



NPs in Mandarin Chinese: A Head-Function Approach

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Introduction

The topics:

- structure of nominal complexes (NC \approx NP/DP) in Mandarin Chinese (MC)
- combination of “specifying elements” (DEM, Mods, CL) with the head N

The broader picture:

- cross-linguistic consequences for NC structure (cf. NP/DP Parameter)
- structural consequences for NP-DP debate

HPSG:

(cf. Pollard & Sag 1987, 1994; Müller & Machicao y Priemer 2019)

- deeply formalised constraint-based framework
- declarative, i.e. non-derivational (no proper “movement”)
- lexicalist approach: constraints on affixes, words, phrases are stored in an organised lexicon.
- organisation of lexicon: inheritance hierarchy (generalisations)



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Complexity

As it is well known, NCs in MC can appear in argument positions **with or without a demonstrative (DEM) or a classifier (CL)**:

- (1) a. wo mai-le shu.
I bought-PFV book
'I bought {a/the book / ∅/the books}.'
- b. wo mai-le san ben shu.
1.SG buy-PFV three CL book
'I bought {the/∅} three books.'
- c. wo mai-le zhe shu.
1.SG buy-PFV DEM book
'I bought this book.'
- d. wo mai-le zhe san ben shu.
1.SG buy-PFV DEM three CL book
'I bought these three books.'

(cf. Cheng & Sybesma 1999; Chierchia 1998)

Q1: account for bare and complex NCs



Combinatorics

Similar to specifiers (different from modifiers),
DEM and CL **cannot be iterated (2b)**.

(We limit ourselves to sortal and measure classifiers.)

- (2) a. zhe da de san ben guanyu yuyanxue de shu
DEM big DE three CL about linguistics DE book
'these three big books about linguistics'
- b. *zhe san xiang zhe liang ben shu
DEM three CL DEM two CL book
Intended: 'these three boxes of two books'

But the **combination** of DEM and CL is possible (2a).
That is, **not only one** of these elements is (possibly) "selected"
(like modifiers, unlike specifiers).

Q2: What is the function of DEM and CL? How are they combined with N?



Modifiers

Modifiers in MC can appear in **different positions** within NCs,
and reveal much about NC structure.

(We limit ourselves to phrasal modifiers, cf. Paul 2005,

for a semantic distinction between lexical and phrasal modification, see Bücking 2009)

- (3) a. zhe san ben da de shu
DEM three CL big DE book
- b. zhe da de san ben shu
DEM big DE three CL book
- c. da de zhe san ben shu
big DE DEM three CL book
'these three big books'
- d. *zhe san da de ben shu
DEM three big DE CL book
Intended: 'these three big books'

It is not possible to **separate** NUM **from** CL.

Q3: account for strong connection between NUM + CL



Classifiers and Modifiers

Considering sortal and measure classifiers (CL_s, CL_m),
CL_m **allow modification**,
CL_s **do not allow modification**.

CL_m leads to different interpretations (4b).

- (4) a. wo mai-le [da de zhe san ben shu].
1.SG buy-PFV big DE DEM three CL_s book
'I bought these three big books.'
- b. wo mai-le [da de zhe san xiang shu].
1.SG buy-PFV big DE DEM three CL_m ≈ 'box' book
'I bought these three big boxes of books.' or
'I bought three boxes of these big books.' or
'I bought these three boxes of big books.'
Not possible: 'I bought three big boxes of these books.'

Q4: account for the different interpretations according to the CL subtypes

Ambiguities with CL_m

CL_m have lexical meaning that “**can be modified**”, and offer therefore **further** potential **positions** to attach modifiers.

- (5) a. # da de zhe da de san ben shu.
big DE DEM big DE three CL_s book
'these three big books.'
- b. da de zhe da de san xiang shu.
big DE DEM big DE three CL_m ≈ 'box' book
'these three big boxes of big books.'

Q5: account for the different structures according to the CL subtypes



Number

Depending on the combination of DEM, NUM, CL, Mod and N, the NC can be interpreted either only as **sg**, or as **number neutral** (sg or pl).

- (6) a. wo mai-le shu.
I bought-PFV book
'I bought {a/the book / ∅/the books}.' bare N: sg/pl
- b. wo mai-le zhe shu.
1.SG buy-PFV DEM book
'I bought this book.' DEM+N: sg
- c. wo mai-le zhe san ben shu.
1.SG buy-PFV DEM three CL book
'I bought these three books.' DEM+NUM+CL+N: pl
- d. wo mai-le zhe da de shu.
1.SG buy-PFV DEM big DE book
'I bought {this big book / these big books}.' DEM+Mod+N: sg/pl

Q6: account for singular–plural asymmetry



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Head-Function Approach (HFA)

The HFA was proposed (Allegranza 1998, 2007; Van Eynde 2006, 2020, 2021)

- ▶ to deal with the fact, that some determiners share characteristics with **lexical parts of speech**, such as nouns and adjectives;
- ▶ to deal with the similarity in syntactic structure between **specifiers** and **modifiers**;
- ▶ to ensure **locality** and **endocentricity** within NPs.

