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現代漢語浮游量詞結構及相關句型句法分析

A Syntactic Analysis of the Floating Quantifier

Construction and a Related Construction in Mandarin

Chinese



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Chinese Abstract

本論文的目的是分析現代漢語一組在文獻上未受到太多關注的量詞。根據這組量詞的分佈和特性，這組量詞可以被分為兩類：名詞組量詞(ADQ)和副詞量詞(AVQ)。就目前所知，文獻上有三篇作品曾探討過這組量詞的部分：Shin (2008), Paul and Whitman (2010)和 Kuo (2016)。由於這組量詞和浮游量詞(FQ)的表現十分相似，所以本論文將回顧擱淺分析(Stranding Analysis)和副詞分析(Adverbial Analysis)的文獻並且指出對於現代漢語中這組量詞，副詞分析會是比較恰當的分析方式。根據一些觀察，本論文我提到名詞組量詞和副詞量詞具有不同的基底結構。名詞組量詞是嫁接在名詞上的量詞，結構上就像是同位語(Aoun et al. 2001)或是名詞組反身強調詞(Siemund 2003)，而副詞量詞本身就是一個副詞，所以出現在副詞可以出現的位置。至於副詞量詞和其相關名詞之間的回指關係，本論文認為 Doetjes (1997)所提出副詞帶有空範疇(empty category)的分析並不能夠解釋中文浮游量詞的語言事實，本論文主張將現代漢語浮游量詞視為不帶有空範疇的副詞量詞(Kayne 1981, Jaeggli 1982)。

關鍵詞：浮游量詞、名詞組量詞、副詞量詞、漢語

English Abstract

The aim of this thesis is to analyze a set of quantifiers in Mandarin Chinese, which has not received much attention in the literature. I claim that this set of quantifier can be divided into two types: the ADQ (the adnominal quantifier) and the AVQ (the adverbial quantifier), based on their distributions and properties. To the best of my knowledge, in the literature, three studies have explored some facts of the ADQ and the AVQ: Shin (2008), Paul and Whitman (2010) and Kuo (2016). This set of quantifiers has similar behaviors to Floating Quantifier so in this thesis I review the studies on Stranding Analysis and Adverbial Analysis and point out that Adverbial Analysis is the preferred approach to this set of quantifiers in Mandarin Chinese. I suggest that the ADQ and the AVQ have different underlying forms due to some observations. The ADQ is an adnominal quantifier, which adjoins to the host nominal phrase like an appositive (Aoun et al. 2001) or an adnominal *self*-intensifier (Siemund 2003), structurally. The AVQ is an adverb, which can surface in the positions where an adverb can occur. In terms of the anaphoric relationship between the AVQ and its associated nominal phrase, I suggest that Adverbial Analysis, in which the FQ goes with an empty category (Doetjes 1997), cannot hold for the facts of the AVQ in Chinese and that the AVQ can simply be analyzed as an adverb without an empty category (Kayne 1981, Jaeggli 1982).

Keywords: floating quantifier, adnominal quantifier, adverbial quantifier, Mandarin Chinese

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Chapter 1 Introduction

This thesis explores a particular quantifying phenomenon, which is named Floating Quantifier (henceforth FQ), in Mandarin Chinese (henceforth Chinese). FQs are quantifiers which can quantify their associated nominal phrases even if they are not adjacent. This construction is exemplified both in English and Chinese, as shown in (1) and (2).

(1) a. The carpets will have **all** been being dusted for two hours.

b. The carpet will **all** have been being dusted for two hours.

(Sportiche 1988)

(2) Na liang-dui shuangbaotai xiongdi yinggai **(si-ge ren)** hui
that two-CL twins brother should four-CL person will
(si-ge ren) yiqi dao taishang biaoan.
four-CL person together arrive stage.top perform

‘Those two pairs of twin brothers, four people, will likely perform on the stage together.’

In (1), interestingly, although the quantifier *all* and its associated nominal phrase *the carpets* are not side by side, *all* can still quantify *the carpets*. Similarly, in

in Chinese example (2), the nominal phrase *na liang-dui shuangbaotai xiongdi* ‘those two pairs of twin brothers’ and the phrase *si-ge ren* ‘four people’ are intervened by a modal *hui* ‘will’ but the latter can still quantify the former. Since the phrase *si-ge ren* ‘four people’ and *all* can both quantify their related nominal phrases even though they and their related nominal phrases are not adjacent, and besides, they can float in different positions in a sentence, I will follow previous studies to call the phrases *si-ge ren* ‘four people’ in (2) and *all* in (1) FQs.

Furthermore, it is noteworthy that that the sentences with an FQ (see ex. (1)-(2)) and the sentences with an adnominal quantifier (see ex. (3)-(4)) share a similar meaning leads some studies to propose that there exists a derivational relationship between the sentence with an FQ and that with an adnominal quantifier.¹

(3) **All** the carpets will have been being dusted for two hours.

(4) *Na liang-dui shuangbaotai xiongdi si-ge ren yinggai hui*

that two-CL twins brother four-CL person should will

yiqi dao taishang biaoyan.

together arrive stage.top perform

‘Those two pairs of twin brothers, four people, will likely perform on the stage together.’

¹ In this thesis, I will call the nominal phrase which is associated with an FQ the associated nominal phrase and name the nominal phrase which is adjacent to a quantifier the host nominal phrase.

In the literature, whether (1) and (3) have a derivational relationship is still under debate. I will address this issue in this thesis as well. Of these analyses, Stranding Analysis (Sportiche 1988, Miyagawa 1989, Chiu 1990, Cirillo 2009) and Adverbial Analysis (Bobaljik 1995, 2003, Cheng 1995, Naoya 1995, Doetjes 1997, Kobuchi 2004, 2007, Fitzpatrick 2006) are rather significant. The former approach suggests that (1) and (3) have the same underlying form, [Q DP]. On the other hand, the latter claims that the FQs in (1) are base-generated in the adverbial positions.

In Chinese, the quantifiers in (2) and (4) can be either numeral or non-numeral and the relationship between (2) and (4) has not been discussed thoroughly. To the best of my knowledge, only three studies have briefly discussed the FQ and its non-floating counterpart: firstly, Shin (2008) suggests that (2) and (4) have no derivational relationship and that the numeral FQ in (2) should be analyzed as an argument; secondly, Paul and Whitman (2010) concentrate on the non-numeral FQ *mei-ren* ‘everyone’ in double object construction (DOC), as shown in (5) and they specifically indicate that the FQ in DOC should be considered as an adverb under Adverbial Analysis.

(5) Wo song-gei haizi-men **mei-ren** yibai kuai qian.
I give-GEI child-PLU every(one) 100 buck money
'I gave the children each 100 dollars.'
(Paul and Whitman 2010:12)

Lastly, Kuo (2016) is concerned about the non-numeral quantifier in (5) as well, but unlike Paul and Whitman (2010), she proposes that the quantifier *mei-ren* 'everyone' in (5) is an adnominal quantifier like the non-floating counterpart *si-ge ren* 'four people' in (4) and further she claims that Stranding Analysis can account for the relationship between (2) and (4). However, these three studies do not thoroughly explore the data of the FQ in (2) and the non-floating counterpart in (4) in Chinese.

In this thesis, I will adopt Adverbial Analysis for the Chinese FQ in (2). Besides, I also explore the post-nominal quantifier (henceforth PNQ) in (4), which is the non-floating counterpart of FQ in (2). Importantly, this thesis thoroughly discusses the facts of the FQ and the PNQ in Chinese, and argues for Adverbial Analysis of FQ. In this thesis, the term FQ is used to simply refer to the phenomenon that the quantifier is not adjacent to its associated nominal phrase without any theoretical implication.

1.1 The FQ and the PNQ

There are some details about the FQ and the PNQ that need to be discussed here.

This section presents the surface forms of the FQ and the PNQ, and then the possible readings of the FQ and the PNQ.

1.1.1. Surface form

The surface form of the FQ and the PNQ are basically the same. They can be either a numeral (see ex. (6)) or non-numeral quantifier (see ex. (7)-(8)).²

(6) Numeral quantifier- [number + classifier + (common noun)]

a. FQ

Na-dui xiongmao hui **liang-zhi** (**xiongmao**) yiqi chuxian.

that-CL panda will two-CL panda together appear

‘Both of that panda couple will show up together.’

² Thanks to Professor Hsiao-hung Iris Wu and Professor Jui-heng Huang for pointing out the examples to me.

b. PNQ

Na yi-zhi jiandui **liangbai ge ren** hui yiqi
that one-CL fleet 200 CL person will together
chuxian.
appear

‘The fleet, consisting of two hundred people, will show up.’

(7) Non-numeral quantifier- [*mei-(yi)* ‘every’ + classifier + (common noun)]

a. FQ

Na-dui xiongmao hui **mei (yi) zhi (xiongmao)** dou chi
that-CL panda will every one CL panda all eat
yi-ke pingguo.
one-CL apple

‘Each of that panda couple will eat an apple,’

b. PNQ

Na yi-zhi jiandui **mei (yi) ge ren** hui dou
that one-CL fleet every (one) CL person will all
chuxi huiyi.
attend meeting

‘Everyone in the fleet will attend the meeting.’

(8) Non-numeral quantifier- [non-numeral + common noun]

a. FQ

Na-xie xuesheng hui **suoyou ren** yiqi canjia
that-CL student will all people together attend

bisai.

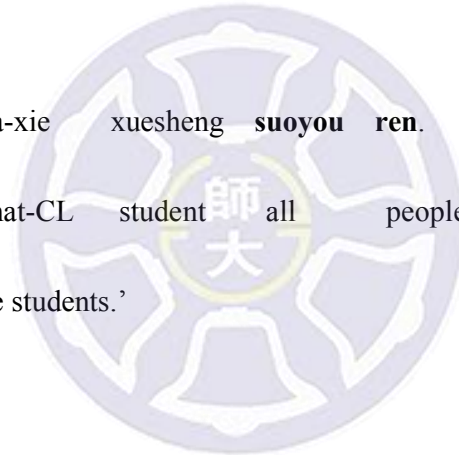
competition

‘All of those students will attend a competition.’

b. PNQ

Wo xihuan na-xie xuesheng **suoyou ren**.
I like that-CL student all people

‘I like all of those students.’



First, it is noteworthy that in the surface form of numeral quantifier in (6) and that of the non-numeral quantifier in (7), the common noun of the quantifiers can be omitted when the common noun of the related nominal phrase and that of the numeral quantifier are the same, as shown in (6a) and (7a); otherwise, both the common noun of the related nominal phrase and that of the quantifier must be present, as shown in example (6b) and (7b).³

³ The surface form in (7) can be simplified as *mei-ren* ‘everyone’, only when the classifier is *ge* and the common noun is *ren* ‘person’. This may be because the use of *ren* is wider than its original use.

As shown in (6a) and (7a), if the common noun of the related nominal phrase and that of the quantifier both are *xiongmao* ‘panda’, the common noun of the quantifier can be omitted, but if they are different, both the common noun of the related nominal phrase *jiandui* ‘fleet’ and that of the quantifier *ren* ‘people’ must be present (see ex. (6b)-(7b)).

However, the PNQ in (10) seems to be against the generalization discussed above that when the common noun of the quantifier and that of the related nominal phrase are identical, the omission of the noun of the quantifier is optional.

(9) Na-dui xiongmao liang-zhi (?xiongmao) hui yiqi chuxian.
 that-CL panda two-CL panda will together appear
 ‘Both of that panda couple will show up together,’

In (9), the noun of the PNQ and that of the host nominal phrase are the same but the omission of the noun of the quantifier *xiongmao* ‘panda’ is strongly preferred. The unacceptability of the occurrence of the noun *xiongmao* ‘panda’ in (9) may be attributed to the nature of language that two identical elements are less preferred to stay too close to each other.⁴ Therefore, the generalization discussed above still works.

As to the other pattern of the non-numeral quantifier in (8), it includes the non-numeral quantifiers like *suoyou* ‘all’, *mouxie* ‘some’, *yixie* ‘some’ etc. These quantifiers must be followed by a common noun (see ex.(8)) since they are not allowed to occur alone even though the common noun of the quantifier and that of the associated nominal phrase are identical, as shown in (10).

(10) FQ

Na-xie ren yinggai hui **suoyou** ***(ren)** yiqi canjia

that-CL people should will all person together attend

huiyi.

meeting

‘All of those people will likely attend the meeting.’

⁴ Thanks for Prof. Jen Ting for pointing out this possibility to me.

In (10), even though the common noun of the FQ *ren* ‘people’ is the same as that of the associated nominal phrase, the common noun of the quantifier is still required.

However, the common noun of the PNQ of the non-numeral quantifier in (8) must be different from the common noun of the host nominal phrase, as shown in (11). This is because first, the the common noun of the non-numeral quantifier in (8) cannot be omitted and besides, the common nouns of the PNQ and that of the host nominal phrase are too close to each other to be the same.

(11) PNQ

?Na-xie	ren	suoyou	(ren)	yinggai	hui	yiqi	canjia
that-CL	people	all	person	should	will	together	attend
	huiyi.						
	meeting						

‘All of those people will likely attend the meeting.’

The unacceptability of example (11) is because that the common noun of the PNQ and that of the host nominal phrase are *ren* ‘person’ so it is unnatural to put two identical elements too close; furthermore, the non-numeral quantifier *suoyou* ‘all’ requires a common noun so the common noun of the PNQ in (11) cannot be omitted.

This means that the common noun of the PNQ of the non-numeral quantifier in (8) cannot be the same as the common noun of the host nominal phase and at the same time the common noun of the PNQ is necessary.

I will now further discuss the first pattern of the non-numeral quantifier, [*mei (yi)* ‘every’ + classifier + (common noun)]. In this pattern, the number is restricted to one. That means phrases like *mei liang ge ren* ‘every two people’ (see ex.(12)) are not included in this thesis. Even though it can surface in different positions in a sentence like the FQ at issue in (2), I claim that if the number in this pattern is not one, such phrases behave like manner adverbs and not the FQ at issue.

- (12) Zhe-xie xuesheng (**mei liang ge ren**) yinggai (**mei liang ge ren**) hui (**mei liang ge ren**) chi yi-ge dangao.
this-CL student every two CL person should every two CL person will every two CL person eat one-CL cake
‘Every two students will likely eat a cake.’

Here, I will argue for the above claim. The function of the phrase *mei liang ge ren* ‘every two people’ and that of the quantifier at issue are different. The phrase *mei liang ge ren* ‘every two people’ in (12) is mainly used to modify the action of the

sentence like the function of a manner adverb but the use of the FQ *mei (yi) ge ren* ‘everyone’ in (7b) is to emphasize and quantify its associated nominal phrase.⁵ It is unsurprising that *mei liang ge ren* ‘every two people’ and the FQ *mei (yi) ge ren* ‘everyone’ have different distributions. The phrase *mei liang ge ren* ‘every two people’, like the manner adverb *liang-ge ren* ‘two people’ discussed in Lee (1986) (see ex.(13a)), cannot occur higher than DOU (see ex.(13b)) but the FQ *mei (yi) ge ren* ‘everyone’ at issue can (see ex.(13c)).

(13) a. Zhe-xie xuesheng yinggai (dou) hui **liang-ge** **ren** *(dou) chi
 this-CL student should all will **two-CL** **person** all eat
 yi-ge dangao.
 one-CL cake

‘Every two students will likely eat a cake.’

b. Zhe-xie xuesheng yinggai (dou) hui **mei** **liang** **ge** **ren**
 this-CL student should all will every two CL person
 *(dou) chi yi-ge dangao.
 all eat one-CL cake

‘Every two students will likely eat a cake.’

⁵ If the quantifier *mei (yi) ge ren* ‘everyone’ occurs lower than DOU, then it can have the same function, modifying the predicate, as the phrase *mei liang ge ren* ‘every two people’ while if it occurs higher than DOU, then it must be an FQ which is used to quantify its associated nominal phrase.

c. Zhe-xie xuesheng yinggai (dou) hui mei ge ren
 this-CL student should all will every CL person
 (dou) chi yi-ge dangao.
 all eat one-CL cake
 ‘Each of these students will likely eat a cake.’

The manner adverb *liang-ge ren* ‘two people’ in (13a) is not allowed to occur higher than DOU and neither is the phrase *mei liang ge ren* ‘every two people’ in (13b). However, the FQ *mei (yi) ge ren* ‘everyone’ can occur higher or lower than DOU, as shown in (13c). It is obvious that the distribution of the phrase *mei liang ge ren* ‘every two people’ in (13b) differs from that of the FQ *mei (yi) ge ren* ‘everyone’ in (13c). With regards to the different functions and distributions of the phrase *mei liang ge ren* ‘every two people’ and the FQ *mei (yi) ge ren* ‘everyone’, the former can be distinguished from the latter and will be excluded from this thesis.

1.1.2 Readings

The FQ and the PNQ have different readings. To be specific, the FQ can yield two readings: exhaustive and partitive reading, as displayed in (14), whereas the PNQ can only be used in the exhaustive context in (15).

(14) Na-xie xuesheng yiding san-ge ren nenggou zai

that-CL student definitely three-CL person can in

zhe-chang bisai de jiang.

this-CL game win prize

a. 'Three of those students can win a prize in this game.' (FQ-partitive)

b. 'Those three students can win a prize in this game.' (FQ-exhaustive)

(15) Na-xie xuesheng san-ge ren a! yiding nenggou

that-CL student three-CL person EXCL! definitely can

yiqi zai zhe-chang bisai de jiang.

together in this-CL game win prize

a. *'Three of those students can win a prize in this game.' (PNQ-partitive)

b. 'Those three students can win a prize in this game.' (PNQ-exhaustive)

In (14), the FQ *san-ge ren* 'three people' can be interpreted as 'all of those three students' or 'three of those students'. However, the PNQ in (15) can only yield a partitive reading, 'all of those three students'.

Summarizing section 1.1, the PNQ and the FQ can have either a numeral or a non-numeral form. If the common noun of the PNQ and the FQ and that of the related nominal phrase are identical, the common noun of the quantifier can be omitted but if

they are different the common nouns of both the quantifier and the related nominal phrase should be present. Furthermore, the second pattern of the non-numeral quantifier in (8) is different from the pattern of the numeral quantifier in (6) and the first pattern of the non-numeral quantifier in (7). The common noun of the non-numeral quantifier in (8) must be present.

The other point about the PNQ and the FQ is that their interpretations can be different. The PNQ can only yield an exhaustive reading whereas depending on the context, the FQ can have either an exhaustive or a partitive reading.

1.2 Other superficially similar but underlyingly different numeral phrases

In addition to the FQ mentioned in the previous section (see ex.(16)), there are at least two more kinds of numeral phrase in Chinese, as shown in (17) and (18), that seem to have FQ-like behaviors. I argue that the FQ in (16) is superficially similar to the FQ-like numeral phrases in (17) and (18) but underlyingly differs from them.

(16) Na liang-dui shuangbaotai xiongdi hui **si-ge ren** yiqi dao
 that two-CL twins brother will four-CL person together arrive
 taishang biaoan.
 stage.top perform
 ‘Those two pairs of twin brothers, four people, will perform on the stage
 together.’

