

The Encoding of Referential Properties in the Chinese Nominal*

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By manipulating the positions of modifiers, it can be shown that in Chinese, referential properties like specificity and definiteness are related to some structure higher than the numeral. This structure is identified as the Specificity Phrase (SP), the projection of which gives rise to specificity. The feature specification of the S head determines the definiteness interpretation of a noun phrase. Not all Chinese noun phrases can be interpreted as definite. The restrictions in definiteness interpretation are modeled by a theory in which definiteness is regulated by an Agree (Chomsky 2000, Pesetsky & Torrego 2004) relation between the Specificity Phrase and the Classifier Phrase. Every referential interpretation is unambiguously linked to a corresponding nominal structure with a certain feature specification.

Key words: definiteness, specificity, classifiers, modifiers

1. Introduction

In Chinese, there are no articles indicating the definiteness value of a noun phrase. As a consequence, the referential interpretations of some Chinese noun phrases are relatively flexible in the sense that one surface form can have many possible referential interpretations. For instance, bare nouns in Mandarin and [Cl-N] phrases in Cantonese can be interpreted as either definite or indefinite (Cheng & Sybesma 1999); indefinite noun phrases are always ambiguous between a specific and a non-specific reading. To complicate the picture, it has been observed that only definite noun phrases can appear in the subject position in Chinese (see Chao 1968, Li & Thompson 1981, Lee 1986, among others). The possibility arises that the referential interpretations of these flexible noun phrases are not determined by factors internal to the noun phrase. The interpretation is either determined by the discourse context, or is dependent on the position of the noun phrase in the sentence. However, a closer look at the forms and interpretations

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co-relates of these flexible Chinese noun phrases, together with dialectal comparison, shows that the referential interpretations of these noun phrases are not as flexible as they seem to be at first sight. For instance, [CI-N] phrases in Mandarin and bare nouns in Cantonese can never be interpreted as definite, regardless of contexts or sentence positions. This shows that neither a context-based nor a sentence-position-based account is adequate in accounting for the variations. What then determines the referential properties of Chinese noun phrases?

There is evidence to show that referential properties of Chinese noun phrases have a close-tie with nominal structure. It has been observed that in Chinese, the positions of modifiers inside a noun phrase interact with referential properties (Huang 1982, Cheung 1989, Zhang 2006). Briefly, when a modifier appears to the immediate left of the classifier or the numeral, the noun phrase is, if grammatical, obligatorily referential (specific and in some cases definite). Placing a modifier between the classifier and the noun, on the other hand, has no effects on the referential interpretation of the noun phrase. This suggests that the Chinese noun phrase has more structure than meets the eye. Some structure related to referentiality is present in the noun phrase, located higher than the numeral. I identify such referentially related structure as the Specificity Phrase (SP). The S head always contains the feature SPECIFIC, giving rise to a specific interpretation. Since both definite and indefinite noun phrases can be specific, definiteness is treated as a value of the SPECIFIC feature.

Not all Chinese noun phrases can be interpreted as definite. What this implies is that the assignment of the definiteness value to the SPECIFIC feature is not free, but is dependent on some other factors. In this paper, I adopt the idea that referential properties in the nominal are regulated by the interplay between two referentially related layers in the nominal (Szabolcsi 1994, Campbell 1996, Hoekstra & Hyams 1996, Brugè 2002, among others). Further assuming that definiteness is encoded in the Classifier Phrase (Cheng & Sybesma 1999), I take it that the Specificity Phrase and the Classifier Phrase are the two main players in regulating the referential properties of Chinese nominals. The two layers interact via Agree (Chomsky 2000, Pesetsky & Torrego 2004).

This paper is organized as follows. In §2, I present definitions of terms that I would be using throughout the paper. In §3, I argue that referential properties of Chinese noun phrases are neither determined by the context nor by the position of the noun phrase within a sentence. In §4, I present evidence to show that referential properties of Chinese noun phrases are sensitive to nominal structure. In particular, there is some structure to the left of the numeral that is related to referential properties, which I identify as the Specificity Phrase (SP). In §5, I propose a theory in which referential properties are regulated by an Agree relation (Chomsky 2000, Pesetsky & Torrego 2004) between the Specificity Phrase and the Classifier Phrase. In §6, I provide structures for

[Dem-(Nume)-Cl-N] phrases, [Nume-Cl-N] phrases, [Cl-N] phrases, as well as bare nouns in the two-layer system I propose, explaining how different interpretations can arise. In §7, I discuss the licensing of different types of modifiers. Section 8 concludes the paper.

