

## **SYNTACTIC-SEMANTIC A**



## 2 Syntactic Analysis of Classifiers

### 2.1 Proposal for the Syntactic Structure of the Classifier Construction

The two basic options for the constituent structure of classifier constructions are [Num [CL N]] and [[Num CL] N]. In this section, I argue in favor of the latter. Krifka (1995), who uses formal semantics to analyze noun phrases in Mandarin, treats the numeral and classifier together as a measure phrase, which is the latter structure. Greenberg and Kemmer (1990) also describe the NP in Mandarin as [[Num CL]-NP], in which the classifier is also the complement to the numeral. Following Greenberg and Kemmer (1990) and Krifka (1995), I hypothesize that the classifier construction is a phrase headed by the numeral selecting for CIP, which only contains the classifier, not the noun.

The next question is whether the classifier or the numeral is the head of Num-CL constituent. I claim that as the classifier is selected by the numeral, the Num-CL constituent is headed by the numeral. In other words, the classifier is the complement of the numeral and encodes lexical meanings as well. The classifier is not required by the noun. On the contrary, it selects for the noun. The proposed structure is given in Figure 1.

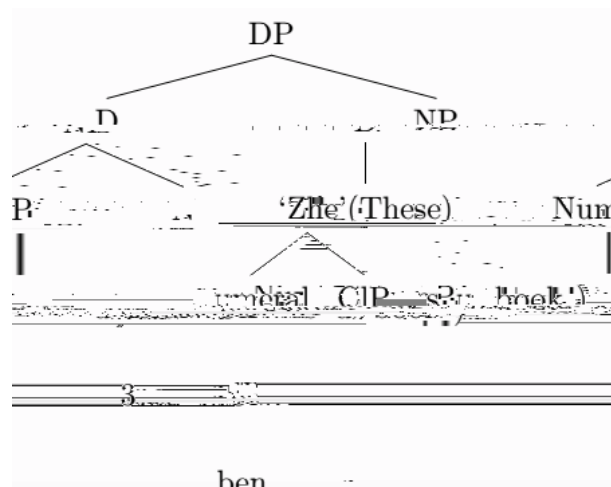


Figure 1. Proposed structure of Mandarin Classifier-N construction: 'these three books'.

The syntactic structure in Figure (1) is similar to Cheng and Sybesma's (1999) analysis in that the numeral is the head of the NumP, indicating the quantity of the noun. This is also true from the point of view of semantics, in that the core meaning of the expression is the quantity. However, how does the noun combine with the Num-CL constituent? Does the noun select for the numeral or is it selected by the numeral? In the next sub-section, I compare my analysis with the existing accounts. I illustrate how this structure works in the compositional semantics in Section 3.

### 2.2 Comparison with Previous Accounts

Cheng and Sybesma (1999) argue that the external syntax of classifier constructions is CIP, where the classifier combines with the noun, as shown in Figure 2.

Figure 2. Structure for bare noun with definite reading in Mandarin (Cheng 1999)

Cheng and Sybesma (1999) posit that the classifier selects for the bare noun. That is, the category of the CL+N complex is CIP, not NP. Bare nouns in Mandarin can only express a definite interpretation, while CL+N can express both indefinite and definite. The

Figure 3. Proposed structure of Mandarin Classifier-N construction: 'bought one book'.

### 3 Semantic Analysis of Classifiers

Having looked at the syntactic structure of classifiers in Mandarin, we now turn to their semantics. As a specific classifier modifies a specific type of noun, and as there is no associated morphological change in Mandarin, I argue that there is a meaning relation between the classifier and the noun. For example, to modify the noun 'fish', we cannot use the classifier 'ke', which is for plants. In a corpus study, I isolated five types of classifiers: taxonomic classifiers, modificational classifiers, group classifiers, unit classifiers, and quantitative classifiers. In this paper, I focus on the two primary semantic relations between the classifiers and the nouns, taxonomic and modificational, which I will discuss in section 3.3 and 3.4.

