The Korean Generative Grammar Circle
Proceedings of the 24th Seoul International Conference on Generative Grammar

2022 Linearization

Edited by Tae Sik Kim & Jungu Kang

August 12-14, 2022
Held virtually

Hosted by
The Korean Generative Grammar Circle
Sogang University

Funded by
Center for Korean Studies, Korea Univeristy

The 24th Seoul International Conference on Generative Grammar

2022
Linearization

Dates: August 12-14, 2022
Held virtually

Keynote Speaker:

Guglielmo Cinque (Ca' Foscari University of Venice)

Invited Speakers:

Nobu Goto (Toyo University)
Lauren Clemens (University at Albany, SUNY)
Sunwoo Jeong (Seoul National University)

Hosted by

The Korean Generative Grammar Circle
Sogang University

Funded by

Center for Korean Studies, Korea University

SICOGG 24 Organizing Committee

Michael Barrie **(Sogang University)**

Myung-Kwan Park **(Dongguk University)**

Duk-Ho An **(Konkuk University)**

Jong Un Park **(Hansung University)**

Tae Sik Kim **(Seoul National University of Science and Technology)**

Seungwan Ha **(Kyungpook National University)**

Dongwoo Park **(Korea National Open Univeristy)**

Suyoung Bae **(Dongguk University)**

Yongsuk Yoo **(Jeonbuk National University)**

Rhanghyeyun Kim **(Korea University)**

Acknowledgement

This conference could not have been possible without the participation and assistance of so many people whose names cannot all be mentioned here. Their contributions are sincerely appreciated and gratefully acknowledged. Nevertheless, we, the organizers of SICOGG 24, would like to express our special gratitude to Youngdong Cho (Seoul National University) for his help with the SICOGG 24 website and to Jungu Kang (Sogang University) for help with administrative details.

The 24th Seoul International Conference on Generative Grammar

First published in 2022
Published by Hankook Munhwasa
Seoul, Republic of Korea

Preface

This volume includes most of the papers and posters presented at SICOGG 24, which, due to the ongoing COVID 19 epidemic, was held virtually from August 12th to 14th, 2022. I would like to thank the presenters for bringing the latest issues in generative grammar from a variety of language families to the table thereby encouraging lively discussions and debate. I am also grateful to the authors of the papers and posters for their timely submissions and kind cooperation in the publication of this volume.

SICOGG (Seoul International Conference on Generative Grammar), which has been hosted by the Korean Generative Grammar Circle (KGGC) since 1989, has endeavoured to invite prominent linguists from around the world to present ground-breaking contributions, offering our attendees the opportunity to participate in discussions on cutting-edge research.

The purpose of this year's conference is to bring together syntacticians and other linguists worldwide to discuss current issues in generative grammar. This year's theme is Linearization The meeting enabled the exchange of ideas and knowledge between the different areas of linguistics for facilitating research and collaborations among generative linguists.

This year's conference featured five well-known invited speakers: our key-note speaker Guglielmo Cinque (Ca' Foscari University of Venice), and our invited speakers Nobu Goto (Toyo University), Lauren Clemens (University at Albany, SUNY), and Sunwoo Jeong (Seoul National University). I appreciate their valuable presentations and their contribution to the success of the conference.

I would like to express my sincere thanks to the organizing committee and to the student assistants for all their hard work into the preparations of this year's SICOGG 24 and for making sure the entire event ran smoothly. I also wish to thank the anonymous reviewers for the difficult task of reviewing the abstracts, which helped us put together a wonderful program, which I'm sure will help us deepen our understanding of language.

Finally, I would like to express my deep gratitude to Professor Tae Sik Kim (Seoul National University of Science and Technology) and Jungu Kang (Sogang University) for editing these proceedings. I hope that these proceedings stimulate lively discussions and enhance our understanding of language and its theoretical underpinnings.

Michael Barrie
Sogang University
August 2022

Contents

▪ Invited talk

▪ Papers

How to Label via Feature-Sharing: Case of Nominal Structures in Chinese

Xiangyu Li and Victor Junnan Pan
Chinese University of Hong Kong

1. Background

When two syntactic objects are merged, the label of the resulting structure needs to be determined, which is necessary for the interpretation of such a structure at the Conceptual-Intentional system. In order to eliminate Phrase Structure Grammar, the so-called projection should be reduced to Labeling Algorithm. Given the principle of economy, the labeling algorithm is subject to the minimal search (Chomsky 2008). Concretely, when a head is merged with a phrase, it is always the head that projects the label of the resulting structure. However, regarding the merge of two phrases, minimal search seems to encounter difficulties in that both phrases will have an equal chance to project the label. Chomsky (2013) proposes two solutions to this problem: either one of the phrases moves away, and the one remaining in-situ determines the label, or, the prominent features shared by both phrases become the label of the structure.[1] For the labeling by shared-features between the two phrases, the relevant features must be matched in the first place. Only matched features can undergo feature-sharing, and as a result the shared features become the label of the resulting structure.

2. Main proposal

A feature contains an Attribute-Value pair. It has been obvious that the attribute of a feature participates into the labeling process. In the case of merging two phrases, the attribute of a shared feature can label the resulting structure. The main question to which we want to answer in this paper is whether the value of a shared feature is also a part of the label of the resulting structure.

Given that a label is a bunch of features and that the value is crucial for the C-I system to correctly interpret a structure, we propose that the precondition on the labeling by feature-sharing is not only feature matching, but actually feature-identity (i.e., identical attributes and identical values). The similar idea is mentioned in Chomsky (2001): feature-sharing requires agree. Under agree, the values of matched features can be identical. Under our analysis, one additional case involving 'uninterpretable (unvalued) feature'-sharing can be accounted for. Note that in this paper, we adopt the assumption from Chomsky (2000) on the equivalence between the interpretability of features and feature-valuation. Interpretable features are valued, uninterpretable features are unvalued inherently.

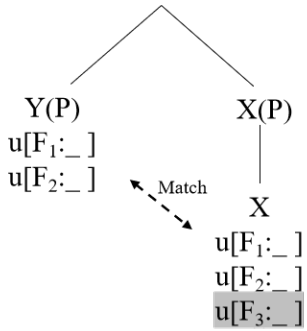
[1] Rizzi (2015) also points out that in the case of phrase-phrase merge, the minimal search is not working, as there is no closest head that can project.

