

## Monotonicity and Measure Phrases in Chinese\*

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### 1 Introduction

As is well known, in English, mass nouns require a measure phrase in order to be countable (*one cup of water, six ounces of gold, two loaves of bread*). An important property of Mandarin Chinese<sup>1</sup> is that all nouns, including those whose counterparts in English would be count nouns, are like mass nouns in needing a measure word or classifier. Classifier Phrases (CLPs) in Chinese take the form of ‘Num+CL+Noun’, as shown below.

- |     |                        |              |            |
|-----|------------------------|--------------|------------|
| (1) | <i>san</i>             | <i>ge</i>    | <i>ren</i> |
|     | three                  | CL           | man        |
|     | ‘three men’            |              |            |
| (2) | <i>san</i>             | <i>bang</i>  | <i>rou</i> |
|     | three                  | pound        | meat       |
|     | ‘three pounds of meat’ |              |            |
| (3) | <i>san</i>             | <i>xiang</i> | <i>shu</i> |
|     | three                  | box          | book       |
|     | ‘three boxes of books’ |              |            |

The facts in Chinese have led some linguists to propose that, indeed, all nouns in Chinese are mass nouns (Chierchia 1998, Cheng & Sybesma 1998). Cheng & Sybesma (1999) refer to the classifiers that create a unit of measure as mass-classifiers (2)-(3), and to the ones that simply name the unit of natural semantic partitioning as count-classifiers (1). They show that two grammatical processes are sensitive to the type of classifier used: one of these processes is the placement of a modification marker *de* between the classifier and the noun sequence. As is shown in their paper, mass-classifiers can occur in the *de*-intervening structure

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<sup>1</sup> Hereafter, Mandarin Chinese is shortened to “Chinese”.

‘Num+CL+*de*+Noun’, but count-classifiers cannot, as the contrast between (4) and (5) shows.

- (4)     *san*           *xiang*           *de*           *shu*  
           three        box            de            book  
           ‘books, the amount of which can fill three boxes’

- (5)     \**san*           *ge*            *de*           *ren*  
           three        CL            de            man

In this paper, I notice that when some mass-classifiers, such as *bang* ‘pound’, appear in the *de*-structure, the phrase will turn out to be ambiguous, shown in (6).

- (6)     *san*           *bang*           *de*           *yintao*  
           three        pound        de            cherry  
           a. ‘three pound cherries’  
           b. ‘three pounds of cherries’

The phrase in (6) has two interpretations—a quality-denoting interpretation and a quantity-denoting interpretation. In (6a), *san bang* ‘three pounds’ gives the weight of the individual cherries and therefore describes an unlikely scenario. (6b), on the other hand, describes a more likely scenario, because *san bang* ‘three pounds’ describes the total weight of the cherries consumed.

However, some other measure words, like *du* ‘degree’, differ from both mass-classifiers and count-classifiers in that they cannot take the form of ‘Num+CL+Noun’, but only participate in *de*-structures, as shown in (7) and (8).

- (7)     \**san*           *du*            *shui*  
           three        degree        water

- (8)     *san*           *du*            *de*            *shui*  
           three        degree        de            water  
           ‘three degree water’

In (8), the phrase unambiguously has the quality-denoting interpretation only, differing from the phrase in (4) which only has the quantity-denoting reading and that in (6) which has both quality and quantity-denoting interpretations.

The immediate question that arises is, how do we account for this variety of interpretations and the syntactic restriction associated with the modification marker *de*? In this paper, I will show that an analogue of Schwarzschild (2006)’s generalization of measure phrases (MPs) is operative in Mandarin Chinese, and I offer an account of why this is so based on recent hypotheses on the semantic properties of classifier phrases (Krifka 1995; Chierchia 1998, 2008), which claim that a classifier phrase must create ‘atomic’ structure.

This paper is organized as follows. Section 2 sketches out Schwarzschild's generalization on MPs and Chierchia's assumptions on CLPs. In section 3 I show that it follows immediately from the hypothesis on the semantic nature of CLPs that Chinese CLPs have quantity-denoting readings only. In section 4, I propose an analysis for the Chinese *de*-construction, arguing that the *de*-construction has two structures which give rise to two construals. Section 5 presents some consequences based on the analysis in previous sections. Finally, section 6 draws a conclusion.