(17) Shang ge xueqi, zhe ji-ge tongxue dou **liang-ge**
 last CL term this several-CL classmate always two-CL
ren xi wan.
 person wash dish
 ‘Last term, these several classmates washed dishes in groups of two.’
 (Lee 1986:82)

(18) Ta yiding **yi-ge ren** lai zher.
 he definitely one-CL person come here
 ‘He will definitely come by himself.’
 (Huang et al. 2009:305)

The numeral phrase in (17) is a manner adverb, pointed out by Lee (1986) and
 the numeral phrase in (18) is an emphatic adverb, pointed out by Huang et al. (2009).

Depending on their behaviors, I will call the numeral phrase in (17) numeral manner adverb and the numeral phrase in (18) numeral emphatic adverb. The two FQ-like numeral phrases are not taken into consideration in this thesis for the following reasons.

First of all, the numeral manner adverb in (17) is different from the FQ at issue, syntactically and semantically. Lee (1986) claims that it is a manner adverb since it modifies the action of the sentence. That is, in (17), the action *xi wan* ‘do the dish’ is done in groups of two people. Syntactically, the numeral manner adverb and the FQ do not have a similar distribution. Examples are shown in (19)-(21).

- (19) a. Na-dui fuqi yinggai hui **kuaisude** yiqi dao
 that-CL husband.wife should will quickly together arrive
 wenjudian caigou.
 stationery.store do.shopping

b.*Na-dui fuqi yinggai **kuaisude** hui yiqi dao
that-CL husband.wife should quickly will together arrive
wenjudian caigou.

stationery.store do.shopping

‘That married couple will likely go shopping quickly in the stationery
together.’

(20) a. Xia ge xueqi, zhe ji-ge tongxue hui dou **liang-ge**
next CL term this several-CL classmate will always two-CL

ren yiqi xi wan.

person together wash dish

*b. Xia ge xueqi, zhe ji-ge tongxue **liang-ge ren** hui

next CL term this several-CL classmate two-CL person will

dou yiqi xi wan.

always together wash dish

‘Next term, these several classmates should do the dishes in groups of two.’

(21) a. Na-dui fuqi yinggai **liang-ge ren** hui yiqi

that-CL husband.wife should two-CL person will together

dao wenjudian caigou.

arrive stationery.store do.shopping

b. Na-dui fuqi yinggai hui **liang-ge ren** yiqi
 that-CL husband.wife should will two-CL person together
 dao wenjudian caigou.
 arrive stationery.store do.shopping
 ‘Both of that married couple will likely go shopping in the stationery
 together.’

Consider (19)-(21). It is obvious that the typical manner adverb *kuaisude* ‘quickly’ in (19) and the numeral manner adverb *liang-ge ren* ‘two people’ in (20) have a similar distribution. However, the FQ *liang-ge ren* ‘two people’ in (21) has a different distribution from them. The manner adverb *kuaisude* ‘quickly’ and the numeral manner adverb *liang-ge ren* ‘two people’ both have to occur in a lower position than the modal *hui* but the FQ can occupy a higher position than the modal *hui*.

On the other hand, semantically, the numeral manner adverb and the FQ have different interpretations. To illustrate, the numeral manner adverb in (20) is used to express the way the action takes place like the canonical manner adverb *kuaisude* ‘quickly’ in (19) so it is unsurprising that Lee (1986) regards it as a manner adverb. However, the FQ in (21) is not used to modify the action of the sentence but to quantify the subject. Based on the syntactical and semantic dissimilarities between the

FQ and the manner adverb, we can distinguish the FQ from the numeral manner adverb effortlessly.

As to the numeral emphatic adverb in (18), it means ‘by oneself/alone’ in Chinese and its number is only restricted to one (Huang et al. 2009). Thus, Huang et al. (2009) deems it as an emphatic adverb. Comparing the emphatic adverb and the FQ, I found that even though the FQ and the emphatic adverb have a similar distribution (see ex.(2) and (22)), they still cannot be treated as the same type of element for some reasons.

(22) Ta yinggai (yi-ge ren) hui (yi-ge ren) dao
 he may one-CL person will one-CL person arrive
 taishang biaoan.
 stage.top perform

‘He will likely perform on the stage by himself.’

First, the number the FQ indicates is not restricted to one but the numeral emphatic adverb is; second, the interpretation of the FQ is different from that of the emphatic adverb. The emphatic adverb expresses the meaning ‘alone/by oneself’ while the function of the FQ is to emphasize the quantity of the associated nominal

phrase and refer to the associated nominal phrase. Due to their different interpretations, we can differentiate the FQ from the numeral emphatic adverb.

To sum up, first, the numeral phrase of the manner adverb type proposed by Lee (1986) has a different distribution and properties from the FQ; second, the numeral phrase of the emphatic adverb discussed by Huang et al. (2009) has a similar distribution to the FQ but has different interpretations from the FQ. Based on the above arguments, I claim that the FQ is different from the numeral manner adverb and the numeral emphatic adverb. Therefore, I will not take these two kinds of numeral phrases into consideration. In this thesis, I propose that the PNQ and the FQ are used to quantify and emphasize the quantity of their related nominal phrases.

This thesis is organized as follows: chapter 2 presents the previous studies on the FQs in English and Japanese, and on the FQs in Chinese; chapter 3 provides the syntactic analyses for the PNQ and the FQ in Chinese; chapter 4 gives the conclusion and implications of this thesis.

Chapter 2 Literature Review

Regarding the similar behaviors shared by the Chinese FQ and the English FQ *all*, this chapter first reviews the previous studies on the FQs in English. Furthermore, noticing that the FQs in Japanese and the FQ in Chinese share some properties, I will then discuss these properties. In the second half of this chapter, I will present the studies which have explored some facts of the PNQ and the FQ in Chinese: Shin (2008) on the instances of the FQ, Paul and Whitman (2010) and Kuo (2016) on the instances of non-numeral quantifiers in DOC.

This chapter is organized as follow. In section 2.1, the two main approaches to FQs in English will be presented; section 2.2 provides the characteristics of the numeral FQs in Japanese; lastly, in section 2.3, I will discuss the previous studies on the PNQ and the FQ in Chinese.

2.1 The FQs in English

The phenomenon that the FQ can quantify its associated nominal phrase when they are not adjacent to each other has been an issue for decades. The canonical examples of the FQ are shown in (23).

- (23) a. All the carpets will have been being dusted for two hours.
b. The carpets will all have been being dusted for two hours.
c. The carpets will have all been being dusted for two hours.

(Sportiche 1988)

The relationship among the sentences in (23) is interesting since although these quantifier *all* are situated in different positions, the three sentences still share a similar reading. On the surface, the quantifier *all* appears to float in sentences (23b-c). Therefore, the floating-like quantifiers are called Floating Quantifiers in the literature.

To begin with, two fundamental properties of FQs are introduced here. Firstly, as shown in (23), FQs can occupy different positions in a sentence; secondly, when their FQs and their associated nominal phrases are not adjacent, the FQs still can quantify their associated nominal phrases. Furthermore, this relation between the FQs and their associated nominal phrases can only be established when FQs and the associated nominal phrases yield to the Locality Constraint and c-commanding relation (Kayne 1981, Sportiche 1988, Bobaljik 1995, 2003). To be specific, the nominal phrase and the FQ cannot be intervened by finite clause boundary in (24), and the nominal phrase necessarily c-commands the FQ in (25).

(24) *My friends think that I have all left.

(25) *[The mother of my friends] has all left.

It is claimed that since the relationship between the FQs and its associated nominal phrases is the same as the relationship between an anaphor and its antecedent, the relationship between the FQs and its associated nominal phrases is called anaphoric relationship (Kayne 1981, Bobaljik 1995, 2003, Doetjes 1997). The anaphoric relationship can be shown in the feature agreement system in some languages like French, as in (26).

(26) Les femmes étaient tous /*tous bien vetues.
the women(fem.) were all(fem.)/all/(masc.) well dressed

(Cirillo 2009:2)

In French, the quantifier *tous* ‘all’ needs to agree with the feature of its associated nominal phrase *les femmes* ‘the women’, which confirms the anaphoric relationship between the FQ and its associated nominal phrase.

To account for the similar interpretations among (23a-c) and the anaphoric relationship between an FQ and its associated nominal phrase, two main approaches to

FQs are proposed in the literature, namely Stranding Analysis and Adverbial Analysis, to be reviewed in 2.1.1 and 2.1.2 respectively.

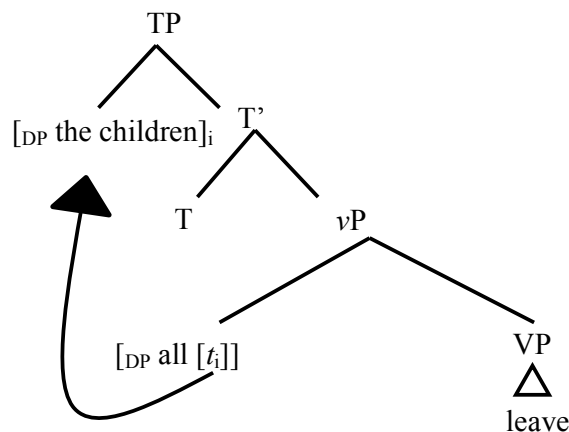
2.1.1 The stranding approach

The basic idea of Stranding Analysis is that the FQ and its associated nominal phrase are underlyingly adjacent to each other. Since the FQ can be stranded in the positions that the constituent consisting of the FQ and its associated nominal phrase can pass through, the FQ can surface in different positions, as shown in (23) and (27). Under this scenario, the proponents of Stranding Analysis claim that there exists a derivational relationship among sentences in (23a-c) and (27a-b), as noted by Sportiche (1988), Shlonsky (1991) and Cirillo (2009).

(27) a. The children will all leave.

b. All the children will leave.

c.

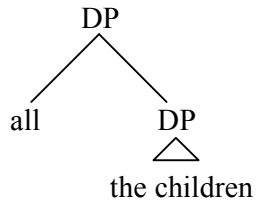


Here, I mainly discuss the examples in (27). According to Sportiche (1988), Shlonsky (1991) and Cirillo (2009), (27a) and (27b) have a derivational relationship since the FQ and its associated nominal phrase in these two sentences share the underlying structure, $[_{QP} [_Q' [Q \text{ all}] [_{DP} \text{ the children}]]]$. To derive (27a), the FQ *all* is stranded in its base position and the associated nominal phrase *the children* is moved to a higher position, as shown in (27c). To derive (27b), the quantifier *all* is not stranded but moved along with its associated nominal phrase *the children*. Under this analysis, quantifier stranding is optional so the FQ can occur in different positions.

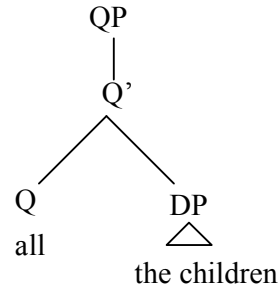
In Sportiche (1988) and Sportiche et al. (2016), the FQ is regarded as an adjunct, which functionally modifies its associated nominal phrase, as shown in (28).⁶ Moreover, Shlonsky (1991) follows Sportiche's (1988) proposal and further modifies Sportiche's (1988) structure for the constituent containing an FQ and its associated nominal phrase. Shlonsky (1991) claims that the FQ is the head of a Quantifier phrase and the associated nominal phrase is taken as the complement of this Quantifier phrase. This thesis will take Shlonsky's (1991) structure as the main account for Stranding Analysis since if the associated nominal phrase is a complement, then the movement of an associated nominal phrase can be accounted for without effort, as illustrated in (29). A similar point of view is also mentioned in Cirillo (2009).

⁶ According to Sportiche's (1988) and Sportiche et al.'s (2016) structure, the movement of the associated nominal phrase, which is not a complement, seems to be an improper movement.

(28)



(29)



Stranding Analysis seems successfully to account for the floating behavior of the FQ and the similar reading shared by the sentences in (27). Nevertheless, it has also received some criticisms, and I will show them in the following two sub-sections.

2.1.1.1 Advantages of Stranding Analysis

The first advantage of Stranding Analysis is providing an appealing piece of evidence for the VP-internal Subject hypothesis (Bobaljik 2003, Cirillo 2009). That is, the FQs are able to reveal the base position of the subject, spec of vP , and mark the positions that the subject has passed through, as shown in (30) and (31). Regarding the positions where the FQs can occupy, the subject has passed through all the spec positions between the spec vP and its surface landing site (see (31)), as noted by Sportiche (1988) and Sportiche et al. (2016).

(30) [_{DP} the children] will [_{VP} [_{DP} all [_{DP} ~~the children~~] leave]

(31) (All) the children (all) may (all) have (all) been (all) watching the movie.

Another advantage of Stranding Analysis is that it sheds light on the quantifying relationship between the FQ and its associated nominal phrase in (23a-c). Sportiche (1988:427) claims ‘Qs may appear in [D]P-initial position’, which indicates that the relationship between an FQ and its associated nominal phrase has been established when they are situated in the base position as a constituent.

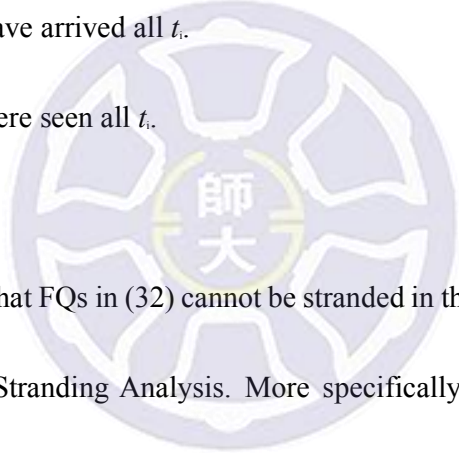
Still another advantage is that the anaphoric properties of the FQ *all* in (24)-(25) can be accounted for. Sportiche (1988) has noted that after the associated nominal phrase is moved away, it leaves a trace behind, which has anaphoric properties. Since the FQ is adjacent to the anaphoric trace of the associated nominal phrase, the FQ seems to have anaphoric properties.

2.1.1.2 Disadvantages of Stranding Analysis

In the literature, four criticisms on Stranding Analysis have been pointed out. The first crucial issue, noted by Sportiche (1988), Bobaljik (1995, 2003), Doetjes (1997), Fitzpatrick (2006), Cirillo (2009) etc., is that under Stranding Analysis some ungrammatical sentences would be generated, as illustrated by the following sentences in (32):

(32) a. *The students_i have arrived all *t_i*.

b. *The students_i were seen all *t_i*.



It is interesting that FQs in (32) cannot be stranded in their base positions where they should be under Stranding Analysis. More specifically, given that the surface subjects of unaccusative and passive sentences are moved from object positions, if the associated nominal phrases *the students* in (32) are moved to the subject positions, then it is expected that the FQs *all* can be stranded in the object positions. However, this predication is not borne out, as shown by the unacceptability of *all* in the sentence-final position in (32).

To deal with this problem, Sportiche (1988) is forced to propose an unwise solution that the surface subjects of unaccusative and passive sentences are

base-generated, which is contrary to currently predominant hypotheses on unaccusatives and passives.

In addition to the unexpected examples in (32), Stranding Analysis also cannot rule out some ungrammatical sentences. Consider (33)-(35). Sportiche (1988) states that the universal quantifier *all* can float in lower positions, as shown in (33), while Cirillo (2009) claims that *all* cannot float in lower positions, as shown in (34). Fitzpatrick (2006) is on the side of Cirillo (2009), claiming that the universal quantifier *all* cannot occur lower than the passive ‘being’ in example (35).

(33) The carpets will have been being all dusted for two hours.

(34) */? The patients may have been being all examined.

(35) The veggies will have been *(all) being */?(all) roasted.

(Fitzpatrick 2006:48)

The ungrammatical examples in (33)-(35) pose a problem for Stranding Analysis since *all* should be able to be stranded in spec of vP and spec of progressive under Stranding Analysis. To tackle the unexpected examples, Cirillo (2009), who is a proponent of Stranding Analysis, only unconvincingly attributes this problem to morphological and phonological constraints. It seems that Stranding Analysis still cannot convincingly account for these ungrammatical sentences.

Another striking problem is that the FQ and its associated nominal phrase cannot form a natural sequence (see (36)-(37)), as noted by Bobaljik (1995, 2003) and Fitzpatrick (2006). Under Stranding Analysis, the pair, the FQ *all* and the nominal phrase *Larry, Darryl and Darren*, in (36) and the other pair, FQ *all* and the nominal phrase *some (of the)*, in (37) should form a constituent underlyingly. However, the mismatches between the FQs and their associated nominal phrases in (36b) and (37b) pose a serious challenge to Stranding Analysis.

(36) a. Larry, Darryl and Darren have all come into the café.

b. ?*All (of) Larry, Darryl and Darren have come into the café.

(37) a. Some (of the) students might all have left in one car.

b. *All (of) some (of the) student might have left in one car.

(Carden 1976)

This problem is attributed to the morphological and phonological constraints by Sportiche (1988) and Cirillo (2009). Specifically, Cirillo (2009) only addresses the mismatch in (36b) (and not ex. (37)) and suggests that the universal quantifier *all* can select conjoined nominal phrases, and if the first conjoined nominal phrase is singular, *all* and the whole conjoined nominal phrase will be an anomalous sequence that cannot be spelled out (see (36b)). Then, to get around the problem of the mismatch in (36b), Cirillo is forced to claim that the FQ *all* in (36a) is not a stranded quantifier but an adverb or an appositive. Admittedly, this problem is still unsolved under Stranding Analysis.

Still another notable problem is that the sentence with a pre-nominal quantifier and the sentence with an FQ may not always have the same interpretation (Bobaljik 1995, 2003, Fitzpatrick 2006). Consider (38)-(39). According to Bobaljik (2003), the two sentences in each of the examples in (38) and (39) have different interpretations.

(38) a. All lions, tigers and bears are scary.

b. Lions, tigers and bears are all scary.

(39) a. All students, professors and clowns have come to the meeting.

b. Students, professors and clowns have all come to the meeting.

Example (38a) has a salient meaning that every lion, every tiger and every bear is scary. (38b) has an identical reading as (38a), but it has one more reading that lions, tigers and bears are generally scary. Examples (39a) and (39b) have a similar contrast as well. The former means that every member of each of the three groups will come to the meeting while the interpretation of the latter is that each of the three groups will come to the meeting, but not all of the members of each group will come. Recall that one of the important motivations for Stranding Analysis is that the sentence with a pre-nominal quantifier and the sentence with an FQ have the same interpretation. However, examples in (38)-(39) would weaken this argument. The issue whether the sentence with a pre-nominal quantifier and the sentence with an FQ have the same interpretation has been widely discussed and it is a prima facie challenge for Stranding Analysis.

Last but not least, Bobaljik (1995, 2003) and Fitzpatrick (2006) point out that Stranding Analysis cannot explain the fact that of English dialects, the associated nominal phrases can only undergo A movement when the FQs are left behind, as shown in (40).

(40) a. *The professors who Taylor will have all met ___ before the end of term.

b. *These professors, Taylor will have all met ___ before the end of term.