3. Abstract illustration on uninterpretable shared-feature labeling

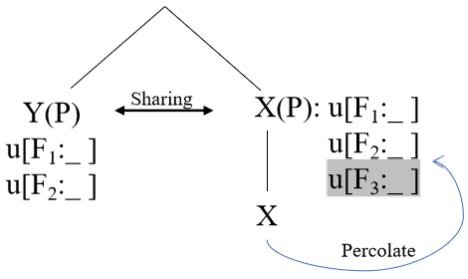
In this section, we will demonstrate the case only involving uninterpretable features in feature-matching, and will see how uninterpretable/unvalued features are shared when two phrases are merged together.

Imagine a situation involving merging two phrases {XP, YP}, where XP bears uninterpretable/unvalued features u[F_1:_], u[F_2:_] and u[F_3:_], and, YP bears uninterpretable features u[F_1:_] and u[F_2:_]. Traditionally, it is always the features on a head (i.e., probe) that match and agree with the features on a phrase (i.e., goal). For instance, in (1), matching happens between X and YP, and after which, X will percolate its features up to XP, so that feature-sharing for labeling purpose can take place in the next step. Note that there is no agree relation established between X and YP, because the matched features are all unvalued. Importantly, we assume that unvalued features can be considered as possessing an identical "null" value. In this way, feature-identity is satisfied, and feature-sharing can actually happen despite uninterpretable (unvalued) features. In this way, feature-sharing takes place between u[F_1] & u[F_2] on X(P) and Y(P), as shown in (2).

(1)

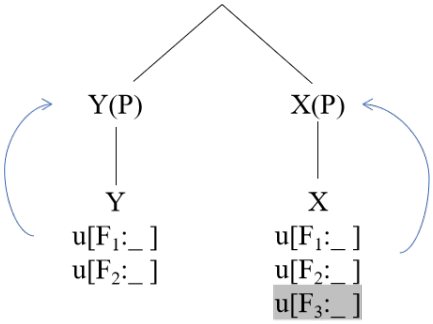


(2)

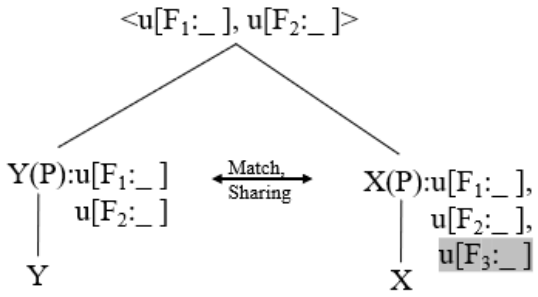


However, this traditional view actually brings up redundant technical operations. In our analysis, we simply assume that feature-percolation from a head to the phrase that this head projects should happen at the same time as the resulting phrase is labeled, i.e., X(P) and Y(P) illustrated in (3). We do not assume that there is feature matching between YP and the head X as a first step; instead, we propose that feature-matching and agree can directly happen between the features respectively attached to the two phrases, XP and YP. Then, as shown in (4), the matched identical features are shared between X(P) and Y(P), and as a result, the merged phrase {XP, YP} is labeled by the shared features: <u[F_1:_], u[F_2:_]>.

(3)



(4)



One potential question is how uninterpretable/unvalued features can be deleted as they are not valued. We adopt the idea from Chomsky (2001) and Pan (2016) that the matched uninterpretable features will get deleted right before transfer. Chomsky (2001) puts forward a solution according to which, a matched uninterpretable feature can be deleted, in order to check the features on expletives. For instance, the subject expletive in (5a) agrees with T, and the uninterpretable person feature on *there* can then be deleted. For the object expletive in (5b), *v* in the matrix clause can check and delete the uninterpretable person feature on *there*.

(5) a. There is likely to arrive a man.
b. We expect there to arrive a man

Pan (2016) takes a similar solution to the deletion of the uninterpretable/unvalued features on resumptive pronouns in Chinese; and importantly, only matched unvalued features can be deleted at the final phase cycle.

Let us go back to the labeling process in (4). The uninterpretable/unvalued features, i.e., [F_1] & [F_2], on X(P) and Y(P) can eventually be deleted as they are matched features and they can be mutually deleted. For the shared uninterpretable/unvalued features present in a label, their deletion may resort to a higher probe, for example a higher C or T.[2]

In the following sections, we will illustrate how our proposal applies with the help from Chinese nominal phrases. We will show the labeling process of feature-sharing inside nominal phrases.

[2] The deletion of u[F_3] should resort to another goal or probe as well.

4. Sorting feature and Number feature

Before going into the details of the derivation, we will examine formal features related to Chinese nominal phrases in this section.

First, we argue for the existence of a sorting feature [SORTING] on both nouns and classifiers. This feature is responsible for the key semantic function specified by classifiers in languages like Chinese, which sets the counting unit of a noun. It is in particular linked to the count-mass distinction in Chinese (see Senft 2000 for a similar idea of feature [Sortal]). In addition, we assume that [SORTING] has two values: IND(IVIDUALIZATION) and MASS(IFICATION), corresponding to individual classifiers and massive classifiers respectively.

For a canonical nominal structure [Num + Cl + N] in Chinese, we assume that nouns bear a categorial feature [N], a sorting feature [SORTING] and a number feature [NUMBER], while classifiers bear a sorting feature [SORTING], and, numerals bear a number feature [NUMBER]. As pointed out by Chierchia (1998), Chinese bare nouns are all massive and denote kinds. As a result, bare nouns do not inherently possess any counting unit and are thus uncountable.

Second, regarding the interpretability of these features, we claim that nouns take an uninterpretable u[SOR(TING):_], an uninterpretable u[NUM(BER):_], and the categorial feature [N], whereas classifiers take an interpretable i[SORT:VAL] and numerals take an interpretable i[NUM:VAL]. Take *yī-běn shū* (one-Cl book) 'one book' as an example; the relevant features are illustrated as in (6).

(6)

yī	*běn*	*shū*
Num	Cl	N
i[NUM:SG]	i[SORT:IND]	u[NUM:_]
		u[SORT:_]
		[N]

5. Labeling of nominal phrases

In this section, we will go into the details of the labeling process of three canonical nominal structures and an impossible nominal structure in Chinese. Case ① is: [Numeral + Classifier + Noun]; Case ② is [Modifier + Noun]; Case ③ is: [Numeral + Classifier + Modifier + Noun]; Case ④ is *[Numeral + Classifier + Modifier + Noun]. Given the modifiers are often involved in the nominal phrases, we will first make further clarification on them.