## 2 Generalizations and Assumptions on MPs and CLPs

### 2.1 Schwarzschild's observation and generalization

Schwarzschild (2006) proposes a monotonicity constraint on measure phrases (MPs), conjecturing that some version of it may be universal. He notices the following paradigm:

- |      |                           |                        |
|------|---------------------------|------------------------|
| (9)  | a. three liters of water  | b. * three liter water |
| (10) | a. *three degree of water | b. three degree water  |
| (11) | a. one pound of cherries  | b. one pound cherry    |

The important fact is that MPs appear to be in complementary distribution between the pseudo-partitive (quantity-denoting) use (the a-cases) and the attributive (quality-denoting) use (the b-cases, which for Schwarzschild are actually cases of adjectival modification). Schwarzschild claims that two types of dimensions are described by the MPs that occur pre-nominally, and the position of an MP within the nominal projection limits the kinds of dimensions it can describe. The limitation is given in terms of monotonicity relative to a salient part-whole relation on the extension of the noun. To be concrete, a dimension is monotonic on a part-whole relation, if the extent to which something has the dimension is necessarily greater than the extent to which its proper subparts have it. A dimension is non-monotonic on a part-whole relation if the extent to which something has the same dimension as the extent to which its proper subparts have it. Monotonicity and non-monotonicity can be defined in (12) and (13).

- (12) Monotonicity:  
 $\mu$  is monotone with respect to P:  $\forall x, y \in P [x \leq_{\text{Par}} y \rightarrow \mu(x) \leq \mu(y)]$   
 $[_{\text{FP}} \text{MP } N'] \rightarrow \lambda x [N'(x) \wedge \text{MP}(x)]; \text{MP is monotonic on } N$

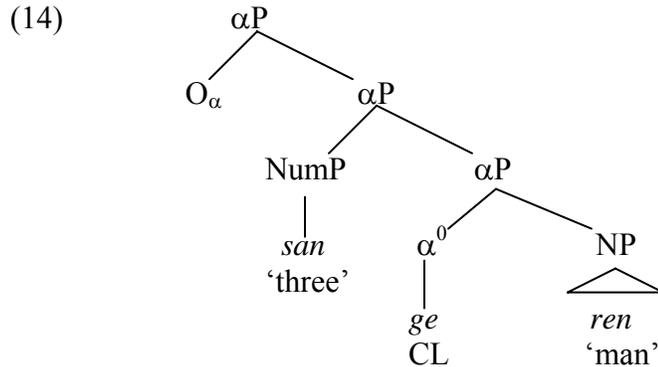
- (13) Non-monotonicity:  
 $\forall x, y \in P (x \leq_{\text{Part}} y \rightarrow x =_{\text{Dim}} y)$  'all parts of y have the dimension to the same extent as y'  
 $[_{N'} \text{MP } N'] \rightarrow \lambda x [N'(x) \wedge \text{MP}(x)]; \text{MP is non-monotonic on } N$

Schwarzschild makes the following generalization. MPs across languages specialize along two ways. Certain constructions (like the pseudopartitive in English) are restricted to MPs that measure a property monotonic with respect to the (property denoted by the) head and appear in a ‘higher’ position in the nominal projection. Other constructions, typically occurring ‘lower’ in nominal projection, are restricted to non-monotonic functions.

By looking at the facts in Mandarin Chinese, we notice that the CLP construction corresponds to the quantity-denoting reading, while the *de*-construction appears to be ambiguous, possibly a result of structural ambiguity. These facts show that an analogue of Schwarzschild’s generalization might be operative in Mandarin. In the following sub-section I will review recent hypotheses on the semantic nature of CLPs (Chierchia 1998, 2008).

## 2.2 Chierchia’s hypothesis on the semantic nature of CLPs

Chierchia (1998, 2008) claims that nouns in Chinese denote kinds, classifier phrases must create ‘atomic’ structure, and that the function of classifier phrases is to extract atoms from a non-atomic structure (see also Tang 1990; Cheng & Sybesma 1999). To look at a concrete example, the classifier phrase *san ge ren* ‘three men’ given in (1) has the following structure.



In (14), the noun phrase *ren* ‘man’ denotes kind,  $\alpha^0$  forms atomic properties, equivalent to classifiers, which extract atoms from non-atomic structure, and  $\alpha P$  is an atom phrase that contains atoms. Number phrase *san* ‘three’ looks for checking the cardinality of atoms. Since the  $\alpha P$  is an atom phrase containing atoms, it can pass the atomicity checking by the operator  $O_\alpha$ . The classifier phrase *san ge ren* ‘three men’ therefore has the semantics in (15).

