

DISTRIBUTIVITY IN MANDARIN CHINESE

Tsai-Heng Tiffany Yang
National Tsing Hua University

Abstract: This paper investigates the distributive readings of *ge* ('each') and *gezi* ('separately') in Mandarin Chinese. I propose a hypothesis that *gezi* can only range over different events; while on the other hand, *ge* can also range one single event. The factor responsible for this distinction can be found in the syntax and empirical evidence is also provided to justify this hypothesis. Moreover, I discover two special requirements of *gezi* which have a lot to do with the adverb *zi*.

1 Introduction

This paper investigates the distributive readings of *ge*¹⁷ ('each') and *gezi* ('separately') in Mandarin Chinese. As (1a-b) show, these words bring a distributive reading to the sentences in which they occur.

- (1) a. Naxie xiaohai ge chi-le yi-ge hanbao.
those kids each eat-ASP one-CL hamburger
'Each of those kids ate a hamburger.'
- b. Naxie xiaohai gezi chi-le yi-ge hanbao.
those kids each-self eat-ASP one-CL hamburger
'Those kids ate a hamburger separately.'

It would seem that these two words behave in the same way. However, I will show that although they are both distributive operators, *gezi* is more restricted than *ge*.

This paper is organized as follows. Section 2 briefly reviews previous research on *ge* in the literature. Section 3 presents the general picture of *gezi* and gives a discussion which mainly focuses on the real role *gezi* plays by making a comparison between *ge* and *gezi*. Section 4 discusses some further issues on *gezi* and the last section provides summary and a tentative conclusion.

2 Literature Review

2.1 Lin's Account of *ge*

Many scholars see *dou* as a distributive operator. However, Lin (1998) shows that although *dou* is commonly regarded as a distributor, *ge* is even more qualified. Because it is *ge*, not *dou*, that exhibits a genuine distributivity relation.

As Choe (1987) mentions, a distributivity relation needs three components:

¹⁷ In this paper, it means the adverbial *ge*.

(a) a distributed share, which is the quantity to be distributed, (b) a sorting key, to which the distributed share distributes, and (c) a co-argument requirement, which means the distributed share and the sorting key are both arguments of one single verb. For example, (2) presents a standard distributivity relation:

(2) The girls ate an apple each.

In (2), *an apple* is the distributed share, *The girls* is the sorting key, and the distributed share *an apple* and the sorting key *The girls* are in a co-argument relation.

Lin proposes a number of distinctions between *ge* and *dou*. One is that *ge* must have an indefinite phrase in the VP/predicate which co-occurs with it, while *dou* does not have this requirement. In Lin's term, this is called the indefinite (semi)object requirement. For example, (3c) is ungrammatical because of the lack of an indefinite phrase. This indefinite phrase is obligatory for *ge*, and is object-like, which Lin calls an indefinite (semi)object. On the other hand, *dou*, as shown in (3a-b), with or without an indefinite (semi)object, the sentences are both grammatical.

- (3) a. Naxie xiaohai dou likai-le.
 those kids all leave-ASP
 'All of those kids have left.'
- b. Naxie xiaohai dou likai shi fenzhong le.
 those kids all leave ten minute ASP
 'All of those kids have left for ten minutes.'
- c. *Naxie xiaohai ge likai -le.
 those kids each leave-ASP
- d. Naxie xiaohai ge likai shi fenzhong le.
 those kids each leave ten minute ASP
 'Each of those kids has left for ten minutes.'

With this distinction, Lin cites Choe and claims that *ge* is a real distributor, while the idea that *dou* is a distributor is not as clear as *ge*.

According to Lin, what *ge* performs is exactly a distributivity relation; it pairs each individual in the domain with a quantity in the range. The expression *ge* quantifies is the sorting key, the indefinite phrase *ge* binds is the distributed share, and the indefinite (semi)object requirement is parallel to the co-argument requirement. For example, in (3d), the sorting key *Naxie xiaohai* and the distributed share, the indefinite (semi)object *shi fenzhong* are both argument-like to the verb *likai*.