5.1 Two Types of Modifiers

Based on Oseki (2015), we make a distinction between two types of nominal modifiers in terms of their syntactic structures. One is in the form of bare adjectives; the other is in the form of *de*P. For example, a noun can take a bare adjective as its modifier, such as *hóng píngguǒ* 'red apple' and *yōuxiù xuéshēng* 'excellent students'; a noun can take a *de*P as its modifier as well, such as *hóng(sè)-de píngguǒ* (red(color)-DE apple, 'red apple') and *yōuxiù-de xuéshēng* (excellent-DE student, 'excellent student'). In the traditional grammar, Li & Thompson (1989) and Zhu (1993) treat *de* as a 'nominalizer'. Under the generative framework, Simpson (2002) treat *de* as a D(eterminer), which heads the phrase. We agree that *de* heads its own functional projection, and the head *de* takes either a noun as its complement, as in *hóng(sè)-de* (red(color)-DE) or an adjective as its complement, as in *yōuxiù-de* (excellent-DE). The entire *de*P then

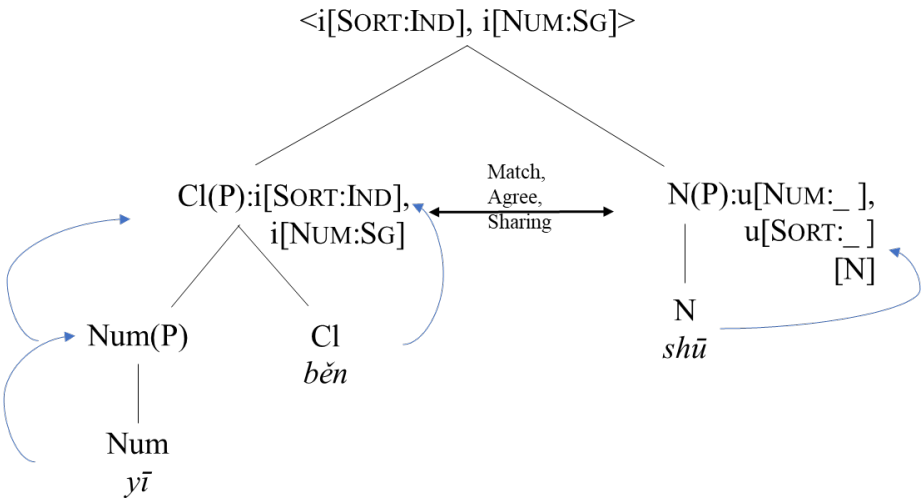
functions as a modifier of a noun, such as in *hóng(sè)-de píngguǒ* (red(color)-DE apple) and *yōuxiù-de xuéshēng* (excellent-DE student).

In this paper, we propose that the bare-adjective modifier is a real case of adjunction, which forms an unlabeled structure, and that the *de*P modifier is not adjunction, rather, it is set-merged in a labeled structure. The detailed discussion will be shown in section 6.1. As a result, we assume that resembling nouns, *de* actually bears [N], u[NUM], and u[SORT]. This analysis can account for the reason why *de*P can set-merge with nouns in a labeled structure, as will be detailed in this section.

5.2 Case①: Labeling [[Numeral + Classifier] + Noun]

We take *yī-běn shū* (one-Cl book) 'one book' as an example to illustrate the labeling of the structure [[Numeral + Classifier] + Noun]. In favor of the views of Cheng & Sybesma (1999), Simpson (2001) and Hsieh (2005), we hold that the classifier and the numeral should first be merged together, and the classifier head-projects its label.[3] Cross-linguistically, a classifier forms a constituent with a numeral, rather than with a noun. For example, in other classifier languages such as Vietnamese, the canonical word order of a nominal phrase (without modifiers) is 'Noun + Numeral + Classifier' (Simpson & Ngo 2018).[4] The numeral is inserted between the noun and the classifier, which shows that the classifier cannot merge first with the noun. Along this line, the syntactic object {? Num(P)-*yī* 'one', Cl-*běn*} is labeled as Cl(P), and at the same time, the Cl head *běn* percolates its [Sort] up to Cl(P), as illustrated in (7).

(7)



In addition, we adopt the idea, which used to account for the pied-piping of *wh*-phrases, that the non-head element can also percolate its features up (see Jessica Coon 2009 for further discussion). Note that Num(P) bears i[Number] from the head, and then the number feature is kept percolating up to Cl(P). As a result, Cl(P)-*yī běn* (one-Cl) now bears i[SORT:IND] and i[NUM:SG].

[3] A similar idea can be found in Cinque (to appear) related the linearization issue.

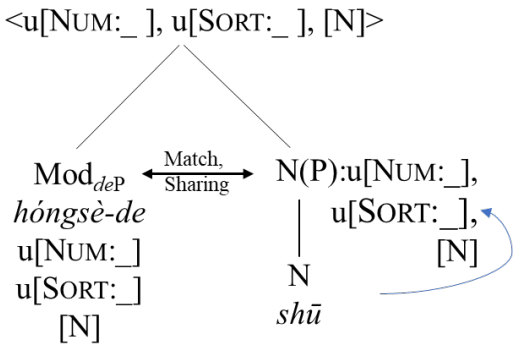
[4] The same word order can be observed in Korean as well. Furthermore, the numeral and the classifier can float away from the antecedent (noun) in Korean (cf. Kim 2013).

Then the noun *shū* 'book' is merged. As noted, the noun percolates its feature up as head-projection. Therefore, N(P) will also bear u[SORT], u[NUM], and [N]. Since the syntactic object {? {ClP Num(P)-*yī* 'one', Cl-*běn*}, NP-*shū* 'book'} cannot be labeled by head-projection, it has to resort to feature-sharing. As Cl(P) and N(P) both bear a sorting feature and a number feature, feature-matching can happen between Cl(P) and N(P). Given that the two features on Cl(P) are valued and the two on N(P) are unvalued, agree/valuation happens. Under agree, feature-identity is achieved and the sharing between [SORT] and [NUM] on Cl(P) and on N(P) happens. As a result, the syntactic object {? {ClP Num(P)-*yī* 'one', Cl-*běn*}, NP-*shū* 'book'} is labeled as <i[SORT:IND], i[NUM:SG]> as in (7). Finally, the uninterpretable features on N(P) will be deleted as they have been agreed/valued.