(Bobaljik 2003:15)

The associated nominal phrases *professor* in (40) undergoes A' movement. More precisely, the nominal phrase in (40a) is relativized and that in (40b) is topicalized. As seen, the FQs in (40) are unable to refer to the associated nominal phrases *the professors*, which undergo A' movement. However, under Stranding Analysis, (40) should be acceptable since the associated nominal phrase is moved away from the constituent containing the FQ and its associated nominal phrase like A movement in (27). It is unexpected that the quantifying relationship between the FQ *all* and its associated nominal phrase *the professor*, cannot be established in (40). Admittedly, Stranding Analysis cannot explain the fact that the associated nominal phrase cannot undergo A' movement but only A movement.⁷

⁷ Aside from the four criticisms, Stranding Analysis cannot account for the rightward and leftward FQs in French neatly (43a-b). As discussed in Bobaljik (1995, 2003), Doetjes (1997), Fitzpatrick (2006), (43a) is a typical example for Stranding Analysis. Under Stranding Analysis, the FQ *tous* 'all' is stranded with the trace of the associated nominal phrase and the associated nominal phrase is moved to a higher position. However, it seems that the same analysis cannot account for (43b) because the associated nominal phrase in (43b) is the object *les* 'them'. That is to say, there is no trace for the *tous* 'all' to adjoin.

To tackle this problem, Sportiche (1988) claims that unlike the rightward FQ in (43a), the leftward FQ in (43b) cannot be accounted for by Stranding Analysis but by Quantifier Raising. Since the Quantifier Raising is not what this thesis focuses on, I will not provide further details of it. The most important issue is whether it is necessary to use two analyses to explain (43a) and (43b).

2.1.2 The adverbial approach

Under Adverbial Analysis, FQs are analyzed as adverbs, and they are base-generated in adverbial positions, as proposed by Kayne (1981), Doetjes (1997) and Fitzpatrick (2006). These adverbial analyses share some characteristics. First, there is no transformational relationship between a sentence with an FQ in (41a) and a sentence with a pre-nominal quantifier in (41b), namely that the FQ and its associated nominal phrase do not form a constituent at any level of representation. Second, the FQs like adverbs adjoin to certain maximal projections like auxiliaries.

- (41) a. The carpets will all have been being dusted for two hours.
b. All the carpets will have been being dusted for two hours.

In terms of the anaphoric relationship between the FQ and its associated nominal phrase, Kayne (1981) and Doetjes (1997) have different proposals. Kayne (1981) states that the FQ itself is an anaphor and that the anaphoric relationship between the FQ and its associated nominal phrase is due to the nature of an anaphoric element. Doetjes (1997:206) proposes that the anaphoric relationship is held between the trace of the associated nominal phrase and the associated nominal phrase itself.

Under Doetjes' analysis the *pro* adjoined by an FQ must bind the trace of the associated nominal phrase, as shown in the configuration of (42).

(42) [XP [[QP FQ [DP *pro*]]_i [XP...ec_i...]]

Furthermore, it is notable that Doetjes (1997) argues that her analysis can capture both the rightward and leftward FQs in French in a unified way whereas Kayne's (1981) analysis cannot. In Kayne (1975), the rightward and leftward FQs in French have already been treated as two distinct processes.

Kayne's adverbial approach cannot account for the leftward FQ in French since the FQ, which has anaphoric nature, cannot be bound by its associated nominal phrase, as shown in (43).

(43) a. Les enfants ont tous dormi.

the children have all slept

'The children have all slept.'

b. J'ai tous voulu les voir.

I-have all wanted them see

'I want to see them all.'

In (43a), the associated nominal phrase *les enfants* ‘the children’ can c-command the anaphoric FQ *tous* ‘all’ while in (43b), the anaphoric FQ *tous* ‘all’ cannot be c-commanded by its associated nominal phrase *les* ‘them’ since the position of the FQ is higher than that of the associated nominal phrase. However, (43b) is a grammatical sentence. To deal with the unexpected example (43b), Kayne (1975) claims that (43a) and (43b) in French are derived through different processes, which means that Kayne’s (1981) analysis cannot capture the FQ in French in a unified way.

Nevertheless, Doetjes’ (1997) adverbial approach can account for the rightward and the leftward FQ in French in a unified way, as shown in (44a-b).

(44) a. Les enfants_i ont [[QP tous [DP *pro*]]_i t_i dormi.
the children have all slept

‘The children have all slept.’

b. J’ai [[QP tous [DP *pro*]]_i voulu les_i voir t_i.
I-have all anted them see

‘I want to see them all.’

As seen in (44a-b), the FQ *tou* ‘all’ containing an empty category *pro* can bind the traces of the associated nominal phrases *les enfants* ‘the children’ and *les* ‘them’ and thus the quantifying relationship between the FQ and its associated nominal phrase can be established.

Given these facts, the significant difference between Kayne’s (1981) and Doetjes’ (1997) adverbial approach is that the former cannot account for the leftward FQ in French but the latter can.

Adverbial Analysis proposed by Kayne (1981) and Doetjes (1997) still can explain the floating behaviors of the FQ and the anaphoric relationship between the FQ and its associated nominal phrase. Nevertheless, it also has pros and cons, as shown in following sub-sections.

2.1.2.1 Advantages of Adverbial Analysis

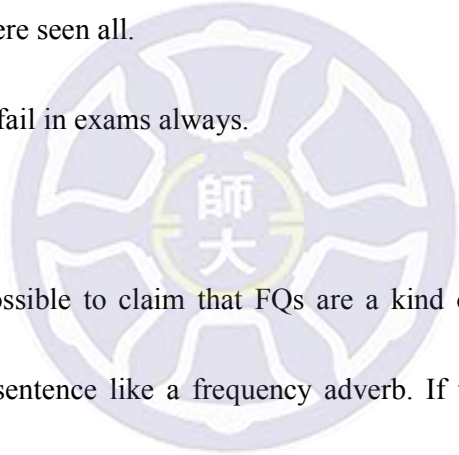
One strength of Adverbial Analysis is that the mismatches between the FQ and the associated nominal phrase (see ex.(36)-(37)), and the different interpretations between the sentence with an FQ and the sentence with a pre-nominal quantifier (see ex.(38)-(39)) would not pose a challenge to Adverbial Analysis since the sentence with an FQ and the sentence with a pre-nominal quantifier are independent sentences, not derived from the same underlying structure.

Another strength of Adverbial Analysis is that it can explain three unexpected sentences under Stranding Analysis, as shown in (45a-b). The unacceptability of (45a-b) is because the FQ is not allowed in the sentence final positions. Different kinds of adverbs have different distributions. For example, a frequency adverb cannot occur at the end of a sentence, as shown in (45c).

(45) a. *The students have arrived all.

b. *The students were seen all.

c. *Those students fail in exams always.



Thus, it is possible to claim that FQs are a kind of adverb which cannot occur in the end of a sentence like a frequency adverb. If the FQ is some kind of adverb and its distribution does not include the final positions like *always* in (45c), then the ungrammaticality of (45a-b) naturally follows.

Moreover, Adverbial Analysis can also deal with the unacceptability of the sentences with A' movement (see ex.(40)), which cannot be accounted for under Stranding Analysis. Based on Kayne's (1981) and Doetjes' (1997) analyses, there are two different accounts for the unacceptability of the sentences with A' movement in (40). Under Kayne's (1981) analysis the FQ *all* in (40a-b) as an anaphoric element

will choose the closest argument *Taylor* as its antecedant rather than the other argument *the professors* in the A' position. However, the argument *Taylor* cannot satisfy the requirement of plurality of the quantifier *all*. Therefore, (40a-b) are unacceptable. Moreover, regarding Doetjes' (1997:207) claim that the FQ can trigger principle C violation, Bobaljik (2003) and Fitzpatrick (2007) point out that A' extraction across the FQ will raise a strong crossover violation while the A movement should be unproblematic. Take (40a-b) for instance. Because the associated nominal phrase *the professors* is moved across the FQ *all* to A' position, principle C is violated.

So far, it seems that Adverbial Analysis can successfully rule out the ungrammatical sentences in (40), which are predicted to be legitimate under Stranding Analysis.

2.1.2.2 Disadvantages of the adverbial approach

The first noteworthy problem of Adverbial Analysis is that it has little to say about what type of adverb an FQ is (Sportiche 1988, Cirillo 2009). Sportiche (1988) and Cirillo (2009) both compare three different types of adverbs with FQ: manner adverbs, sentential adverbs and subject-oriented adverbs. Consider examples of the manner adverb and the FQ in (46)-(47) first.

(46) a. The students have carefully and thoroughly read the book.

b. * The students have carefully thoroughly read the book.

c. * The students have carefully and all read the book.

d. The students all carefully read the book.

The FQs cannot be categorized as manner adverbs since the FQs do not have the properties of the manner adverb, as demonstrated by the contrast between (46c-d).

Contrast between (46a-b) shows that if two or more manner adverbs occur together, they must be conjoined; however, the universal quantifier *all* cannot be conjoined with the other manner adverb *carefully*. Furthermore, consider (47).

(47) a. The students have been careful to read the book well in advance of the test.

b. * The students have been all to read the book well in advance of the test.

The manner adverbs can be converted into adjectival forms (see ex. (47a) but the FQ *all* cannot (see ex. (47b)). With these facts, Cirillo (2009) claims that FQ does not belong to the manner adverbial type. Sportiche (1988) also mentions that the function of manner adverbs is to modify the action of a sentence, and hence, manner adverbs

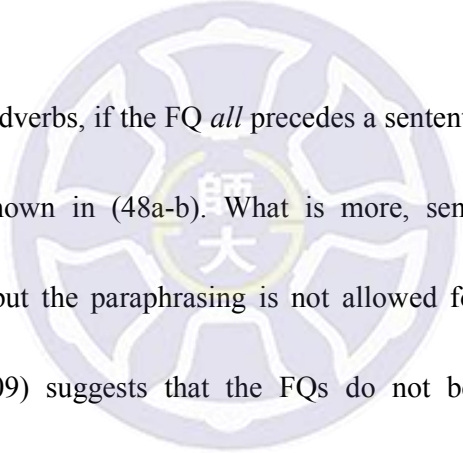
adjoin to V or VP; however, FQs seem not to be the case. Next, I shall compare the FQ and the sentential adverb in (48)-(49).

(48) a. The students have probably all read the book.

b. ? The students have all probably read the book

(49) a. It is probable that the students have read the book.

b. * It is all that the students have read the book.



Unlike sentential adverbs, if the FQ *all* precedes a sentential adverb, the sentence is not preferred, as shown in (48a-b). What is more, sentential adverbs can be paraphrased as (49a), but the paraphrasing is not allowed for the FQs (see (49b)). Therefore, Cirillo (2009) suggests that the FQs do not belong to the sentential adverbial type. Sportiche (1988) states that the FQs and sentential adverbs appear to modify different objects: an FQ modifies nominal phrases while a sentential adverb modifies a whole sentence. Then, consider the examples of the subject-oriented adverbs and the FQ in (50).

- (50) a. The students rudely and stupidly insulted the teacher who helped them.
- b. *The students rudely stupidly insulted the teacher who helped them.
- c. *The inventors have wisely and all withdraw their money.
- d. The inventors have wisely all withdraw their money.

(Cirillo 2009:3)

The FQ is different from the subject-oriented adverbs. As noted by Sportiche (1988), the behaviors of FQs are much more similar to that of subject-oriented adverbial type, since both are used to modify a nominal phrase; however, they are semantically different. Cirillo (2009) notes more obvious differences between FQs and subject-oriented adverbs. As can be seen in (50a-b), when two subject-oriented adverbs are adjacent, they should be conjoined, but when the FQ *all* and the subject-oriented adverb *stupidly* are put side by side, they cannot be conjoined, as presented in (50c-d). Given these facts, Sportiche (1988) and Cirillo (2009) argue that FQ and the three types of adverbs do not behave the same, and thus the FQ does not belong to these class of adverb. Here, Adverbial Analysis faces its first challenge.

However, the supporters of Adverbial Analysis, Brisson (1995), Bobaljik (1995), and Fitzpatrick (2006) note that the distribution of FQ *all* is not a challenge for Adverbial Analysis. They further claim that first English FQ *all* has the same

distribution as modal adverb *easily*, arguing against the criticism that the FQ does not have the nature of adverbs (see (51)).⁸ Consider the example in (51).

(51) a. The veggies (all) will (all) have (all) been ?*(all) being *(all) roasted.

b. The veggies (easily) will (easily) have (easily) been ?*(easily) being *(easily) roasted.

In (51), the FQ *all* and the modal adverb *easily* can float among auxiliaries but both of them cannot occur lower than the functional verb *been*, which is against the argument that FQ does not have adverb nature since its distribution does not belong to any type of adverb.

Moreover, like other adverbs, FQs can restrict the distribution of adverbs, which co-occur with the FQ in a sentence (Fitzpatrick 2006:50, c.f. Bobaljik 1995), as shown in the following sentences:⁹

⁸ According to Fitzpatrick (2006:49), the modal adverb *easily* should be distinguished from the manner adverb *easily*, as shown in the following examples:

(i) That bird could **easily** be a bald eagle, judging by its size. (modal easily)

(ii) You could make this shot **easily** if you would just concentrate. (manner easily)

⁹ In Fitzpatrick (2006:50), he claims that an adverb can limit the distribution of the other adverbs in a sentence. Take the two subject-oriented adverbs, *allegedly* and *willingly*, for instance.

(i) The students have **allegedly willingly** been being yelled at.

(ii) *The students have **willingly allegedly** been being yelled at.

As seen in (i-ii), *willingly* is not allowed to occur higher than *allegedly*.

- (52) a. The gladiator bravely fought the lions. (Subject-oriented, Manner)
- b. The gladiator all bravely fought the lions. (Subject-oriented, Manner)
- c. The gladiator bravely all fought the lions. (Subject-oriented, *Manner)

In (52a), the adverb *bravely* can yield the subject-oriented reading, indicating the brave gladiator, or the manner reading, the bravely fighting action. When *all* precedes *bravely* in (52b), the adverb *bravely* can have the reading of a subject-oriented adverb or that of a manner adverb. Now consider (52c). The adverb *bravely* is positioned above the FQ *all*. In this case, the adverb *bravely* can only be interpreted as the subject-oriented adverb, i.e.. This means that the FQ blocks the manner reading of the adverb *bravely*. In light of the above facts, Fitzpatrick (2006) asserts that this distributional evidence is consistent with the claim that the FQ is an adverbial element (c.f. Bobaljik 1995) since other adverbs also have the same behavior.

Given these facts, Fitzpatrick (2006:52) further claims that ‘I have not (yet) suggested that these FQs belong to the adverb word class, instead, I propose that they appear in adjoined positions that are available to many types of adverbial adjuncts, including some adverbs’. Therefore, for Fitzpatrick, FQs are a type of adverbial adjuncts which may not belong to the class of adverbs just like adjuncts of other

categories as in (53b-d). In sum, I agree with Fitzpatrick that even though an FQ cannot be categorized into any type of adverbs, it has the nature of an adverbial adjunct.

- (53) a. The team won the game easily.
b. The team will play the day after tomorrow.
c. The team will play in the morning.
d. The team will play when they have passed a drug screening.

Another well-known problem of Adverbial Analysis is that it cannot account for the anaphoric relation between an FQ and its associated nominal phrase directly, as noted by Sportiche (1988) and Cirillo (2009). Unlike under Stranding Analysis, the FQ and its associated nominal phrase under Adverbial Analysis are not a constituent underlyingly. To tackle this problem, Doetjes (1997:206) proposes that the anaphoric relationship is held between the trace of the associated nominal phrase and the associated nominal phrase itself. Also, Kayne (1981) suggests that the FQ itself is an anaphor, which can refer to its associated nominal phrase.

2.1.3 Summary

Either Stranding Analysis or Adverbial Analysis has its pros and cons. Sometimes, the weaknesses of one approach are the strengths of the other approach. In (54)-(55), I summarize the advantages and disadvantages of Stranding Analysis and Adverbial Analysis.

(54) Stranding Analysis

Advantages

- a. Supporting VP-internal subject hypothesis
- b. Accounting for the anaphorical relationship between an FQ and its associated nominal phrase
- c. Accounting for the anaphoric properties of the FQ

Disadvantages

- d. Wrong predications for unaccusatives and passives
- e. The mismatch between the FQ and its associated nominal phrase
- f. Different interpretations between the sentence with a pre-nominal quantifier *all* and the sentence with an FQ *all*
- e. Wrong predications for the A' movement of the associated nominal phrase

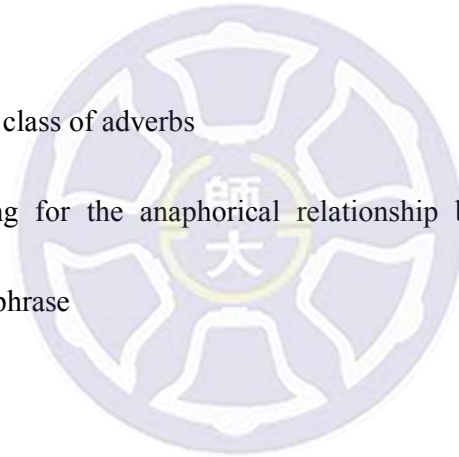
(55) Adverbial Analysis

Advantages

- a. Accounting for the mismatch between the FQ and its associated nominal phrase
- b. Different interpretations between the sentence with a pre-nominal quantifier *all* and the sentence with an FQ *all*
- c. Ruling out the ungrammatical unaccusatives and passives
- d. Ruling out the ungrammatical sentences with A' movement

Disadvantages

- e. Not belonging to the class of adverbs
- f. Indirectly accounting for the anaphorical relationship between an FQ and its associated nominal phrase



Admittedly, the challenges that Stranding Analysis faces are more critical than those for Adverbial Analysis. Recall that under Stranding Analysis, the sentence with an FQ and the sentences with a pre-nominal quantifier have the same underlying structure so they have a similar interpretation. However, the different readings of the sentences in (38)-(39) make us doubt the claim that the FQ and the pre-nominal quantifier are derived from the same underlying structure. Furthermore, the mismatch between the FQ and its associated nominal phrase in (36)-(37) also weaken Stranding

Analysis since under Stranding Analysis, the FQ and its associated nominal phrase form a constituent underlyingly.

In this thesis, I argue in favor for Adverbial Analysis for Chinese FQs since the behaviors of Chinese FQ at issue are similar to the FQ *all* in English.

2.2 The numeral FQs in Japanese

The FQs in Japanese have received extensive discussions. The FQs in Japanese can be either numeral quantifier likes *san-nin* ‘three people’ in (56b) (Fujita 1994, Kobuchi 2004, 2007) or non-numeral quantifier like *subete* ‘all’ in (57b) (Huang and Ochi 2014).¹⁰ The former has attracted much more attention than the latter. This section mainly discusses the numeral quantifier in Japanese since it shares some intriguing properties with the PNQ and the FQ in Chinese.

(56) Numeral quantifier

a. Kinoo	san-nin-no	kasyu-ga	utat-ta.
yesterday	three-CL-GEN	singer-NOM	sing-PAST

¹⁰ In the literature, the two sentences in (57) are translated in the same way.

b. Kasyu-ga kinoo san-nin utat-ta.
singer-NOM yesterday three-CL sing-PAST

‘Three singers sang yesterday.’

(Kimilo 2006)

(57) Non-numeral quantifier

a. Taro-wa subete-no gyooza-o tabe-ta.
Taro-TOP all-GEN dumpling-ACC eat-PAST

b. Taro-wa gyooza-o subete tabe-ta.
Taro-TOP dumpling-Ac all eat-PAST

‘Taro ate all the dumplings.’