2. Definitions and assumptions

In this section, I provide definitions for notions that I shall be using throughout the paper.

2.1 Types of modifiers

Chinese modifiers come in two types. They can either be bare, as in (1) or they can be followed by a modification marker, as in (2). The following examples are in Cantonese.¹

- (1) [hung⁴-sik¹] syu¹
 red-color book
- (2) [hung⁴-sik¹ ge³] syu¹
 red-color MARKER book

For ease of exposition, I refer to the type of modifier in (1) as *bare modifiers* and the type in (2) as *marker modifiers*.

2.2 Definiteness and specificity

I adopt the view that definiteness and specificity can be defined in terms of membership of discourse (Arsenijevic 2008). Briefly, there are two relevant discourses in every exchange viewing from the perspective of the speaker, the speaker's discourse and the shared discourse. A definite noun phrase is used to refer to an object the referent of which is in the shared discourse. A specific noun phrase is used to refer to an object the referent of which is in the speaker's discourse, but not necessarily in the shared discourse. Definiteness and specificity are thus defined as follows:

- (3) A noun phrase is definite if its referent is present in the shared discourse.
 (4) A noun phrase is specific if its referent is present in the speaker's discourse.

¹ *Jyutping* is used as the romanization scheme for the Cantonese data in this paper.

Since the shared discourse includes the speaker's discourse, all definite noun phrases are necessarily specific.

3. Not everything can be definite

If it were the case that Chinese does not encode referentiality in the nominal structure, one of the possibilities is that the referential value of a Chinese noun phrase is determined by contextual information. In other words, any interpretation, as long as it is compatible with the context, should be available. In this section, we will focus on the interpretation of definiteness. Consider the following Cantonese example:

- (5) ngo⁵ jat¹deng⁶ jiu³ maai⁵ go³ doi² ga³ le³
 I surely must buy CL bag SFP SFP
 'I must buy a bag/the bag.'

go³doi² in (5) is ambiguous. It can be understood in a way that what the speaker demands is to buy a particular bag that both the speaker and the hearer know about, thus a definite reading for *go³doi²*. (5) can also be understood in a way that the speaker is just demanding to buy a bag, any bag would do, thus, an indefinite reading for *go³doi²*. In other words, *go³doi²* can be interpreted as either definite or indefinite, depending on the context.

However, there is evidence to suggest that a purely context-based account cannot be right. Even though referential interpretation of noun phrases is freer in Chinese, not all noun phrases can be interpreted as definite. Cheng & Sybesma (1999) observe that the definiteness interpretation of noun phrases varies across Chinese dialects, as illustrated in the following table:

(6)

	[Nume-Cl-N]	[Cl-N]	Bare noun
Cantonese	Indefinite	Definite/Indefinite	Indefinite
Mandarin	Indefinite	Indefinite	Definite/Indefinite

A Mandarin [Cl-N] phrase can never be interpreted as definite no matter how the context manipulates. The same applies to Cantonese bare nouns. [Nume-Cl-N] phrases in both dialects are always indefinite. No context can change that. If referential properties are contextually determined, such restrictions in interpretation are unexpected. The variation across dialects argues against the view that the interpretation of definiteness in Chinese is merely context-dependent. The context is only relevant when a certain referential

interpretation is within the ‘capacity’ of the noun phrase in question.

It has been widely observed that only definite noun phrases can appear in the subject position in Chinese (see Chao 1968, Li & Thompson 1981, Lee 1986, among others). For instance, even though a [CI-N] phrase in Cantonese can be interpreted as either definite or indefinite (as illustrated in (5)), a [CI-N] phrase in the subject position can only be interpreted as definite. This is illustrated in (7).

- (7) zek³ gao² jiu³ gwo³ mai⁵lou⁶
 CL dog want cross road
 ‘The dog wants to cross the road.’ NOT: ‘A dog wants to cross the road.’

This seems to suggest that sentential position can affect the definiteness of a noun phrase. Nevertheless, this is only apparent. The subject position cannot force a definite reading on just any noun phrase. For a noun phrase that cannot be interpreted as definite to begin with, putting it in the subject position would only lead to ungrammaticality. For instance, bare noun phrases can be interpreted as definite in Mandarin but not in Cantonese. Putting a Cantonese bare noun phrase in the subject position would not induce a definite reading on the bare noun phrase, but, rather, lead to ungrammaticality. This is illustrated in (8).