5.3 Case②: Labeling [Modifier$_{deP}$ + Noun]

Let us turn to nominal phrases involving modifiers. As mentioned, we make a distinction between two types of modifiers, and we only concentrate on *de*P modifiers in this section. Take *hóngsè-de shū* (red.color-DE book) 'red book' as an example. First, the head *de* merges with its complement *hóngsè* 'red color', and the resulting structure is labelled by *de* as {$_{deP}$ AdjP-*hóngsè*, *de*}.[5] As mentioned, *de* bears [N], u[NUM], and u[SORT], which can percolate up onto *de*P, as shown in (8).

(8)



Then, *de*P is merged with the NP-*shū* 'book', and feature-matching can happen between the relevant features: [N], u[NUM], and u[SORT]. With the identical null value, matched features undergo feature-sharing, and then the shared features <[N], u[NUM:_], u[SORT:_]> become the label of the resulting structure, as in {$_{<[N],\ u[NUM:\_],\ u[SORT:\_]>}$ {$_{deP}$ AdjP-*hóngsè*, *de*}, NP-*shū* 'book'}. Note that the categorial feature can also participate in the labeling process via shared-feature, which is in accordance with the general principle of 'maximize matching effect' (Chomsky 2001).[6] Importantly, the uninterpretable features on Mod$_{deP}$ and those on N(P) can be deleted before transfer as they have already been mutually matched. Concerning the uninterpretable features in the label of the resulting phrase, their deletion and matching can only resort to a higher probe as mentioned.

[5] *Hóngsè* (red.color) could be regarded as an NP, but this does not affect the derivation. No matter which category *hóngsè* belongs to, *de*P will always bear [N], u[NUM], and u[SORT].

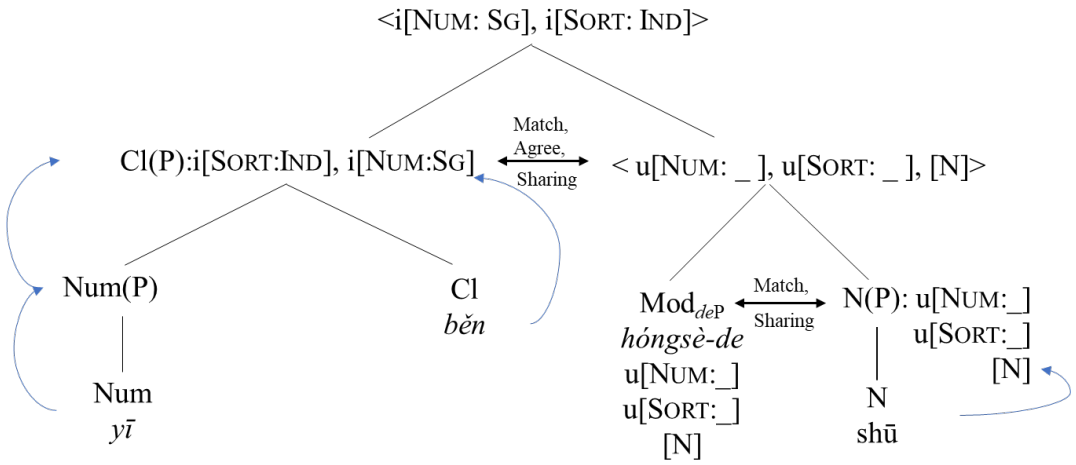
[6] Prominent features that participate in labeling are also called 'criterial features' in the sense of Rizzi (1991, 1997), which include categorial features as well.

5.4 Case③: Labeling [[Numeral + Classifier] + [Modifier$_{de\text{P}}$ + Noun]]

We take *yī-běn hóngsè-de shū* (one-Cl red.color-DE book) 'one red book' as an example for illustration. As mentioned, the classifier *běn* will first merge with numeral *yī* 'one', and the resulting structure {*yī*, *běn*} is labeled as Cl(P), which bears i[SORT] and i[NUM], as {$_{\text{ClP}}$ Num(P)-*yī* 'one', Cl-*běn*}. On the other hand, the Mod$_{de\text{P}}$ *hóngsè-de* (red.color-DE) merges with the N(P) *shū* 'book'. Since Mod$_{de\text{P}}$ and N(P) both bears [N], u[SORT], and u[NUM], the matched features with null value are identical and can then be shared. These shared features will become the label of the resulting structure, as {$_{\text{<[N], u[NUM:_], u[SORT:_]>}}$ {$_{de\text{P}}$ AdjP-*hóngsè*, *de*}, NP-*shū* 'book'}. At this stage, we have {$_{\text{ClP}}$ NumP, Cl} and {$_{\text{<u[NUM:_], u[SORT:_], [N]>}}$ Mod$_{de\text{P}}$, N(P)}. Next, Cl(P) merges with {$_{\text{<u[NUM:_], u[SORT:_], [N]>}}$ Mod$_{de\text{P}}$, N(P)}. Feature-matching and agree happen between [SORT] and [NUM] on Cl(P) and on the phrase labelled as <u[NUM:_], u[SORT:_], [N]>. Under agree, the feature-identity is satisfied and the shared features become the label of the whole structure, which is <i[NUM:SG], i[SORT:IND]>, as in {$_{\text{<i[NUM:SG], i[SORT:IND]>}}$ {$_{\text{ClP}}$ Num(P)-*yī* 'one', Cl-*běn*}, {$_{\text{<[N], u[NUM:_], u[SORT:_]>}}$ {$_{de\text{P}}$ AdjP-*hóngsè*, *de*}, NP-*shū* 'book'}}.

Finally, the uninterpretable features on Mod$_{de\text{P}}$ and on N(P) can be deleted before transfer, as they have been mutually matched. In the same way, the uninterpretable features in the label of the structure {Mod$_{de\text{P}}$, N(P)}, i.e., <u[NUM:_], u[SORT:_], [N]>, can be deleted before transfer as well.

