Multiple Classifiers Construction and Nominal Expressions in Chinese

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INTRODUCTION There are (at least) two types of Chinese classifiers, as in (1a) and (1b). Interesting restrictions are observed when two types of classifiers are stacked in one sentence (we call it Multiple Classifiers Construction, MCC): (2a) and (2b) show that there exists a strict linear order: ICL > KCL > N. (2c) and (2d) show that a definite article *zhe* 'this' or *na* 'that' must appear between ICL and KCL to ensure grammaticality. In this paper we argue that, first, MCC in Chinese is a partitive construction. Second, there is a universal nominal structure:

(1) a. Individual-classifiers (ICL): ge, zhi, jian,...
b. Kind-classifiers (KCL): zhong 'kind', lei 'kind'...

(2) a. Zhangsan yang-le san-zhi zhe-zhong gou. (ICL > KCL)
Zhangsan has three-ICL this-KCL dog
'Zhangsan has three dogs of this kind.'
b. *Zhangsan yang-le zhe-zhong san-zhi gou. (*KCL > ICL)
Zhangsan has this-KCL three-ICL dog
c. *Zhangsan yang-le henduo-zhi yi/liang/san-zhong gou [*indefinite + KCL]
Zhangsan has many-ICL one/two/three-KCL dog
d. Zhangsan yang-le henduo-zhi **zhe/na** (yi-)zhong gou. [definite + KCL]
Zhangsan has many-ICL this/that one-KCL dog
'Zhangsan has many dogs of this/that kind.'

BACKGROUND We follow Chierchia's (1998) idea in assuming that a 'kind' denotes an individual of type e. The upward type-shifter $^{\cup}$ then constructs a join semilattice by selecting every member in that kind and constructing a poset by the subpart relation, as shown in (3) (from Chierchia 1998):

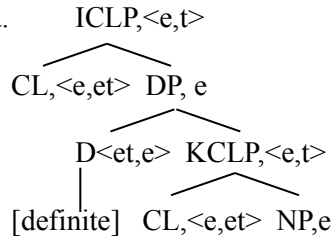
(3) Let d be a kind. Then for any world/situation s,
$^{\cup}d = \lambda x \begin{cases} [x \leq d_s], \text{ if } d_s \text{ is defined} \\ \lambda x\,[\text{FALSE}], \text{ otherwise} \end{cases}$
(where d_s is the plural individual that comprises all of the atomic members of that kind.)

It follows that a KCL can be treated as an upward type-shifter of type <e,<e,t>>, which constructs a semilattice that comprises every atomic member of N. (4) exemplifies this relation taking 'dog kind' for example. The same analysis applies to the ICL, which operates on $dog_{individual}$ instead of dog_{kind}:

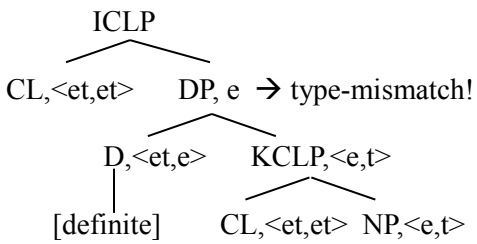
(4) dog_{kind} = {a, b, c…} (where a = poodles, b = golden retrievers, c = pugs, etc.)
$^{\cup}dog_{kind} = \begin{pmatrix} \{a, b, c, \ldots\} \\ \{a, b\}\ \{b, c\}\ \{a, c\} \ldots \\ a\ b\ c \ldots \end{pmatrix}$

PROBLEM Turning to the syntax of MCC, we face a dilemma. On the one hand, in (5a), the structure works fine technically if we assume that NP denotes type e (which refers to dog-kind), as argued in Chierchia (1998). The problems for (5a) are conceptual. First, in Chierchia's system, nominal expressions in Chinese do not project DP (since Ns are inherently type-e arguments), and therefore the obligatory appearance of a definite article in MCC cannot be well explained in Chierchia's analysis. Second, as Cheng & Sybesma (1999; C&S) notice, Chinese bare NPs always involve a classifier projection (unpronounced at PF), and the denotations of Ns should be of type <e,t> (that is, the set of all atomic members). Their analysis would lead us to expect the structure in (5b). However, (5b) is technically problematic due to the projection of DP (which causes a type-mismatch). Again, the appearance of DP presents great difficulties for each analysis:

(5) a.



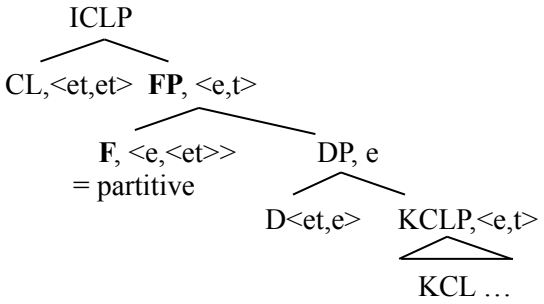
b.



Analysis Our analysis consists of two parts. The first part concerns NP denotations, and the second the syntax of MCC. For the first part, we generalize Chierchia's idea on the domain of individuals and propose that the denotations of NPs are sets of sorted variables (which include variables over singular individuals (x_{in}), and variables over kinds (x_K)), as in (6). By virtue of these sorted variables, we maintain the upward type-shifting function of both types of classifiers, the only crucial difference being that variables of different types are selected by the matching type of classifier. Therefore, for count nouns, a KCL ranges over x_K (i.e. KCL= $^{\cup}x_K$), and an ICL over x_{in} (ICL=$^{\cup}x_{in}$) (as for mass nouns, they only include kinds but not singular individuals; as suggested in Krifka 1995). The analysis thus maintains original insights of Chierchia's, while at the same time incorporating C&S's idea that classifiers are the interface with the numeral system (which makes counting possible). As for the syntax of MCC, our analysis adjusts the structure in (5b). We propose that to avoid the type mismatch, there is an intermediate functional projection that resembles a partitive/monotonic head (Zamparelli 1998; Schwarzschild 2006) with the function <e,<e,t>>, illustrated in (7). Basically, this partitive head takes the kind individual and returns a subset which comprises all atomic members of that kind. We therefore treat MCC as a partitive construction in Chinese. This accounts for the obligatory presence of the definite article due to the universal partitive constraint.

(6) $N = \{a_{in}, b_{in}, c_{in}, \ldots a_k, b_k, c_k, \ldots\} \in <e,t>$

(7)



Conseuqnece Our analysis shows that it is possible to find an eclectic approach to accommodate the seemingly contradictory views between Chierchia and C&S. Furthermore, the present idea fits the universal picture (see also Li 1997; Borer 2005). The semantic parameter is therefore dispensed with, and the universal DP analysis (Abney 1987 and Longobardi 1994) can be adopted in Chinese. Indeed, contrary to the received assumptions, MCC in Chinese provides new and strong evidence arguing for the presence of definite determiners in Chinese. Radically, our analysis even predicts that Chinese nominal expressions always contain a full-fledged DP projection, even in bare nouns. The analysis can be evidenced by the fact that bare nouns in Chinese are contextually sensitive to the predicate types. C&S's account that the head movement N-to-CL itself gives us a definite interpretation is therefore far too strong. On the other hand, we assume a covert D that receives/checks a contextual quantification. The syntax of Chinese nominal expressions are therefore unified under the DP analysis.