(Huang and Ochi 2014)



Like English FQ *all*, the numeral quantifier in Japanese has mainly received two approaches: Stranding Analysis (Miyagawa 1989, Miyagawa and Arikawa 2007) and Adverbial Analysis (Fujita 1994, Downing 1996, Kobuchi 2004, 2007).

According to Miyagawa’s (1989) stranding account, the relationship between the FQ and its associated nominal phrase is established on the c-commanding requirement.

(58) Mutual c-command requirement: The NP or its trace and the numeral or its trace must c-command each other.

(Miyagawa 1989)

Miyagawa and Arikawa (2007) modify Miyagawa's (1989) stranding account and claim that the FQ and its associated nominal phrase form a constituent, which can sustain the requirement in (58).¹¹ As shown in (59), the associated nominal phrase *kasyu* 'singer' and the numeral quantifier *san-nin* 'three people' are a constituent before the associated nominal phrase is moved away and crosses the adjunct *kinoo* 'yesterday'. At the same time, the numeral quantifier *san-nin* 'three people' and the trace of the associated nominal phrase *kasyu* 'singer' mutually c-command and then the anaphoric relationship between them is established directly.

(59) *Kasyu-ga_i [VP kinoo [t_i san-nin] utat-ta].*
singer-NOM yesterday three-CL sing-PAST
'Three singers sang yesterday.'

¹¹ The structure Miyagawa's (1989) Stranding Analysis adopts is still the ternary branching structure, and therefore, Miyagawa and Arikawa (2007) adjusts the ternary branching structure to binary branching structure.

The stranding approach to Japanese numeral FQs is also argued for by Fitzpatrick (2007). According to him, in some languages the FQ is adnominal and should be accounted for by Stranding Analysis like Japanese FQ, but in some other languages the FQ is adverbial and should be accounted for by Adverbial Analysis like English and French.

The other approach to the Japanese numeral FQ is Adverbial Analysis. As aforementioned, the essence of Adverbial Analysis is that the numeral FQ is not base-generated in adnominal positions but is an adjunct like an adverb. The main point is that under adverbial account, the sentence with an FQ in (60) and the sentence with an adnominal quantifier in (61) have no derivational relationship. Regarding the quantifying relationship between the numeral FQ and its associated nominal phrase, the proponents of Adverbial Analysis provide different suggestions; for example Fujita (1994) proposes head-feature licensing, Kobuchi (2004, 2007) follows Doetjes' (1997) adverbial account, and so forth.

I will not further discuss the advantages and disadvantages of each approach to Japanese. Nevertheless, I notice that like FQ *all* in English, Chinese FQs at issue can only have the subject-oriented reading but Japanese numeral FQs can have subject-oriented or object-oriented reading (Fujita 1994).

Here, I will discuss an intriguing property of Japanese FQ which is also shared by Chinese FQ at issue: the two possible readings of an FQ. According to Fujita (1994), Downing (1996), Kobuchi (2004, 2007), the Japanese FQ may have two different readings: exhaustive reading and partitive reading, as shown in (60)-(61) while the adnominal quantifier can only have an exhaustive reading.

(60) Japanese FQ

- a. Yakamashii gakusei-ga go-nin ki-ta.
 noisy student-NOM 5-CL come-PAST
 ‘Five of the noisy students came.’
- b. Gakusei-ga go-nin ki-ta.
 student-NOM 5-CL come-PAST
 ‘(The) five students came.’

(Fujita 1994)

(61) Adnominal quantifier in Japanese

- Yakamashii go-nin-no gakusei-ga ki-ta.
 noisy 5-CL-GEN student-NOM come-PAST
 ‘(The) five noisy students came.’

Example (60a-b) show that the FQ *go-nin* ‘five CL’ in Japanese can have either an exhaustive reading, all the five people, or a partitive reading, five of the students, while the adnominal quantifier in (61) only allows an exhaustive reading. One more noteworthy point about the Japanese FQ is that Fujita (1994) demonstrates that partitivity is a characteristic of the FQ construction, although it is not an inherent property of the construction. More precisely, the two interpretations rely on different contexts instead of the FQ itself. That is, if in the context, there exists a relevant set which is able to be compared with the FQ, the FQ would prefer the partitive reading. If the relevant set does not exist, then the FQ can only have an exhaustive reading, as shown in (60a-b), respectively. Consequently, in Japanese, the FQ with an exhaustive reading usually goes along with an indefinite associated nominal phrase.

This characteristic of Japanese FQs is also used to argue against Stranding Analysis (Fujita 1994, Kobuchi 2004, 2007) since the fundamental motivation for the derivational approach is that the sentence with an FQ and the sentence with an adnominal quantifier are underlyingly the same and these two sentences should have an identical reading.

In sum, firstly, in light of the FQs in Japanese, it is not surprising that a language has both numeral and non-numeral floating quantifiers so does Chinese. Secondly, in Japanese, an FQ can have an exhaustive reading or a partitive reading depending on

the context, as shown in (60). I also observe that the Chinese FQ at issue also shares a similar property.

2.3 Previous analyses of the Chinese facts

The PNQ and the FQ in Chinese have not received much attention in the literature. In this section, I will review the previous studies of them. The first study is Shin (2008), in which the numeral FQ is considered as an argument; secondly, in Paul and Whitman (2010), the non-numeral FQ is deemed as an adverb in DOC; lastly, Kuo (2016) discusses the non-numeral FQ together with the non-numeral PNQ. Following Sportiche (1988), Kuo (2016) claims that the sentence with post-nominal quantifier and the sentence with an FQ have a derivational relationship. In this section, I will discuss Shin's (2008), Paul and Whitman's (2010) and Kuo's (2016) studies in order.

2.3.1 Shin (2008)

Shin (2008) discusses the phenomenon that the numeral phrase and its associated nominal phrase are not adjacent in Chinese. Based on the position where the numeral phrase is placed and the reading of the numeral phrase (exhaustive or partitive), Shin categorizes the phenomenon into four types, as shown in table 1, and

the examples of each type are shown in (62)-(67). He notes that type D must have a modal *you*. Of the four types, only some sentences of type A are relevant to the FQs at issue.

Table 1. The four types of numeral phrase in Shin (2008)

Type	Numeral phrase	Reading	Example
A	preverbal	exhaustive	(62)-(64)
B	postverbal	exhaustive	(65)
C	postverbal	partitive	(66)
D	preverbal	partitive- including <i>you</i> ‘exist’	(67)

(62) Zhangsan song lai de shu, **san-ben** dou hen youqu.

Zhangsan send come DE book three-CL all very interesting

‘The three books sent by Zhangsan are interesting.’

(63) Tamen keneng **san-ge ren** dou qu Taipei le.

they likely three-CL person all go Taipei ASP

‘The three people might all go to Taipei.’

(64) Cong tushuguan jie lai de shu, wo san-ben
 from library borrow come DE book I three-CL
 dou kan wan-le.
 all read finish-ASP

‘I have read all the three books borrowed from the library.’

(65) Pingguo, Zhangsan mai-le **san-ge**.
 apple Zhangsan buy-ASP three-CL

‘Zhangsan bought three apples.’

(66) Na-xie shu, Zhangsan kan-le **san-ben**.
 that-CL book Zhangsan read-ASP three-CL

‘Zhangsan read three of those books.’

(67) Na-xie shu you **san-ben** wo kan-le.
 that-CL book YOU three-CL I read-ASP

‘I read three of those books.’

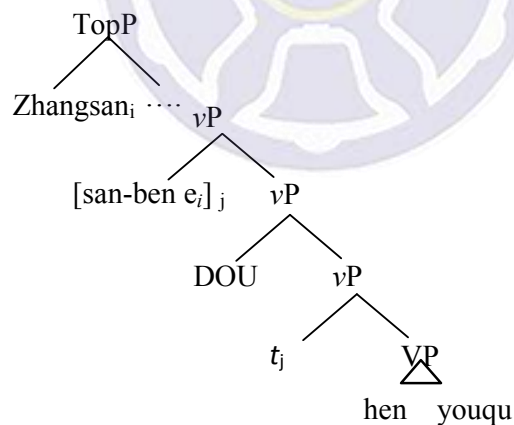
According to Shin (2008), the difference between type B and type C is their readings, that is, the former only yield an exhaustive reading and the latter yield only a partitive reading. Besides, the difference among type A, B and C is that type A should precede verbs but type B and C should follow verbs.

Even though in the above examples, the numeral phrases and their associated nominal phrases are not adjacent, there exists a quantifying relationship between them. To deal with the phenomenon, Shin (2008) proposes Argument Analysis to account for all the four types above. Under Shin's analysis, the associated nominal phrase and the numeral phrase are all base-generated and the numeral phrase form a constituent with an empty category, as shown in (68).

(68) Zhangsan jie lai de shu san-ben dou hen youqu.

Zhangsan borrow come DE book three-CL DOU very interesting

'The three books borrowed by Zhangsan are very interesting.'



(Shin 2008:54)

To illustrate, in (68), the associated nominal phrase *Zhangsan* in the sentence occupies the topic position, called the dangling topic. Moreover, the position the

numeral phrase *san-ben* ‘three CL’ occupies is an argument position.¹² Then, Shin further claims that since the numeral phrase, placed in the argument position, contains an empty category, the quantifying relationship between the numeral phrase and its associated nominal phrase can be established via the empty category.

Shin (2008) claims that Stranding Analysis cannot account for why the associated nominal phrase can be moved out of a complex NP island, as shown in (69), but his Argument Analysis can.

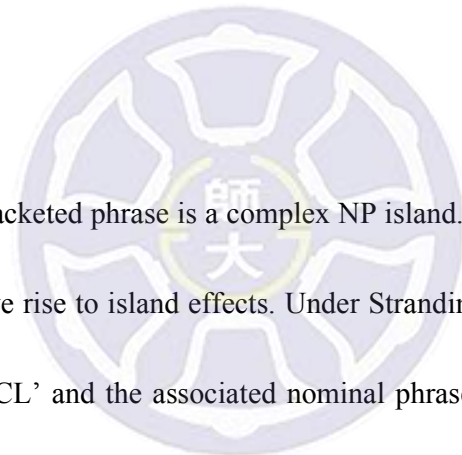
(69) a. Wo haimei peng dao [san-ben cong tushuguan jie
 I yet.not encounter arrive three-CL from library borrow
 lai de shu dou kan wan de ren].
 come DE book DOU read finish DE person

¹² In Shin (2008), he does not specifically discuss the position of the numeral phrase in the type C. Nevertheless, according to his claim, ‘he will consider all the numeral phrase of this phenomenon as the real argument of the sentence’, it seems that the numeral phrase in type C is placed in the object position.

b. Cong tushuguan jie lai de shu, wo haimei peng
 from library borrow come DE book I not.yet encounter
 dao [[san-ben t_i] dou kan wan de ren].
 arrive three-CL DOU read finish DE person

Lit: 'I have not encountered anyone who has already read the three books
 borrowed from the library.'

(Shin 2008:52)



In (69a), the bracketed phrase is a complex NP island. Any element moves out of the island would give rise to island effects. Under Stranding Analysis, the numeral phrase *san-ben* 'three CL' and the associated nominal phrase *cong tushuguan jie-lai de shu* 'the books borrowed from the library' would be underlingly base-generated in the more inclusive bracketed phrase in (69b), as a constituent, so the movement of the associated nominal phrase *cong tushuguan jie-lai de shu* 'the books borrowed from the library', as shown in (69b) should be impossible. However, this prediction is not borne out. Therefore, Shin (2008) claims that this is a significant challenge for Stranding Analysis. According to him, on the contrary, under Argument Analysis, (69b) can be easily explained. The numeral phrase and the associated nominal phrase

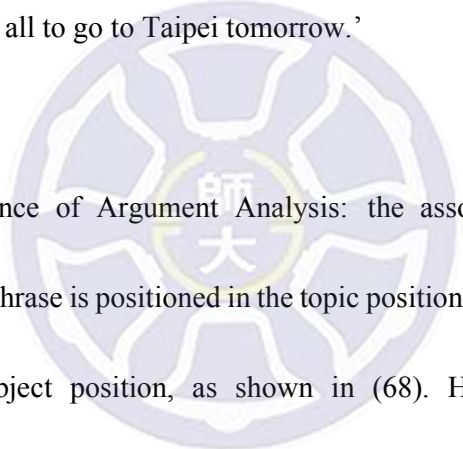
are base-generated in their surface positions, and no element is moved out of the complex NP island. Thus, no island effect would arise.

However, a notable problem for Argument Analysis is that in some sentences, the numeral phrase cannot find its position, as shown in (70).

(70) Wo rang tamen mingtian san-ge ren dou qu Taipei.

I let they tomorrow three-CL person DOU go Taipei

‘I let three of them all to go to Taipei tomorrow.’



Recall the essence of Argument Analysis: the associated nominal phrase preceding the numeral phrase is positioned in the topic position, and the numeral phrase itself occupies the subject position, as shown in (68). However, example (70) challenges this analysis. Precisely, in (70), *tamen* ‘they’ cannot be located in the topic position because there is no topic position in an embedded infinitive sentence. Then, a problem arises in Shin (2008); that is, *tamen* ‘they’ definitely occupies an argument position but *san-ge ren* ‘three people’ has no place to stay in (70). The grammaticality of (70) is unexpected under Argument Analysis.

Before I end the discussion of Shin (2008), some points are in order. Firstly and most importantly, only sentences (62) and (64) of type A in this thesis, called FQ, are

the sentence pattern that this study is interested in; secondly, Argument Analysis itself cannot account for the grammaticality of (70), which would pose a strong challenge for Argument Analysis.

2.3.2 Paul and Whitman (2010)

Paul and Whitman (2010) have discussed the non-numeral quantifier *mei-ren* ‘everyone’ in DOC. In fact, they are mainly concerned about the structure of DOC, as shown in (71). The quantifier *mei-ren* ‘everyone’, which is regarded as an adverb by Paul and Whitman (2010), is used to prove that the IO *haizi-men* ‘children’ in (71) is moved out of the VP in DOC.

(71) Wo song-gei [APPLP haizi-men_i [VP mei-ren [VP t_i [yibai kuai
 I give-GEI child-PLU everyone 100 buck
 qian]]]].

money

‘I gave the children each 100 dollars.’

(Paul and Whitman 2010:12)

Paul and Whitman (2010) follow Doetjes' (1997) and Fitzpatrick's (2006) analyses that the adverbial quantifier needs to c-command the trace of the associated nominal phrase (see details in section 2.2) to explain the relationship between *haizi-men* 'children' and *mei-ren* 'everyone'. In (71), the associated nominal phrase *haizi-men* 'children', base-generated in the indirect object position, moves across the adverbial quantifier *mei-ren* 'everyone' and leaves a trace to be c-commanded by the non-numeral quantifier *mei-ren* 'everyone'.

Paul and Whitman (2010) suggest that (72b) can be used to rule out Stranding Analysis since under Stranding Analysis the ungrammatical sentence (72b) cannot be excluded.

(72) a. Wo song-gei [_{APPLP} [haizi-men mei-ren]_i] [_{VP} san ci t_i qian]].

I give-GEI child-PLU everyone three time money

b. *Wo song-gei [_{APPLP} haizi-men_i] [_{VP} san ci [_{VP} [t_i mei-ren]

I give-GEI child-PLU three time everyone

qian]]]].

money

'I gave every child money three times.'

(Paul and Whitman 2010:11)

Under Stranding Analysis, the FQ *mei-ren* ‘everyone’ and the associated nominal phrase *haizi-men* ‘children’ is underlyingly a constituent. In (72a), the constituent containing the FQ and the associated nominal phrase moves across the frequency adverb *sanci* ‘three times’. As to example (72b), the associated nominal phrase *haizi-men* ‘children’ moves to a higher position across frequency adverb *sanci* ‘three times’ but the FQ *mei-ren* ‘everyone’ is stranded in its base position. Under Stranding Analysis, both (72a-b) should be grammatical. However, contrary to fact, (72b) is illegitimate.

Paul and Whitman (2010) argue that (72b) presents a challenge for Stranding Analysis, while it is not a problem for Adverbial Analysis. They note that under Adverbial Analysis, the position of the adverbial quantifier *mei-ren* ‘everyone’ and that of the frequency adverb *sanci* ‘three times’ are fixed, namely that the frequency adverb *sanci* ‘three times’ is always lower than the adverbial quantifier *mei-ren* ‘everyone’. Under Paul and Whitman’s (2010) analysis, (72b) can be successfully ruled out since *mei-ren* ‘everyone’ is lower than the frequency adverb in this sentence (c.f. Fitzpatrick 2006).

Here, I agree with Paul and Whitman’s (2010) analysis that the quantifier *mei-ren* ‘everyone’ is an adverbial quantifier and that the relationship between the quantifier and its associated nominal phrase can be established via certain mechanism.

However, I do not think that the adverbial quantifier *mei-ren* ‘everyone’ can occur in such a low position like (71). I will argue in section 3.2 that the adverbial quantifier *mei-ren* ‘everyone’ should be higher than VP.

Moreover, Paul and Whitman (2010) provide another argument against Stranding Analysis, namely that *mei-ren* ‘everyone’ cannot form a proper constituent together with its associated nominal phrase, as shown in (73), which means underlyingly the FQ and its associated nominal phrase are not a constituent.

(73) *Wo ma-le haizi-men mei-ren/yiren.

I scold-ASP child-PLU every(one)

‘I scold the every child.’

(Paul and Whitman 2010:13)

However, I do not think that this criticism is valid since example (73) is not so bad. Besides, Kuo (2016) provides a more natural example (74) against Paul and Whitman’s argument.

(74) Xuesheng-men mei-ren a! yinggai song san-ben shu
 student-PLU each EXCL should give three-CL book
 gei laoshi.
 GEI teacher

‘Students each should give three books to the teacher.’

(Kuo 2016:47)

In (74), the quantifier *mei-ren* ‘everyone’ and its host nominal phrase *xuesheng-men* ‘students’ can be topicalized together as a constituent.

To sum up, Paul and Whitman (2010) note that the quantifier *mei-ren* ‘everyone’ adjoins to VP under Adverbial Analysis. Furthermore, they present two arguments against Stranding Analysis: first, under Stranding Analysis, the unacceptable sentence (72b) cannot be ruled out; secondly, *mei-ren* ‘everyone’ cannot form a proper constituent together with its associated nominal phrase.

2.3.3 Kuo (2016)

Kuo (2016), following Sportiche (1988), argues that *mei-ren* ‘everyone’ and its associated nominal phrase *haizi-men* ‘children’ form a constituent underlyingly. For Kuo (2016), *haizi-men* ‘children’ and *mei-ren* ‘everyone’ in (75)-(76) form a constituent.

(75) Wo song-gei [_{VP} [haizi-men mei-ren] [yibai kuai qian]].

I give-GEI child-PLU everyone 100 buck money

‘I gave the children each 100 dollars.’

(76) Xuesheng-men mei-ren a! 師 yinggai ge song san-ben

student-PLU everyone EXCL should each give three-CL

shu gei laoshi.

book GEI teacher

‘Students each should give books to the teacher.’

