

Two types of modification in Mandarin Chinese NPs

Antonio Machicao y Priemer

Zehui Guo

August 4, 2026

SFB 1412

Institut für deutsche Sprache und Linguistik

Humboldt-Universität zu Berlin

Funded by the Deutsche Forschungsgemeinschaft (DFG) – SFB 1412, 416591334

Intro

Prenominal adjectival modification in Chinese is realized by **two different structures**:

- (i) the adjective precedes the particle DE, which enables the combination of adjective and noun (**A-DE-N structures**: (2) & (4)), or
- (ii) the adjective occurs directly before the noun (**A-N structures**: (1) & (3)).

Simple Adjectives (**SAs**) vs. Complex adjectives (**CAs**)

- basic forms such as *gan* ('dry', SA) vs. derived forms such as *gan-gan* ('dry-dry', CA) (cf. Zhu 1999; Huang 2006; Paul 2010; Cheng & Sybesma 2009)

But:

There is an asymmetric distribution of SAs and CAs in A-N and A-DE-N structures:

- | | |
|---|---|
| (1) <i>gan</i> mianbao
dry bread | (2) <i>gan de</i> mianbao
dry DE bread |
| (3) * <i>gan-gan</i> mianbao
dry-dry bread | (4) <i>gan-gan de</i> mianbao
dry-dry DE bread |

- (i) Are A-N and A-DE-N structures ((1) & (2)) licensed by syntactic constraints, as proposed in the literature? (cf. Paul 2005, 2010)
- (ii) Why do CAs require the particle DE to modify a noun (3), whereas SAs do not (1)?

(1) *gan* mianbao
dry bread

(3) **gan-gan* mianbao
dry-dry bread

(2) *gan de* mianbao
dry DE bread

(4) *gan-gan de* mianbao
dry-dry DE bread

Description

Description

Syntactic Evidence

A range of syntactic categories can be combined with a noun via DE, e.g. nouns, pronouns, relative clauses, and PPs. (cf. Cheng & Sybesma 2009)

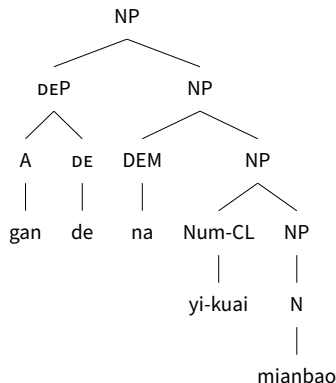
- (5) a. **mutou** de fangzi [N-*de*-N]
wood DE house
'the house made of wood'
- b. **bei mai-le** de shu [RC-*de*-N]
PASS sell-PFV DE book
'the book that was sold'
- c. **ta** de wanju [Pronoun-*de*-N]
he DE toy
'his toy'
- d. **dui ta** de xihuan [PP-*de*-N]
to him DE affection
'affection for him'

A-DE in A-DE-N is syntactically flexible.

→ The modifier applies at the syntactic level.

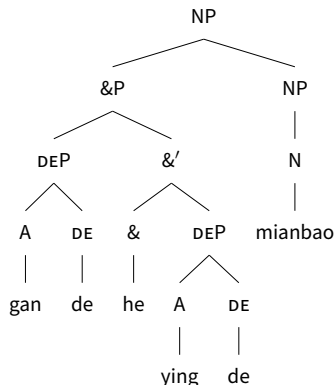
(cf. Duanmu 1998; Deng et al. 2025)

- (6) a. na yi-kuai [*gan de*] mianbao
DEM one-CLF dry DE bread
'that dry bread'
- b. na [*gan de*] yi-kuai mianbao
DEM dry DE one-CLF bread
'that dry bread'
- c. [*gan de*] na yi-kuai mianbao
dry DE DEM one-CLF bread
'that dry bread'



A and **DE** build a constituent (not DE and N).

- (7) [*gan de*] he [*ying de*] mianbao
dry DE and hard DE bread
'dry and hard bread'
- (8) * *gan* [*de mianbao*] he [*de binggan*]
dry DE bread and DE cookie
'dry bread and cookie'



Paul (2005, 2010): **A-N structures** are **phrasal**.

- Adjectives follow certain ordering restrictions (cf. (9)).
- The ordering restrictions ‘size > color’ apply in syntax.

(9) a. **da** **bai** panzi
big white plate

b. * **bai** **da** panzi
white big plate

But:

The ordering restrictions don’t have to apply in syntax.