- (15)
- $ge(\text{ren}) = AT(\text{ren})$
  - $san^{AT} = \lambda P \lambda x \exists Y [Y \subseteq^{AT} P \wedge |Y| = 3 \wedge x = \cup Y]$
  - $san \text{ ge } ren = \lambda x \exists Y [Y \subseteq^{AT} AT(\text{ren}) \wedge |Y| = 3 \wedge x = \cup Y]$

After sketching out the fundamental concept of the MPs and CLPs proposed by Schwarzschild (2006) and Chierchia (1998, 2008), I will, in the next two sections, propose an analyses of Chinese CLPs and the *de*-construction. I suggest that Schwarzschild's generalization of measure phrases holds in interesting ways in classifier languages, like Chinese. The CLP construction corresponds to quantity-denoting readings only. *de*-constructions could be ambiguous—that is, have either a quality-denoting reading or a quantity-denoting reading, as a result of structural ambiguity. I propose a relative clause analysis for the quality-denoting *de*-construction, in which the MP within the nominal phrase is in a lower syntactic position, non-monotonic on the head nouns. For the quantity-denoting *de*-construction, I propose a phrasal movement analysis, arguing that the MP within the nominal phrase is in a higher syntactic position, monotonic on the head noun. The analyses in this paper provide a straightforward explanation of the otherwise puzzling properties of CLPs and MPs in Chinese.

### 3 Chinese CLP construction

One implementation of the hypothesis on Chinese CLPs is that classifiers are functions from kinds into associated sets of atoms, and the denotation of a CLP must contain atoms. Under this hypothesis, it follows immediately that Chinese CLP has a quantity-denoting reading. Also, the puzzle of why some measure words, such as *du* 'degree', cannot enter the CLP construction, presented in (7) (repeated as (16)), can be solved accordingly.

(16)	<i>*san</i>	<i>du</i>	<i>shui</i>
	three	degree	water

As is easy to follow, if *x* is a quantity of water that measures three degree, there are going to be proper parts of *x* that measure one degree; however, it is impossible to find stable minimal parts of *x* with such property (as shown in (17)). Consequently, *san du shui* fails the atomicity checking and becomes ungrammatical.

$$(17) \quad \text{AT}(\text{degree}(\text{water})) = \emptyset$$

### 4 Chinese *de*-construction

In the beginning of the paper, I mentioned that mass-classifiers differ from count-classifiers in the way that they not only can take the form of 'Num+CL+Noun', but also can participate in *de*-construction; however, when mass-classifiers such as *bang* 'pound' appear in *de*-structures, the structure will turn out to be ambiguous. Example (6) is repeated as (18) below.

- (18)     *san*       *bang*       *de*       *yintao*  
           three     pound     de       cherry  
           a. ‘three pound cherries’  
           b. ‘three pounds of cherries’

Evidence from Cantonese also shows that mass-classifiers such as *bang* ‘pound’ have different syntactic behavior from count-classifiers.

- (19)     (*go*)   *tze*   *gau*   *he-dau*    *go*    *ma-lo*  
           that   CL   dog   progressing   pass   street  
           ‘That dog is passing the street.’

In (19), bare classifier phrase *tze gau* ‘CL dog’ can appear in the subject position with a definite reading, and the demonstrative *go* ‘that’ is optional. However, in (20), the demonstrative *go* ‘that’ is obligatory, and the bare classifier phrase *bong juk* ‘pound meat’ is disallowed in the subject position.

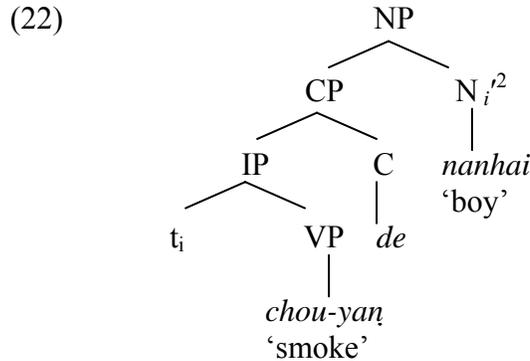
- (20)     \*(*go*)   *bong*   *juk*   *dakbit*   *hau*  
           that   pound   meat   special   good  
           ‘That pound of pork is specially good’

Given that those mass-classifiers differ syntactically from count-classifiers and the *de*-construction could be ambiguous, I assume that the semantic ambiguity is the result of structural ambiguity. Specifically, I argue that the *de*-construction has two structures which give rise to two construals. The relative clause (RC) analysis of *de*-construction gives quality-denoting reading, in which the MPs are in a lower syntactic position, non-monotonic on the head nouns; the phrasal movement (PM) analysis leads to a quantity-denoting reading, in which the MPs are in a higher syntactic position, monotonic on the head nouns. The detailed analyses are presented in the next two sub-sections.