- (8) a. gǒu yào guò mǎlù (Mandarin)
 dog want cross road
 ‘The dog wants to cross the road.’
 b. *gao² jiu³ gwo³ mai⁵lou⁶ (Cantonese)
 dog want cross road
 Intended reading: ‘The dog wants to cross the road.’

The contrast between (8a) and (8b) shows that the referential interpretation of Chinese noun phrases cannot be solely determined by their sentential positions.

4. Structural sensitivity

In this section, we provide evidence to show that the encoding of specificity and definiteness in Chinese correlates with structural properties within the noun phrase. In particular, we show that the variation of the position of modifiers in a noun phrase co-relates with specificity and definiteness.

4.1 Specificity

Huang (1982) observes the following contrast in existential sentences based on Mandarin data (example (9b) and (9c) are from Huang (1982:64); I added example (9a) for comparison).²

- (9) a. yǒu [sān běn shū] zài zhèr
 have three CL book at here
 ‘There are three books here.’
 b. yǒu [sān běn zhāngsān de shū] zài zhèr
 have three CL Zhangsan MARKER book at here
 ‘There are three books of Zhangsan’s here.’
 c. *yǒu [zhāngsān de sān běn shū] zài zhèr
 have Zhangsan MARKER three CL book at here
 Intended reading: ‘There are three books of Zhangsan’s here.’

In (9a), there is no modifier and the [Nume-Cl-N] phrase can appear in existential sentences. When a modifier is placed between the classifier and the noun, [Nume-Cl-marker modifier-N], the resulting noun phrase can also appear in existential sentences, as in (9b). However, when the modifier is placed to the left of the numeral, [marker modifier-Nume-Cl-N], the resulting noun phrase is banned from existential sentences. Huang (1982) suggests that the ungrammaticality of (9c) is related to the referential/specific nature of the noun phrase in (9c).

Zhang (2006) points out that the type of noun phrase in (9b), [Nume-Cl-marker modifier-N], is ambiguous between a specific and a non-specific reading, while the type of noun phrase in (9c), [marker modifier-Nume-Cl-N] is obligatorily specific. Although Zhang (2006) does not consider unmodified [Nume-Cl-N] phrases like (9a), it should be noted that [Nume-Cl-N] phrases are also ambiguous between a specific and a non-specific reading.

These observations can be schematized as follows:

- (10) a. [marker modifier-Nume-Cl-N] → specific
 b. [Nume-Cl-(marker modifier)-N] → specific/non-specific

In what follows, I shall provide one more piece of evidence to support the observations in (10). The specific and non-specific distinction of indefinites is easily detected in contexts that involve verbs of propositional attitude (e.g. *want*, *believe*, *hope*,

² *Pīnyīn* is used as the romanization scheme for the Mandarin data.

intend, etc.) (Lyons 1999). The specific and non-specific contrast can be made more prominent by using an adverb like ‘randomly’. The interpretation that a specific noun phrase carries is contradictory to the meaning of ‘randomly’, as manifested in the senseless sentence ‘#*I am going to randomly find three specific students.*’ In order words, only non-specific noun phrases should be compatible with ‘randomly’. The compatibility with ‘randomly’ can then be used as a test for specificity of noun phrases. In Mandarin, the word for ‘randomly’ is *suíbiàn*. In Cantonese, it is *si⁶daan⁶*. In what follows, I shall use *suíbiàn* and *si⁶daan⁶* to show that [Nume-CI-(marker modifier)-N] phrases can be either specific or non-specific while [marker modifier-Nume-CI-N] phrases are obligatorily specific.

Mandarin: [Nume-CI-(marker-modifier)-N]

- (11) wǒ xiǎng suíbiàn zhǎo
I want randomly look-for
[sān ge (**chōuyān de**) xuéshēng]
three CL smoke MARKER student
‘I want to randomly find three students (who smoke).’

Mandarin: [marker modifier-Nume-CI-N]

- (12) #wǒ xiǎng suíbiàn zhǎo
I want randomly look-for
[**chōuyān de** sān ge xuéshēng]
smoke MARKER three CL student
Intended reading: ‘I want to randomly find three students who smoke.’