#### 3.1 Krifka (1995)

Krifka (1995) illustrates Mandarin bare nouns in five circumstances: (a) the kind, (b) some specimens of the kind, (c) a set of specimens of this kind, (d) a number of individual specimens of this kind and (e) subspecies of this kind. The last three (c), (d), and (e) are three t

- (6) Subspecies level:  
 S n    zh ng    xióng  
 three CL.86) ' - bear  
 'three bears (species)'

Krifka (1995) argues that there are (at least) three types of unit functions under the union of Realization and Taxonomic function observable for the same noun *B*, ) ' - 'bear'. These three types are A. '(or 'herd', a measure function of a set of or number of specimens (4); 86, or 'object unit', the individual level (5), or individual specimens; and, 86) ' - or 'kind unit', the subspecies level (6). I summarize this function below in (7), in which I use the general term 'unit' to represent the 'set', 'object unit' and 'kind unit' function.

The representation of the semantic relation that holds between the classifier and the noun of Krifka (1995) is given below, where ' stands for the number of the entities (the numeral), 4 stands for the specific noun, and 5 and *C* are the realization relation and the taxonomic relation, respectively. Based on Krifka (1995), (*5DBIEF* applies to specimens or individual sums of specimens of *E*, and *CDBI(EF)* applies to subspecies or individual sums of subspecies of *E*. The two relations are conflated as a relation  $5CG(RT(xy) \quad R(xy) \quad T(xy))\#$

- (7) Cl = ! " ! # ! \$ . [ ' ( ( \$ , # ) & \* " † , ( # ) ( \$ ) = " ]

### 3.2 Lexical Semantics of Classifiers: *book, vehicle, moon, paper, spring*

I illustrate my revision of Krifka's analysis with the following examples. The examples with 'book' (10) and 'vehicle' (11) have basic unit classifiers, which are taxonomic and do not add to the lexical meaning of the nouns they modify. The classifiers in the examples with 'moon' (12), 'paper' (13) and 'spring water' (14) are modificational and add to the lexical meanings of the nouns they modify, expressing their shape or form.

- (10) Classifiers for written things
- ... )dP a. Y dwb n Mh uX P e M e s  
 one CL.@!' book  
 'a book'
- b. \*Y b n bàozh  
 one CL.@!' newspaper  
 intended: 'a (unit of) newspaper'

In the =,4.#'(=6,'!/( ,0%,)'#\$4( )\*(J%4&<)-4l(=6,'!/(J?,%,)'(1995), henceforth =,4.#'(1995), @!' has seven meanings. One gloss refers to essays, writings, paintings, inscription rubbings and memorials and can also be used as the counting unit for them. Because of the ancient handwriting and printing technology, @!' (as a classifier or measure word can only be used for one piece of painting or writing. Printed materials today such as books, journals, magazines, pamphlets, and notebooks correspond to the bound material description of writings as (10a). However, 'newspaper', whose appearance is 1 n

vessels and crafts, etc.) cannot be modified by <, #' -#(For example, 'boats' cannot be modified by <, #' - (as in (11c)). Instead, maritime transportation nouns use a different classifier, /). (11b).

I now give examples to show classifiers can function as predicate modifiers to nouns (12-15).

(12) Classifiers for 'moon'

- a. Y w n yuèliàng  
 one CL. I #' moon  
 'a (crescent) moon' ('wan' describes the shape of the moon as a curve)
- b. Yì lún yuèliàng  
 one CL. < . ' moon  
 'a (full) moon' ('lun' describes the shape of the moon as a ring)

Example (12) above illustrates that using two different classifiers to modify the same noun 4. !<, #' - 'moon' can express two distinct and contrastive meanings. In the example, one moon is crescent (12a), while the other is full (12b). The classifier I #' in (12a) originates from the verb 'bend' (=, 4. #' 1995). K #' can also be used as an adjective which means 'bent'. The original meaning of < . ' in (12b) is the wheel of a carriage, later developed to refer to all round objects, like a ring. It is the lexical semantics of the two classifiers that distinguishes the meanings of these two expressions.

(13) Classifiers for 'paper'

- a. Y ju n t zh  
 one CL. l. #' paper



meant a 'water drop', and can be used as the verb 'to drip'. In example (14a), 'spring water' is restricted to mean a water drop and cannot be used as a verb to indicate a flowing status. (*N.* originally meant 'rope' is used to describe things that share the feature of cylindrical shape, like rope. Example (14b) and (14c) use - . to describe a stream of spring water and a beam of light as the liquid and the light have the same cylindrical shape.