In Kuo (2016), the constituent containing *mei-ren* ‘everyone’ and its host nominal phrase *haizi-men* ‘children’ in (76) is moved together to the topic position. In fact, if *mei-ren* ‘everyone’ in (75) is an adverb, then it would be impossible for an adverb to move along with the associated nominal phrase. I will follow Kuo’s (2016)

analysis that in DOC like (75), *mei-ren* ‘everyone’ and its associated nominal phrase are a constituent.

To defend Stranding Analysis, Kuo (2016) gives arguments against Adverbial Analysis. First, Kuo (2016) provides an indirect argument against Stranding Analysis. She claims that *mei-ren* ‘everyone’ cannot behave like another VP-adjoined adverb, *ge* ‘each’ (see ex. (77)-(78)) so it is not VP-adjoined adverb proposed by Paul and Whitman (2010).

- (77) a. Zhe wu-ge xuesheng yinggai ge mai san-ben shu.
this five-CL student should each buy three-CL book
b. *Zhe wu-ge xuesheng ge yinggai mai san-ben shu.
this five-CL student each should buy three-CL book
‘These five students each should buy three books.’

(Kuo 2016:44)

(78) a. Zhe wu-ge xuesheng yinggai **mei-ren** mai san-ben shu.

this five-CL student should each buy three-CL book

b. Zhe wu-ge xuesheng **mei-ren** yinggai mai san-ben shu.

this five-CL student each should buy three-CL book

‘These five students each should buy three books.’

(Kuo 2016:44)

According to Kuo (2016) the VP-adjoined adverb, *ge* ‘each’ cannot be placed higher than modals, as shown in (77), while *mei-ren* ‘everyone’ can surface among modals. If they are both VP-adjoined adverbs, they should have the same distribution, contrary to fact. Given this fact, Kuo (2016) asserts that *mei-ren* ‘everyone’ is not an adverb. However, I do not think that this criticism is valid since (77b) is not so bad.

Another argument Kuo provides against Stranding Analysis is that *mei-ren* ‘everyone’ and its associated nominal phrase can both be located in the topic position together, as shown in (76). Such sentences would be impossible if *mei-ren* ‘everyone’ is an adverb.

However, Kuo (2016) does not address the unexpected sentence (72b), proposed by Paul and Whitman (2010), for Stranding Analysis. Therefore, Kuo has not solved the problem.

Here, I agree with Kuo's claim that *mei-ren* 'everyone' in (75) is an adnominal quantifier. As shown in (76), *mei-ren* 'everyone' and its associated nominal phrase *haizi-men* 'children' can be topicalized together as a constituent. However, I do not agree with Kuo's proposal that *mei-ren* 'everyone' can be accounted for by Stranding Analysis. I propose that neither *mei-ren* 'everyone' nor its associated nominal phrase can be moved out of the constituent containing them. I suggest the ungrammaticality of example (72b) is because the quantifier *mei-ren* 'everyone' and the host nominal phrase *haizi-men* 'children' form a constituent and neither of them can be moved out of the constituent. This proposal can be supported by the ungrammatical unaccusative sentence in (79a), which cannot be ruled out under Stranding Analysis. More precisely, under Stranding Analysis after the nominal phrase *na-dui fuqi* 'that married couple' moves to the subject position, the quantifier *liang-ge ren* 'two people' should be able to be stranded in the object position, contrary to fact. However, if I assume that neither the quantifier nor its host nominal phrase can be moved out of the constituent containing them, (79a) can be excluded.

(79) a. *Na-dui fuqi_i jintian yizao jiu lai-le t_i
 that-CL husband.wife today early.morning just come-ASP
 liang-ge ren.
 two-CL person

b. [Na-dui fuqi liang-ge ren]_i jintian yizao
 that-CL husband.wife two-CL person today early.morning
 jiu lai-le t_i.
 just come-ASP

‘Both of that married couple came in an early morning.’

I thus conclude that the quantifier *mei-ren* ‘everyone’ forming a constituent with its host nominal phrase, as shown in (75), is an adnominal quantifier and the quantifier *mei-ren* ‘everyone’ which does not form a constituent with its associated nominal phrase, as displayed in (78), is an adverb.

In sum, the three studies, Shin (2008), Paul and Whitman (2010) and Kuo (2016) have discussed some facts of the FQ and the PNQ at issue. Shin (2008) has discussed the numeral FQ in Chinese under his type A. Under Shin’s (2008) Argument Analysis, the FQ occupies an argument position and its associated nominal phrase takes a topic position. However, this analysis would be questioned due to the

example (70). Paul and Whitman (2010) have examined the non-numeral quantifier *mei-ren* ‘everyone’ in DOC (see ex. (71)) and treated it as a VP-adjoined adverb. Moreover, they provide some evidence against Stranding Analysis. Finally, Kuo (2016) also has discussed the non-numeral quantifier *mei-ren* ‘everyone’ in DOC but she does not agree with Paul and Whitman’s analysis on the quantifier *mei-ren* ‘everyone’. She follows Sporthche’s (1988) Stranding Analysis and claims that in (75), the quantifier *mei-ren* ‘everyone’ and its associated nominal phrase form a constituent.

I agree with Kuo’s (2016) analysis that the non-numeral quantifier *mei-ren* ‘everyone’ and its associated nominal phrase in DOC (see ex. (75)) form a constituent but I disagree with her Stranding Analysis (see ex. (75)). In the next chapter, I will give more details of the PNQ and FQ in Chinese at issue and prove that Stranding Analysis cannot account for the Chinese FQ.

Chapter 3 Analysis

To the best of my knowledge, no research has thoroughly discussed the PNQ and the FQ and only a few have some facts of them. Given that the Chinese FQ and the English FQ *all* share a similar distribution and properties, I will discuss whether the two approaches, Stranding Analysis and Adverbial Analysis, can be applied to FQs in Chinese. Furthermore, I will provide arguments for the claim that the Chinese FQs at issue should be treated as an adverb under Adverbial Analysis and that PNQs adjoins to its host nominal phrases like the appositive expression and the adnominal *self-intensifier* expression structurally.

The organization of this chapter is as follows. Section 3.1 shows some arguments for the claim that the PNQ and the FQ have no derivational relationship and that they do not share the same underlying structure; section 3.2 and 3.3 present the structure and the properties of the PNQ and the FQ in turn.

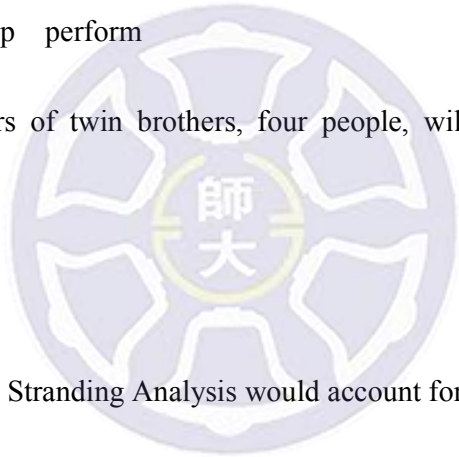
3.1 Two independent elements, the PNQ and the FQ

I suggest that the PNQ and the FQ in (80) do not have a derivational relationship, namely, that they do not have the same underlying structure.

(80) a. Na liang-dui shuangbaotai xiongdi **si-ge ren** hui
 that two-CL twins brother four-CL person will
 yiqi dao taishang biaoyan.
 together arrive stage.top perform

b. Na liang-dui shuangbaotai xiongdi hui **si-ge ren** yiqi
 that two-CL twins brother will four-CL person together
 dao taishang biaoyan.
 arrive stage.top perform

‘Those two pairs of twin brothers, four people, will perform on the stage together.’



First, I will discuss how Stranding Analysis would account for (80), as shown in (81).

(81) a. [Na liang-dui shuangbaotai xiongdi **si-ge ren**]_i hui *t_i*
 that two-CL twins brother four-CL person will
 yiqi dao taishang biaoyan.
 together arrive stage.top perform

b. [Na liang-dui shuangbaotai xiongdi]_i hui [*t_i* **si-ge ren**]
 that two-CL twins brother will four-CL person
 yiqi dao taishang biaoan.
 together arrive stage.top perform
 ‘Those two pairs of twin brothers, four people, will perform on the stage.’

Under Stranding Analysis, (80a) and (80b) share the same underlying structure, as shown in (81a) and (81b), respectively. Since the stranding of an FQ is optional, (80a) and (80b) have different superficial forms. To illustrate, in (81a), the quantifier *si-ge ren* ‘four people’ and the associated nominal phrase *na liang-dui shuangbaotai xiongdi* ‘those two pairs of twin brothers’ are moved together to the subject position while in (81b), the quantifier *si-ge ren* ‘four people’ is stranded on the way to the subject position.

At first glance, it seems that Stranding Analysis can deal with the FQ but there are some crucial arguments for the claim that the PNQ in (80a) and the FQ in (80b) do not have a derivational relationship. First of all, the ungrammatical unaccusative sentences would be generated under Stranding Analysis (see ex.(82)).

- (82) a. [Na-dui fuqi liang-ge ren]_i jintian yizao
 that-CL husband.wife two-CL person today early.morning
 jiu lai-le t_i
 just come-ASP
- b. *[Na-dui fuqi]_i jintian yizao jiu lai-le
 that-CL husband.wife today early.morning just come-ASP
 [t_i liang-ge ren].
 two-CL person

‘Both of that married couple came in the early morning today.’

In Chinese, an object can be moved to a subject position in unaccusatives. As seen in (82a), *na-dui fuqi liang-ge ren* ‘both of that married couple’ can be moved from the object position to the subject position. Then, recall the essence of Stranding Analysis is that the FQ can be stranded in the position where it has passed through. Regarding Stranding Analysis, (82b) should be grammatical since in the unaccusative construction, the host nominal phrase *na-dui fuqi* ‘that married couple’ move to the subject position, and the quantifier *liang-ge ren* ‘two people’ can be stranded in its base position, i.e. the object position. However, this prediction is not borne out. For those proponents of Adverbial Analysis, this is a powerful argument against Stranding

Analysis.

As discussed in 2.3.3, under Stranding Analysis the ungrammatical sentence (83) cannot be ruled out as well.

(83) *Wo song-gei haizi-men_i [_{VP} san ci [_{t_i} mei-ren] qian].
I give-GEI child-PLU three time everyone money
'I gave every child money three times.'

(Paul and Whitman 2010:12)

In DOC, the IO, situated in its base position, needs to be moved across the VP boundary, as well as other VP-adjoined adjuncts like the frequency adverb *sanci* 'three times', which adjoins to VP. Under Stranding Analysis, the non-numeral quantifier *mei-ren* 'everyone' should be able to be stranded in its base position, i.e. the IO position so (83) should be acceptable but in reality, it is not. Therefore, it seems that Stranding Analysis is untenable.

Still another argument against Stranding Analysis is that the PNQ and the FQ may have different interpretations. Recall that the same interpretation shared by a sentence with an FQ and a sentence with an adnominal quantifier is one of the motivations for Stranding Analysis. Nevertheless, this motivation may be weakened. Consider example (84).

(84) Na-xie xuesheng yiding san-ge ren nenggou zai zhe-chang
 that-CL student definitely three-CL person can in this-CL

bisai de jiang.

game win prize

a. 'Three of those students can win a prize in this game.' (FQ-partitive)

b. 'Those three students can win a prize in this game.' (FQ-exhaustive)

(85) Na-xie xuesheng san-ge ren a! yiding nenggou zai
 that-CL student three-CL person EXCL definitely can in

zhe-chang bisai de jiang.

this-CL game win prize

a. *'Three of those students can win a prize in this game.' (PNQ-partitive)

b. 'Those three students can win a prize in this game.' (PNQ-exhaustive)

Example (85) containing a PNQ can only have an exhaustive reading but example (84) containing an FQ can have either an exhaustive or a partitive reading. If (84) and (85) are derived from the same underlying structure, then they should share the same reading, but they do not. I will claim that they are two independent sentences.

Summarizing, firstly, Stranding Analysis cannot successfully rule out all of the unacceptable sentences; secondly, the sentence with a PNQ and the sentence with an FQ can have different interpretations, which indicates that the PNQ and the FQ do not have a derivational relationship. In light of the above arguments, I claim that the sentence with a PNQ in (80a) and the sentence with an FQ in (80b) have different underlying forms. I propose that the PNQ is an adnominal quantifier (henceforth ADQ) and that the FQ in Chinese at issue is an adverbial quantifier (henceforth AVQ). Further discussions on the ADQ and the AVQ in Chinese are presented in the following sections.

3.2 The Adnominal Quantifier (ADQ)

In this subsection, first the inherent properties of the ADQ and its host nominal phrase will be introduced. Then, the structure formed by the ADQ and its host nominal phrase will be displayed and the arguments for this analysis will be provided.

First of all, the ADQ is always a quantity-denoting expression, called QP (Huang et al. 2009), and the host nominal phrase can be either a QP (see ex. (86)) or a DP (see ex. (87)). Depending on the category of the host nominal phrase, the category of the constituent containing the ADQ and the host nominal phrase will vary.

(86) QP

[Yi-dui fuqi **liang-ge ren**] keyi chi de wan
 one-CL husband.wife two-CL person can eat DE finish
 wu-wan fan.
 five-CL rice
 ‘One couple, two people, can eat five bowls of rice.’

(87) a. Indefinite DP

[Yi-dui gaogaoshoushou mianmaojiaohao de jiemei **liang-ge**
 one-CL tall.and.slender good-looking DE sister two-CL
ren] zou-le jin-lai.
 person walk-APS come.in
 ‘A pair of tall, slender and good looking sisters, two people, walked in.’

b. Definite DP

[Na-dui gaogaoshoushou mianmaojiaohao de jiemei **liang-ge**
that-CL tall.and.slender good-looking DE sister two-CL
ren] zou-le jin-lai.
person walk-ASP come.in

‘Both of that pair of tall, slender and good looking sisters walked in.’

As seen in (86)-(87), if the host nominal phrase is a QP, then the constituent containing the ADQ and the nominal phrase is also a QP and if the host nominal phrase is a DP then the constituent containing the ADQ and the host nominal phrase is a DP as well. Besides, depending on the definiteness of the host nominal phrase, the definiteness of the constituent containing the ADQ and the host nominal phrase also changes, as shown in (87a-b).

In terms of the function of ADQ, I suggest that it is used to emphasize and denote the quantity of its host nominal phrase like *both* and *all* in English, as shown in (88) and (89), respectively.

(88) Both the boys are Hungarians.

(89) All the three boys are Hungarians.

In particular, consider (89). Even though *three* in the host nominal phrase denotes quantity, the quantifier *all* also can emphasize and quantify the host nominal phrase. Likewise, as seen in (90), in Chinese although the host nominal phrase *na liang-dui shuangbaotai xiongdi* ‘those two pairs of twin brothers’ has indicated the quantity it still can be quantified by the ADQ *si-ge ren* ‘four people’, which behaves like *all* in (89).

(90) Na liang-dui shuangbaotai xiongdi si-ge ren hui yiqi
 that two-CL twin brother four-CL person will together
 dao taishang biaoan.
 arrive stage.top perform
 ‘Those two pairs of twin brothers, four people, will perform on the stage together.’

Another notable property of the ADQ is that it can only have an exhaustive reading.¹³ To be precise, the quantity the ADQ denotes must correspond to the

¹³ The generalization that ADQ can only yield an exhaustive reading may be questioned, when the ADQ is non-numeral quantifier with inherent paritive reading like, *mou-xie ren* ‘some people’ and *yi-xie ren* ‘some people’, as shown in (i) and (ii).

- (i) Wo xihuan tamen mou-xie ren.
 I like they some-CL person
 ‘I like some of them.’
 (ii) Wo xihuan tamen yi-xie ren.
 I like they yi-CL person
 ‘I like some of them.’

quantity the host nominal phrase denotes; furthermore, the ADQ can be a universal quantifier such as *suoyou* ‘all’, *mei ge* ‘every’ etc., as presented in (91).

(91) a. Wo jiu hen xihuan na-dui fuqi **liang-ge ren.**
I just very like that-CL husband.wife two-CL person
‘I really like both of that married couple.’

b. Wo hen xihuan na-xie bangqiu xuanshou **suoyou ren.**
I very like that-CL baseball player all person
‘I really like all of those baseball players.’

c. *Wo hen xihuan na-dui fuqi **yi-ge ren.**
I very like that-CL husband.wife one-CL person
Lit: ‘I really like one of the married couple.’

In (91a), the quantity that the ADQ *liang-ge ren* ‘two people’ indicates matches the quantity that the associated nominal phrase indicates (the classifier *dui* means two in Chinese) and in (91b), the quantifier is a universal quantifier *suoyou* ‘every’. In these two examples the ADQs get an exhaustive reading. In (91c), the quantity the ADQ indicates is one but the quantity the associated nominal phrase indicates is two,

I still do not know why these quantifiers with paritive nature can be compatible with ADQs. Here, I will treat them as exceptions.

which gives rise to a partitive reading that the ADQ does not allow, and consequently (91c) is unacceptable. Cross-linguistically, in Japanese, the adnominal quantifiers can only yield an exhaustive reading as well. For now, I will take this property of the ADQ as a generalization.

3.2.1 The structure of the ADQ

Recall that the ADQ can quantify its host nominal phrase like quantifier *all* in English; hence, I suggest that the ADQ is a quantity-denoting expression (QP) (Huang et al. 2009). Then, as aforementioned, the host nominal phrase can be either a QP or a DP. Basically, the structure of a DP and that of a QP are similar, but only DP has a DP layer, which denotes the referentiality of a nominal phrase (Hsieh 2008, Huang et al. 2009, Huang et al. 2014). The examples of QP and DP are shown in (92)-(93), respectively.

(92) San-ge xuesheng bu gou.

three-CL student not enough

‘Three students are not enough.’

(93) San-ge gaogaoshoushou mianmaojiaohao de nvhai zou-le
 three-CL tall.and.slender good-looking DE girl walk-APS
 jin-lai.
 come.in
 ‘Three tall, slender and good looking girls walked in.’

According to Hsieh (2008), Huang et al. (2009) and Huang et al. (2014), although the nominal phrase *san-ge xuesheng* ‘three students’ in (92) and *san-ge gaogaoshoushou mianmaojiaohao de nvhai* ‘three tall, slender and good looking girls’ in (93) seem to have a similar surface form, they have different underlying structures. To be specific, the structure of (92) does not contain a DP layer but that of (93) does. In (92), the nominal phrase *san-ge xuesheng* ‘three people’ in fact is a quantity-denoting phrase so it does not have a DP layer, while in (93), the nominal phrase *san-ge gaogaoshoushou mianmaojiaohao de nvhai* ‘three tall, slender and good looking girls’ has a DP layer. Due to the quantity-denoting property, I believe that the ADQ is structurally like the quantity-denoting expression (QP) in (92). As to the structure of the quantity expression, Borer (2005), Hsieh (2008), Huang et al. (2009) and Huang et al. (2014) propose different structures for it, under different assumption as to whether the nominal phrase in Chinese is right-branching or left-branching.

