Interdependencies in Chinese noun phrases

Kersti Börjars, Christopher Hicks & John Payne
The University of Manchester

In this paper, we propose a novel LFG analysis of the structure of Chinese noun phrases involving quantifiers and classifiers. The analysis accounts for the interdependencies between noun-phrase internal categories and the types of modifier they license by postulating a c-structure involving a spine of co-heads (D - Q - Class - N). This structure is more complex than the c-structure typically assumed for noun phrases in a variety of languages within LFG, but motivated specifically for Chinese both by the rigid ordering restrictions between these elements and the different categories of modifier permitted at each level. We argue, however, that the mutual interdependence of quantifiers and classifiers, and the (partial) complementary distribution between different types of classifier is a consequence of the f-structure features assigned to these. The analysis therefore exploits to the full the LFG distinction between a syntactically motivated c-structure and an independent level of f-structure.

Classifiers in Mandarin Chinese are generally assumed to be of two kinds, we will use CLASSIFIER (CL) and MEASURE WORD (MW), but other terms are also used: SORTAL vs MENSURAL classifiers or CLASSIFIER vs MASSIFIER (the term 'massifier' was introduced by Cheng & Sybesma (1998), the others have been in common use). Her & Hsieh (2010:528) describe the semantic difference between the two types as follows: 'The former subcategorizes objects with reference to their intrinsic properties, while the latter measures the quantity.' The two types are illustrated in (1a) and (1b) (Tang, 1990:418).

(1) a. yi da zhang zhi
one big CL paper
'one big sheet of paper'

b. na yi xiao xiang shu
that one small MW book
'that one small box of books

Quantifiers and classifiers are interdependent: neither can occur without the other, and either a classifier or a measure word is able to satisfy this interdependency. Many CL and MW have nominal counterparts which themselves take CL and MW, e.g. *san ben shu* 'three books' (CL *ben*) vs *san ge ben* 'three exercise books' (N *ben*) (Li, 2013). The nominal counterpart can however never itself function as a CL or MW.

The structure we assign to (1a) with a CL, is (2) (p2), with non-branching single-bar level nodes of functional categories omitted for simplicity.

Unlike Her (2012), and following, e.g. Cheng & Sybesma (1998, 1999) in a different framework, we assume a right-branching structure for Chinese noun phrases with multiple co-heads. The co-head structure automatically accounts for the rigid constraint which requires that D, Q, Class and N occur in that order. This alone would not justify the separate projections; each projection however in addition determines its own distinctive pattern of modification. Li (2013) notes three syntactic positions for adjectives in the nominal phrase: (i) adnominal adjectives which immediately precede the noun, (ii) pre-classifier or pre-measure word adjectives which appear between the numeral and the CL/MW, and (iii) "left-peripheral adjectives" (from Zhang (2012) which precede the numeral. Only a restricted set of adjectives, mainly dimensional adjectives such as *da* 'big' and *xiao* 'small', are allowed in position (ii) (see for instance Chao, 1968; Paris, 1981). In (1a), the restricted single adjectives which can occur between the quantifier and the classifier are modeled as a non-projecting category $\hat{A}$ adjoined to the classifier itself. The adjectives which occur before the noun will be modifiers at the NP level (they can be either single adjectives or adjective phrases marked with the attributive marker *de*). This position is the most unrestricted position for modifiers generally. Of special note is the unusual adjective position preceding the quantifier: this will be a modifier at the QP level (in form it cannot be a single adjective, and must take the attributive marker de). Alternatives to the postulation of the QP projection have obvious flaws: for example, if both the quantifier and the position (iii) adjective were treated as modifiers of ClassP, it would be difficult to enforce the restriction that adjectives marked with *de* cannot occur between the quantifier and the classifier.

The interdependency between quantifiers and classifiers is modeled by f-structure features. All classifiers will be lexically associated with the feature CLASS: for a CL such as *zhang* the value of this feature will be *sort*, and for a MW such as *xiang* 'box' the value will be *mw*. The complementary distribution of a CL and a MW within the same f-structure therefore follows straightforwardly from the incompatibility of their feature values, rather than from their occupying the same structural slot (as for example in Her, 2012). The feature CLASS is independently assigned by an existential equation to quantifiers, and this enforces the appearance of a classifier (of whatever variety) in any noun phrase containing a quantifier. Classifiers are similarly assigned the feature QUANT, ensuring that they must occur in the same structure as a quantifier.

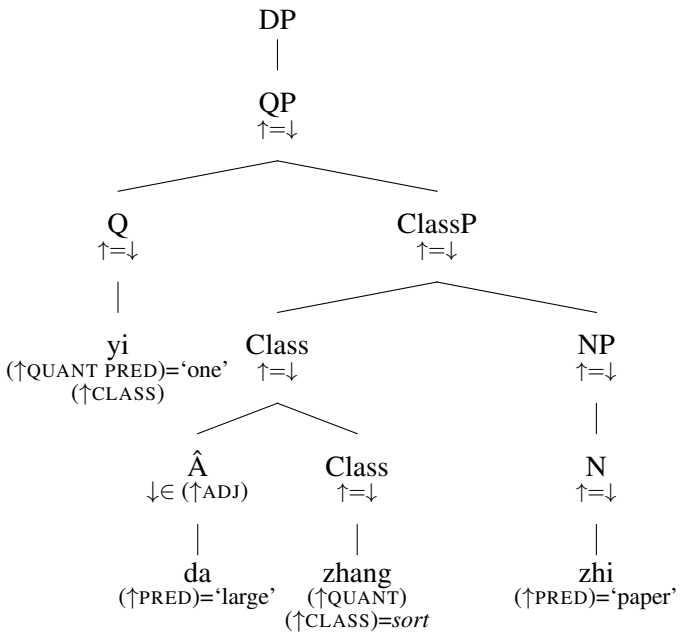
Our treatment of MW is illustrated in (3) (p3).