#### 4.1 The Relative Clause analysis and quality-denoting reading

Relative clauses (RC) in Chinese take the form of ‘XP+*de*+NP’, as in (21). The element *de* in relative clause is commonly viewed as a complementizer (Aoun & Li, 2003, *inter alia*), and the head nouns in relative clause are viewed as derived through movement from Spec IP position to Spec NP position, shown in (22). If nouns uniformly denote pre-atomic entities, nouns that are derived through relativization also will. After relativization, complex kinds, sorts, or concepts will be derived (as Krifka (1995) puts it), and the semantics of the newly formed complex noun phrase can be viewed as the intersection of two sets, as is shown in (23).

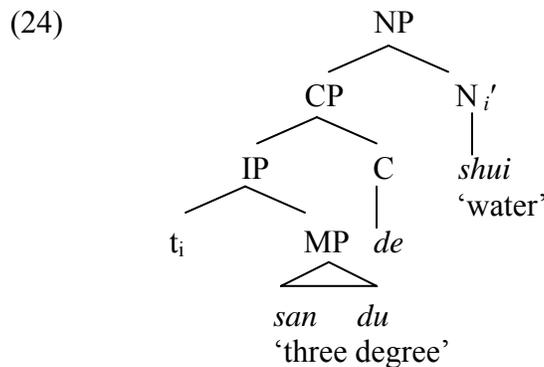
- (21) *yi ge chouyan de nanhai*  
 one CL smoke de boy  
 ‘one boy that smokes’



(Syntactic analysis adopted from Aoun & Li, 2003)

- (23) *chou-yan de nanhai* =  $\lambda x$  [boy(x)  $\wedge$  smoke(x)]

Based on the analysis of Chinese relative clause, I propose that the *de*-construction with the quality-denoting reading is derived in the same way as relative clauses. The syntactic structure of the phrase *san du de shui* ‘three degree water’ can be analyzed in the following way.



In (24), the MP *san du* ‘three degree’ starts as the predicate of the noun phrase *shui* ‘water’, after relativization of the subject, a complex noun phrase is formed. Notice that, the MP is in a lower syntactic position, non-monotonic on the head noun. The semantics of the phrase in (24) can be viewed as the intersection of water kind and things that are at three degree, shown in (25).

- (25) *san du de shui* =  $\cap \lambda x \forall y [y \leq_{\text{Part}} x \rightarrow y =_{\text{Dim}} [\cup \text{water}(x) \wedge \mu_{\text{degree}}(x) = 3]]$

<sup>2</sup> I assume that moving elements can project in this paper.

Several arguments support the RC-analysis on the quality-denoting *de*-construction. First, MPs can be used independently as the predicate of the head nouns, the same as VP, exemplified in (26) and (27).

(26) *nanhai chouyan*  
 boy smoke  
 ‘Boys smoke.’

(27) *shui san du*  
 water three degree  
 ‘The water is at three degree.’

Secondly, both relative clauses and quality-denoting *de*-constructions require obligatory *de*-insertion<sup>3</sup>, as illustrated in (28) and (29).

(28) *yi ge chouyan \*(de) nanhai*  
 one CL smoke de boy  
 ‘one boy that smokes’

(29) *san du \*(de) shui*  
 three degree de water  
 ‘three degree water’

Thirdly, when the head noun is topicalized, *de* cannot be omitted in both relative clause and quality-denoting *de*-construction. (Soo-Yeong Jeong, pc)

(30) *nanhai wo xihuan chouyan \*(de)*  
 boy I like smoke de  
 ‘As for boys, I like those who smoke’

(31) *shui wo xihuan he sanshi du \*(de)*  
 water I like drink thirty degree de  
 ‘As for water, I like drinking that which is at thirty degrees.’

Fourthly, MPs can conjoin with a verbal phrase to modify head nouns, as in (32).