Since this thesis is not concerned about this issue, I will simply adopt Borer's (2005)

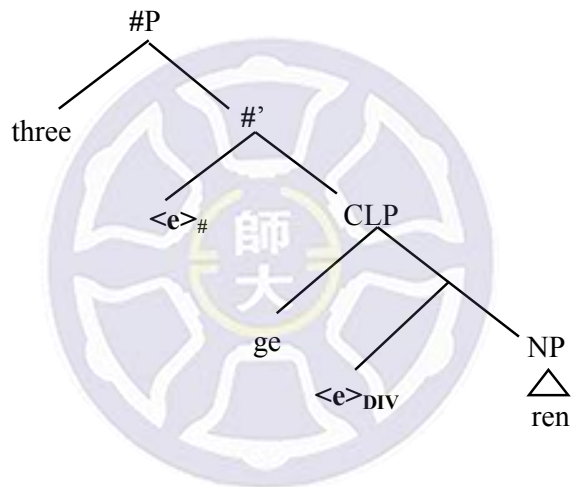
structure for convenience, as shown in (94).¹⁴

(94) Quantity Phrase (#P)

a. san-ge ren

three-CL person

'three people'

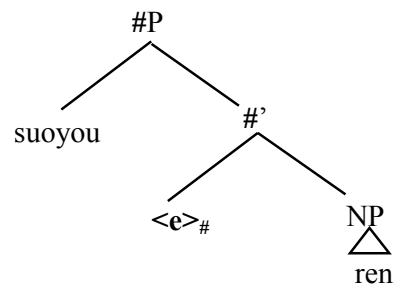


¹⁴ According to Borer (2005), the Quantity phrase, #P, is responsible for the assignment of quantity to the nominal phrase. Furthermore, in the structure <e> stands an open value, which can be assigned different values. The script marks, # and DIV, indicate the category of the phrase.

b. suoyou ren

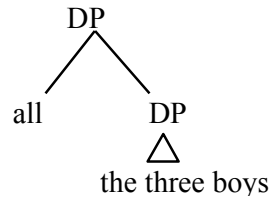
all person

‘all people.’



Next, we shall move on to the structure of the constituent containing the ADQ and its host nominal phrase. I propose that an ADQ is adjoined to its host nominal phrase to form a constituent, like the English quantifier *all* and *both* in (88)-(89). Quirk et al. (1972), Baker (1995) and Adger (2003) indicate that the English quantifier *all* and *both* are pre-determiners and adjoin to the nominal phrase they quantify, as shown in (95). Along the same line, I propose that the structure of the constituent containing an ADQ and its associated nominal phrase is like the example (96).

(95) all the three boys

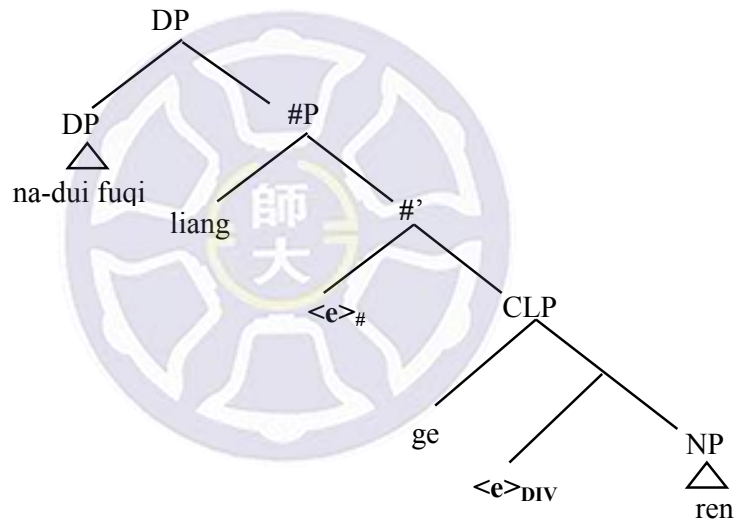


(Baker 1995)

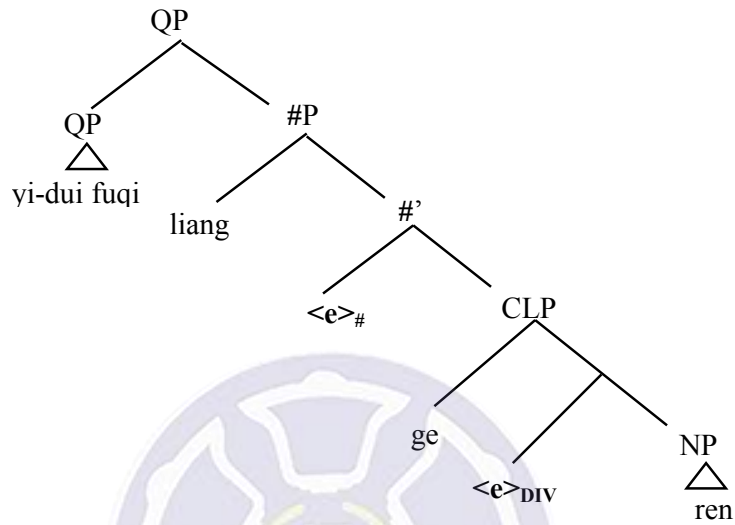
(96) a. na-dui fuqi liang-ge ren

that-CL husband.wife two-CL person

'both of that married couple'



b. yi-dui fuqi liang-ge ren
 one-CL husband.wife two-CL person
 ‘both of a married couple’



As presented in (95), the quantifier *all* is adjoined to the host nominal phrase *the three boys* to form a nominal phrase constituent. Due to the similarity between the ADQ and the pre-determiner quantifier *all* and *both* in English, I propose that the ADQ adjoins to its host nominal phrase as well, as shown in (96a-b).

I will provide arguments for the structure I adopt for the ADQ and its host nominal phrase. I will show that the ADQ and its host nominal phrase form a constituent and that the ADQ adjoins to the host nominal phrase.

First, I will argue that the ADQ and its host nominal phrase form a constituent based on constituency tests, as shown in (97)-(98), which support the structure in (96).

(97) Topicalization

[Na-dui fuqi liang-ge ren]_i, wo hen xihuan t_i.

that-CL husband.wife two-CL person I very like

‘I really like both of that married couple.’

(98) Relativization

Laoshi changchang ti-dao t_i de [na-dui xiongdi liang-ge

teacher often mention DE that-CL brother two-CL

ren]_i lai-le.

person come-ASP

‘Both of that pair of brothers, the teacher often mentioned, came.’

Given the constituency tests in (97)-(98), the ADQ and its host nominal phrase can be topicalized and relativized together as a constituent.

Apart from the results of the constituency tests, I also find that the ADQ can occur in all argument positions along with its host nominal phrase, as shown in (99).

That means they must be a constituent.

(99) a. Subject position

Na-dui fuqi liang-ge ren hen xihuan lvyou.

that-CL husband.wife two-CL person very like travel

‘Both of that married couple like travelling very much.’

b. Object position

Wo hen xihuan na-dui fuqi liang-ge ren.

I very like that-CL husband.wife two-CL person

‘I really like both of that married couple.’

c. Object position of prepositions

Dui na-dui fuqi liang-ge ren, wo hui geiyu

to that-CL husband.wife two-CL person I will give

wo zuida de zhufu.

I sincerest DE blessing

‘I will give both of that married couple my sincerest blessing.’

Taken together, it can be confirmed that the ADQ and its host nominal phrase must form a constituent, which strengthens the legitimacy of the structure (96), in which the ADQ adjoins to the host nominal phrase to form a bigger constituent.

Next I will provide three pieces of evidence to argue for the proposal that the ADQ adjoins to its host nominal phrase, as shown in (96). Firstly, given that the ADQ always appears on the right periphery of its host nominal phrase, I claim that the ADQ adjoins to the host nominal phrase on the right, as illustrated in (100).

(100) a. [tamen] liang-ge ren

they two-CL person

‘both of them’

b. [Zhangsan he Lisi] liang-ge ren

Zhangsan and Lisi two-CL person

‘both Zhangsan and Lisi’

c. [Zhangsan he Lisi tamen] liang-ge ren

Zhangsan and Lisi they two-CL person

‘both Zhangsan and Lisi, they’

To explain further, as is well-known, the structure of nominal phrase in Chinese can be complicated and different elements like pronoun, proper name, classifier and so forth, can be piled up in a fixed order (Huang et al. 2009). To illustrate, in (100), the proper name *Zhangsan he Lisi* ‘Zhangsan and Lisi’ must

precede the pronoun *tamen* ‘they’ in Chinese nominal structure. Under this circumstance, no matter how many elements are piled up within a nominal phrase, the ADQ will always stay in the rightmost position, which corresponds to the structure I propose in (96), in which the ADQ adjoins to its host nominal phrase on the right.

Still another noteworthy argument is that the ADQ and its host nominal phrase must be juxtaposed. Consider example (101) first.

- (101) a. Laoshi changchang ti-dao t_i de [DP [DP na-dui xiongdi]
 teacher often mention DE that-CL brother
 [QP liang-ge ren]]_i lai-le.
 two-CL person come-ASP
- b. *Laoshi changchang ti-dao [DP t_i [QP liang-ge ren]] DE
 teacher often mention two-CL person de
 [DP na-dui xiongdi]_i lai-le.
 that-CL brother come-ASP

‘Both of that pair of brothers, the teacher often mentioned, came.’

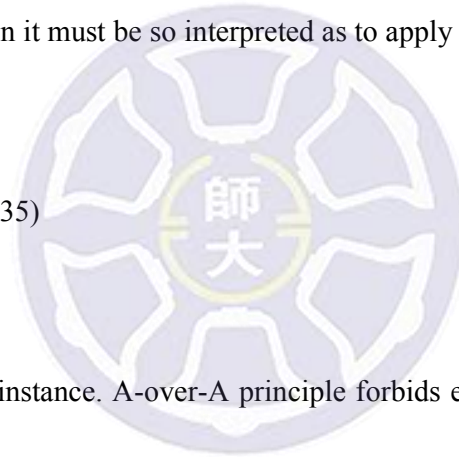
Examples in (101) indicates that the ADQ *liang-ge ren* ‘two people’ and its host nominal phrase *na-dui xiongdi* ‘that pair of brothers’ form a constituent and the

host nominal phrase *na-dui xiongdi* ‘that pair of brothers’ is not allowed to move out of this constituent. That is because the movement of the host nominal phrase would violate the A-over-A principle (Chomsky 1973) (see (102)), which has been reduced to Empty category principle (ECP) (Chomsky 1986).¹⁵

(102) A-over-A principle

If a transformation applies to a structure of the form $[\alpha \dots [A \dots]_A \dots]_\alpha$, where α is a cyclic node, then it must be so interpreted as to apply to the maximal phrase of the type A.

(Chomsky 1973:235)



Take (101) for instance. A-over-A principle forbids extraction of the nominal phrase *na-dui xiongdi* ‘that pair of brothers’ out of the more inclusive nominal phrase *na-dui xiongdi liang-ge ren* ‘both of that pair of brothers’, as shown in (101b).

Furthermore, to further support the structure of the ADQ and its host nominal phrase, I will discuss the structural similarities between the ADQ and the appositive expression in (103) as well as that between the ADQ and the adnominal *self*-intensifier expression in (104).¹⁶

¹⁵ Thanks for Prof. Jen Ting for pointing out this possibility to me.

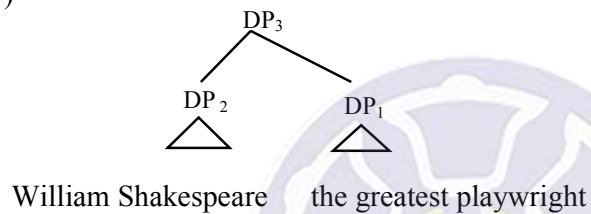
¹⁶ In McKay (1991) and Siemund (2003), the adnominal quantifier is named the appositive

(103) William Shakespeare, the greatest playwright, died in 1616.

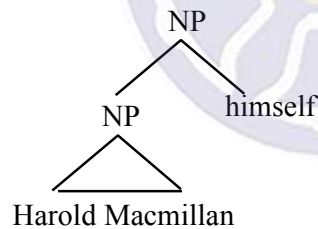
(104) Harold Macmillan himself has a difficult time.

In the literature, the structure of the appositive expression and the adnominal *self*-intensifier expression in English are shown in (105) and (106), respectively.

(105)



(106)



As seen in (105), the appositive *the greatest playwright* adjoins to its host nominal phrase *William Shakespeare* to form a constituent, as proposed by Aoun et al. (2001). Likewise, in (106) the adnominal *self*-intensifier *himself* adjoins to its host nominal phrase *Harold Macmillan* (Moravcsik 1972, Edmondson and Plank 1978, *self*-intensifier so it is unsurprising that the appositive and the adnominal *self*-intensifier have a similar structure.

McKay 1991, Siemund 2003). I claim that the Chinese appositive expression (cf. Huang et. al. 2009) and the Chinese adnominal *self*-intensifier expression have the same structure as English appositive expression and the English adnominal *self*-intensifier expression (see ex. (107) and (108)).

(107) Na-dui fuqi, wo didi de pengyou, zuotian
 that-CL husband.wife I brother DE friend yesterday
 likai-le.

leave-ASP

‘That married couple, my brother’s friends, left yesterday.’

(108) Na-dui fuqi ziji zuotian likai-le.
 that-CL husband.wife self yesterday leave-ASP

‘That married couple themselves left yesterday.’

I will provide some arguments for this claim. First, both the appositive and the adnominal *self*-intensifier always occur to the right of their host nominal phrases, as shown in (109) and (110), since they adjoin to their host nominal phrases on the right to form a constituent (see ex. (105)-(106)).

(109) a. tamen, wo de gaozhong tongxue

they I DE high.school classmate

‘they, my high school classmates’

b. Zhangsan he Lisi tamen, wo de gaozhong tongxue

Zhangsan and Lisi they my DE high.school classmate

‘Zhangsan and Lisi, they, my high school classmates’

c. Zhangsan he Lisi liang-ge ren, wo de gaozhong tongxue

Zhangsan and Lisi two-CL person my DE high.school classmate

‘both Zhangsan and Lisi, my high school classmates’

(110) a. tamen ziji

they self

‘themselves’

b. Zhangsan he Lisi tamen ziji

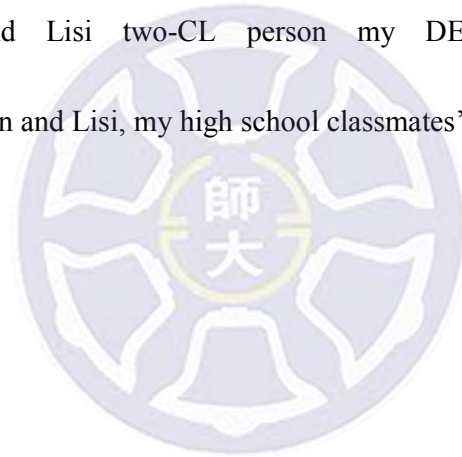
Zhangsan and Lisi they self

‘Zhangsan and Lisi themselves’

c. Zhangsan he Lisi liang-ge ren ziji

Zhangsan and Lisi two-CL person self

‘both Zhangsan and Lisi themselves’



In (109)-(110) respectively, no matter how many elements are included in the host nominal phrase, the appositive *wo de gaozhong tongxue* ‘my high school classmates’ and the adnominal *self*-intensifier always occur to the right of their host nominal phrases. These facts fit the structures proposed by Aoun et al. (2001) and Siemund (2003) in (105) and (106), respectively.

Another argument for the claim that the Chinese appositive expression and the Chinese adnominal *self*-intensifier expression have the same structure as English appositive expression and the English adnominal *self*-intensifier expression is that the Chinese appositive and adnominal *self*-intensifier need to be juxtaposed with their host nominal phrases to form a constituent. Consider example (111)-(112).

- (111) a. Laoshi changchang ti-dao t_i de [DP [DP na-dui fuqi],
teacher often mention DE that-CL husband.wife
[DP wo didi zuihao de pengyou]]_i lai-le.
I brother best DE friend come-ASP

b. *Laoshi changchang ti-dao [NP t_i [NP wo didi zuihao de
 teacher often mention I brother best DE
 pengyou]] de [NP na-dui fuqi]_i lai-le.
 friend DE that-CL husband.wife come-ASP
 ‘That married couple, my brother’s best friends, whom the teacher often
 mentioned came.’

(112) a. zhe-xie shi dou yao guai t_i fan-le zui
 this-CL thing all should blame commit-ASP crime
 de [DP [DP na-dui fuqi] [ziji]]_i.
 DE that-CL husband.wife self

b. *zhe-xie shi dou yao guai [NP t_i [ziji]] fan-le
 this-CL thing all should blame self commit-ASP
 zui de [NP na-dui fuqi]_i.
 crime DE that-CL husband.wife

‘The married couple who did crimes themselves should be blamed.’

In (111)-(112), the extraction of the host nominal phrase *na-dui fuqi* ‘that married couple’ out of the constituent, containing them and their host nominal phrases, alone is not allowed.¹⁷

This supports the claim that the Chinese appositive and adnominal *self*-intensifier share the similar structure to the English appositive and adnominal *self*-intensifier since the structures of the appositive expression and the adnominal *self*-intensifier expression in (105) and (106) do not allow the extraction of the elements within the nominal phrase containing the appositive or adnominal *self*-intensifier and their host nominal phrases. The extraction violates the A-over-A principle (see (102)).

Based on the distribution and properties of the English appositive and adnominal *self*-intensifier and the Chinese appositive and adnominal *self*-intensifier, I argue that they share a similar structure, as shown in (105)-(106).

Now, recall that the structure of the constituent containing the ADQ and its host nominal phrase (see ex (96)). It is parallel to the structure of the appositive expression and the adnominal *self*-intensifier expression (see ex (105)-(106)). Apart from the observations that the ADQ, the appositive expression and the adnominal *self*-intensifier expression need to be on the rightmost position to their host nominal

¹⁷ Since in Chinese *ziji* ‘self’ can be an argument I think that the example (112b) can be acceptable only when *ziji* ‘self’ is treated as an argument. This possibility is not concerned in this thesis.

phrases and that the host nominal phrase of the ADQ, the appositive expression and the adnominal *self*-intensifier expression cannot be extracted out of the more inclusive constituent to avoid the violation of the A-over-A principle, the ADQ, the appositive expression and the adnominal *self*-intensifier expression are interchangeable, which is a powerful argument for the structure (96), as shown in (113)-(114).

- (113) a. Na-dui fuqi, wo didi zuihao de pengyou,
 that-CL husband.wife I brother best DE friend
 liang-ge ren zuotian likai-le.
 two-CL person yesterday leave-ASP
- b. Na-dui fuqi, liang-ge ren, wo didi zuihao
 that-CL husband.wife two-CL person I brother best
 de pengyou, zuotian likai-le.
 DE friend yesterday leave-ASP

‘Both of that married couple, my brother’s best friends, left yesterday.’

(114) a. Zhe dou yao guai na-dui fuqi ziji

this all should blame that-CL husband.wife self

liang-ge ren.

two-CL person

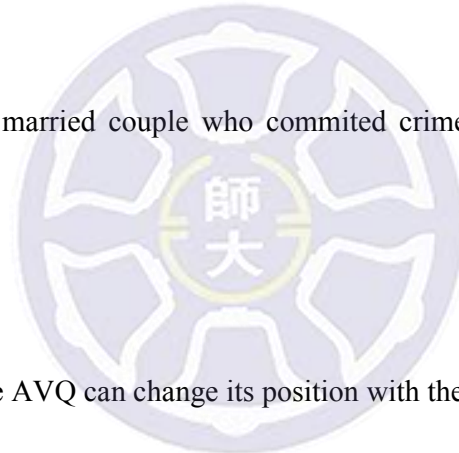
b. Zhe dou yao guai na-dui fuqi liang-ge

this all should blame that-CL husband.wife two-CL

ren ziji.

person self

‘Both of that married couple who committed crimes themselves should be
blamed.’