(cf. Sproat & Shih 1987, 1991 for cognitive basis)

- The A-N structure must be syntactically available, because in the coordination of an A-N structure with an A-DE-N structure, the second noun can be elided (10a).
- If AN were a compound, this would violate the Lexical Integrity Hypothesis (compounds are opaque to syntax).
- Idioms do not allow ellipsis (10b).

- (10) a. Amei bu xihuan [*huang meigui*], [*hong de* $\emptyset$] hai keyi.
Amei NEG like yellow rose red DE still okay
'Amei does not like yellow roses; red ones are still okay.' (Paul 2005: 763)
- b. * Amei bu xihuan [*cha-hua*], [*hong de* $\emptyset$] hai keyi.
Amei NEG like tea-flower=*camellia* red DE still okay
'Amei does not like camellias; red ones are still okay.' (Paul 2005: 764)

But:

Conjunction reduction is not a reliable test and, in certain contexts, also occurs in the coordination of a compound and a phrase.

- (11) Ich liebe *Groß-städte*, in *kleinen* ∅ gehe ich ein.
I love big-towns.ACC, in small.DAT go I in
'I love big cities, I wither away in small towns.'

(Schäfer 2009: 286)

And:

The unexpected ungrammaticality of (12) under the assumption that A-N structures have phrasal status

(cf. Schäfer 2009)

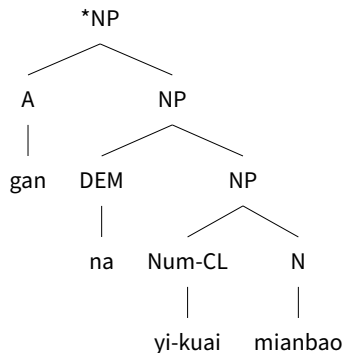
- (12) a. * *huang* Ø he *hong* meigui
yellow and red rose
'yellow roses and red roses'
- b. * *congming* Ø he *qinfen* xuesheng
smart and hard-working student
'smart students and hard-working students'
- c. * *yange* Ø he *youshan* laoshi
strict and friendly teacher
'strict teachers and friendly teachers'

(Schäfer 2009: 283)

And:

A in A-N structures is syntactically not flexible → evidence for word status

- (13) a. * *gan* na yi-kuai mianbao
dry DEM CLF bread
'that dry bread'
- b. * na *gan* yi-kuai mianbao
DEM dry CLF bread
'that dry bread'
- c. na yi-kuai *gan* mianbao
DEM CLF dry bread
'that dry bread'



Description

Semantic Evidence

black bird refers to any bird with black plumage;

blackbird denotes a particular species: *Turdus merula*

Predicate modification in **phrasal modification** →

$$\llbracket \text{black bird} \rrbracket = \lambda x [\text{bird}(x) \wedge \text{black}(x)]$$

An underspecified relation (PART-OF) in **lexical modification**, resolved through conceptual knowledge and contextual information (often yielding a **new**

concept; cf. Levin et al. 2019) → $\llbracket \text{blackbird} \rrbracket = \lambda x [\text{bird}(x) \wedge \text{PART-OF}(x, y) \wedge \text{black}(y)]$

(14) brown BLACKbird
‘Turdus merula’

(15) # brown black BIRD
‘black bird’

$$\llbracket (14) \rrbracket = \lambda x [\text{bird}(x) \wedge \text{brown}(x) \wedge \text{PART-OF}(x, y) \wedge \text{black}(y)]$$

$$\llbracket (15) \rrbracket = \lambda x [\text{bird}(x) \wedge \text{brown}(x) \wedge \text{black}(x)]$$

→ The same bird must be both black and brown at the same time.

This contrast corresponds to the semantic difference between A-N and A-DE-N structures in Chinese.

- *gan miaobao* ‘dry-bread’ is still asserted despite the negation of “being dry” (16a).
- Contradiction arises when the property “being dry” is both negated and asserted simultaneously (16b).

- (16) a. zhege *shi gan mianbao*, suiran ta *bu shi gan de*.
this COP dry bread, although it NEG COP dry DE
‘This is a ‘dry-bread’, although it is not dry.’
- b. # zhege *shi gan de mianbao*, suiran ta *bu shi gan de*.
this COP dry DE bread, although it NEG COP dry DE
‘This is a dry bread, although it is not dry.’