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<sup>3</sup> In some cases, *de* can be optional, such as in *xiao (de) shu* ‘books that are small; however, when *de* is absent, *xiao shu* is commonly regarded as a compound ‘small books’ instead of a relative clause.

- (32) *sanshi du bingqie zhengliu guo de shui*<sup>4</sup>  
 thirty degree and distill ASP de water  
 ‘water which is at thirty degree and has been purified’

Lastly, both MPs and VPs are non-monotonic on the nouns that they modify.

Cheng & Sybesma (1998) also propose that the Num-CL-de-Noun sequence is an instance of subject relativization out of small clause. However, in the following subsection I will clarify that only quality-denoting Num-CL-de-Noun sequence is derived through subject relativization; while quantity-denoting Num-CL-de-Noun sequence is derived through phrasal movement as is proposed.

#### 4.2 The Phrasal Movement analysis and quantity-denoting reading

I propose for the quantity-denoting *de*-construction a phrasal movement (PM) analysis, which is triggered by a null functional head. This analysis creates a functional phrase.

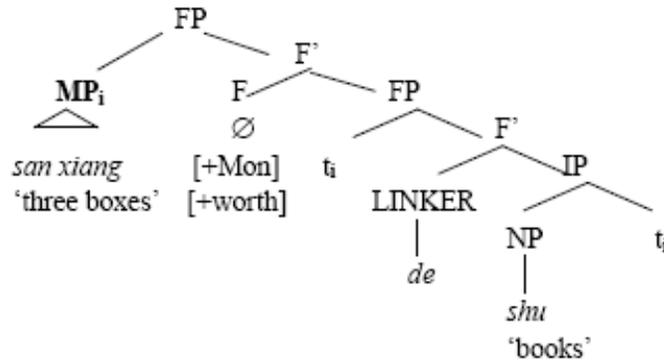
The proposal above is based on the predicate inversion analysis of den Dikken (2006) which relies on the presence of a Linker with my revision. Specifically, the head noun and the MPs start with a predication relation forming an IP. The Linker, phonetically realized as *de*, merges with this IP. The predicate MP moves to the specifier position of the Linker forming a new modification relation with the head noun. A null functional head F encoded with [+Mon] and [+worth] features further merges with the Linker phrase, which attracts the MP moves to the higher Spec FP position. Let us look at an concrete example. The phrase in (33) has the syntactic structure in (34).

- (33) *san xiang de shu*  
 three box de book  
 ‘three boxes worth of books’

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<sup>4</sup> The order of the MPs and the verbal phrases seems to matter in the phrase—if we switch the order, the phrase might be odd. However, there are presumably reasons for this that are independent of the discussion in this paper, so I will ignore the ordering here.

(34)



As we can see, the MP *san xiang* ‘three boxes’ in (34) starts with the NP *shu* ‘books’ with a predication relation. After merging with the Linker *de*, the MP moves to the specifier position of the Linker head, and a new modification relation is established between the MP and the NP. A null functional head F further merges with the Linker phrase, and its [+Mon] and [+worth] features attract the MP which continues to move to the higher Spec FP position. As a result, the MP *san xiang* ‘three boxes’ is in a higher syntactic position, measuring a property monotonic with respect to the head noun, as its semantics shown below.

$$(35) \quad [{}_{\text{FP}} \text{ san xiang de shu}] = \lambda x [\cup \text{book}(x) \wedge \mu_{\text{box}}(x) = 3] \\ = \lambda x \forall y [y \leq_{\text{Part}} x \rightarrow y \leq_{\text{Dim}} [\cup \text{book}(x) \wedge \mu_{\text{box}}(x) = 3]]$$

Here, some question about the nature of the null functional head F might arise. The assumption that the null functional head F encodes [+Mon] and [+worth] features is based on the observations of Jeong (in progress) and the proposal in Schwarzschild (2006).

Jeong (in progress) observes that *de*-construction actually has the ‘worth’ reading, the same with the worth-sentence in English. The comparison is given in (36) and (37).

(36) five-hundred dollars worth of books

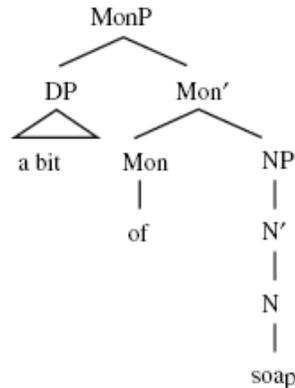
(37) *wu bai kuai de shu*  
 five hundred CL de book  
 ‘five-hundreds dollars worth of books’

After Jeong’s observation, the previous quantity-denoting *de*-sentences require more accurate English translations, as shown in (38) (compare with (4)).