In (113)-(114), the AVQ can change its position with the appositive expression and the adnominal *self*-intensifier expression. This supports the structure, proposed in (96). Under my analysis that all of the constructions share an adjunction structure, it is predicted that their positions are interchangeable.

To sum up, the use of the ADQ is to quantify its host nominal phrase so it should be a QP which is a quantity-denoting expression. Then, I propose that the ADQ adjoins to its host nominal phrase, as shown in (96). This structure is parallel to that of the constituent containing the appositive expression or the adnominal *self*-intensifier

expression and their host nominal phrases. The proposed structure can be sustained by examining the similarities among the ADQ, the appositive expression and the adnominal *self*-intensifier expression. Furthermore, the most crucial piece of evidence for the structure (96) is that the ADQ can change its position with either the appositive expression or the adnominal *self*-intensifier expression, which means they share an adjunct structure.

3.3 The Adverbial Quantifier (The AVQ)

The numeral quantifier in (115) is named Adverbial Quantifier (AVQ) because it can surface in the positions where only adverbs can occur. Moreover, like English FQ *all*, the AVQ can quantify its associated nominal phrase even though the AVQ is not placed in a position being adjacent to its associated nominal phrase, as presented in (115).

(115) Na liang-dui shuangbaotai xiongdi hui **si-ge ren** yiqi
 that two-CL twins brother will four-CL person together
 dao taishang biaoan.
 arrive stage.top perform

‘Those two pairs of twin brothers, four people, will perform on the stage.’

In sections 3.3.1 and 3.3.2, the distribution and analysis of the AVQ will be presented in details first. Moreover, I will discuss the anaphoric relationship between the AVQ and its associated nominal phrase. Section 3.3.3 will show the two readings of the AVQ. Finally, in section 3.3.4, the AVQ will be compared with DOU and other numeral quantifiers in Chinses, which have been considered as FQs in the literature.

3.3.1 The properties and distribution of the AVQ

I will start from the properties of the AVQ and its associated nominal phrase. The AVQ, like an ADQ, serves to quantify its associated nominal phrase. I suggest that the structure of the AVQ itself is similar to the QP structure proposed by Borer (2005) (see ex. (94)). As to the associated nominal phrase quantified by the AVQ, it can be a definite DP (see ex.(116a)), an indefinite DP (see ex.(116b)) or a QP (see ex.(117)).¹⁸

¹⁸ Thanks to Prof. Jen Ting for pointing out this exmaple to me.

(116) a. AVQ-definite DP

Na yi-dui shuangbaotai jiemei yiding liang-ge ren
that one-CL twins sister definitely two-CL person
hui yiqi zou jin jiaoshi.
will together walk enter classroom

'Both of that pair of twin sisters will definitely walk in the classroom
together.'

b. AVQ-indefinite DP

Yi-dui gaogaoshou-de shuangbaotai jiemei ganggang
one-CL tall.slender-DE twins sister just
liang-ge ren turan zou jin jiaoshi.
two-CL person suddenly walk enter classroom

'A pair of tall and slender twin sisters, two people, suddenly walked in.'

(117) AVQ-NumP

Yi-dui sangmen da de fuqi dagai **liang-ge**

three-CL throat load DE husband.wife probably two-CL

ren jiu keyi chao-de ba wuding fan guo-qu.

person just can noisy-DE BA roof turn pass-over

'A married couple, two people, with an earsplitting voice can make the roof rocked.'

The AVQ as Chinese FQ can occur in different positions in a sentence and still quantify its associated nominal phrase. Nevertheless, I will show that the AVQ does not occur randomly in a sentence. First of all, the AVQ can float among modals (see ex.(118)), and it can switch its position with a sentential adverb (see ex.(119)) or a subject-oriented adverb (see ex.(120)) without affecting the acceptability and meaning of the sentence.

(118) Na liang-dui shangbaotai xiongdi (**si-ge ren**) yinggai

that two-CL twin brother four-CL person should

(**si-ge ren**) hui (**si-ge ren**) neneggou (**si-ge**

four-CL person will four-CL person can four-CL

ren) yiqi dao taishang biaoan.

person together arrive stage.top perform

‘Those two pairs of twin brothers, four people, will likely be able to perform on the stage.’

(119) Sentential adverb

a. Na-dui fuqi jintian **liang-ge ren** dagai hui

that-CL husband.wife today two-CL person probably will

yiqi likai.

together leave

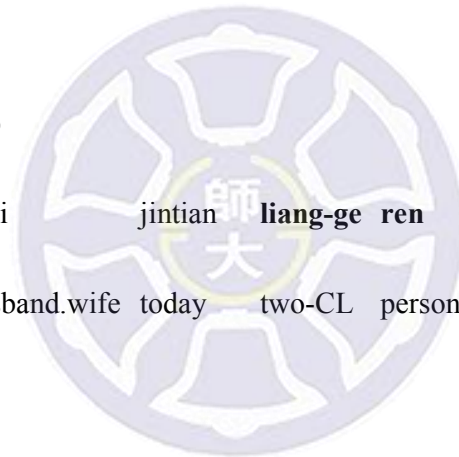
b. Na-dui fuqi jintian dagai **liang-ge ren** hui

that-CL husband.wife today probably two-CL person will

yiqi likai.

together leave

‘Probably, both of that married couple will leave together today.’



(120) Subject-oriented adverb

a. Na-dui fuqi changchang **liang-ge ren** guyi
that-CL husband.wife often two-CL person deliberately
yiqi chidao.
together be.late

b. Na-dui fuqi guyi **liang-ge ren**
that-CL husband.wife deliberately two-CL person
changchang yiqi chidao.
often together be.late

‘Both of that married couple often deliberately come late together.’

Besides, the AVQ has to occur in a higher position than a manner adverb in a sentence without BA, as shown in (121). Furthermore, in a BA sentence, both the AVQ and the manner adverbs can be higher or lower than BA. If the AVQ occur higher than BA, then it is associated with the subject, but if it stays lower than BA, then its associated nominal phrase can only be the nominal phrase following BA. Nevertheless, no matter whether the manner adverb occurs higher or lower than BA, the AVQ must stay higher than the manner adverb, as shown in (122a-b).¹⁹

¹⁹ Example (i) may challenge the generalization that no matter whether the manner adverb occurs higher or lower than BA, the AVQ must stay higher than the manner adverb.

(121) Manner adverb

Na-dui xiongdi keneng (**liang-ge ren**) zhongzhong-de
that-CL brother may two-CL person heavily-DE

(***liang-ge ren**) fenbie da-le Zhangsan yi-quan.
two-CL person respectively punch-ASP Zhangsan one-fist

‘Both of that pair of brothers may give Zhangsan a hard punch.’

(122) a. Na-dui xiongdi (**liang-ge ren**) zhongzhong-de (***liang-ge**

that-CL brother two-CL person heavily-DE two-CL

ren) ba Zhangsan he Lisi da-le yi-quan.
person BA Zhangsan and Lisi punch-ASP one-fist

‘Both of that pair of brothers give Zhangsan and Lisi a hard punch.’

b. Na-dui xiongdi ba Zhangsan he Lisi (**liang-ge ren**)
that-CL brother BA Zhangsan and Lisi two-CL person

zhongzhong-de (***liang-ge ren**) da-le yi-quan.
heavily-DE two-CL person punch-ASP one-fist

‘That pair of brothers gave both Zhangsan and Lisi a hard punch’

(i) Na-dui xiongdi zhongzhong-de ba Zhangsan he Lisi liang-ge ren
that-CL brother heavily-DE BA Zhangsan and Lisi two-CL person
da-le yi-quan.
punch-ASP one-fist

‘That pair of brothers gave both Zhangsan and Lisi a hard punch’

I think that in (i), the numeral phrase *liang-ge ren* ‘two people’ is an ADQ; otherwise example (122b) would be grammatical.

In the example (121) without BA, the AVQ *liang-ge ren* ‘two people’ can only occur in a higher position than the manner adverb *zhongzhong-de* ‘heavily’. Then, as shown in (122a-b), in a BA sentence, the manner adverb *zhongzhong-de* ‘heavily’ and the AVQ *liang-ge ren* ‘two people’ can be higher or lower than BA but the AVQ must be higher than the manner adverb. I believe that the reason why the AVQ must be higher than manner adverbs is that different kinds of adverbs have their fixed order (c.f. Fitzpatrick 2007, Paul and Whitman 2010).

One more noteworthy point is that as discussed above, if the AVQ occurs lower than BA in a BA sentence, then the AVQ is only allowed to be associated with the NP following BA, as shown in (123).

(123) Na-dui fuqi ba na-dui xiongdi liang-ge ren
 that-CL husband.wife BA that-CL brother two-CL person
 zhongzhong-de da-le yi-quan.
 heavily-DE punch-ASP one-fist

a. *‘Both of that married couple gave that pair of brothers a hard punch.’

b. ‘That married couple gave both that pair of brothers a hard punch.’

The reason why the AVQ occurring lower than BA cannot be associated with the subject is that it cannot satisfy the Principle of Economy of Derivation (Cheng 1996, c.f. Huang et. al 2009). Adopting this principle, the AVQ should be associated with the closest nominal phrase in a sentence. In (123), the closest nominal phrase is the nominal phrase *na-dui xiongdi* ‘that pair of brothers’ instead of the subject *na-dui fuqi* ‘that married couple’.

3.3.2 Analysis

Having discussed the properties and the distribution of the AVQ, I will explore how to adopt the Adverbial Analysis for the AVQ. I will follow Fitzpatrick’s (2007) analysis that the FQ does not belong to the class of adverbs but that it is an adverbial adjunct, which has the nature of adverbs.

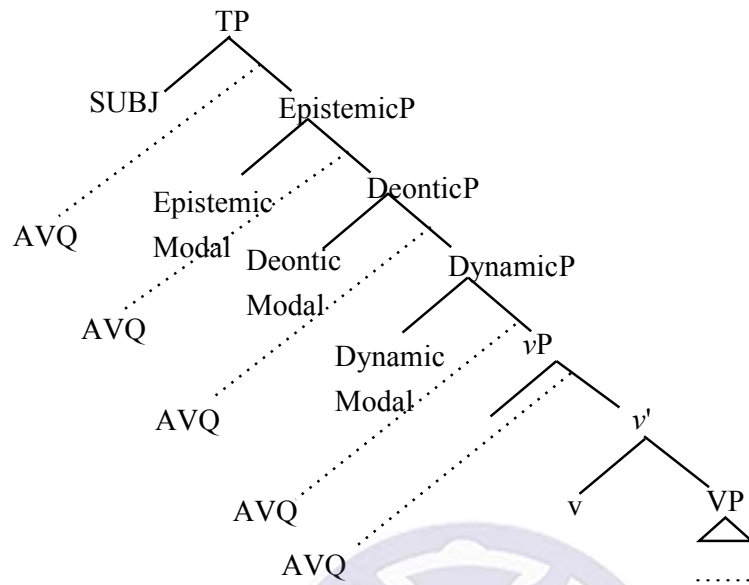
Recall tht in section 3.1, I have argued against Stranding Analysis. Here I propose that Adverbial Analysis will not face the problems that Stranding Analysis cannot solve. First of all, Adverbial Analysis can rule out the ungrammatical sentences with AVQ in unaccusatives, as shown in (82b). Under Adverbial Analysis, the FQ is not allowed to occur in such a low positions so (82b) is ungrammatical. To be precise, different types of adverb have different distributions.

Furthermore, if the AVQ is treated as an adverbial adjunct, then it is unsurprising that the sentence with an FQ and the sentence with a PNQ have different interpretations (see ex.(84)-(85)).

Still another significant issue is the quantifying relationship between the AVQ and its associated nominal phrase. One of the interesting properties of the FQ construction is that an FQ can quantify its associated nominal phrase even though they are not adjacent. The sentences are exemplified in Chinese in (118).

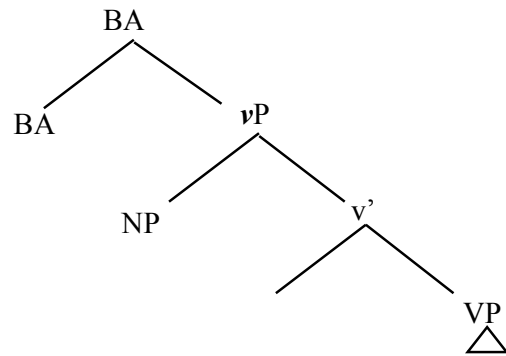
I propose that the AVQ, like an adverb, can adjoin to functional categories like modals so it can float among modals as shown in (118). The distribution of the AVQ is illustrated in (124). Specifically, I adopt Hsu and Ting's (2016) hierarchy of modals, in which modals are analyzed as functional categories within TP domain for the structure.

(124) The distribution of the AVQ



Furthermore, based on the distributions of the AVQ and BA, we can know that the lowest position that the AVQ can occur. According to Huang et al. (2009), the BA is a functional category right above vP, as shown in (125). Recall that the AVQ can occur lower than BA and stay higher than a manner adverb, which can adjoin to V' or higher functional categories (Huang et al. 2009). This means that the AVQ can adjoin to v' but must occur higher than VP.

(125)



Still another notable point about the distribution of the AVQ is that regarding the distribution of the AVQ, I found that on certain occasions the distribution of the AVQ and that of the ADQ seem to overlap, as presented in (126).

(126) a. [DP Na-dui shuangbaotai xiongdi] [ModalP [Modal' [QP liang-ge ren] hui yiqi dao taishang biaoan]].
that-CL twins brother two-CL
person will together arrive stage.top perform

b. [DP [DP Na-dui shuangbaotai xiongdi] [QP liang-ge ren]]
that-CL twins brother two-CL person
hui yiqi dao taishang biaoan.
will together arrive stage.top perform

‘Both of that pair of twin brothers will perform on the stage together.’

In fact, the sentence in example (126) has ambiguous structures. In (126a), the AVQ *liang-ge ren* ‘two people’ adjoins to functional categories like an adverb while in (126b), the ADQ *liang-ge ren* ‘two people’ adjoins to a nominal phrase *na-dui xiongdi* ‘that pair of brothers’. Although (126a-b) share an identical surface form, underlyingly they have different structures.

I have proposed that the AVQ can adjoin to functional categories and must occur higher than VP domain. Next, I am going to discuss how the relationship between the AVQ and its associated nominal phrase is established. There are certain locality restrictions on the dependency between the FQ and its associated nominal phrase; firstly, the associated nominal phrase needs to c-command the FQ and the FQ and its associated nominal phrase have to obey Locality Constraint, as shown in (127).

- (127) a. *Wo haizi-men de na-ge laoshi yinggai liang-ge
 I child-men DE that-CL teacher should two-CL
 ren yiqi likai.
 person together leave

Lit: ‘The teacher of my children should leave together.’

b. *Na-dui fuqi renwei wo yinggai liang-ge ren likai.

that-CL husband.wife think I should two-CL person leave

Lit: 'Both of the married couple think that I should leave.'

Regarding the anaphoric relationship between the FQ and its associated nominal phrase, some proponents of Adverbial Analysis suggest the FQ itself is an anaphor (Kayne 1981, Jaeggli 1982) and some suggest that the FQ adjoins to an empty category (Doetjes 1997, Fitzpatrick 2007).

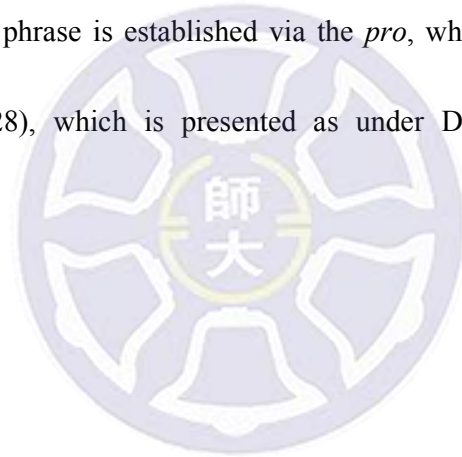
Adopting Kayne's (1981) analysis for the AVQ in Chinese can account for the quantifying relationship and anaphoric relationship between the AVQ and its associated nominal phrase. Since the AVQ is deemed as an anaphor (Kayne 1981, Jaeggli 1982), the AVQ itself should be c-commanded by its antecedent (its associated nominal phrase) and obey the Locality Constraint. Due to the anaphoric nature of the AVQ, the AVQ can be associated with its associated nominal phrase. Here, the AVQ itself is an adverb with anaphoric nature but without attaching to any empty category.²⁰

²⁰ I observe that the subject-oriented adverb (see ex.(i)) shares similar syntactic behaviors to the FQ *all* and the AVQ, that is, firstly, it can modify its associated nominal phrase even if they are not adjacent and it needs to be c-commanded by its associated nominal phrase and obeys the Locality Constraint. Consider (ii).

(i) Na-dui fuqi hui guyi yiqi likai.
that-CL husband.wife will deliberately together leave
'That married couple will deliberately leave together.'

(ii) a. *Na-ge laoshi de chezi hui guyi kaizou.
that-CL teacher DE car will deliberately drive.away

If I adopt Doetjes' (2007) analysis for the AVQ, the relationship between the AVQ and its associated nominal phrase cannot be established on some occasions. In Doetjes' Adverbial Analysis, the FQ adjoins to an empty category, *pro*, and the FQ needs to bind the trace of its associated nominal phrase, as shown in the configuration in (42). Moreover, it is notable that under Doetjes' analysis the anaphoric relationship between the AVQ and its associated nominal phrase is derived from the the associated nominal phrase and its trace, and the quantifying relationship between the AVQ and its associated nominal phrase is established via the *pro*, which adjoined by the FQ. Consider example (128), which is presented as under Doetjes' analysis for the Chinese FQ, the AVQ.



Lit: 'The teacher will deliberately leave by driving his car.'

b. Wo renwei zhe-tai chezi hui guyi kaizou.
 I think this-CL car will deliberately drive.away

Lit: 'I deliberately think that the car will drive away.'

In (i), the subject-oriented adverb *guyi* 'deliberately' can modify the subject *na-dui fuqi* 'that married couple' even though they are not adjacent. In (iia), the subject-oriented adverb *guyi* 'deliberately' cannot be properly c-commanded by *na-ge laoshi* 'that teacher' because structurally *guyi* 'deliberately' cannot be c-commanded by *na-ge laoshi* 'that teacher' but *na-ge laoshi de chezi* 'that teacher's car'. In (iib), the subject-oriented adverb *guyi* 'deliberately' cannot refer to *wo* 'I' across a finite clause but refer to *chezi* 'car'.

Although the subject-oriented adverb behaves like the FQ *all*, to the best of my knowledge, no study has ever proposed that the subject-oriented adverb is adjoined by an empty category. Therefore, it seems that the similarities between the subject-oriented adverb and the AVQ can indirectly support the idea that the AVQ can be analyzed as an adverbial adjunct without adjoining to an empty category.

