)
     c. F(p₁)\land F(p₂)\land F(p₃)\ldots
     d. \forall x (P(x)) [F(x)]

But the problem is that we are not living in such a world, because the number of persons is
(potentially) infinite, including those who are already dead and those who are going to be
including those in the past and those not yet existent. Thus the sentence states a permanent characteristic of human kind. Renren in (53b), on the other hand, cannot be so construed: it can only refer to those human beings presently existent on Mars, but not those who aren't. The same distinction obtains for the contrast between (51b) and (52b): the former denotes a permanent characteristic of tigers, while the latter denotes an event or state which involves a certain group of tigers that are presently existent. So we arrive at the following conclusion: there is an extensionality restriction on ge-quantification which requires the NP ge quantifies to denote an extensional class, although the extensional class itself may in turn be situated in a larger intensional setting, for example, on Mars. This is the actual content of what we call the context-relatedness of ge. Remember that when ge quantifies a typical quantificational NP with the determiner mei- ‘every’, there must be some explicitly/implicitly specified context assumed, as the discussions in section 2.1 and 3.1 reveal. This is the case because mei-phrases, being variable-like elements, do not offer the required extensional domain to settle ge-quantification, and, therefore, the sentences need extra contextual features to help specifying the extensional class. Take the contrast between (53a-b) for example. Renren in (53b) cannot mean every person universally; it can only mean every person situated within some specified spatio-temporal location, due to the extensionality restriction on ge. Renren in (53a), on the other hand, can mean every person universally, since dou doesn't conform to the extensionality restriction, and no extra context setting is needed.

There are other examples that support the intensional/intensionality distinction between dou and ge. In Chinese, the expression yiban means ‘generally’ when used as an adverb, and means ‘average’ when used as a NP modifier. In either case, it can only have the intensional construal. In the following examples, as expected, we find yiban cannot be quantified by ge. (54a-b) shows that both dou and ge can quantify the temporal phrases. But once the temporal phrases are replaced by yiban, the sentence with ge, i.e., (54d),

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becomes unacceptable. The situations in (55a-d) are the same: when the subject mei-phrase is replaced by yiban-phrase, here in (55d) meaning ‘the average fan’, ge-quantification becomes unacceptable:

(54) a. Laowang mei-tian dou chi yi-ge jidan.
   p.n.   every-day DOU eat one-CL chicken-egg
   ‘Laowang eats a chicken egg every day.’

   b. Laowang (zhe xingqi nei) mei-tian ge chi yi-ge jidan.
      this week within GE
   ‘Laowang ate a chicken egg each day (during this week).’

   c. Laowang yiban dou chi yi-ge jidan.
      generally DOU
   ‘Laowang generally eats a chicken egg [at a time].’

   d. *Laowang yiban ge chi yi-ge jidan
      GE

(55) a. Meige qiu-mi dou zhichi mou yi-ge qiudui.
      every ball-fan DOU support some one-CL ball-team
   ‘Every fan supports some team.’

   b. (Qiu-zhang zhong) meige qiu-mi ge zhichi mou yi-ge qiudui.
      ball-field in GE
   ‘(In the game-field) each of the fans supports some team.’

   c. Yiban-de qiu-mi dou zhichi mou yi-ge qiudui.
      average-of
   ‘The average fan supports some team.’

   d. *Yiban-de qiu-mi ge zhichi mou yi-ge qiudui.
      GE
   ‘Each of the average fans supports some team.’

As yiban is an intensional expression and doesn't offer an existential class of any kind, it is at odds with the extensionality restriction on ge-quantification.

Another adverb similar to yiban is daochu ‘everywhere’. As a location adverb, daochu is also an intensioanl expression that must be quantified by dou but not by ge:

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14 Thanks to Wang Wan-De for bringing these sentences to my attention.
Daochu, being and intensional expression, do not actually refer: it does not specify or imply the existence of an enumerable set of locations, let's say, Rome, Paris, Bangkok, Los Angeles, and Taipei, and Laowang keeps a mistress in each of the cities, altogether five. It can only be used when Laowang regularly keeps a mistress in a city, no matter how many cities there are. This is the reason why ge cannot quantify daochu, given the extensionality restriction.

