Packaging Number and Gender Features in Classifiers

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▶ 1. Introduction Classifiers (Cls) have two functions: to sort nouns by their semantic properties, and to play the role of counting units (Senft 2000:21). Cls are thus divided into sortal (Cl_{sort}) and generic ones (Cl_{gen}). In Chinese, the Cl_{sort}s *zhi* and *jia* respectively match with *dizi* 'flute' and *gangqin* 'piano', but the Cl_{gen} *ge* occurs with both and many other nouns.

(1) a. Akiu mai-le 2 {zhi/ge/*jia} dizi.
Akiu buy-PRF 2 CL_{sort}/CL/CL_{sort} flute
'Akiu bought 2 flutes.'

b. Akiu mai-le 2 {jia/ge/*zhi} gangqin.
Akiu go-PRF 2 CL_{sort}/CL/CL_{sort} piano
'Akiu bought 2 pianos.'

ϕ-feature is a general term to cover person, gender, and number (Num) features. I argue that Cl_{gen}s are "gender" markers and Cl_{gen}s are Num markers, so ϕ-features are packaged in Cls.

▶ 2. Fundamental Contrasts Between the Two Types of Classifiers

2.1 Cross-linguistic distribution. Chinese has both Cl_{sort}s and Cl_{gen}s. Similarly, Korean has many Cl_{sort}s and the Cl_{gen} *gay*. However, some languages have Cl_{gen}s only (e.g. Niuean, Massam 2008, and certain Oceanic languages, Mathew Dryer, p.c.).

2.2 Sensibility to the count-mass contrast. Cl_{sort}s occur with both mass and count nouns (2a/b) & (2c). However, the Cl_{gen} *ge* may not occur with mass nouns (3a). (3c) is fine only in a context where beer is individuated into glasses or bottles and is thus countable (e.g. in a bar).

(2) a. 3 zhang zhi
3 CL_{sort} paper
'3 pieces of paper'

b. 3 gu zhengqi
3 CL_{sort} steam
'3 puffs of steam'

c. 3 zhang zhuozi
3 CL_{sort} table
'3 tables'

(3) a *3 ge {zhi/zhengqi}
3 CL paper/steam

b. 3 ge zhuozi
3 CL table
'3 tables'

c. 3 ge pijiu
3 CL beer
'3 beer units'

In pseudopartitive constructions, a Standard Measure Unit (SMU, e.g. *kilo*) or a Container Measure Unit (CMU, e.g. *box*) occurs between a numeral and a noun. Both SMUs and CMUs may occur with either count or mass nouns.

(4) a. 3 {gongjin/xiang} zhi
3 kilo / box paper
'3 kilos of paper'

b. 3 {gongjin/xiang} pingguo
3 kilo / box apple
'3 kilos of apples'

Both SMUs and CMUs are count nouns. They show morphology of count nouns in languages such as English. They thus have intrinsic Num features. The nominal that hosts such an element is always countable, regardless of whether the contained noun is countable.

2.3 Semantic selection. Cl_{sort}s, by definition, are semantic type-specific (1). Like the Cl_{gen} *ge*, SMUs and CMUs are also blind to the semantic type of the associated nouns:

(5) a. Ta zhua-le 2 {jin/guan/tiao/*zhi} xiao-yu.
he catch-PRF 2 kilo/can/CL/CL small-fish
'He caught 2 {kilos of/cans of/∅} small fish.'

b. Ta zhua-le 2 {jin/guan/*tiao/zhi} hudie.
he catch-PRF 2 kilo/can/CL/CL butterfly
'He caught 2 {kilos of/cans of/∅} butterflies.'

If semantic selection is a local formal relation, the structural distance between a Cl_{sort} and a noun should be shorter than the distance between a Cl_{gen}/SMU/CMU and a noun.

2.4 The co-occurrence patterns. No two elements in the set {Cl_{gen}, SMU, CMU} may co-occur (6a)&(6b), but a Cl_{sort} may occur with any of them (7) ~ (10).