Cantonese: [Nume-CI-(marker modifier)-N]

- (13) ngo⁵ soeng² si⁶daan⁶ wan²
I want randomly look-for
[saam¹ go³ (**sik⁶jin¹ ge³**) hok⁶saang¹]
three CL smoke MARKER student
‘I want to randomly find three students (who smoke).’

Cantonese: [marker modifier-Nume-CI-N]

- (14) #ngo⁵ soeng² si⁶daan⁶ wan²
I want randomly look-for
[**sik⁶jin¹ ge³** saam¹ go³ hok⁶saang¹]
smoke MARKER three CL student
Intended reading: ‘I want to randomly find three students who smoke.’

[Nume-CI-(marker modifier)-N] phrases are compatible with ‘randomly’ as in (11)

and (13) while [marker modifier-Nume-Cl-N] phrases are not, as in (12) and (14). This shows that the latter is obligatorily specific.

To recapitulate, a [Nume-Cl-N] phrase can be specific or non-specific. Having a modifier between the classifier and the noun does not affect the referential properties of a [Nume-Cl-N] phrase. However, when a modifier appears to the left of the numeral, the phrase is obligatorily specific. The schema in (10) is repeated here as (15):

- (15) a. [marker modifier-Nume-Cl-N] → specific
 b. [Nume-Cl-(marker modifier)-N] → specific/non-specific

4.2 Definiteness

Cheung (1989) observes that (i) [Cl-N] phrases can be definite in Cantonese but not in Mandarin; (ii) It is possible to put bare modifiers like possessors, relative clauses and color terms immediately preceding [Cl-N] phrases in Cantonese but not in Mandarin. This is illustrated in (16), (17) and (18).

- (16) Possessors:
- | | | | | |
|----|-----------------------------|------------------|------------------|-------------|
| a. | ngo ⁵ | bun ² | syu ¹ | (Cantonese) |
| | I | CL | book | |
| | 'my book' | | | |
| b. | *wǒ | běn | shū | (Mandarin) |
| | I | CL | book | |
| | Intended reading: 'my book' | | | |
- (17) Color-terms:
- | | | | | |
|----|------------------------------------|------------------|------------------|-------------|
| a. | hung ⁴ sik ¹ | bun ² | syu ¹ | (Cantonese) |
| | red | CL | book | |
| | 'the red book' | | | |
| b. | *hóng sè | běn | shū | (Mandarin) |
| | red | CL | book | |
| | Intended reading: 'the red book' | | | |
- (18) Relative clauses:
- | | | | | | | |
|----|---|--------------------|-------------------|-----------------|------------------------------------|-------------|
| a. | daai ³ | ngaan ⁵ | geng ² | go ³ | naam ⁴ zai ² | (Cantonese) |
| | wear | glasses | | CL | boy | |
| | 'the boy who wears glasses' | | | | | |
| b. | *dài | yǎnjìng | ge | nánháizi | | (Mandarin) |
| | wear | glasses | CL | boy | | |
| | Intended reading: 'the boy who wears glasses' | | | | | |

When there is a modifier preceding the [Cl-N] phrase in Cantonese, as in (16a), (17a) and (18a), the resulting phrase can only be definite. Cheung (1989) makes a connection between the two observations, suggesting that a Cantonese [Cl-N] phrase allows a bare modifier appearing to its left because it is definite. In Mandarin, a [Cl-N] phrase is only indefinite, thus, no bare modifiers can appear to its immediate left.

I think Cheung's (1989) observation is essentially correct. In fact, his observation can be extended to other modifier types as well as to other dialects. Bare modifiers such as locative phrases and temporal nominals can also immediately precede definite [Cl-N] phrases in Cantonese, as illustrated in (19a) and (19b) respectively:

(19) Locative phrases:

- a. $\text{toi}^2\text{-soeng}^6\text{-min}^6$ daat^3 zik^1
 desk-top-surface CL stain
 'the stain on top of the desk'

Temporal nominals:

- b. kam^4jat^6 dip^6 sung^3
 yesterday CL dish
 'the dish from yesterday'

In addition to Cantonese and Mandarin, there is also evidence from other Chinese dialects to support the observation that only definite [Cl-N] phrases would allow a bare modifier to immediately precede it. In Wenzhou, a [Cl-N] phrase can be definite (20a) and a bare modifier can appear in its immediate left (20b). In Hailu Hakka and Taiwanese Southern Min, a [Cl-N] phrase cannot be definite ((21a) and (22a)) and a bare modifier cannot appear to its immediate left ((21b) and (22b)).