In the light of this discovery, we could also explain the incompatibility between ge and those non-numeral quantifiers as henduo ‘many’ and daduoshu ‘most’:

(57) a. Henduo qiumi dou zhichi mou yu-ge qiudui.
    many ball-fan DOU support some one-CL ball-team
    ‘Many fans support some team.’

b. *Henduo qiumi ge zhichi mou yi-ge qiudui.
   GE
   ‘Each of many fans supports some team.’

c. Daduoshu qiumi dou zhichi mou yi-ge qiudui.
    most
    ‘Most fans support some team.’

d. *Daduoshu qiumi ge zhichi mou yi-ge qiudui.
   GE
   ‘Each of the most fans supports some team.’

Although it is not clear whether such non-numeral quantifiers as henduo ‘many’ and daduoshu ‘most’ can be identified as intensional expressions, on a par with the typical ones mentioned above, it is clear that the classes they denote are not existentially enumerable.15

15 We emphasize the term "existential" in various places. This is so because there is an important issue about ge (also each in English) which is related to that notion but which we didn't mention explicitly in the text; that is, the existential commitment of ge and each (Vendler 1967). When we use ge or each, we are committed to the existence of the
How many counts as "many"? And how many counts as "most"? These questions cannot be answered in a direct way, because "many" and "most" are relative notions. So if the extensionality restriction requires enumerability defined in some specific way, the ungrammaticality of (57b,d) is expected.16

The extensionality restriction on ge-quantification also opens a gate to a problem we have mentioned in section 1 but haven't tried to explain so far; that is, the non-interaction of ge with wh-words in Chinese. As Lee (1986), Cheng (1991, 1995), Tsai (1994) and many others point out, dou may quantify the wh-words in Chinese, resulting in universal rather than interrogative construals, as examples (58a-b) shows. Ge, on the other hand, cannot quantify the wh-words, as the ungrammaticality of (59a-b) indicates.

(58) a. Shei dou kan-guo yi-tou zhu. who DOU see-ASP one-CL pig
   ‘Anyone has seen a pig.’

   b. Laozhang zai na-jia dian-li dou mai yi-da-due dongxi. p.n. at which-CL shop-in DOU buy a-lot-of thing
   ‘Laowang bought a lot of things in any shop.’

(59) a. *Shei ge kan-guo yi-tou zhu. GE
   ‘*Each of anyone has seen a pig.’

individuals quantified by them, and that demarcates ge and each from all other quantifiers in the two languages. There are many intriguing phenomena that are related to this characteristic of ge; cf. Lin (1997).

16 In this regard, consider the expression jige ‘several’, which is not enumerable by its semantics. When jige occurs with ge, some supplementary information is required, or the sentence will be unacceptable, as shown in (ib). The same is not true of the typical numericals, however. In (ia), if the supplementary tamen ‘they’ is omitted, the sentence is still acceptable, with the numerical subject ‘three persons’ construed as three designated persons.

(i) a. (Tamen) san-ge ren ge mai-le yi-ding lü maozi. they three-CL person GE buy-ASP one-CL green hat
   ‘Each of (the) three persons bought a green hat.’

   b. *(Tamen) jige ren ge mai-le yi-ding lü maozi. several
   ‘Each of *(the) several persons bought a green hat.’

The contrast between (ia) and (ib) can be explained by the enumerability requirement of the extensionality restriction: jige, when occurs with ge, must have the supplementary information that helps sorting out the explicit content of the class. Without the supplementary information, jige is simply identified as not enumerable, and cannot co-occur with ge.
   GE
   ‘*Laowang bought a lot of things in each of any shop.’

Although the wh-words in Chinese are now generally identified as variables rather than quantifiers (Cheng 1991, Li 1992, Tsai 1994), hence need be licensed by the Baker-style Q-operator when construed interrogatively (Tsai 1994), by *dou when construed universally (Cheng 1991, 1995), or by other polarity-triggering contexts when construed existentially (Li 1992), they just can't be licensed by ge, for the reason we are now already familiar with: the wh-words denote open classes, which is incompatible with the extensionality restriction of ge. Open classes can't be enumerable, and the universality of the quantified wh-words goes beyond the domain of extensionality.