(9)



5.5 Case④: unlabelable structure: *[Numeral + Modifier$_{de\text{P}}$ + Classifier + Noun]

An impossible sequence in Chinese is [Numeral +*de*P +Classifier +Noun], such as **yī hóngsè-de běn shū* (one red-DE Cl book). Under our analysis, there are three potentially possible derivations. With the first possibility, the classifier *běn* will be merged with Modifier$_{de\text{P}}$ (*hóngsè-de*) 'red-DE', and then [Modifier$_{de\text{P}}$ + classifier] (*hóngsè-de běn* 'red-DE Cl') will be merged with the numeral *yī* 'one'. The three merged elements form a unit [[Numeral + Modifier$_{de\text{P}}$] + classifier] (*yī hóngsè-de běn* 'one red-DE Cl'), which will modify the noun *shū* 'book'. With the second possibility, the numeral and the modifier *de*P will be merged first. Then, the classifier *běn* will be merged with [Numeral + Modifier$_{de\text{P}}$] (*yī hóngsè-de* 'one red-DE'), and then [[Numeral + Modifier$_{de\text{P}}$] + classifier] (*yī hóngsè-de běn* 'one red-DE Cl) will

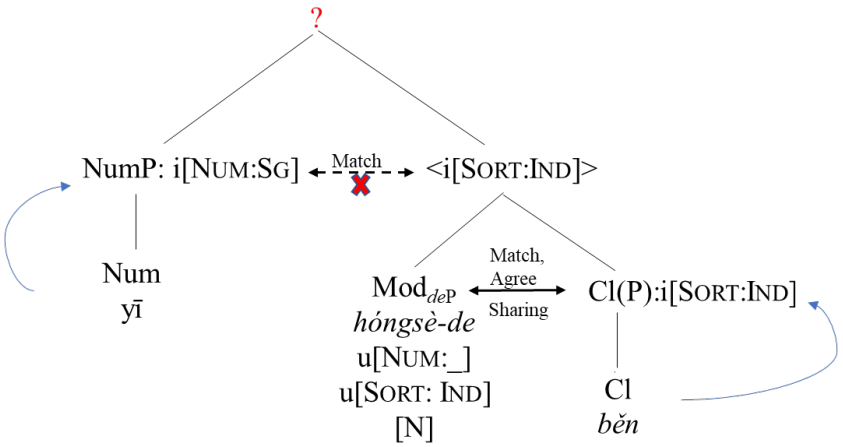
modify the noun *shū* 'book'. With the third possibility, the noun *shū* 'book' first merges with the classifier *běn*, and then with [Numeral + Modifier$_{deP}$] (*yī hóngsè-de* 'one red-DE'). As the reader will see, these derivations will lead to unlabelable structures at a certain stage.

5.5.1 Derivation I: [[Numeral + [Modifier$_{deP}$ + Classifier]] + Noun]

As mentioned, the numeral, the Mod$_{deP}$, and the classifier will first merge together. The first step is for the classifier to be merged with Mod$_{deP}$. Given the classifier only head-projects its label in merging with a numeral, the labeling of {? Mod$_{deP}$, Cl(P)} should resort to feature-sharing. Since the classifier only bears i[SORT], the feature-matching and agree can only happen between [SORT] on Mod$_{deP}$ and Cl. Under agree, the feature-identity is satisfied. The shared feature as label is <i[SORT:IND]> as in {$_{<i[SORT:IND]>}$ Mod$_{deP}$, Cl(P)} (*hóngsè-de běn* 'red-DE Cl').[7]

Then the numeral is merged and the derivation will crash at this stage as shown in (10). Given that Num(P) has only i[NUM] and that {$_{<i[SORT:IND]>}$ Mod$_{deP}$, Cl(P)} on the right bears only i[SORT], there is no matched feature between these two phrases. The structure is unlabeled before the noun is merged.

(10)

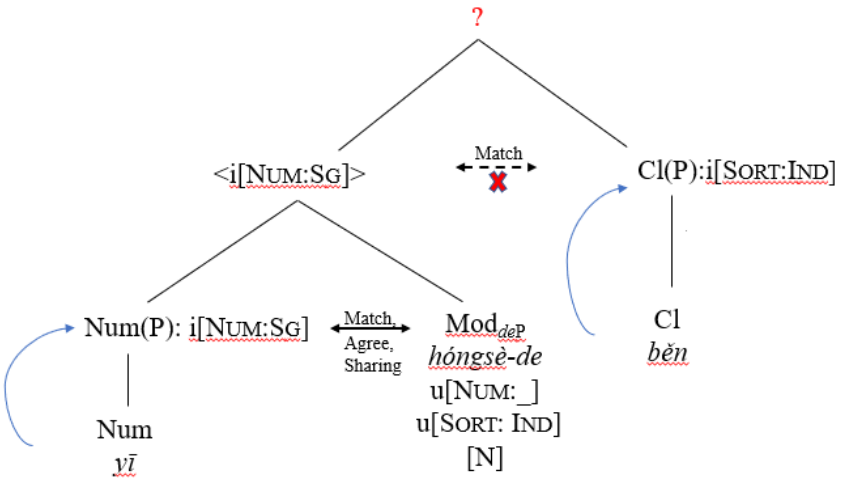


5.5.2 Derivation II: [[[Numeral + Modifier$_{deP}$] + Classifier]] + Noun]

Likewise, the same problem arises when the numeral first merges with Mod$_{deP}$. After merging the numeral with the modifier, the matched feature undergoes agree and is shared as label, i.e., {$_{<i[NUM:SG]>}$ Num(P), Mod$_{deP}$} (*yī hóngsè-de* 'one red-DE'). Next, the classifier is merged and the labeling fails at this stage as there is no matched feature between these two phrases. The resulting structure is unlabelabled, as shown in (11).

[7] The uninterpretable number feature on Mod$_{deP}$ is not matched or checked, so it may not be deleted before transfer. This is another reason why the structure is illegitimate.

(11)