On the other hand, as shown in (3a) and (3b), *dou* does not have to preserve an indefinite phrase, and thus fails to satisfy the indefinite (semi)object requirement. As a result, what it shows is not a genuine distributivity relation.

In addition to this distinction, Lin further claims that as a distributor, *ge* obligatorily maps an extensional domain to an extensional range, and because of this requirement, *ge* is subject to more restrictions than *dou* in several aspects.

First, when *ge* is used, its domain must be explicitly/implicitly specified. For example, hearers may feel something is "missing" in (4a), but as soon as an

explicitly specified context *zai zuotian de zhanlanhui shang* ('yesterday in the exhibition') is added, this ill feeling disappears. On the other hand, *dou* does not need a very specific domain, such as (4c), which is perfectly acceptable.

- (4) a. Meige kehu ge ding-le yi-dong fangzi.
 every client each order-ASP one-CL house
 'Each of the clients ordered a house.'
- b. Zai zuotian de zhanlanhui shang, meige kehu
 at yesterday of exhibition on every client
 ge ding-le yi-dong fanzi.
 each order-ASP one-CL house
 'In the exhibition yesterday, each of the clients ordered a house.'
- c. Meige kehu dou ding-le yi-dong fangzi.
 every client all order-ASP one-CL house
 'Every client ordered a house.'

Second, *ge*'s associate NP should not have an intensional reading. For example, in Chinese, bare NPs may occur as the subjects of generic sentences, and can be quantified by *dou* while retaining the generic construal, as shown in (5a). However, if *dou* is replaced by *ge*, the sentence becomes ungrammatical, as shown in (5b). It seems that the ungrammaticality of (5b) could be perfectly explained by the indefinite (semi)object requirement of *ge*, but that is not the whole story. Even if the bare NP object is replaced by an indefinite one, as (5c) shows, it 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. That is, *ge* cannot be used generically, while *dou* can be so used.

- (5) a. Laohu dou chi ren.
 tiger all eat human
 'Every tiger eats human being.'
- b. *Laohu ge chi ren.
 tiger each eat human
- c. Laohu ge chi(-le) yi-ge ren.
 tiger each eat-ASP one-CL human
 'Each of (a certain class) of tigers ate a human being.'

Moreover, intensional expressions such as *yiban* ('average') and *dao chu* ('everywhere') are incompatible with *ge*, as (6a-b) show, but not with *dou*, as (7a-b) show.

- (6) a. *Laowang yiban ge chi yi-ge jidan.
 Laowang generally each eat one-CL chicken-egg
- b. *Laowang dao chu ge you yi-ge qingfu.
 Laowang everywhere each have one-CL mistress
- (7) a. Laowang yiban dou chi yi-ge jidan.
 Laowang generally all eat one-CL chicken-egg
 'Generally Laowang eats a chicken egg.'
- b. Laowang dao chu dou you yi-ge qingfu.

Laowang everywhere all have one-CL mistress
 ‘Laowang keeps a mistress everywhere.’

And last, *ge* can not co-occur with a non-numerable determiner such as *henduo* (‘many’), as (8a) shows. Similarly, *ge* does not occur with a *wh*-word, because a *wh*-universal is an open class and is not enumerable, as in (9a).

- (8) a. *Henduo qiumi ge zhichi mou yi-ge qiudui.
 many ball-fan each support some one-CL ball-team
 b. Henduo qiumi dou zhichi mou yi-ge qiudui.
 many ball-fan all support some one-CL ball-team
 ‘Many fans supports some team.’
- (9) a. *Shei ge kan-guo yi-tou zhu.
 who each see-ASP one-CL pig
 b. Shei dou kan-guo yi-tou zhu.
 who all see-ASP one-CL pig
 ‘Everyone has seen a pig.’

2.2 Objections against Lin’s Account of *ge*

Zhang (2007) and Lee, Zhang, and Pan (2009) claim that both the indefinite (semi)object requirement and the extensionality requirement are not necessary for *ge*.