The crucial difference between a CL and a MW will be that a MW belongs to the category N, although its modification possibilities are very restricted compared to an ordinary noun and mirror those of a CL. In particular, a MW just like a CL can take a restricted non-projecting dimensional Â. As a noun, though, a MW will have its own PRED value, and take an OBL complement. Following an insight of Her (2012), the analysis of CL as co-heads and MW as elements with their own PRED value accounts for the "transparency" of CL with respect to adjectival modification: any adjective preceding the CL in (1a) modifies *zhi* 'paper', while any adjective preceding the MW in (1b) modifies the MW itself. That is, (1b) cannot be interpreted as "one box of small books".

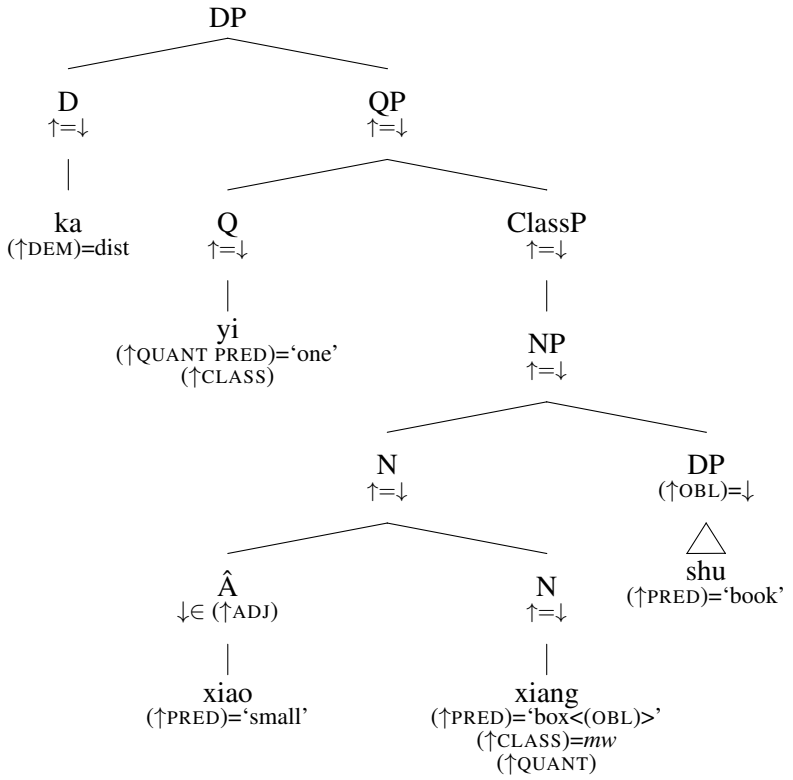
Our analysis, unlike the left-branching analysis of Her (2012), crucially predicts that MW can be followed by structures which themselves contain classifiers. It allows phrases such as *san xiang si ge pingguo* 'three boxes of four apples' and *san xiang liang dai pingguo* 'three boxes of two bags of apples'. Each MW has its own OBL complement mapping to a separate f-structure, and within this f-structure a new classifier of either sort is permitted.

C-structure trees

(2)



(3)



References

Chao, Yuen Ren. 1968. *A grammar of spoken Chinese*. Berkeley: University of California Press.

Cheng, Lisa L-S & Rint Sybesma. 1998. Yi-wan tang, yi-ge tang: classifiers and massifiers. *Tsing Hua Journal of Chinese Studies* New series 28(3). 385–412.

Cheng, Lisa L-S & Rint Sybesma. 1999. Bare and not-so-bare nouns and the structure of NP. *Linguistic Inquiry* 30(4). 509–542.

Her, One-Soon. 2012. Structure of classifiers and measure words: A lexical functional account. *Language and Linguistics* 13(6). 1211–1251.

Her, One-Soon & Chen-Tien Hsieh. 2010. On the semantic distinction between classifiers and measure words in chinese. *Language and Linguistics* 11(3). 527–551.

Li, XuPing. 2013. *Numeral classifiers in Chinese: The syntax-semantics interface*. Berlin: De Gruyter.

Paris, Marie-Claude. 1981. *Problèmes de syntaxe et de sémantique en linguistique chinoise*. Paris: Collège de France, Institut des Hautes Etudes Chinoises.

Tang, Chih-Chen Jane. 1990. A note on the DP analysis of the Chinese noun phrase. *Linguistics* 28(2). 337–354.

Zhang, Niina Ning. 2012. Countability and numeral classifiers in Mandarin Chinese. In Diane Massam (ed.), *Count and mass across languages*, 220–237. Oxford: Oxford University Press.