Analysis

We need to account for the following data:

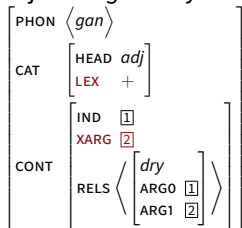
- | | | | |
|------|---|------|---|
| (17) | <i>gan</i> mianbao
dry bread | (18) | <i>gan</i> de mianbao
dry DE bread |
| (19) | * <i>gan-gan</i> mianbao
dry-dry bread | (20) | <i>gan-gan</i> de mianbao
dry-dry DE bread |

- Our account builds on the distinction between **lexical** and **phrasal modification**.
- SAs are syntactically not flexible (without DE), but CAs are.
- Furthermore: A + N and A + DE + N differ in meaning.

(Bücking 2009)

Lexical entries for adjectives and nouns:

(21) Adjective *gan* ‘dry’

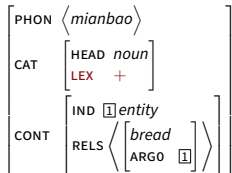


- SA are **LEX+**: $\text{LEX} \pm$ corresponds roughly to **lexical vs. phrasal** (Pollard & Sag 1987)

(but: Machicao y Priemer et al. 2026)

- Adj in MC do not have a **MOD specification**
→ *head-adjunct-phrase* cannot apply.

(22) Noun *mianbao* ‘bread’

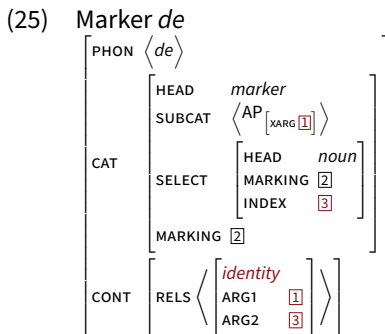


- The variable of the entity the predicate applies to ([2]) is structure-shared with the **XARG of the adjective**.

- To combine A and N the marker DE can be used.
- Syntactically:** DE provides the means for the combination of A and N.
- Semantically:** DE takes both predicates (A and N) and identifies their referential variables, similar to Predicate Modification. (Heim & Kratzer 1998)

(23) **gan de** mianbao
dry DE bread
'dry bread' or 'bread that is dry'

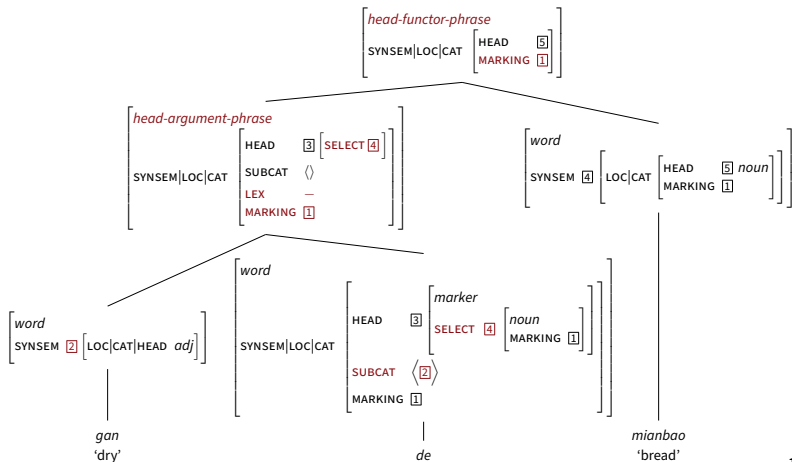
(24) $\text{dry}'(x) \wedge \text{bread}'(y) \wedge (x) = (y)$



The syntactic concatenation:

- DE takes AP as complement.
- DEP + N licensed through *head-functor-phrase*. (Van Eynde 2006; Deng et al. 2025)

(26)

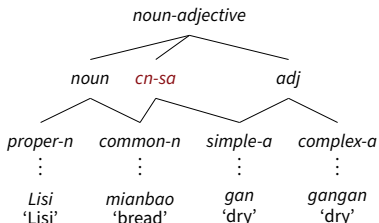


- We propose (27) as a **pos-categorisation** of nouns and adjectives.
- (28) states that *word* have a boolean LEX value.
- (29) states that *cn-sa* have a **LEX+ value**.
- $LEX_{\pm}$ corresponds roughly to lexical vs. phrasal distinction.

(Pollard & Sag 1987; Arnold & Sadler 1992; Deng et al. 2025; Machicao y Priemer et al. 2026)

- The result of **phrasal concatenation** is $LEX-$.
- The result of **morphological concatenation** is (normally) $LEX+$.