For the indefinite (semi)object requirement, they say that an indefinite (semi)object with a quantity is not the only element that can license a sentence with *ge*, as (10a-b) show:

- (10) a. Xili de jiaoshou-men ge you ziji de
 department DE professor-PL each have-asp own DE
 bangongshi.
 office
 ‘Each professor in the department has his own office.’
 b. Tamen ge you quedian.
 they each have-ASP shortcoming
 ‘Each of them has shortcomings.’

However, in (10a), *ziji* (‘self’) is a bound variable and is functional to its c-commanding quantifier and behaves just like an indefinite phrase. The reason that an indefinite phrase has to appear is because it provides a variable to be bound by *ge*. If *ziji* is replaced by *ta* (‘he’), this sentence becomes a pretty weird one, as (11) shows:

- (11) *Xili de jiaoshou-men ge you ta de
 department DE professor-PL each have-asp he DE
 bangongshi.
 office

With regards to (10b), it is well known that bare NPs in Mandarin Chinese could be used as indefinites¹⁸. Besides, Lin only mentions that it is obligatory for *ge* to take an indefinite (semi)object, not an indefinite (semi)object with a quantity.

For the extensionality requirement, Lee et al. say that the bare NP *ren* ('man') in the following two sentences shows a generic reading.

- (12) a. Ren ge you zhi.
 man each have-ASP ambition
 'Men each have their own ambition.'
 b. Ren ge you ze.
 man each have-ASP duty
 'Men each have their own duty.'

However, (12a-b) are very constructional and idiom-like. If *zhi* ('ambition') and *ze* ('duty') in (12a-b) are replaced by some other bare NP, the sentence becomes ungrammatical, as (13a-b) show. And thus, the grammaticality of (12a-b) is not a syntactic phenomenon. Sentences like (12a-b) are not productive and are not actual counterexamples.

- (13) a. *Tamen ge you shou.
 they each have-ASP hand
 b. *Tamen ge you qian.
 they each have-ASP money

Therefore, I will still follow Lin's work of *ge*. In the following section, I will examine whether *gezi* has the same properties of *ge* mentioned by Lin. And after that, I will make a comparison between *ge* and *gezi* by taking a close look at their syntactic and semantic properties.

3 *Gezi*

3.1 Lack of the Indefinite (semi)Object Requirement

Gezi also has most of the properties of *ge* mentioned above.

First, *gezi*'s domain must be explicitly/implicitly specified, too. That is, it must be context-related. For example, (14a) sounds unnatural, yet becomes much better when an explicitly specified context is provided, as in (14b).

- (14) a. *Henduo quimi gezi zhichi mou yi-ge
 many ball-fan each-self support some one-CL
 qiudui.
 ball-team

¹⁸ Actually, Lee, Zhang, and Pan (2009) also mention that many bare NPs cannot license a sentence with *ge*.

- b. Naxie quimigezi zhichi mou yi-ge
 those ball-fan each-self support some one-CL
 qiudui.
 ball-team
 ‘Each of those fans supports some team.’

Second, *gezi*'s associate NP should not have an intensional reading, either.

- (15) a. Laohu dou chi ren.
 tiger all eat human
 ‘Every tiger eats human being.’
 b. *Laohu ge chi ren.
 tiger each eat human
 c. *Laohu gezi chi ren.
 tiger each-self eat human

As we can see from (15), *gezi* patterns with *ge* but not with *dou*. That is, it is incompatible with intensional expressions, which is exactly the same as *ge*.

Third, *gezi* also cannot co-occur with a non-numerable determiner or a *wh*-word, as shown in (16a-b).

- (16) a. *Henduo qiumi gezi zhichi mou yi-ge qiudui.
 many ball-fan each-self support some one-CL ball-team
 b. *Shei gezi kan-guo yi-tou zhu.
 who each-self see-ASP one-CL pig

However, *gezi* does not have to satisfy the indefinite (semi)object requirement, as (17b) shows, which is perfectly acceptable.