We have seen the examples that illustrate the lexical meanings of the classifiers. Now we will

- b. \*Yī zhè/liàng/lún huà  
 one CL. 86, 个, # ' - 个. ' text/writing  
 intended: 'one sentence'
- c. Yī duàn huà  
 one CL. ? . # ' text/writing  
 'one paragraph of text/writing' (= 'one paragraph')
- d. Yī gè jù-zi  
 one CL. - ! sentence  
 'one sentence'
- e. Yī gè duàn-luò  
 one CL. - ! paragraph  
 'one paragraph'
- f. Yī piān wènzhang  
 one CL. ", # ' article  
 'one article'

The Mandarin word *l.* originally meant one sentence or the pause in a sentence (=, 4. # ' 1995). The ancient Chinese meaning of *l.* still holds now: speakers use *l.* to measure sentences and express that they are complete (17a). Example (17b) shows that it is ungrammatical to use other classifiers to express the same meaning, including the general unit classifier 86, and other

## (19) Classifiers for letters

- a. Yì f ng xìn  
one CL.\*!' - letter  
'one letter' (= 'formal letter of correspondence, once contained in an envelope')
- b. \*Yì f ng zh  
one CL.\*!' - paper  
intended: 'one piece of paper'
- c. Y jìàn/gè xìn  
one CL.L,#'P-! letter  
'one letter' (= 'informal letter of correspondence, not necessarily once contained in an envelope')
- d. Yí gè xìn-f ng  
one CL.-! envelope  
'one envelope'

The word \*!' - as a verb means 'to close' (=,4.#' 1995), which brings an item into a state of being airtight. Q!' - originally could be used as a verb, an adjective, a noun or a classifier. As a classifier, \*!' - can only be used for formal letters of correspondence in an envelope. Letters are objects typically enclosed in an envelope due to their confidentiality. This strict usage of the classifier remains. In example (19b), it is ungrammatical to use \*!' - for 'paper', as 'paper' is not an enclosed item which can meet the requirement of \*!' -.

The general unit classifiers L,#'(and -! can also be used for letters (19c-d). In these cases, the letter is either confidential or not. This shows that the classifier indicates whether the letter is confidential or not, which means the classifier contributes to the meaning of the noun. Example (19d) also shows that the classifier \*!' - can combine with B, ', the letter of correspondence, to compose the word 'envelope', which again shows the classifier \*!' - contributes to the meaning of the noun B, '. Thus, the semantic relation between the classifier \*!' - and the noun B, ' is intersection, as shown below in (20).

(20) Cl - feng = !" ! #! \$.CLOSED(#) [' ( (\$, #) &\* " † (#) (\$) = " ]

### 3.5 Compositional Semantic Analysis of Taxonomic Classifiers: *ben*, *liang*

In the previous sections, I have given the syntactic structure [[Num CL] N] for the classifier construction and illustrated the lexical semantics of the classifier

(21) 'three books' [Num:three Cl:ben N:book]

( ( Num: three = , Z[ (

( ( Cl: ben = ! " ! # ! \$ . ( (#, bound sheets of writing) [' ( (\$, #) & \* " † (#) (\$ = " ] (

( ( Num: three Cl: ben = Cl: ben ( Num: three ) (

( ~~Num~~ beh#! \$

~~Num~~

ben

(24) 'one full moon' [Num:one Cl:lun N:moon]

( ( Num: one = \_" [(

( ( Cl: lun = !" !#! \$.ROUND(#) [' ( (\$, #) &\* " † (#) (

While both expressions make sense under a circumstance in which someone is indicating that an indefinite number of cats is five, the second expression is more acceptable. *M6*, is used to modify **animate** objects while *-!* is more general. **Animacy** should be a part of the meaning of *86*, shown in (27):

(27) Cl: zhi = ! " ! #! \$. ( (#, animate objects) [ ' ( (\$, #) & \* " + (#) (\$) = " ]

### 3.8 Summary

mostly compounds made of two words, and most classifiers can be used as one of the component stems of the compound nouns they modify (except





## Appendix A. Table of Taxonomic Classifiers in Mandarin.

Taxonomic Classifier	Sample Nouns Modified by Classifier	Features
ben		



## Appendix B. Table of Modificational Classifiers in Mandarin.

<b>Modificational Classifier</b>	<b>Sample Nouns Modified by Classifier</b>	<b>Features</b>
wan	moon, brow	