(27)



$$(28) \quad \text{word} \Rightarrow \begin{bmatrix} \text{word} \\ \text{SYNSEM|LOC|CAT|LEX} \quad \text{bool} \end{bmatrix}$$

$$(29) \quad \text{cn-sa} \Rightarrow \begin{bmatrix} \text{word} \\ \text{SYNSEM|LOC|CAT|LEX} \quad + \end{bmatrix}$$

A-N combination without DE:

- A has to be **adjacent** to N, cf. (30) vs. (31).
- A cannot be **modified**, cf. (32).
- A-N combination is interpreted as a “**new concept**” in comparison to the extensional modification with DE. (cf. Paul 2010)
- Interpretational effect is similar in **other languages** (e.g. German, English) (cf. Bücking 2009; Bücking 2016; Levin et al. 2019)

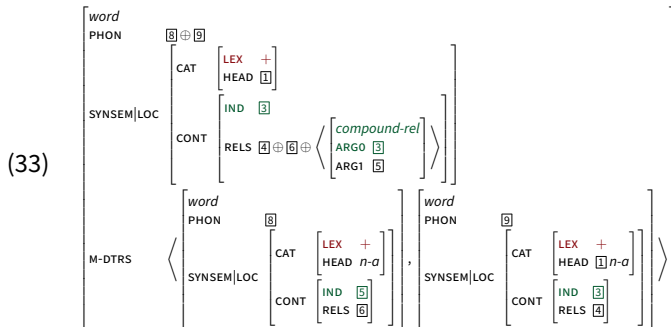
(30) [ying de] **gan** mianbao
hard DE dry bread
‘type of bread called *dry bread* that is hard’

(31) * **gan** [ying de] mianbao
dry hard DE bread

(32) * [hen **gan**] mianbao
very dry bread

A-N combination without DE → **compound**

- Both inputs to LR must be LEX+.
- The result of the LR is also **LEX+**.
(→ recursion allowed *ying gan mianbao* ‘hard dry bread’)
- M-DTR on the right side is the **morphological head**.



- **RELS** of both words are **concatenated**.
- **IND** values of both words are **not identified**.
- **Result** of the compound is a subset of the set denoted by the head.
- Underspecified *compound-rel* regulates the relationship between the referential variables of both predicates. (cf. PART-OF in Bücking 2009)

(34)

$$\left[\begin{array}{l} \text{word} \\ \text{PHON} \end{array} \right] \left[\begin{array}{l} \boxed{8} \oplus \boxed{9} \\ \text{CAT} \left[\begin{array}{l} \text{LEX } + \\ \text{HEAD } \boxed{1} \end{array} \right] \\ \text{SYNSEM|LOC} \\ \text{CONT} \left[\begin{array}{l} \text{IND } \boxed{3} \\ \text{RELS } \boxed{4} \oplus \boxed{6} \oplus \left\langle \left[\begin{array}{l} \text{compound-rel} \\ \text{ARG0 } \boxed{3} \\ \text{ARG1 } \boxed{5} \end{array} \right] \right\rangle \end{array} \right] \end{array} \right]$$

(35)

$$\lambda y [\text{dry}'(x) \wedge \text{bread}'(y) \wedge \text{COMP-REL}(y)(x)]$$

(34) and (35) are part of a larger expression in brackets, representing the semantic representation of the compound 'dry bread'.

$$\left[\begin{array}{l} \text{word} \\ \text{PHON} \end{array} \right] \left[\begin{array}{l} \boxed{8} \\ \text{CAT} \left[\begin{array}{l} \text{LEX } + \\ \text{HEAD } n-a \end{array} \right] \\ \text{SYNSEM|LOC} \\ \text{CONT} \left[\begin{array}{l} \text{IND } \boxed{5} \\ \text{RELS } \boxed{6} \end{array} \right] \end{array} \right] , \left[\begin{array}{l} \text{word} \\ \text{PHON} \end{array} \right] \left[\begin{array}{l} \boxed{9} \\ \text{CAT} \left[\begin{array}{l} \text{LEX } + \\ \text{HEAD } \boxed{1} n-a \end{array} \right] \\ \text{SYNSEM|LOC} \\ \text{CONT} \left[\begin{array}{l} \text{IND } \boxed{3} \\ \text{RELS } \boxed{4} \end{array} \right] \end{array} \right] \right]$$

(cf. Bonami & Crysmann 2018 for compound representation)

Possible specifications of *compound-rel*:

(cf. Levin et al. 2019)

- if head denotes an **artifact**:
non-head modifies an **event** related to the denotation of the head

(36) banana fork
‘fork *to eat* bananas’
- if head denotes **natural kind**:
non-head refers to **intrinsic properties** of the denotation of the head

(37) green bean
‘bean which is typically green’

→ mostly only **tendencies**

- The relationship between modifier and head
in a compound is normally **ambiguous**.