- (17) a. Naxie xiaohai gezi likai-le.
 those kids each-self leave-ASP
 ‘Those kids have left separately.’
 b. Naxie xiaohai gezi likai shi-fenzhong le.
 those kids each-self leave ten-minute ASP
 ‘Those kids have left for ten minutes separately.’
 c. *Naxie xiaohai ge likai -le.
 those kids each leave –ASP
 d. Naxie xiaohai ge likai shi-fenzhong le.
 those kids each leave ten-minute ASP
 ‘Each of those kids has left for ten minutes.’

So as mentioned above, I claim that with regards to *ge* and *gezi*, *gezi* shows less of the typical properties of a distributive operator defined by Choe.

3.2 The Hypothesis

As we can see in the following examples, although there is a ‘*ge*’ in *gezi*, *ge* and

gezi still behave differently.

- (18) Zhangsan he lisi ge de-le diyiming he dierming.
Zhangsan HE Lisi each get-ASP first.place HE second.place
'Zhangsan got the first place and Lisi got the second place.'
a. Zhangsan got the first place and Lisi got the second place in one
single competition.
b. Zhangsan got the first place and Lisi got the second place in two
separate competitions.
- (19) Zhangsan he lisi gezi de-le diyiming he
Zhangsan HE Lisi each-self get-ASP first.place HE
dierming.
second/place
'Zhangsan got the first place and Lisi got the second place separately.'
a. *Zhangsan got the first place and Lisi got the second place in one
single competition.
b. Zhangsan got the first place and Lisi got the second place in two
separate competitions.

As we can see, (18) is ambiguous; it can mean that *Zhangsan* and *Lisi* participate in one single competition or two separate competitions. On the other hand, (19) can only mean that *Zhangsan* and *Lisi* participate in two separate competitions.

I propose that the distinction between (18) and (19) originates from the different requirements of *ge*-quantification and *gezi*-quantification. Our hypothesis is that *gezi* seems to only range over different events; while on the other hand, *ge* can also range one single event. The factor responsible for this distinction may be found in the syntax.

Lin (1998) demonstrates that *ge* cannot adjoin to a site higher than VP. It is discovered that *ge* can only appear after sentence-level elements:

- (20) Modal¹⁹
a. Tamen huoxu ge jiao-le yi-pian zuowen
they perhaps each hand-ASP one-CL composition
gei wo.
to me
'Perhaps each of them handed me a composition.'
b. *Tamen ge huoxu jiao-le yi-pian zuowen gei
they each perhaps hand-ASP one-CL composition to
wo.
me
- (21) Sentence adverb
a. Xiaoli he xiaowang shang-xingqi ge jiao-le yi-pian
Xiaoli HE Xiaowang last-week each hand-ASP one-CL

¹⁹ According to Lin (2011), modal verbs are vP level elements, that is, they are verbs, and thus, they should be VP-internal elements instead of sentence-level elements. So the evidence with modal verbs provided in Lin (1998) is not conclusive.

- zuowen gei wo.
composition to me
'Xiaoli and Xiaowang each handed me a composition last week.'
- b. *Xiaoli he xiaowang ge shang-xingqi jiao-le yi-pian
Xiaoli HE Xiaowang each last-week hand-Asp one-CL
zuowen gei wo.
composition to me

And in order to prove that *ge* can really adjoin to VP or V', Lin gives concrete examples to show that when co-occurring with VP-level elements, including *ba*-phrase (in the "disposal" construction), *bei*-phrase (in the passive construction), and goal, source, manner, and instrumental adverbials, *ge* can occur either before or after all of these elements except the manner and instrumental adverbials²⁰. For more information about the structural position of *ge*, see Lin (1998).

3.3 On Syntactic and Semantic Properties of *gezi*

On the other hand, let's look at *gezi*. Evidence shows that its structural position is different.