(6) a. *Cl_{gen}-N- SMU *5 ge shengzi-cun
5 CL rope-inch

b. *Cl_{gen}-N-CMU *5 ge pijiu-ping
5 CL beer-bottle
Intended: '5 bottles of beer'
Not intended: '5 beer-bottles'

(7) Cl_{gen}-N-Cl_{sort} a. 3 ge fang-jian
3 CL room-CL_{sort}
b. 3 ge shui-di
3 CL water-CL_{sort}
a'. 3 jian fang
3 CL_{sort} room both: '3 rooms'
b'. 3 di shui
3 CL_{sort} water both: '3 water-droplets'

(8) Cl_{gen}-N-Cl_{sort}		*4 ge huasheng-li*	'4 peanuts'	*5 ge shitou-kuai*	'5 stones'
5 ge hua-duo	'5 flowers'	*1 ge putao-chuan*	'1 bunch of grapes'	*4 ge sao-ba*	'4 brooms'
5 ge xian-tiao	'5 lines'	*1 ge mutou-pian*	'1 piece of wood'	*6 ge suan-tou*	'6 garlic bulbs'

(9) SMU-N-Cl_{sort} a. 5 gongjin huasheng-li
5 kg peanut-CL_{sort}
'5 kgs of peanuts'
b. 6 gongji suan-tou
6 kg garlic-CL_{sort}
'6 kgs of garlic bulbs'

(10) CMU-N-Cl_{sort} a. 5 wan huasheng-li
5 bowl peanut-CL_{sort}
'5 bowls of peanuts'
b. 6 dai suan-tou
6 bag garlic-CL_{sort}
'6 bags of garlic bulbs'

Moreover, in the co-occurrence data, the Cl_{sort} is always at the low position:

(11) a. *5 duo hua ge
5 CL_{sort} flower CL
b. *5 duo hua gongjin
5 CL_{sort} flower kg

The data show that Cl_{gen}, SMU and CMU are in the same position, which is higher than Cl_{sort}.

▶ 3. Packaging ϕ-Features in Classifiers

▶ It is possible that SMUs, CMUs, and Cl_{gen}s are base-generated at the head of NumP, assuming that numerals are base-generated at Spec of NumP.

▶ Grammatical gender is usually associated with sex contrast. However, the contrasts marked by Cl_{sort}s are parallel to the sex contrast (Corbett 1991:5; Dixon 1986:105). Plausibly, Cl_{sort}s, as labels of semantic types of nouns, are gender markers in an abstract sense, and are base-generated at the head of GendP (or SortP). Grammatical gender is not realized in all languages. It is not surprising that Cl_{sort}s are absent in some languages (2.1).

▶ Since Cl_{sort}s are closer to N than the Num elements (2.3&2.4), the layered complementation structure in (12) (Picallo 1991, Ritter 1993, Bernstein 1993, a.o.) may capture the structure of a DP in Chinese.

(12) $[_{DP}$ D $[_{NumP}$ Num $[_{GendP}$ Gend $[_{NP}$ N]]]]

If a Cl_{sort} occurs with an element at Num (2.4), it is a pure "gender" marker (its post-N position in (7) ~ (10) might be the result of morphological operations). Korean also has such data (13a).

(13) a. mul-pangwul se gay
water-CL_{sort} 3 CL_{gen}
b. mul se pangwul (Byeong-Uk Yi 2008)
water 3 CL_{sort} both: '3 water-droplets'

If a numeral is present but Num^0 is not realized (7a'/7b'/13b), it is possible for Cl_{sort} to move from Gend to Num. Thus, in the absence of a counting unit or the Cl_{gen} *ge*, a Cl_{sort} becomes a derived counting unit. This hypothesis explains the fact that in Modern Mandarin, the combination of a numeral and a noun is not acceptable (e.g. **6 pingguo* '6 apple'), and thus even a count noun needs a Cl, or a SMU, or a CMU to occur with a numeral. One may assume that in Chinese, a numeral must be licensed by a local head element.

▶ Analyzing Cl_{sort}s as gender markers may lead us to treat such Cls as gender agreement markers when they are combined with verbs, as in Iroquoian languages (14) (Mithun 1986, Senft 2000:14), and in all sign languages (Sandler & Lillo-Martin 2006, ch. 5).

(14) Skitú ake-'treht-áe' (Cayuga, Mithun 1986:388)
skidoo I-$CL_{viehicle}$-have 'I have a skidoo.'

▶ I conclude that Cls do not have a unified base-position (cf. Borer 2005). They simply package number and the abstract gender features. Therefore, Cl is not a unified and independent syntactic category (contra Tang 1990, Li 1999, a.o.). However, ϕP, which can be realized by a pronoun (see Déchaine & Wiltschko 2002), can be split into NumP and GendP, as well as NP, for non-pronoun nominals, as represented in (12).