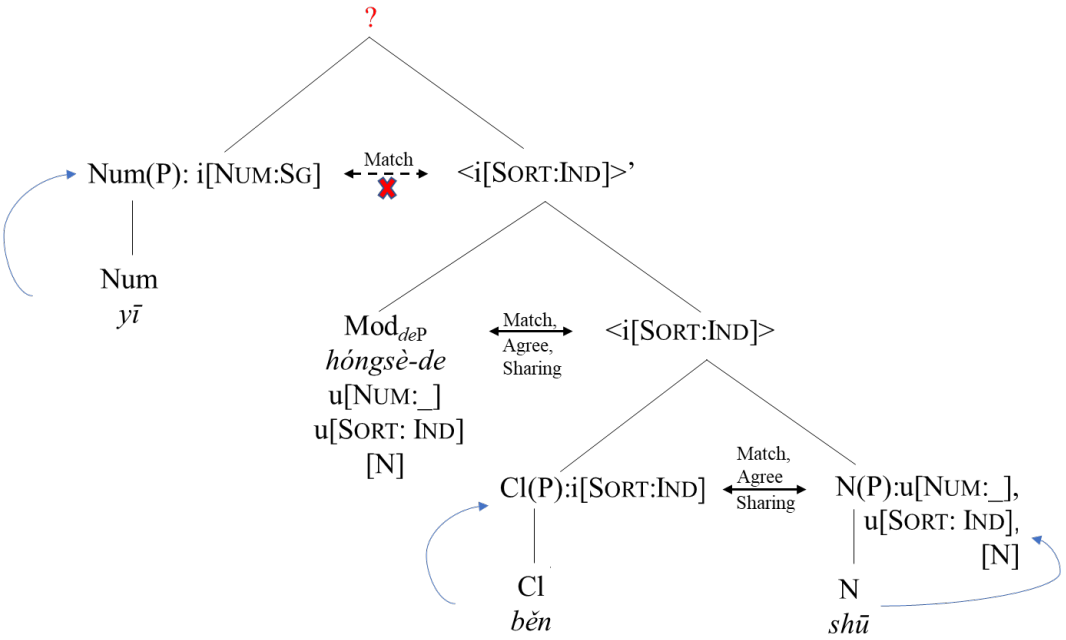
5.5.3 Derivation III: [Numeral, [Modifier$_{deP}$, [Classifier, Noun]]]

Following Zhang (2007) and Bale & Coon (2014), given that there is no selection relation between classifier and NP, in the merging of [Classifier, Noun], classifier cannot be treated as a head and cannot take an NP as its complement. Rather, classifier here should be treated as a phrase. As a result, the relevant restructure is not *{$_{ClP}$ Cl, NP}, but {$_{??}$ ClP, NP}. The label of {$_{??}$ ClP, NP} will rely on feature-sharing. Given that Cl(P) bears only i[SORT], the matched feature between Cl(P) and N(P) is only [SORT]. Under agree, the feature-identity can be achieved and the shared-feature becomes the label, i.e., < i[SORT:IND]>, as in {$_{<\text{i[SORT:IND]}>}$ ClP, NP} (*běn shū* 'Cl book').

Next, Mod$_{deP}$ is merged. Although Mod$_{deP}$ bears u[NUM], u[SORT], and [N], {$_{<\text{i[SORT:IND]}>}$ Cl(P), N(P)} bears only i[SORT]. Therefore, the matched feature is only [SORT]. Under agree, the feature-identity can be satisfied and feature-sharing takes place. The shared feature as label is < i[SORT:IND]>' as well, as in {$_{<\text{i[SORT:IND]}>}$' Mod$_{deP}$, {$_{<\text{i[SORT:IND]}>}$ Cl(P), N(P)}} (*hóngsè-de běn shū* 'one red-DE Cl book').

Finally, the numeral *yī* 'one' is merged. However, there is again no matched feature between Num(P) and {$_{<\text{i[SORT:IND]}>}$' Mod$_{deP}$, {$_{<\text{i[SORT:IND]}>}$ Cl(P), N(P)}}. As a result, the structure becomes unlabeled and the derivation crashes as in (12).

(12)



6.Discussion

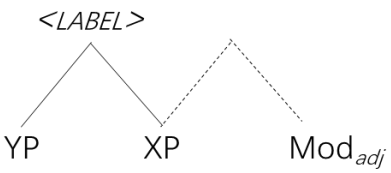
6.1 Evidence for two types of modifiers

As pointed out in section 4, we argue for two types of nominal modifiers in Chinese, which differ one from the other in their syntactic structures. One is in the form of bare adjectives, whereas the other is with the form of *de*P.

We adopt Hornstein's (2009) version of the Label Accessibility Condition that only the label of a syntactic object is accessible to merge. Since bare adjectives are analyzed as adjuncts to NP, the resulting adjunction structure cannot be labeled. Therefore, it becomes invisible and is no longer subject to further operation. As shown in (13), when a bare adjective is merged with an XP (e.g., an NP), the structure is unlabeled. When another element, say YP, is set-merged, it will directly be merged with XP, but not the unlabeled syntactic object <XP, Mod$_{adj}$>. Therefore, it is predicted that the internal structure <XP, Mod$_{adj}$> cannot be modified, and the bare adjective should always adjoin to XP, and importantly, XP cannot be moved away by stranding the bare adjective in-situ.

By contrast, a *de*P modifier is set-merged with the noun (NP). According to our approach to labeling, *de*P and the noun can share a bunch of features: [SORTING], [NUMBER], [N]. As a result, the structure {*de*P, NP} here can be properly labeled via feature-sharing.

(13)



6.1.1 Topicalization

The first argument in support of our analysis comes from the topicalization case. Try to topicalize the noun phrase in a sentence such as in (14a), where the modifier *cháng* 'long' is a bare adjective. When the noun *qiānbǐ* 'pencil' in the object undergoes topicalization, it cannot be moved alone by stranding the adjective as in (14b). The bare adjective modifier has to be moved together with the noun, as show in (14c).

(14) a. Tā zhǎo-dào-le yī-zhī cháng qiānbǐ.
he find-Perf one-Cl long pencil
'He found a long pencil.'

b. *Qiānbǐ$_i$, tā zhǎo-dào-le yī-zhī cháng t$_i$.
pencil, he find-Perf one-Cl long
('As for pencils, he found a long one.')

c. Cháng qiānbǐ$_i$, tā zhǎo-dào-le yī-zhī t$_i$.
long pencil he find-Perf one-Cl
'As for long pencils, he found one.'

However, when the relevant NP modifier is a *de*P, both constructions (cf. 15b, c) are grammatical. When the noun *qiānbǐ* 'pencil' is topicalized to the sentence-initial position, the *de*P modifier *cháng-de* 'long-DE' can either stay in-situ as in (15b) or be fronted together with the noun as in (15c). This is because, in our analysis, *de*P is set-merged in a well labeled structure, and its internal structure can be modified. Importantly, a subpart of the object can undergo topicalization.

(15) a. Tā zhǎo-dào-le yī-zhī cháng-de qiānbǐ.
he find-Perf one-Cl long-DE pencil
'He found a long pencil.'

b. Qiānbǐ$_i$, tā zhǎo-dào-le yī-zhī cháng-de t$_i$.
pencil, he find-Perf one-Cl long-DE
'As for pencils, he found a long one.'

c. Cháng-de qiānbǐ$_i$, tā zhǎo-dào-le yī-zhī t$_i$.
long-DE pencil he find-Perf one-Cl
'As for long pencils, he found one.'