(Chomsky 2007; Chomsky et al. 2019; Bruening 2009, 2020
Machicao y Priemer & Müller 2021)



Head Feature Principle (HFP)

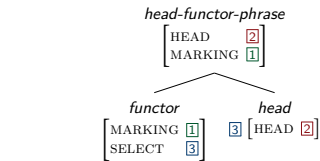
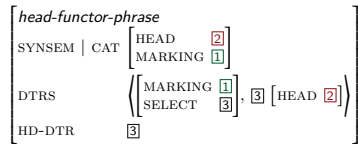
In a phrase of type *headed-phrase*, the HEAD value of the **mother** (2) is identical to that of its **head daughter**.

Selector Principle (SP)

In a phrase of type *head-functor-phrase*, the SELECT value of the **non-head daughter** (3) is required to be identical to the SYNSEM value of the **head daughter**.

Generalized Marking Principle (GMP)

In a phrase of type *head-functor-phrase*, the MARKING value of the **mother** (1) is identical to that of its **non-head daughter**.



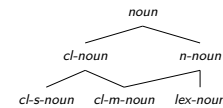
(cf. Pollard & Sag 1994; Van Eynde 2006, 2021)



MC & HFA

Due to the different **positions** and **interpretations** of **modifiers**, according to the subtypes of CL (CL_s vs. CL_m), we assume that N and CL build a **“natural class”** that can be subdivided.

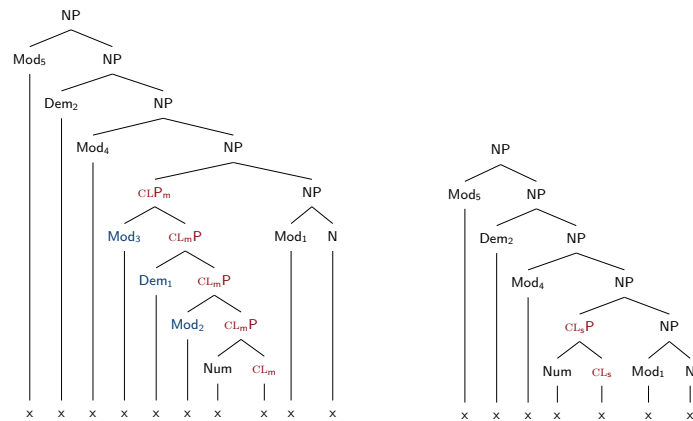
(7) Hierarchy of nominal HEAD Values



Phrasal modifiers and DEMS can attach only to elements of type *n-noun*.



Phrasal modifiers and DEMS select only elements of type *n-noun*.



The modification of the noun (or CL) follows directly from the **NP structure**.

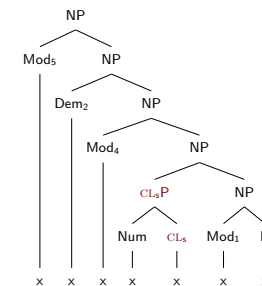
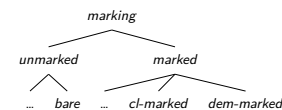


In contrast to Ger or Eng, where **only one specifier** is allowed (and required) we assume that MC makes use of the **head-functor structure** for **modifiers** and **specifiers**.

(Van Eynde 2006, 2020, 2021)

- ▶ **SP**: the functor (e.g. Mod₁ to N) selects a head (*n-noun*),
- ▶ **HFP**: the properties of the head are projected,
- ▶ **GMP**: the MARKING value of the resulting phrase is determined by the functor.

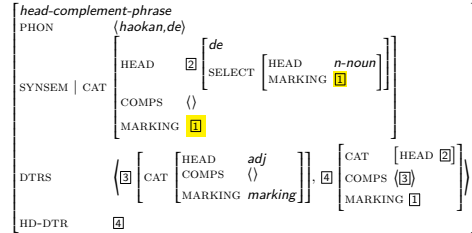
(8) Hierarchy of MARKING values



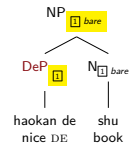
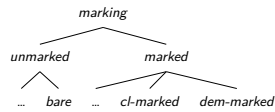


Why are several modifiers possible, but not several CLS or DEMs?