### 3.3 QR or not QR?

In this last subsection, we are going to deal with a problem that has bearing on the previous two sections. Remember that, in Chinese, neither the typical quantificational NPs with the determiner *mei- ‘every’, nor the typical indefinites, have inherent quantificational force, and neither undergoes QR in LF. In other words, they are all variable-like elements. Earlier we spent some space arguing that *mei- ‘every’ phrases are the case, but now we find a problem with the indefinite objects. According to Cheng (1991) (also cf. Heim 1982, Diesing 1992), as the indefinites in Chinese are variables, they have to be "captured" by existential closure within the VP or predicate (Diesing 1992, Tsai 1994), and hence never assume scope beyond the VP. But consider the following examples. In each of (60a-b), there is an indefinite object inside the VP. If the existential closure analysis is correct, the indefinite objects are "banned" within the VP, and neither indefinite object can have reading other than the cardinal/existential one. The facts, however, point to the contrary: both of the objects in (60a-b), in addition to the cardinal/existential reading, can be construed specifically denoting a certain specific object, in (60a) Madonna and in (59b) the rumor that Daiwa Bank is bankrupt, for example.

(60) a. Meige xuesheng dou ai-shang yi-ge gexing (jiu shi Madanna).
   every student DOU love-up one-CL singer that-is Madonna
   ‘Every student falls in love with a singer (that is, Madonna).’
b. Tamen dou ting-dao yi-ge yiaoyan (jiu shi Dahe yinhang pochan le).
they DOU hear one-CL rumor that is Daiwa bank bankrupt ASP
‘They all heard a rumor (that is, Daiwa Bank is bankrupt).’

The availability of specific reading for the objects in (60a-b), then, seems to suggest that the indefinite objects in Chinese somehow have the opportunity to scramble out of the VP, and assume wider scope than the quantified subjects, giving rise to ambiguity. As a comparison, let's see what's the case for ge. Interestingly enough, if dou in (60a-b) is replaced by ge, the ambiguity disappears. That is, the specific reading is no longer available for the indefinite objects, and what we only get is the cardinal/existential reading:

(61) a. Meige xuesheng ge ai-shang yi-ge gexing (*jiu shi Madanna).
every student GE love-up one-CL singer that-is Madonna
‘Each of the students falls in love with a singer (*that is, Madonna).’

b. Tamen ge ting-dao yi-ge yiaoyan (*jiu shi Dahe yinhang pochan le).
they GE hear one-CL rumor that is Daiwa Bank bankrupt ASP
‘Each of them heard a rumor (*that is, Daiwa Bank is becoming bankrupt).’

The difference between (60a-b), the dou case, and (61a-b), the ge case, therefore points to some distinction between dou and ge which we don't seem to have touched upon. On this problem, Lin (1991) simply identifies the distinction as the availability of QR in the dou case, but not in the ge case. It was argued there that the indefinite objects generally undergo QR in LF, so we observe the ambiguity in (60a-b). As to the ge case, since ge-quantification involves paring function, this somehow prevents the indefinite objects from scrambling out of the VP domain, perhaps due to the inner island effect. Lin further promotes the distinction to a status so as to provide supporting evidence in favor of the existence of QR in Chinese: as both dou and ge involve universal quantification, the only discriminating feature between the two must be the availability for QR in the former but not in the latter. 17

But now we understand the matter cannot be that simple. The most important discriminating features between dou and ge should be the extensionality restriction and the indefinite (semi)object requirement imposed on ge but not on dou. As for these two restrictions, although we find no evidence showing any direct linking between the two, we would like to suggest that they are in fact closely connected. To be more specific, we will show that ge in character is an extensional operator, mapping an extensional domain (the
quantified plurals, to which the extensionality restriction applies) into an extensional range (the bound indefinite (semi)objects). The evidence just lies in the specific/non-specific contrast between *dou* and *ge*, as show in (60a-b) and (61a-b).

To begin with, let’s look at some arguments against QR in Chinese. The first argument is Huang’s (1982) isomorphism on the determination of scope relations between quantifiers. Although the English sentence (62a) is ambiguous in allowing the two readings represented in (62b-c), its Chinese counterpart cannot be so construed. To obtain the two readings of (62b-c) sort, there must be two distinct sentences, as shown by (63a-b). It is important to note that the positions of the quantifiers *you* and *dou* are nearly isomorphic to their logical correspondences, as shown in (63a'-b').