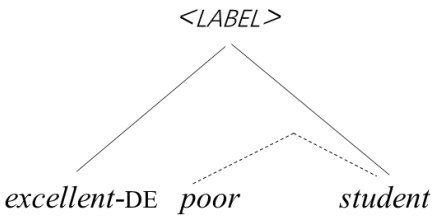
6.1.2 Multiple modifiers

Another piece of evidence comes from the compatibility of multiple modifiers. For a noun such as *xuéshēng* 'student', it can be merged either with a bare-adjective modifier such as *yōuxiù* 'excellent', or with a *de*P modifier such as *yōuxiù-de* 'excellent-DE'. When a noun merges with two modifiers, there are generally three possibilities: both modifiers are *de*P, both modifiers are bare-adjectives, and, one is *de*P and the other is a bare-adjective.

In (16), the noun *xuéshēng* 'student' can be merged with the bare-adjective modifier *pínkùn*

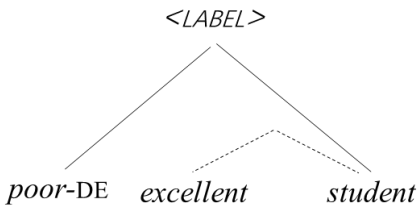
'poor' and the *de*P modifier *yōuxiù-de* 'excellent-DE'. The resulting structure is grammatical as shown in (16).

(16)



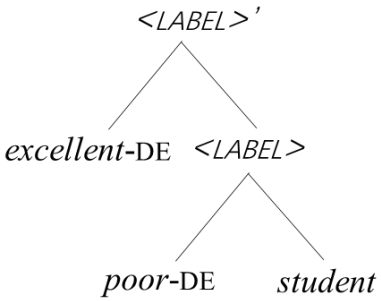
Likewise, for the bare adjective *yōuxiù* 'excellent' and the *de*P *pínkùn-de* 'poor- DE', the noun *xuéshēng* 'student' can be successfully merged with them as well, and the structure is shown in (17).

(17)



When two *de*P modifiers are merged with a noun, the nominal phrase is also grammatical. For instance, the noun *xuéshēng* 'student' can be firstly merged with *yōuxiù-de* 'excellent-DE', and then with *pínkùn-de* 'poor- DE'. At first, *pínkùn-de* 'poor-DE' is merged with the noun *xuéshēng* 'student', and the shared features become the label. Then, *yōuxiù-de* 'excellent-DE' is merged with this labeled resulting structure {*pínkùn-de* 'poor-DE', *xuéshēng* 'student'}, and the same shared features become the label of the final structure {*yōuxiù-de* 'excellent-DE', {*pínkùn-de* 'poor-DE', *xuéshēng* 'student'}} as well. The relevant structure is shown in (18).

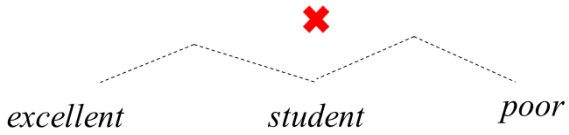
(18)



However, if two bare-adjective modifiers are merged with a noun, the resulting structure becomes ungrammatical. We take the merging of the noun *xuéshēng* 'student' with the bare-adjective modifiers *yōuxiù* 'excellent' and *pínkùn* 'poor' as an example. Given that merging a bare-adjective modifier will result in an unlabelable structure, the two bare-adjective modifiers can only adjoin to the noun directly. The relevant structure is shown in (19). After the merging of the two modifiers, both of them are contained within unlabeled structures. As a result, the hierarchy between *yōuxiù* 'excellent' and *pínkùn* 'poor' cannot be determined, since they are

merged with the same node in exactly the same way.

(19)



6.2 General Number Phenomenon

Concerning the uninterpretable features on nouns, the phenomenon concerning "general number" supports our claim in that general number involves an unvalued number feature on nouns. Following Corbett (2000) and Rullmann & You (2006), bare nouns in Chinese involve a general number, which is not ambiguous between singular or plural but is with a 'neutral' reading. For instance, in (20), the equivalent translation of the bare noun *shū* 'book' should be *one or more books*, rather than *one book* or *books*.

(20) Zuó tiān, wǒ mǎi le shū. [Mandarin]
yesterday I buy Asp book
'Yesterday, I bought one or more books.' (cited from Rullmann & You)

The evidence in support of this analysis comes from cases of object ellipsis, as shown in (21). In the sentence, the number of apples bought by *Zhangsan* and the number of apples bought by *Lisi* are not determined. For instance, a possible scenario is that *Zhangsan* bought one apple but *Lisi* bought a plural number of apples, such as three apples. This convincingly shows that the bare noun *píngguo* 'apple' cannot have a specific number as the value of its number feature.

(21) Zhāngsān zuótiān mǎi le píngguǒ lǐsì yě mǎi le [Mandarin]
zhangsan yesterday buy Asp apple, Lisi also buy Asp
'Zhangsan bought one or more apples yesterday, Lisi did too.'

By contrast, English does not show the same effects. For the similar sentence with object ellipsis as in (22a), *John* and *Tom* bought each a plural number of apples. If *Tom* bought only one apple, the sentence becomes infelicitous. In addition, if the object in plural form *apples* is replaced by *an apple* in singular as in (22b), the sentence can only describe the scenario in which *John* bought one apple and *Tom* bought one apple as well.

(22) a. John bought apples, and Tom did so.

b. John bough an apple, and Tom did so.

In addition to Mandarin Chinese, the phenomenon of general number is also widely observed in languages such as Korean, Turkish and Hungarian.

7. Conclusion

In this paper, we mainly propose that labeling via feature-sharing actually requires feature-identity (i.e., identical attributes and identical value). Feature sharing between unvalued features is possible, since they can be considered identical with a null value. The labeling process of nominal phrases in Chinese supports our proposal. Concerning nominal phrases in Chinese, we first argue for the existence of a sorting feature. Nouns contain uninterpretable [Sort] and [Num]. Second, we classify the nominal modifiers into two types in terms of their surface form and their syntactic structures. Merging modifiers with the form of bare adjectives constitutes unlabeled structures. By contrast, merging modifiers with the form of *de*P always give rise to labeled structures. To further illustrate the distinction, we have shown different behaviors of bare-adjective modifiers and *de*P modifiers in terms of their topicality and their compatibility with multiple modifiers.