(20) Wenzhou:³

- a. $\text{paŋ}^{313/35}$ sɿ^{33}
 CL book
 'the book/a book'
- b. ɿ^{24} $\text{paŋ}^{313/35}$ sɿ^{33}
 I CL book
 'My book'

³ I am grateful to You Rujie for providing the Wenzhou data.

- (21) Hailu Hakka:⁴
 a. *pun³³ shu⁵¹
 CL book
 Intended reading: ‘the book’
 b. *ngai⁵⁵ pun³³ shu⁵¹
 I CL book
 Intended reading: ‘my book’
- (22) Taiwanese Southern Min:
 a. *pun⁵⁵ cheh³³
 CL book
 Intended reading: ‘the book’
 b. *gua⁵⁵ pun⁵⁵ cheh³³
 I CL book
 Intended reading: ‘my book’

As a first approximation, we can make the following generalization:

- (23) A definite [CI-N] phrase can license a bare modifier to its immediate left.

Note that definiteness alone is not enough to license bare modifiers. Mandarin bare nouns can be definite, but bare modifiers of the types mentioned above (e.g. possessors, relative clauses, locatives, etc.) cannot precede a definite bare noun in Mandarin, as illustrated in (24):

- (24) *wǒ shū (Mandarin)
 I book

This suggests that the presence of an overt classifier is crucial. Note the use of the word *overt* here. It has been suggested that the Classifier Phrase has the individualizing function (Borer 2005) and is related to, among others, the expression of number and definiteness (Cheng & Sybesma 1999). I assume that when a bare noun is used non-generically, the Classifier Phrase is present nonetheless.

If both definiteness and an overt classifier are required in order to license a bare modifier to the left of a referential noun phrase, it means that [Dem-CI-N] phrases should also be able to license bare modifiers to the immediate left of the [Dem-CI-N]

⁴ I am grateful for Feng-fan Hsieh for providing me the Hailu Hakka and Taiwanese Southern Min data.

phrase. This is borne out, as illustrated in (25):

- (25) hung⁴sik¹ go² bun² syu¹ (Cantonese)
 red that CL book
 ‘that red book’

The generalization in (23) can be revised as follows:

- (26) A definite noun phrase containing an overt classifier can license a bare modifier to its left.

4.3 The specificity phrase

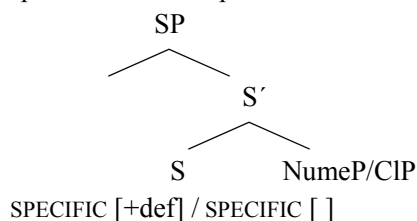
To take stock, we have observed that: (i) when a marker modifier appears to the left of a [Nume-CI-N] phrase, the phrase is obligatorily specific; (ii) when a bare modifier appears to the left of a [CI-N] phrase, if grammatical, the phrase is obligatorily definite. I would first like to dismiss the possibility that it is the addition of the modifier that ‘makes’ the [Nume-CI-N] phrase specific or the [CI-N] phrase definite. First of all, [Nume-CI-N] phrases can be specific without the modifier. Similarly, [CI-N] phrases can be definite without the modifier. The respective noun phrases do not need the modifier to achieve specificity or definiteness. Secondly, as shown in the [CI-N] cases, only Chinese dialects that permit definite [CI-N] phrases would allow a bare modifier to immediately precede the [CI-N] phrase. If it is the case that the bare modifier makes the [CI-N] phrase definite, such requirement is unexplained. It is, furthermore, unclear how the modifiers can have an effect on the referential interpretation of noun phrases. Thus, I conclude that the specificity of [marker modifier-Nume-CI-N] phrases and the definiteness of [bare modifier-CI-N] phrases are not from the modifiers but from the modifiees. The co-relation can be articulated as follows:

- (27) a. Only a specific [Nume-CI-N] phrase would allow a marker modifier appearing to its immediate left.
 b. Only a definite [CI-N] phrase would allow a bare modifier appearing to its immediate left.

The observations in (27) can be explained if some structure relating to referential properties is located to the left of the classifier/numeral and such structure hosts the modifier. The presence of modifiers to the left of the classifier/numeral then indicates the presence of such structure. I identify such structure as the Specificity Phrase (SP). The function of SP is to encode referential properties.