First, *gezi* can only occur after elements which adjoin to TP or Aspect P, for example, time adverbs, modal adverbs, and aspect adverbs:

(22) Time adverbs

- a. Xiaoli he xiaowang shang-xingqi gezi
Xiaoli HE Xiaowang last-week each-self
jiao-le yi-pian zuowen gei wo.
hand-ASP one-CL composition to me
'Xiaoli and Xiaowang handed me a composition last week separately.'
- b. *Xiaoli he xiaowang gezi shang-xingqi
Xiaoli HE Xiaowang each-self last-week
jiao-le yi-pian zuowen gei wo.
hand-ASP one-CL composition to me
- c. Tamen shang-ge yue gezi qu-le
they last-CL month each-self go-LE
meiguo.
The.United.States
'They went to the United States last month separately.'
- d. *Tamen gezi shang-ge yue qu-le
they each-self last-CL month go-LE
meiguo.
the.United.States

²⁰ Lin claims that although *ge* cannot appear after the manner and instrumental adverbials, other examples, in particular the case of *ba*-phrase, suffice to establish that *ge* may adjoin to V'. According to Lin, *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 be able to adjoin to V'

- (23) Modal adverbs
- a. Tamen huoxu gezi qu-le taibei.
 they perhaps each-self go-ASP Taipei
 ‘Perhaps they went to Taipei separately.’
- b. *Tamen gezi huoxu qu-le taibei.
 they each-self perhaps go-ASP Taipei
- (24) Aspect adverbs
- a. Tamen changchang gezi chuguo luxing.
 they often each-self go abroad travel
 ‘They often travel abroad separately.’
- b. *Tamen gezi changchang chuguo luxing.
 they each-self often go abroad travel
- c. Tamen cengjing gezi qu-guo meiguo.
 they once each-self go-ASP the.United.States
 ‘They once went to the United States separately.’
- d. *Tamen gezi cengjing qu-guo meiguo.
 they each-self once go-ASP the.United.States

As we can see above, (22-24) show that the structural position of *gezi* is lower than TP and Aspect P, since the occurrence of *gezi* before elements which adjoin to TP or Aspect P yields ungrammaticality.

Second, *gezi* can appear either before or after elements which adjoin to *vP*, such as locatives and subject-oriented adverbs:

- (25) Locatives
- a. Tamen gezi zai shichang mai-le yi-he
 they each-self at market buy-ASP one-CL
 jidan.
 egg
 ‘They bought a box of eggs separately at the market.’
- b. Tamen zai shichang gezi mai-le yi-he
 they at market each-self buy-ASP one-CL
 jidan.
 egg
 ‘They bought a box of eggs separately at the market.’
- c. Naxie xiaohai zai maidanglao gezi chi-le
 those kids at Mcdonald’s each-self eat-ASP
 yi-ge hanbao.
 one-CL hamburger
 ‘Those kids ate a hamburger at Mcdonald’s separately.’
- d. Naxie xiaohai gezi zai maidanglao chi-le
 those kids each-self at Mcdonald’s eat-ASP
 yi-ge hanbao.
 one-CL hamburger
 ‘Those kids ate a hamburger at Mcdonald’s separately.’
- (26) Subject-oriented adverbs
- a. Tamen kaixindi gezi mai-le yi-ding maozi.
 they happily each-self buy-LE one-CL hat
 ‘They happily bought a hat separately.’

- b. Tamen gezi kaixindi mai-le yi-ding maozi.
 they each-self happily buy-LE one-CL hat
 ‘They happily bought a hat separately.’
- c. Tamen laoshidi gezi shuochu-le shiqing.
 they honestly each-self speak.out-LE truth
 ‘They honestly spoke out the truth separately.’
- d. Tamen gezi laoshidi shuochu-le shiqing.
 they each-self honestly speak.out-LE truth
 ‘They honestly spoke out the truth separately.’

The examples above show that *gezi* can adjoin to *vP*, which is shown above that *gezi* can appear either before or after *vP*-level elements.