(38) *san xiang de shu*  
 three box de book  
 ‘three boxes worth of books’

Moreover, given that a measure phrase or QP describes the extent of an object along some dimension, Schwarzschild (2006) proposes a functional head  $\text{Mon}^0$  for English pseudo-partitives which places a constraint on the choice of that dimension in terms of monotonicity, as shown in (39)

(39)



Based on the fact that quantity-denoting *de*-construction encodes both ‘worth’ and ‘monotone’, I assume that the functional head F in *de*-construction has both [+Mon] and [+worth] features. This functional head is morphologically null in Chinese, but it can be realized in some other languages, such as ‘worth’ in English and ‘bun’ in Japanese. (Jiang, in progress).

Another question that may arise in this sub-section is, why can’t the quantity-denoting *de*-construction be analyzed through RC-analysis? I find at least two answers to this question. One is that the measure phrase in the quantity-denoting *de*-construction cannot conjoin with a VP predicate to modify the head noun (40) in the same way as the measure phrase in quality-denoting reading *de*-constructions can, as in (32).

- (40) \**san xiang bingqie hen jiu de shu*  
 three box and very old de book  
 Intended interpretation: ‘books, which are very old and the amount of which can fill in three boxes’

Another reason to have the PM-analysis instead of RC-analysis for the quantity-denoting *de*-construction is that if the head noun is topicalized, *de* in quantity-denoting *de*-constructions must be omitted, as in (41), which contrasts with the syntactic behavior of relative clauses and quality-denoting *de*-construction, repeated in (42) and (43).

- (41) *shu wo mai le san xiang (\*de)*  
 book I buy ASP three box de  
 ‘As for books, I bought three boxes’
- (42) *nanhai wo xihuan chouyan \*(de)*  
 boy I like smoke de  
 ‘As for boys, I like those who smoke’
- (43) *shui wo xihuan he sanshi du \*(de)*  
 water I like drink thirty degree de  
 ‘As for water, I like drinking those which are at thirty degree.’

Moreover, the PM-analysis on the quantity-denoting *de*-construction provides a good explanation for why ‘de’ is not allowed to appear in (41). Given that the Linker *de* is not a syntactic label, but rather a metalabel for heads of various syntactic types which serves as a pivot for predicate inversion to derive a modification relation between the moved predicate and the head noun (den Dikken 2006), once the head noun is moved away, the Linker cannot remain.

Notice that though both CLPs and *de*-constructions have quantity-denoting interpretations, their semantics are slightly different from each other as observed in Cheng & Sybesma (1998), illustrated in (44) and (45).

- (44) *san xiang de shu*  
 three box de book  
 ‘three boxes worth of books’
- (45) *san xiang shu*  
 three box book  
 ‘three boxes of books’

The former phrase in (44) denotes the total amount of the books which is equivalent to the amount that measured by three boxes, and the three individual boxes do not have to be present when this phrase is used; the latter phrase in (45) denotes three boxes, each of them filled with books, so the actual ‘box’ has to be present when using this phrase. Based on Chierchia’s hypothesis on CLPs and Schwarzschild’s analysis on MPs, I give the semantics of the two phrases above in (46) and (47).

$$(46) \quad \text{san xiang shu} = \lambda x \exists y \exists Y [\cup \text{book}(x) \wedge \mathbf{AT}(\text{box})(y) \wedge \text{filled-with-} \\ \text{R}(x,y) \wedge Y \sqsubseteq_d^{\mathbf{AT}} \mathbf{AT}(\text{box}) \wedge |Y| = 3 \wedge y = \cup Y]$$

$$(47) \quad \text{san xiang de shu} = \lambda x [\cup \text{book}(x) \wedge \mu_{\text{box}}(x) = 3]$$

These two different strategies of deriving *de*-constructions explain why certain *de*-phrases have quantity-denoting readings only and other *de*-phrases have quality-denoting readings only. The ambiguous *de*-phrases can be viewed as being derived through these two different strategies, as the next subsection shows.