At first glance, the Specificity Phrase can function in the following manner. The S head always contains a SPECIFIC feature that gives rise to a specific interpretation. Thus, it is present in all specific (definite included) noun phrases. If the SPECIFIC feature has a [+def] value, the noun phrase is definite. If it has no value, the noun phrase is indefinite. Non-specific noun phrases do not project the SP layer.

(28) specific definite / specific indefinite



However, the picture has to be more complex. The SP layer alone is not enough to account for all the variations of Chinese noun phrases. In Chinese, [Dem-(Nume)-CI-N] phrases are always definite; [Nume-CI-N] phrases are always indefinite; [CI-N] phrases and bare noun phrases can be either definite or indefinite depending on the dialect. What this means is that the assignment of definiteness values on the SPECIFIC feature ([+def] or \emptyset) is not totally free. It is dependent on other factors. The proposal that I would like to advance here makes use of the interaction between the Specificity Phrase and the Classifier Phrase in determining the referential properties of the noun phrase. It has been suggested that the classifier takes up many of the functions of articles (Cheng & Sybesma 1999, Borer 2005). I take it as an indication that the classifier head is also related to referential properties. In particular, the classifier head is where definiteness is encoded (Cheng & Sybesma 1999). In other words, there are two layers in the Chinese nominal that are related to referential properties, the Specificity Phrase and the Classifier Phrase.

The idea that there are two referentially-related (R-related) layers in the noun phrase is not novel. In fact, different proposals have been put forth bearing variations of the same theme. These proposals arrive at the same conclusion via quite different routes. I shall briefly mention some of the work below.

Szabolcsi (1994) proposes that there are two R-related layers in the nominal based on Hungarian data: a DP that is the topmost FP and a DetP that is closer to the lexical core. The D head hosts articles: *a(z)* ‘the’ or \emptyset ‘a, some’. The articles act as subordinators in the sense that they enable the noun phrase to function as arguments. DetP determines both the quantification and definiteness of the noun phrase. It hosts quantificational elements like *minden* ‘every’, *kevés* ‘few’ and *semelyik* ‘neither’ or the

demonstratives *e*, *eme*, *ezen* ‘this’, *ama*, *azon* ‘that’. The DP layer and the DetP layer are related in the following manner: Articles like *a(z)* ‘the’ or \emptyset ‘a, some’ are selected for D in agreement of the (in-)definiteness determined by Det.

Hoekstra & Hyams (1996), drawing a parallel between the clausal and nominal domain, propose that there is a counterpart of tense in the nominal, call it X. The deictic operator, representing the speech environment, binds a variable in X. This ‘interaction’ between the operator and X determines the referential properties of the DP as a whole.

(29) OP D NUM [DP X [NP N]]

Campbell (1996) proposes that in specific common noun phrases, there is a specificity operator in SpecDP. The specificity operator binds the subject position of a small clause, as shown in (30):

(30) [DP OP_i the [SC [e]_i thief]]

The specificity operator is a kind of DP-internal topic, which links the internal subject position (and the DP itself) to a referent identified previously in the discourse. The specificity operator is generated in the subject of a lower functional projection, Article Phrase (ArtP). The specificity operator, when overt, is realized by the demonstrative. The operator (together with the demonstrative when overt) moves to a higher functional projection, DP. The operator is covert when there is other material in the higher D head such as the definite article.

Brugè (2002) proposes that the demonstrative in Spanish is generated in the specifier position of a functional projection intermediate between the DP and the NP and lower than all the functional projections containing APs.

(31) DP — APs — Demonstrative — N — complements

As illustrated in the Spanish examples below, the demonstrative can appear in either the high SpecDP position as in (32a) or in the low SpecFP position in surface structure, as in (32b) (the head noun is moved to some head position of a functional projection between the DP and the APs, call it #P):

(32) a. [DP este_i [#P libro_j [FP t_i [NP t_j]]]]
 this book
 b. [DP el [#P libro_j [AP viejo [FP este [NP N_j]]]]]
 the book old this

In (32a), the demonstrative moves up to SpecDP to check its [+ref] and [+deictic] feature with D, while in (32b), the adjective blocks the movement (assuming that adjectives are maximal projections in the Spec of some functional projection, à la Cinque (1994). The definite article is inserted to show that this position contains some particular feature (i.e. [+ref]) to prevent it from being interpreted as existential. The demonstrative then moves up at LF to check its feature.