And last, *gezi* can only appear before elements which are *vP* internal:

- (27) Manner adverbials
- a. Gongren-men gezi henhen-de zou-le Lisi yi-dun.
 worker-PL each-self fiercely bust-ASP Lisi one-CL
 ‘The workers gave Lisi a firece bust separately.’
- b. *Gongren-men henhen-de gezi zou-le Lisi yi-dun.
 worker-PL fiercely each-self bust-ASP Lisi one-CL
- c. Tamen gezi xinkudi chi-le yi-ge
 they each-self laboriously eat-LE one-CL
 hanbao.
 hamburger
 ‘They ate a hamburger laboriously separately.’
- d. *Tamen xinkudi gezi chi-le yi-ge
 they laboriously each-self eat-LE one-CL
 hanbao.
 hamburger
- (28) *ba*-phrases
- a. Naxie gongren gezi ba Laowang zou-le
 those worker each-self BA Laowang bust-ASP
 yi-dun.
 one-CL
 ‘Those workers separately gave Laowang a bust.’
- b.?? Naxie gongren ba Laowang gezi zou-le
 those worker BA Laowang each-self bust-ASP
 yi-dun.
 one-CL
 ‘Laowang separately got a bust by those workers.’
 Not: ‘Those workers separately gave Laowang a bust.’

As we can see above in (27-28), *gezi* can only appear before elements which are *vP* internal. This indicates that the structural position of *gezi* is higher than VP.

Here is a brief summary of the structural position of *gezi*: The position it adjoins to is lower than TP and Aspect P but higher than VP. It adjoins to *vP*. As the examples above show, it can only occur after elements which adjoin to TP, before elements which are *vP* internal, and can appear either before or after elements which adjoin to *vP*.

This contrast between *ge* and *gezi* in structural position shows that different from *ge*, *gezi* cannot adjoin to positions which are vP internal. With this contrast, now we get a general picture of the difference between *ge*-quantification and *gezi*-quantification. Now it's time to test the proposed hypothesis:

- (29) a. Tamen *ge* gongkai mai-le yi-ge gudonghuaping.
 they each publicly buy-LE one-CL antique.vase
 'Each of them publicly bought an antique vase.'
 b. Tamen gongkai *ge* mai-le yi-ge gudonghuaping.
 they publicly each buy-LE one-CL antique.vase
 'Each of them bought an antique vase publicly.'
- (30) a. Tamen *gezi* gongkai mai-le yi-ge
 they each-self publicly buy-LE one-CL
 gudonghuaping.
 antique.vase
 'They bought an antique vase in public separately.'
 b. *Tamen gongkai *gezi* mai-le yi-ge gudonghuaping.
 they publicly each-self buy-LE one-CL antique.vase

gongkai ('publicly') has a presupposition that there exists one public situation, and thus, what it modifies is no bigger than a single event. According to Huang (1982), *c*-command determines adverbial scope, and this is the reason responsible for the contrast between (29) and (30).

As we can see in (29), when co-occurring with *gongkai*, no matter *ge* occurs inside or outside the *c*-command domain of *gongkai*, which is identical to the domain of one single event, the sentences are grammatical. Because if our hypothesis is correct, *ge*-quantification is very flexible; it can range over one single event or over different events. Thus, whether *ge* is inside the *c*-command domain of *gongkai* or not, it satisfies the requirement of *ge*-quantification without any effort.

On the contrary, *gezi* must occur outside the scope of *gongkai*, as in (30a), because if our hypothesis is on the right track, then *gezi* can only range over different events. Occurring inside the scope of *gongkai* makes *gezi* fail to range over different events, and as a result, it fails to satisfy the requirement of *gezi*-quantification, as in (30b). So with this piece of evidence, I claim that *gezi* can only range over different events; on the other hand, *ge* can also quantify one single event additionally.

4 Further Problems

In this section, I would like to indicate two other differences between *ge* and *gezi* and try to provide an analysis for them.