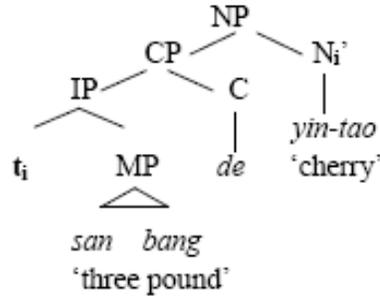
### 4.3 Analyzing ambiguous *De*-phrases

The ambiguous sentences in (6) (repeated in (48)) could be derived through either the RC strategy or the PM strategy.

- (48)      *san*          *bang*          *de*          *yintao*  
           three        pound        de          cherry  
           a. ‘three pound cherries’  
           b. ‘three pounds of cherries’

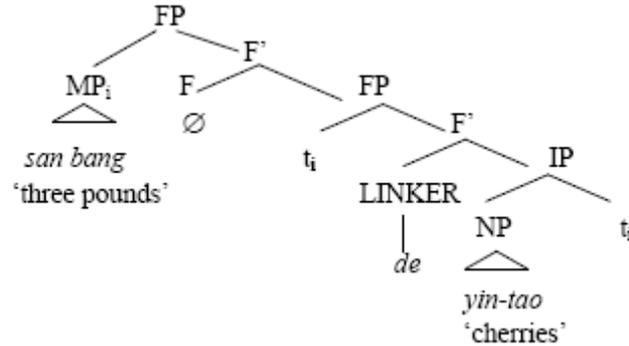
If the RC strategy is used, the MP will be in lower position, non-monotonic on the head noun, which gives rise to a quality-denoting reading, as illustrated in (49) with its semantics in (50). If the PM strategy is used, the MP within the nominal phrase will be in a higher syntactic position, monotonic on the head noun, and the quantity-denoting reading will be derived as a result, as given in (51) with the semantics in (52). The puzzle of why *de*-constructions can be ambiguous is therefore solved.

- (49)      Quality-denoting reading of *san bang de yintao*



- (50)       $\text{san bang de yintao} = \lambda x \forall y [y \leq_{\text{Part}} x \rightarrow y = \text{Dim} [\cup \text{cherry}(x) \wedge \mu_{\text{pound}}(x) = 3]]$

- (51) Quantity-denoting reading of
- san bang de yintao*



- (52)
- $\text{san bang de yintao} = \lambda x \forall y [y \leq_{\text{Part}} x \rightarrow y \leq_{\text{Dim}} [\cup \text{cherry}(x) \wedge \mu_{\text{pound}}(x) = 3]]$

## 5 Further consequences

The two structural construals of *de*-construction have two further consequences. One consequence is that when the RC strategy is used, modified NPs are created, so further combination of the modified NPs with classifiers (either count or mass classifiers) is possible, as shown below:

- (53) *liu ke san bang de yintao*  
 six CL three pound de cherry  
 ‘six cherries, each of which weighs three pound’

- (54) *liu dai san bang de yintao*  
 six bag three pound de cherry  
 ‘six bags of cherries, each of which weighs three pound’

In the two examples above, *san bang de yin-tao* ‘three pound cherries’ can be interpreted as a complex kind or concept, therefore it can be atomized either by the count-classifier *ke*, as in (53) or by the mass-classifier *dai* ‘bag’, as in (54).

Another consequence is that we can view the fact that count-classifiers such as *ge* cannot enter *de*-construction (repeated in (55)) as a result of not being able to enter *de*-constructions as a measure phrase — count-classifiers can only be used as atomizers, extracting atoms from non-atomic structure.

- (55) \**san ge de ren*  
 three CL De man

## 6 Conclusion

Based on the hypothesis that CLPs create atomic structure (Krifka 1995; Chierchia 1998, 2008), I propose that Schwarzschild's generalization of measure phrases holds in interesting ways in classifier languages, like Chinese. CLP constructions correspond to quantity-denoting readings which follow immediately from the hypothesis on the semantic nature of CLPs. *de*-constructions can be ambiguous — either have the quality-denoting reading or the quantity-denoting reading. I assume the ambiguity of the *de*-construction is the result of structural ambiguity. I propose a relative clause analysis for quality-denoting *de*-construction, in which the MP within the nominal phrase is in a lower syntactic position, non-monotonic on the head nouns. For the quantity-denoting *de*-construction, I propose a phrasal movement analysis, arguing that the MP within the nominal phrase is in a higher syntactic position, monotonic on the head noun. The analyses in this paper provide a straightforward explanation of the otherwise puzzling properties of MPs in Chinese, and have rich consequences for how number marking and measure phrases should be analyzed cross-linguistically.

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