(62) a. Someone ordered every dish.
    b. someoneₙ (every dishₚ (order(x,y)))
    c. every dishₚ (someoneₙ (order(x,y)))

(63) a. You yi-ge ren dian-le mei-dao cai.
    have one-CL person order-ASP every-CL dish
    ‘There is a person who ordered every dish.’
    b. Mei-dao cai dou you ren dian.
       every-CL dish DOU have person order
       ‘Every dish is ordered by some person or other.’
    a'. ∃(person)ₙ (∀(dish)ₚ (order(x,y)))
    b'. ∀(dish)ₚ (∃(person)ₙ (order(x,y)))

In other words, S-structure positions seem to determine the quantifier scopes in Chinese. If this is the general case, how can the indefinite in (60a-b) be exceptional? Also, if the indefinite objects in (60a-b) can scramble out of the VP, they must have inherent quantificational force by their own. But if so, why do they need to be marked when they appear as the subjects, as shown by those examples cited in section 3.1? The QR approach, therefore, contradicts most of what we know about the quantificational phenomena in Chinese.

A second argument against QR in Chinese concerns the construal possibilities of the indefinite objects. According to Diesing (1992), sentence (64a), in fact, is three-way ambiguous: when the quantificational object raises in LF, it can interact with the

17 Cf. Aoun and Li (1989,1993) for explanations of a cluster of scope phenomena on the assumption that QR works in Chinese.
quantificational subject, giving rise to the two reading (64b-c); when it stays in-situ, it is treated as a variable and is bound by existential closure, resulting in the cardinal reading, as in (64d):

(64) a. Every cellist plays some variation.
    b. every cellist, (some variation, (x plays y))
    c. some variation, (every cellist, (x plays y))
    d. every cellist, (x ∃y( plays variation(y)))

If the indefinite objects in (60a-b) also raise in LF, we would expect the same story with them. But the fact is the indefinite objects cannot have a genuine quantificational narrow scope reading:

(65) a. Meige xuesheng dou ai-shang yi-ge gexing (jiu shi Madanna).
      every student DOU love-up one-CL singer that is Madonna
    b. *every student, (some singer, (x fall in love with y))
    c. some singer, (every student, (x fall in love with y))
    d. every student, (x ∃y( fall in love with singer(y)))

There is no reason the indefinite object in (65a) can't interact with the quantified subject if it raises to the matrix sentence. The possibility that the indefinite object may adjoin to VP (May 1985) doesn't work to explain the lack of the reading represented by (65b): although it might be argued that the narrower reading of the quantificational object in fact involve adjunction to VP rather than to IP or S, hence is indiscriminate from the existential closure reading, Tsai (1994) has convincingly shown that the application cycle of existential closure in Chinese should be V' rather than VP, in view of the Internal Subject Hypothesis. The lack of the genuine quantificational narrow scope reading for the indefinite objects, therefore, seems to suggest that the "wide" scope reading of the indefinite object as represented in (65c) should be considered independent of QR.

The last argument further indicates that this is indeed the case. Although the specific reading of indefinite objects is not uncommon in Chinese, it seems to be restricted to certain classes of verbs, most obviously the class of perception and cognition verbs:
In each of (66a-c), the indefinite object can be construed either cardinally or specifically. But for other verbs, especially those that semantically or pragmatically imply exclusive possession, the specific reading is impossible for the indefinite objects:

(67) a. Tamen dou mai-le yi-dong fangzi.
    they DOU buy-ASP one-CL house
    ‘Everyone of them bought a house.’

b. Tamen dou qu-le yi-ge Riben-nuren.
    they DOU marry-ASP one-CL Japan-woman
    ‘Everyone of them married a Japanese woman.’

c. Tamen dou fulu-le yi-ge junguan.
    they DOU capture-ASP one-CL officer
    ‘Everyone of them captured an officer.’

In (67a-c), the indefinite objects cannot be understood specifically, unlike the case in (66a-c). If we adopt the QR approach, there is no reason (67b) couldn't mean ‘everyone of them married a (same) Japanese woman’ under a custom of one wife-many husbands. The QR approach, then, cannot explain the verb-sensitive characteristic of the specific reading.

Notice, by the way, that neither sentence in (66a-c) and (67a-c) can retain the specific reading of the indefinite objects when _dou_ is replace by _ge_, the same as the case in (61a-b).