(9) Sample DeP for **adjectives**

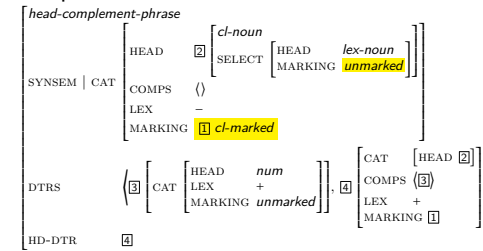


(10) Hierarchy of MARKING Values

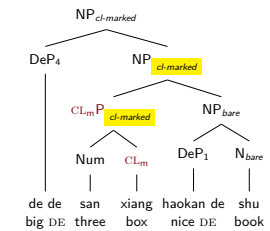
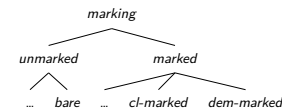


Why are several modifiers possible, but not several CLS or DEMs?

(11) Sample structure for **Classifier Phrase**

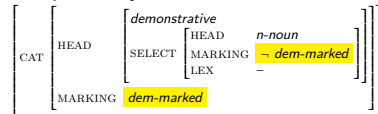


(12) Hierarchy of MARKING Values

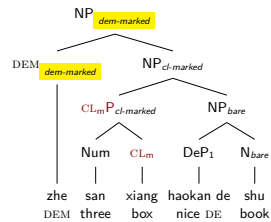
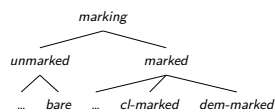


Why are several modifiers possible, but not several CLS or DEMs?

(13) Sample entry for **demonstratives**

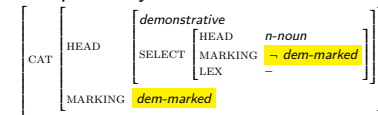


(14) Hierarchy of MARKING Values

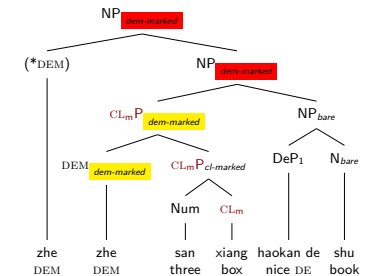
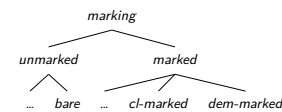


DEM can also combine with CL_m

(15) Sample entry for **demonstratives**



(16) Hierarchy of MARKING Values



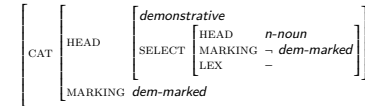


Why is the combination of DEM and N **only sg** (17c), but the DEM with a modified N **sg or pl** (17b)?

- (17) a. wo mai-le shu.
 I bought-PFV book
 'I bought {a/the book / ∅/the books}.' bare: sg/pl
- b. wo mai-le zhe da de shu.
 1.SG buy-PFV DEM big DE book
 'I bought {this big book/these big books}.' DEM+Mod+N: sg/pl
- c. wo mai-le zhe shu.
 1.SG buy-PFV DEM book
 'I bought this book.' DEM+N: sg

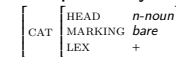
DEM can combine only with an element of type *n-noun* with value LEX –
 (for LEX, see Pollard & Sag 1987; Arnold & Sadler 1992)

(18) Sample entry for **demonstratives**



A **bare noun** has the value LEX +, but after the **combination with a modifier** it has the value LEX –

(19) Sample entry for *n-nouns*

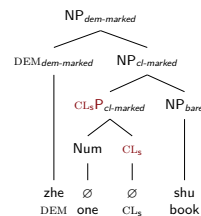


Number neutrality (sg or pl) follows from the number underspecification of N.



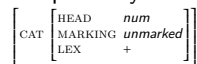
When a DEM combines with a “bare” N there is a number specification → ‘one’

- (20) wo mai-le zhe shu.
 1.SG buy-PFV DEM book
 'I bought this book.'



That is, a **phonologically empty** NUM is needed (combined with CL via *head-complement-phrase*).

(21) Sample entry for numerals



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Conclusion

Q1: **bare N** and **complex N** are allowed as NP structures.

Q2: MC treats DEM, CL, and Mod as **functors** (no specifier needed).

- ▶ iteration of Mods,
- ▶ no iteration of DEM and NUM+CL,
- ▶ combination of DEM and NUM+CL

Q3: NUM+CL is accounted for as a *head-complement-phrase*

Q4&5: CL_m and CL_s have **different structures**.
DEM and Mod can attach only to elements of type *n-nouns*, i.e. CL_m or N

Q6: **singular-plural asymmetry** in the combination with DEM, is solved by means of a phonologically empty NUM+CL_s – needed to specify the meaning of N to 'one'.



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