The first one is, *gezi* can only quantify over the subjects, while, on the other hand, *ge* is not restricted in this respect. As the following examples show, *ge* can quantify over a non-subject without any problem, whereas quantifying over a non-subject yields ungrammaticality in the case of *gezi*.

- (31) a. Na ji tian xiaoming ge kan-le yi-ben
 those several day Xiaoming each read-ASP one-CL
 shu.
 book
 ‘In each of those days, Xiaoming read a book.’
- b. *Na ji tian xiaoming gezi kan-le
 those several day Xiaoming each-self read-ASP
 yi-ben shu.
 one-CL book

And further, *gezi* can only quantify over humans, otherwise ungrammaticality arises:

- (32) a. Naxie ren gezi chi-le yi-ge hanbao.
 those man each-self eat-ASP one-CL hamburger
 ‘Those people ate a hamburger separately.’
- b.?? Naxie houzi gezi chi-le yi-gen
 those monkey each-self eat-ASP one-CL
 xiangjiao.
 banana
 ‘Those monkeys ate a banana separately.’

The second difference is that *gezi* can only occur with stage-level predicates but not with individual-level predicates, as (33a-b) show. This is again not a requirement for *ge*, because as (33c-d) show, no matter it is a stage-level predicate or an individual level one, *ge* can quantify it without any problems.

- (33) a. Tamen gezi you yi dabi qian.
 they each-self have one large amount money
 ‘They have a large amount of money separately.’
- b. *Tamen gezi you liang-zhi shou.
 they each-self have two-CL hand
- c. Tamen ge you yi dabi qian.
 they each have one large amount money
 ‘Each of them has a large amount of money.’
- d. Tamen ge you liang-zhi shou.
 they each have two-CL hand
 ‘Each of them has two hands.’

The reason that *gezi* has these two special requirements may be due to the fact *gezi* contains not only the properties of *ge* but also the properties of *zi* (‘self’).

For the first requirement, the restriction of quantifying over a human subject, it may be explained with a close look at the adverbial reflexive *ziji* and the adverbial *zi*-construction.

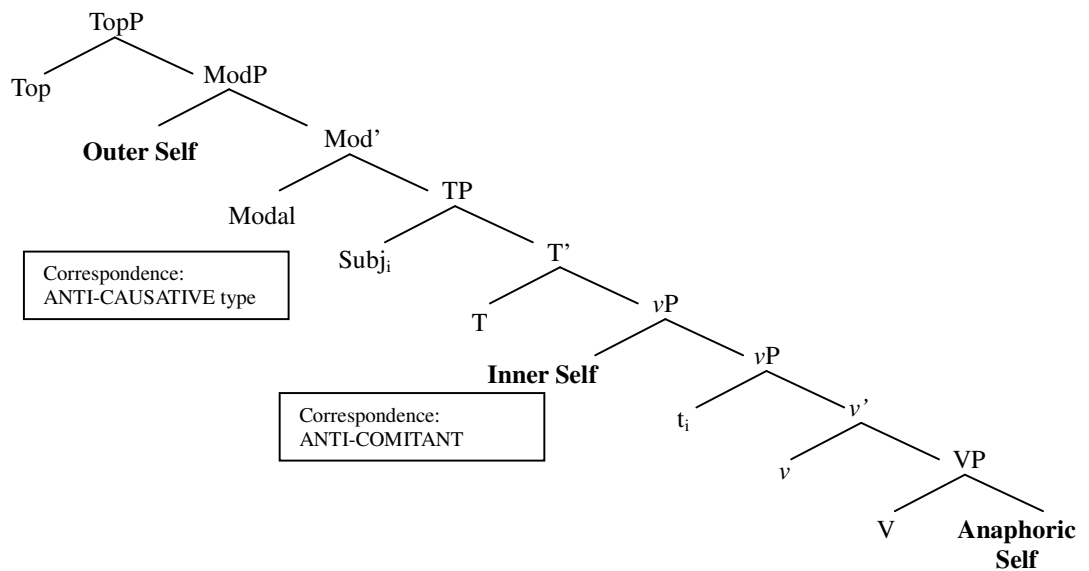
In Tsai (2006, 2007), it is pointed out that the adverbial reflexive *ziji* is ambiguous between two interpretations, anti-causativity and anti-comitativity. Specifically, the anti-causativity reading indicates that there is no other causer, except the agent himself, and the anti-comitativity reading indicates that there is no other (proto-)comitant in the event. Thus the following sentence is

ambiguous as illustrated in the translation.