To see how the specific/non-specific distinction between _dou_ and _ge_ can be explained, let's explore further on the contrast between (66a-c) and (67a-c). Although the indefinite objects in (66a-c) may assume specific reading and those in (67a-c) cannot, it is interesting to note that, when the experiential marker _guo_ replaces the perfective marker _le_, the specific reading becomes available to each indefinite object in (67a-c), as shown in (68a-c):
Why is it so? Apparently the experiential marker *guo* has a function that licenses the specific reading of the indefinite objects. Notice that *guo*, a marker that implies the existence of some *past* event or state, creates an intensional context for the whole sentence. Thus (68a) is true if there exists a class of events $e_i$ occurring in time $i$, which precedes the time of speaking $i$, in each of which each person denoted by ‘they’ buys a house. These events may not occur at the same point of time; they may occur one after another. So we have the reading that everyone of them has been the host of the same house, each for a period of time, and one after another. In fact, this is the only possible meaning for (68a) if the indefinite object is to assume the specific reading.

On the other hand, sentences with *ge* cannot take the same advantage of *guo*. As (69a-c) shows, even when the verbs are attached with the marker *guo*, the specific reading for the indefinite objects is still untenable:

(69) a. Tamen ge mai-guo yi-dong fangzi (*jiu shi qianmian na yi-dong). they GE buy-ASP one-CL house that is front that one-CL ‘Each of them has the experience of buying a house (*that is, the one in the front).’
b. Tamen ge qu-guo yi-ge Riben-nuren (*jiu shi wo panbian zhe they GE marry-ASP one-CL Japan-woman that is I beside this yi-wei ).
   one-CL
   ‘Each of them has the experience of marrying a Japanese woman (*that is, the one beside me).’

c. Tamen ge fulu-guo yi-ge junguan (*jiu shi zuotian bei they GE capture-ASP one-CL officer that is yesterday PASS
   qiang-jue de na yi-ge ).
   gun-execution DE that one-CL
   ‘Each of them has the experience of capturing an officer (*that is, the one executed yesterday).’

The question now facing us is: why can't the same story about past events, one after another involving the same object, be carried over to the ge case? Why is the intensional context created by the experiential marker guo insufficient to trigger the specific reading? The answer, it is obvious, lies in the phrase "a class of events, each of which occurs one after another involving the same object". If one and the same object is involved, then what is involved in each event in the sequences of events is just a stage of the object, not the object itself. (On the stage/individual distinction of objects, see Carlson 1977, 1989.) So understood, the indefinite objects in (66a-c) and (68a-c), in fact, are intensional objects denoting collections of stages, rather than regular individuals. In (66a-c), where perception and cognition verbs are used, each member of the subject set can fall in love with, know, or see a "stage" of the same objects, while, in (67a-b), where the verbs with more or less exclusive possessive sense are used, each member of the subject set cannot buy, marry, or capture the same "stage" of the objects. When guo joins the play, the stages of the same object can always be arranged consecutively, along the dimensions of time and event, giving rise to the specific reading.

But even the addition of guo cannot trigger the stage reading of the objects in the ge case. We see that whatever kind of verbs is used, and however the time span is stretched, the objects ge binds always have to assume the individual reading. That is, even when the events don't occur at the same point of time but are spread over time span, the object denoted by the bound indefinite has to be an inseparable individual, in each event. In other words, the indefinites bound by ge must denote classes of extensional objects, even when they are situated in intensional contexts.
This is why we said earlier that *ge* maps an extensional domain into an extensional range. We said so because the plural NPs quantified by *ge* and the indefinite (semi)objects bound by *ge* should both denote extensional classes, a restriction that is not observed with *dou*. If this is correct, then *ge* is a purely *extensional operator*, in the sense that its two arguments are extensional. As a consequence, we may generalize the extensionality restriction on the quantified subjects to the extensionality restriction on *ge* itself. This also explains why the bare NPs cannot satisfy the indefinite (semi)object requirement of *ge* (cf. section 2.1). They can't because the bare NPs are potentially intensional elements, incompatible with the extensionality restriction on *ge*. They can be the subjects quantified by *ge*, however, because the specified contexts required by *ge*-quantification will help sorting out the class of individuals. This is not possible when the indefinites occur as the objects.
References