Reference

Bale, A., & Coon, J. (2014). Classifiers are for numerals, not for nouns: Consequences for the mass/count distinction. *Linguistic Inquiry*, *45*(4), 695-707.

Bliss, H., González Poot, A. A., Telfer, C., & Chat, L. 2004. The semantics of the bare noun in Turkish. *PRISM*, 25.

Chierchia, G. 1998. Reference to kinds across language. *Natural language semantics*, 6(4), 339-405.

Chomsky, N. 2000. Minimalist inquiries: The framework (MITOPL 15). *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, 89-155.

Chomsky, N. 2001. Derivation by Phase. Ken Hale: *A Life in Language*, ed. by M. Kenstowicz, 1-52. Cambridge, MA: MIT Press.

Chomsky, N. 2004. Beyond explanatory adequacy. *Structures and Beyond*, ed. by Belletti, A. Oxford University Press, Oxford, NY.

Chomsky, N. 2008. On phases. *Current Studies in Linguistics Series*, 45, 133.

Chomsky, N. 2013. Problems of projection. *Lingua*, 130, 33-49.

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

Cinque G. *On Linearization: Toward a Restrictive Theory*[M] (to appear). MIT Press.

Coon, Jessica. 2009. Interrogative possessors and the problem with pied-piping in Chol. *Linguistic Inquiry*, 40(1), 165-175.

Corbett, G. G. 2000. *Number*. Cambridge University Press.

Edward J. Rubin. 2003. Determining Pair-Merge. *Linguistic Inquiry*, 34(4), 660–668.

Epstein, Samuel David, Kitahara, Hisatsugu, & Seely, Daniel. 2012. Structure Building That Can't Be. In *Ways of Structure Building*, eds. by Myriam Uribe-Etxebarria & Vidal Valmala, 253-270. Oxford: Oxford University Press.

Giusti, G. 1997. The categorial status of determiners. *The New Comparative Syntax*., ed. by L. Haegeman.

Heck, Fabian. 2004. *A theory of pied-piping*. Doctoral dissertation, Universitat Tubingen.

Hsieh, M. L. 2005. Two types of modifiers and parallelisms between DPs and TPs in Chinese. *Language and linguistic*, 6(3), 397-429

Hornstein, Norbert. 2009. *A Theory of Syntax: Minimal Operations and Universal Grammar*. Cambridge: Cambridge University Press.

ILJIC, R. 1994. Quantification in mandarin chinese: two markers of plurality. *Linguistics*, 32(1), 91-116.

Jenks, P. S. E. 2011. *The hidden structure of Thai noun phrases*. Doctoral dissertation, Harvard University.

Jiang, L. J. 2020. *Nominal arguments and language variation*. Oxford University Press.

Kim, J. B. 2013. Floated numeral classifiers in Korean: A non-derivational, functional account. *Lingua*, 133, 189-212.

Li, C. N., & Thompson, S. A. 1989. Mandarin Chinese: A functional reference grammar. University of California Press.

Li, Xuping. 2013. Numeral classifiers in Chinese. In *Numeral Classifiers in Chinese*. De Gruyter Mouton.

Li, Yen-hui Audrey. 2008. Phrase structures and categorial labeling: De as a head?. *The contemporary Linguistics*, 02, 97-108. [李艳惠. 2008. 短语结构与语类标记:“的”是中心词?.当代语言学, 02, 97-108]

Oseki, Y. 2015. Eliminating pair-merge. In *Proceedings of the 32nd West Coast Conference on Formal Linguistics*, 303-312. Somerville, MA: Cascadilla Proceedings Project.

Pan, Victor Junnan. 2016. Resumptivity and two types of A′-dependencies in the Minimalist Program. *International Journal of Chinese Linguistics*, 3(1), 45-78.

Paul, W. 2005. Adjectival modification in Mandarin Chinese and related issues. *Linguistics*, 43(4), 757-793.

Rizzi, Luigi. 1991. Residual verb second and the wh criterion. In *Geneva Working Papers on Formal and Computational Linguistics*, republished in Rizzi, Luigi, 2000, Comparative Syntax and Language Acquisition, 213–240, London: Routledge.

Rizzi, L. 1997. The fine structure of the left periphery. In *Elements of grammar*, 281-337. Springer, Dordrecht.

Rizzi, L. 2014. Some Consequences of Criterial Freezing: Asymmetries, Anti-adjacency, and Extraction from Cleft Sentences. In *Functional Structure from Top to Toe: The Cartography of Syntactic Structures*, Volume 9.: Oxford University Press.

Rizzi, L. 2015. Notes on labeling and subject positions. *Structures, strategies and beyond: Studies in honour of Adriana Belletti*, 223, 17-46.

Rullmann, H., & You, A. 2006. General number and the semantics and pragmatics of indefinite bare nouns in Mandarin Chinese. In *Where semantics meets pragmatics*, 175-196. Brill.

Simpson, A. 2001. Definiteness agreement and the Chinese DP. *Language and Linguistics*, 2(1), 125-156.

Simpson, A. 2002. On the status of ‘modifying’DE and the structure of the Chinese DP. *On the formal way to Chinese languages*, 74-101.

Simpson, A., & Ngo, B. 2018. Classifier syntax in Vietnamese. *Journal of East Asian Linguistics*, 27(3), 211-246.

Tang, C. 2005. Nouns or classifiers: a non-movement analysis of classifiers in Chinese. *LANGUAGE AND LINGUISTICS-TAIPEI-*, 6(3), 431.

Tang, C. C. J. 2007. Modifier licensing and Chinese DP: a feature analysis. *Language and Linguistics*, 8(4), 967-1024.

Wu, Y., & Bodomo, A. 2009. Classifiers≠ determiners. *Linguistic Inquiry*, 40(3), 487-503.

Zhang, H. 2007. Numeral classifiers in mandarin chinese. *Journal of East Asian Linguistics*, 16(1), 43-59.

Zhang, N. N. 2013. Classifier Structures in Mandarin Chinese. In *Classifier Structures in Mandarin Chinese*. De Gruyter Mouton.

Zhu, Dexi ( ). 1993. Cóng fāng yán hé lì shǐ kàn zhuàng tài xíng róng cí de míng cí huà jiān lùn hàn yǔ tóng wèi xìng piān zhèng jié gòu (从方言和历史看状态形容词的名词化兼论汉语同位性偏正结构). *Fangyan*(方言)[Dialect](2), 81-100.