How can we model the ungrammaticality of compounds with reduplicated A?

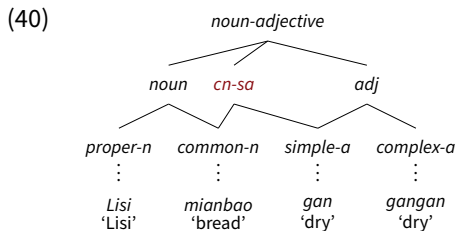
(38) a. **gan** mianbao
dry bread

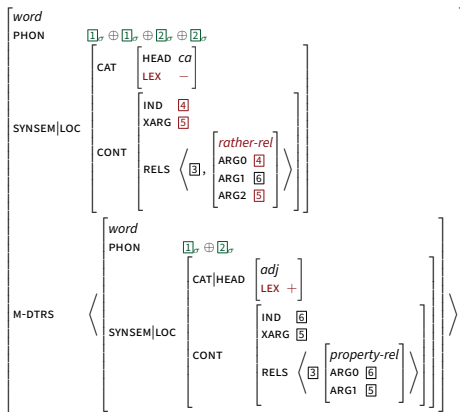
b. * **gangan** mianbao
dry-dry bread

(39) a. **ganjin** zhuozi
clean table

b. * **ganganjinjin** zhuozi
clean-clean table

- Reduplicated adjectives are complex adjectives (*ca*).
- CAs are LEX—.
- The LR for reduplication changes the LEX value of the input.





(cf. Huang et al. 2008; Grano 2012; Fan et al. 2015; Shi & Huang 2022)

The LR for reduplication ...

- changes the LEX value of the input,
- for $A_\sigma \rightarrow$ reduplicates the syllables:

$$A_\sigma \rightarrow A_\sigma A_\sigma$$

$$A_\sigma B_\sigma \rightarrow A_\sigma A_\sigma B_\sigma B_\sigma$$

(Further details on reduplication: Crysmann 2017)

With respect to the semantics of reduplication,

- intensification ('very') (Li & Thompson 1981; Grano 2012; Fan et al. 2015)
- vividness (Huang et al. 2022)
- 'rather' (Huang et al. 2008)

(41) Wo de pifu **gan-gan de** (dan bu shi **hen gan**).

I DE skin dry-dry DE but NEG is very dry

'My skin is (**rather**) dry, but **not very dry**.'

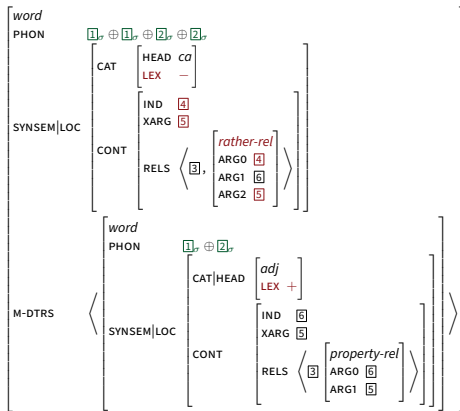
⇒ 'my skin is dry'

⇏ 'my skin is very dry' (although 'very dry' is a possible interpretation)

Reduplication

→ similar to interpretation of **vague modifiers** (e.g. *eher*, *rather*, *about*)

(Sauerland & Stateva 2007; Solt 2018, 2019; Umbach & Solt 2022)



Semantics ...

- $\llbracket AA \rrbracket \approx \llbracket \text{rather}'(A) \rrbracket$
- XARG of As $\rightarrow$ XARG of $\text{rather}'(A)$
- $\llbracket AA \rrbracket \subseteq \llbracket A \rrbracket$
- (degree argument of A $\rightarrow$ bound)

(42) hen gao 'very tall'

(43) * hen gao-gao 'very tall-tall'

(44) yi mi gao '1m tall'

(45) * yi mi gao-gao '1m tall-tall'

(cf. Huang et al. 2008; Grano 2012; Fan et al. 2015; Shi & Huang 2022)

Conclusion

- The rules used are independently needed.
- Syntactic distribution in A-N and A-DE-N is accounted for.
- Semantic distinction between A-N and A-DE-N is accounted for.
- A-N:
 - Composition LR (regulates combinatorics and semantics)
 - Reduplication LR
 - $LEX_{\pm}$
- A-DE-N:
 - Lexical entry of DE (regulates combinatorics and semantics)
 - *head-argument-phrase*
 - *head-functor-phrase*

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