(128) Na-dui xiongdi_i yinggai [*pro* liang-ge ren] hui yiqi t_i
 that-CL brother probably two-CL person will together
 likai.
 leave
 ‘Both of that pair of brothers may leave together.’

In (128), the AVQ *liang-ge ren* ‘two people’ adjoins to *pro* and the *pro* binds the trace of the associated nominal phrases *na-dui xiongdi* ‘the pair of brothers’, which makes the AVQ can be associated with the associated nominal phrase.

However, as mentioned, Doetjes’ (1997) analysis cannot capture all the facts of the AVQ. That is because the element that the FQ adjoins to is a pronominal element. Recall that the nominal phrase that the AVQ is associated with can be a QP or a DP. If the associated nominal phrase that is a QP, then the *pro* that the AVQ adjoins to cannot find a target to refer (c.f. Huang et al. 2009:288), as shown in (129). That means the quantifying relationship between the ANQ and its associated nominal phrase cannot be established.

(129) Yi-dui sangmen da de fuqi dagai liang-ge
 one-CL throat load DE husband.wife probably two-CL
 ren jiu keyi chao-de ba wuding fan guo-qu.
 person just can noisy-DE BA roof turn pass-over
 ‘A married couple, two people, with an earsplitting voice can make the roof
 rocked.’

As aforementioned, Huang et al. (2009) indicate that the QP, which lacks a DP layer, functions to denote quantity so pronouns cannot refer to it. Under Doetjes’ analysis, example (129) would be ungrammatical since the *pro* that the AVQ *liang-ge ren* ‘two people’ adjoins to cannot refer to the associated nominal phrase *yi-dui sangmen da de fuqi* ‘a married couple with an earsplitting voice’ which is a QP apparently. However, this prediction is not borne out. This means that Doetjes’ (1997) Adverbial Analysis would rule out the acceptable sentences like (129). Thus, I suggest that Doetjes’ (1997) Adverbial Analysis is not a proper account for the AVQ since it is unable to predict all the facts of the AVQ in Chinese.

In brief, I argue that Doetjes’ (1997) Adverbial Analysis does not hold for Chinese AVQ. Since the leftward FQ in French, in which the FQ is located on the left of the associated nominal phrase (see section 2.2) does not exist in Chinese, the (42)

configuration proposed by Doetjes (1997) and the empty category adjoined by an FQ seem to be unnecessary for the AVQ. Empirically, Doetjes' (1997) analysis fails to capture the facts of the AVQ in Chinese, as shown in (129). Under Doetjes' analysis this sentence should be ungrammatical since the empty category that the FQ adjoins to cannot refer to its associated nominal phrase. It seems that in Chinese it is more proper to just treat the AVQ as an adverb without an empty category.

3.3.3 Two readings of the AVQ

Recall the discussions in the section 2.2 and section 3.1 that the AVQ in Chinese can yield two readings: exhaustive and partitive reading like the Japanese numeral FQ. In this section, I will further discuss the two readings of the AVQ.

According to Fujita (1994), Downing (1996) and Kobuchi (2004, 2007) , in Japanese the adnominal numeral quantifier can only yield an exhaustive reading but the adverbial numeral quantifier can have both an exhaustive and a partitive reading. Similarly, in Chinese the AVQ can yield two readings: exhaustive and partitive reading, as displayed in (130) whereas the ADQ can only be used in an exhaustive context in (131).

(130) Na-xie xuesheng yiding san-ge ren nenggou zai
 that-CL student definitely three-CL person can in
 zhe-chang bisai de jiang.
 this-CL game win prize

a. 'Three of those students can win a prize in this game.' (AVQ-partitive)

b. 'The three students can win a prize in this game.' (AVQ-exhaustive)

(131) Na-xie xuesheng san-ge ren a! yiding nenggou
 that-CL student three-CL person EXCL ! definitely can
 zai zhe-chang bisai de jiang.
 in this-CL game win prize

a. *'Three of those students can win a prize in this game.' (ADQ-partitive)

b. 'The three students can win a prize in this game.' (ADQ-partitive)

Fujita (1994) claims that in Japanese the reading of an FQ will vary, depending on the relevant context. More precisely, in most cases, the FQs are interpreted with a partitive reading since its associated nominal phrase is the relevant set which can be used to compare with the FQ. Furthermore, Inoue (1987), Hamano (1990) and Fujita (1995) note that the partitive reading is one of the characteristics of FQ. The AVQ in Chinese has a similar characteristic. As shown in (130), the AVQ *san-ge ren* ‘three people’ can have either an exhaustive or a partitive reading.

Moreover, it is found that if the AVQ is non-numeral and expresses an exhaustive reading, then the AVQ must be licensed by a distributive or a collective adverb, like *dou* ‘all’, *yiqi* ‘together’, *fenbie* ‘respectively’ etc. (see ex.(132)), while if the AVQ is numeral or expresses a partitive reading, then the licensors are optional (see ex.(133)-(134)).²¹

²¹ There are some quantifiers in Chinese that cannot be categorized into numeral or non-numeral easily like *mou-xie ren* ‘some people’, *mou-ji-ge ren* ‘certain people’ etc.. Since classifying these quantifiers involves the inner structure of Chinese NP, which goes beyond the scope of this thesis I will leave it for future studies. Here, I just want to remind that these quantifiers also have the similar behaviors to the AVQ.

(132) Na-xie xuesheng dagai mei ge ren (*dou) nenggou
 that-CL student probably every CL person DOU can
 zai zhe-chang bisai de jiang.
 in this-CL game win prize
 ‘Each of those students probably can win a prize in this game.’

(133) Na-dui xiongdi yinggai liang-ge ren hui (yiqi) zai
 that-CL brother should two-CL person will together in
 zhe-chang bisai de jiang.
 this-CL game win prize
 ‘Both of that pair of brothers will likely win a prize in this game.’

(134) a. Na-xie xuesheng dagai mou-xie ren nenggou zai
 that-CL student probably some-CL person can in
 zhe-chang bisai de jiang.
 this-CL game win prize
 ‘Some of those students probably can win a prize in this game.’

b. Na-qun xuesheng dagai san-ge ren hui chuxi
that-CL student probably three-CL person will attend
zhe-ge huiyi.
this-CL meeting

‘Probably, three of those students will attend this meeting.’

If the AVQ is non-numeral and yields an exhaustive reading, a licenser is required (see ex.(132)). However, if the AVQ is numeral and yields an exhaustive reading, a licenser is not necessary but it is more natural for native speakers to get an exhaustive reading with a licenser. A partitive reading of the numeral or non-numeral AVQ is always available regardless of a licenser (see ex.(134)). As discussed in section 2.2, the partitive reading is more preferred in FQ construction, noted by Inoue (1987), Hamano (1990) and Fujita (1995). Therefore, I believe that it is easier for the AVQ in Chinese to yield a partitive reading.

As to the reason why the non-numeral AVQ requires a licenser, I think that it may be due to the nature of the quantifier *mei* ‘every’ itself. According to Huang (1995), *mei yi ge* ‘everyone’ is a distributive quantifier so it needs the quantifier DOU or an indefinite adverbial phrase to be the licenser to introduce its predicate, as shown in (135).

(135) a. Mei yi ge xuesheng *(DOU) biye-le.

every one CL student DOU graduate-ASP

‘Every student graduated.’

b. Mei yi ge gexing hong-le yi nian.

every one CL singer popular-ASP one year

‘Every singer was popular for one year.’

(Huang 1995)

Apart from the distributive quantifier *mei yi ge* ‘everyone’, the quantifier *suoyou* ‘all’ also requires a licenser (Huang 1995).²² The licenser of *suoyou* ‘all’ can be a distributive licenser like DOU, a collective licenser like *yiqi* ‘together’, or an indefinite adverbial phrase since *suoyou* ‘all’ can yield a distributive or collective reading. I suggest that depending on the reading, distributive or collective, the non-numeral AVQ needs different licensers, as shown in (136).

²² Since *mei yi ge* ‘everyone’ is a distributive quantifier, semantically, it can only be licensed by distributive licensers.

(136) Na-xie xuesheng yiding suoyou ren nenggou (yiqi/ DOU)

that-CL student definitely all person can together DOU

zai zhe-ge xuexiao dushu/du yi-nian shu.

in this-CL school study one-CL book

‘Those students definitely can study in this school together for one year./Each of those students definitely can study in this school for one year.’

The reason why the non-numeral quantifiers which expresses an exhaustive reading need a licenser would be a semantic issue which goes beyond the scope of this thesis.

3.3.4 Some remarks on other constructions which are claimed to be FQ constructions in Chinese

The universal quantifier DOU and some other numeral quantifiers in Mandarin will be compared with the AVQ since the AVQ is similar to DOU and those numeral quantifiers in the way that they both can quantify their associated nominal phrases even though they are not adjacent. In this section, I will compare the AVQ with DOU first, and then distinguish the AVQ from those numeral quantifiers.

3.3.4.1 DOU

DOU and the AVQ both can quantify their associated nominal phrases even though these quantifiers are not adjacent to their associated nominal phrases, as shown in (137)-(138), respectively.

(137) Na liang-dui shuangbaotai xiongdi hui **dou** yiqi dao
that two-CL twin brother will DOU together arrive
taishang biaoyan.

stage.top perform

‘All the two pairs of twin brothers will perform on the stage.’

(138) Na liang-dui shuangbaotai xiongdi hui **si-ge ren**
that two-CL twin brother will four-CL person
yiqi dao taishang biaoyan.

together arrive stage.top perform

‘Those two pairs of twin brothers, four people, will perform on the stage.’

In (137)-(138), DOU and the AVQ *si-ge ren* ‘four people’ quantify the subjects, which are not adjacent to them. This particular relationship between DOU and its associated nominal phrase has been discussed extensively, as noted by Chiu (1993), Cheng (1995) and Huang et al. (2009).

In fact, AVQ does not behave in the same way as DOU. Semantically, the AVQ can have either distributive or collective reading while DOU can have only distributive reading. In terms of syntactic distribution, they occur in different positions in sentences, as shown in (139a-b).

(139) a. Na-dui xiongdi (liang-ge 師 ren) zhongzhong-de
 that-CL brother two-CL person heavily-DE
 (*liang-ge ren) fenbie da-le Zhangsan yi-quan.
 two-CL person respectively hit-ASP Zhangsan one-fist

‘Both that pair of brothers gave Zhangsan a hard punch.’

b. Na-dui xiongdi (dou) zhongzhong-de (dou) da-le
 that-CL brother DOU heavily-DE DOU hit-ASP
 Zhangsan yi-quan.
 Zhangsan one-fist

‘That pair of brothers all gave Zhangsan a hard punch.’

As seen in (139), the AVQ must be higher than a manner adverb (see ex. (139a)) but DOU can be higher or lower than a manner adverb (see ex. (139b)).

Furthermore, the AVQ and DOU can co-occur but the position of the AVQ and DOU are not interchangeable, as shown in (140). If the two elements have similar syntactic behaviors, then they should be interchangeable in word order (see ex.(141)). In (141), two manner adverbs *manman-de* ‘slowly’ and *qingsong-de* ‘airily’ can change their word order, because they have the same syntactic property. However, this cannot work for DOU and the AVQ.

(140) Na-dui xiongdi hui (liang -ge ren) dou *(liang-ge ren)
 that-CL brother will two-CL person DOU two-CL person
 dao taishang biaoan.
 arrive stage.top perform

‘Both of that pair of brothers will all perform on the stage.’

(141) Wo hui (manman-de) qingsong-de (manman-de) sanbu.

I will slowly-DE airily-DE slowly-DE walk

‘ I will take a walk airily and slowly.’

Moreover, the AVQ and the DOU can have different quantifying targets, as shown in (142)-(143).

(142) Youyou he Lele, ta yinggai dou hen xihuan.

Youyou and Lele he probably DOU very like

‘He probably like both Youyou and Lele.’

(143) *Youyou he Lele , ta yinggai liang-ge ren hen

Youyou and Lele he probably two-CL person very

xihuan.

like

‘He probably like both Youyou and Lele.’



More specifically, DOU quantifies the arguments which c-command can it so DOU can refer to the topicalized argument in (142) while the AVQ can only refer to the argument undergoing A movement, and thus it cannot be associated with the topicalized argument in (143).

For the syntactic analysis of DOU, the interested readers are referred to Cheng (1995) and Huang et al. (2009). Although the AVQ and DOU can both quantify a DP when they are not adjacent, they do not have the same syntactical behaviors. As

shown above, they have different distributions and their associated nominal phrases are different. This suggests that they have different mechanisms to be associated with their targets. The purpose of comparing DOU and the AVQ here is to argue that the analyses of DOU are unable to account for the facts of AVQ (c.f. Cheng 1995, Huang et al. 2009).

3.3.4.2 Other numeral quantifiers

In Chinese, some numeral quantifiers which are not adjacent to their associated nominal phrases are regarded as Chinese FQs (Cheng 2007, Shin 2008), as shown in (144).²³

(144) a. Tamen ban de xuexheng lai-le san-ge.
 they class DE student come-ASP three-CL

‘Three of the students in their class came.’

b. Na-xie pingguo, wo chi-le san-ke.
 that-CL apple, I eat-ASP three-CL

‘I ate three of those apples.’

²³ Thanks to Prof. Jen Ting for pointing out that the example (i) may be derived from the example (145b) so it seems to be improper to treat it as an independent type. Shin (2008) treats (i) as an independent type of numeral quantifiers.

(i) Na-xie shu, wo san-ben dou kan-le.
 that-CL book I three-CL all read-ASP
 ‘I read all of those three books.’

The type of numeral quantifier in (144) has been discussed in Cheng (2007) and Shin (2008) and it can be associated with a topicalized object in a transitive sentence or a subject in unaccusative sentence. Moreover, this numeral quantifier can only have a partitive reading and stay lower than a verb.²⁴

The numeral quantifiers in (144) can be distinguished from the AVQ at issue based on some properties of the AVQ. First, the AVQ can have both an exhaustive and a partitive reading but the type of numeral quantifier in (144) can only yield a partitive reading, as shown in (145).

- (145) *Na san-ke pingguo, wo chi-le san-ke.
 that three-CL apple I eat-ASP three-CL
 ‘I ate all of those three apples.’

²⁴ Shin (2008) has discussed a type of numeral quantifier, which is similar to the type of quantifier in (144) and can express exhaustive reading, as shown in (i).

(i) Xuesheng, lai-le san-ge.
 student come-ASP three-CL
 ‘Here came three students.’

According to Shin (2008), in this type of numeral quantifier, the numeral quantifier follows the verb in a sentence and the associated nominal phrase can only have a general reading. This type of numeral quantifier and the AVQ are quite irrelative since the associated nominal phrase of this type of quantifier cannot indicate any quantitative information itself.

In (145), an exhaustive reading is not allowed since the number that the numeral quantifier *san-ke* ‘three-CL’ indicates cannot be the same as the number that the associated nominal phrase *na san-ke ping guo* ‘those three apples’ indicates, which means an exhaustive reading is impossible for the numeral quantifiers in (144).

Still another difference between the AVQ and the numeral quantifiers in (144) is that the AVQ cannot be associated with object whereas these quantifiers can, as shown in (143) and (144b), respectively. In (144b), the numeral quantifiers, *san-ke* ‘three-CL’, can be associated with topicalized objects *na-xie pingguo* ‘those apples’ while the AVQ in (143) cannot.

Given these facts, I think that the AVQ differs from the numeral quantifiers in (144). I will stop the discussions on the numeral quantifiers in (144) and leave them for the future researches since these numeral quantifiers are outside the scope of this thesis.

Overall, the AVQ behaving like adverbs can float among modals but must occur higher than VP, as depicted in (124). Although the AVQ is not adjacent to its associated nominal phrase, the AVQ can be associated with its associated nominal phrase in a sentence. Besides, as proved in section 3.3.2, the AVQ at issue cannot be accounted for by Doetjes’ (1997) analysis in which the FQ adjoins to an empty category. The AVQ should be treated as an adverb without any empty category.

Furthermore, like Japanese FQ, the AVQ can yield either a partitive reading or an exhaustive reading, which can be deemed as a characteristic of an FQ. Last but not the least, I find that although DOU is one of the candidates of FQ in Chinese, its distribution, properties and referring mechanism differ from the AVQ. Thus, it seems that the account for DOU may not be suitable for the AVQ. As to other numeral quantifiers, which have been considered as Chinese FQs, they can be distinguished from the AVQ since their readings and quantifying targets differ from the AVQ.



Chapter 4 Conclusion

In this thesis, I study a set of quantifiers, which has a similar distribution to the FQ *all* in English. As reviewed in chapter 2.2, the FQ construction has received two main approaches, Stranding Analysis and Adverbial Analysis. Under Stranding Analysis, significant problems like the mismatch between the FQ and its associated nominal phrase, the ungrammatical unaccusative sentences and the different interpretations of a sentence with an FQ and those with an adnominal quantifier will arise for not only the FQ *all* English but the set of quantifiers examined in this thesis in Chinese. Therefore, I will take Adverbial Analysis as the main account instead of Stranding Analysis.

I divide the quantifiers at issue into two types: the adnominal quantifier (ADQ) and the adverbial quantifier (AVQ). The ADQ adjoins to its host nominal phrase to form a constituent and due to the violation of ECP, the extraction of the host nominal phrase is forbidden. In terms of the AVQ, it is regarded as an adverbial adjunct, which can adjoin to functional categories. Furthermore, even though Adverbial Analysis with an empty category (Doetjes 1997) and Adverbial Analysis without an empty category (Kayne 1981) can both explain the anaphoric relationship between the AVQ and its associated nominal phrase with different mechanisms, yet, Doetjes' analysis

cannot hold for all the facts of the AVQ in Chinese, as shown in (129). It seems that Adverbial Analysis without an empty category (Kayne 1981) is a better analysis for the Chinese AVQ. Overall, importantly, a sentence with an ADQ and a sentence with an AVQ do not have a derivational relationship, which is also the essence of Adverbial Analysis.

There are some implications we can obtain in this thesis. Firstly, given the facts of the ADQ and the AVQ, I suggest that Adverbial Analysis is a more proper approach to the AVQ in Chinese. Furthermore, my analysis of the ADQ and the AVQ can further strengthen Adverbial Analysis cross-linguistically. Secondly, I provide another possible FQ, the AVQ, in Chinese. I observe that the AVQ and the universal quantifier DOU, which has been treated as an FQ (Chiu 1993) have different syntactical behaviors and, furthermore, the AVQ behaves syntactically closer to the canonical FQ *all* in English than DOU. This leads us to suggest that the analysis of DOU may be unable to account for AVQ in Chinese. Lastly, given that fact that the ADQ and its host nominal phrase form a constituent in DOC, as shown in (75), Paul and Whitman (2010) cannot use the claimed VP-adjoined position of *mei-ren* ‘everyone’ to argue for the movement of IO to across *mei-ren* ‘everyone’. Therefore, the analysis of the DOC would be challenged.

In this thesis, two problems remain unsolved. The first is that it is unclear why the ADQ can only yield an exhaustive reading but the AVQ can yield either an exhaustive or a partitive reading. Secondly, I do not know why a licenser is necessary in the sentence when the non-numeral AVQ yields an exhaustive reading. In the end, I hope that this thesis will shed some light on the cross-linguistic phenomenon, Floating Quantifier, and leave the unsolved problems for further study.



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