- (34) Zhangsan ziji qu-le taibei.
 Zhangsan self go-Prt Taipei
 a. Anti-comitativity
 ‘Zhangsan went to Taipei by himself (without anyone’s help).’
 b. Anti-causativity
 ‘Zhangsan went to Taipei by himself (without other causer except Zhangsan).’

In addition, Tsai (2007) further proposes that this ambiguity can be explained by the syntactic distribution of the reflexive adverbial. In Tsai’s theory, the outer-self *ziji* whose interpretation is anti-causativity is located in the CP domain, and the inner-self *ziji* whose interpretation is anti-comitativity is located in the vP domain, as the diagram below shows:

(35) (adopted from Tsai’s paper)



Furthermore, anti-comitativity is unacceptable with an inanimate subject:

- (36) a. Anti-causativity
 Hua ziji hui kai.
 flower self will grow
 ‘The flower itself will grow.’
 b. Anti-comitativity
 *Hua hui ziji kai.
 flower will self grow
 ‘The flower itself will grow.’

Lin (2010) indicates that there are semantic correspondences between the

adverbial *zi*-construction and the adverbial reflexive *ziji*.

- (37) a. Anti-causativity
 Diqiu mei-tian dou zai zi-zhuan.
 earth every-day all progress self-rotate
 ‘The earth rotates everyday.’
- b. Anti-comitativity
 Zhangsan zi-xiu-le yuyanxue.
 Zhangsan self-study linguistics.
 ‘Zhangsan studied linguistics by himself.’

Now let’s return to *gezi*, the interpretation of *gezi* is not two-fold, which is different from the adverbial reflexive *ziji* and the adverbial *zi*-construction. It only has the anti-comitativity interpretation, which is plausible, since it means “separately”.

And as mentioned above, *gezi* adjoins to *vP* level, this is parallel to Tsai’s theory of the syntactic distribution of the reflexive adverbial. According to Tsai, inner-self *ziji* whose interpretation is anti-comitativity is located in the *vP* domain.

Moreover, the finding that *gezi* can only quantify over human subjects is parallel to the fact that anti-comitativity is unacceptable with an inanimate subject.

With respect to the second requirement, the restriction of occurring with stage-level predicates, it is probably because that as the adverb inner self can only be used with stage-level predicates, as the examples below show, and this property is retained in *gezi*.

- (38) Zhangsan ziji you liang-zhi shou.
 Zhangsan self have two-CL hand
 a. Anti-causativity
 ‘Zhangsan himself has two hands.’
 b. *Anti-comitativity
- (39) Zi you pinpai
 self have brand
 a. Anti-causativity
 ‘Self owned brand’
 b. *Anti-comitativity
- (40) Zi you anpai
 self have arrangement
 a. Anti-causativity
 ‘Self owned arrangement’
 b. *Anti-comitativity

5 Conclusion

In this paper, I claim that with regards to *ge* and *gezi*, *gezi* shows less of the typical properties of a distributive operator defined by Choe. I propose the

hypothesis that *gezi* can only range over different events; while on the other hand, *ge* can also range one single event. I find that the factor responsible for this distinction may be found in the syntax and give empirical evidence to justify this hypothesis. Moreover, I discover two special requirements of *gezi* which have a lot to do with the adverb *zi*.

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Contact Information

*Graduate Institute of Linguistics
National Tsing Hua University
101, Section 2 Kuang Fu Road, Hsinchu, Taiwan 30013*

Email: my_kangta@hotmail.com