Details aside, the various proposals above share the theme that there are two R-related layers in a noun phrase and there is interplay between the higher R-related layer and the lower R-related layer. The question is then what mechanism regulates the two R-related layers in Chinese, the Specificity Phrase and the Classifier Phrase.

5. The proposal: Agree, definiteness and indefiniteness

The S head is the locus of specificity. The S head always contains the feature SPECIFIC, which gives rise to a specific reading. Specific noun phrases can be either definite or indefinite. A SPECIFIC feature that has a [+def] value gives rise to a definite reading. A SPECIFIC feature that has no value, \emptyset , gives rise to a specific indefinite reading by some default rule at LF. It is similar to treating tense as a TENSE feature, and [+past] as a value of that feature. By assumption, the classifier is where definiteness is encoded (Cheng & Sybesma 1999). The S head needs to seek the classifier to provide the SPECIFIC feature with a definiteness value. I assume that there are two types of classifiers. Classifiers can come out of the lexicon either carrying a [+def] value or containing no value specification, \emptyset . Definite noun phrases are always specific. Indefinite noun phrases can be either specific or non-specific. In other words, classifiers with a [+def] value would require the projection of the SP layer in order to get interpreted. Classifiers that contain no value specification can be interpreted with or without the SP layer. The SP layer and the definite classifier ‘need’ each other, but for different reasons. The S head with the SPECIFIC feature seeks a value. The definite classifier seeks to be interpreted in the SP domain.

The two-way relationship between the S head and the definite classifier can be implemented by an Agree relation (Chomsky 2000), in which the probe and goal ‘need’ different things from each other. The probe needs a value and the goal needs to be interpreted in a proper domain. Pesetsky & Torrego’s (2004) formulation of Agree provides such an option.

Pesetsky & Torrego’s (2004) argue for a modification of the formulation of the agreement mechanism proposed in Chomsky (2000). They first of all differ from Chomsky’s formulation in that they argue in favor of a view of Agree as feature sharing. They define it as follows:

(33) Agree

- (i) An unvalued feature F (a *probe*) on a head H at a syntactic location α (F_α) scans its c-command domain for another instance of F (a *goal*) at a location β (F_β) with which to agree.
- (ii) Replace F_α with F_β so the same feature is present in both locations.

They abandon the Valuation/Interpretability Biconditional:

(34) Valuation/Interpretability Biconditional (Chomsky 2001:5)

A feature F is uninterpretable iff F is unvalued.

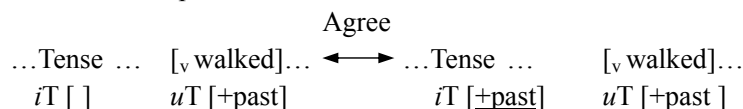
If interpretability is concerned with whether a feature can be interpreted in the semantic component and valuation is concerned with whether that particular feature has been specified or not, interpretability should not be identical to valuation. One of the consequences of having valuation and interpretability detached from each other is that it gives rise to two more types of feature combinations:

Type of features (boldface = new type of combinations, taken from Pesetsky & Torrego 2004):

- (35) a. ***uF val uninterpretable, valued*** b. *iF val interpretable valued*
 c. *uF [] uninterpretable, unvalued* d. ***iF [] interpretable, unvalued***
 ([] means unvalued, *val* means valued. *u* means uninterpretable while *i* means interpretable.)

In Pesetsky & Torrego's (2004) system, both uninterpretable and unvalued features can act as probes. They give a plausible example of an interpretable unvalued feature acting as a probe, namely, the T feature of the category Tense. They argue that, assuming there is a distinct Tense node acting as the locus of semantic tense (following Chomsky 1957, Emonds 1976, 1978 and Pollock 1989), and in view of the fact that in many languages, tense morphology is on the verb, this combination of affairs suggests that T on the finite verb in such languages would bear an uninterpretable but valued T feature that enters an Agree relation with an interpretable but unvalued T feature on Tense. (33) schematizes the Agree relation.

(36) The relationship between Tense and the finite verb:



In the above case, T is the feature and [+past] is the value. The underlined value represents the one that receives the value from the host feature via Agree. Pesetsky & Torrego (2004) use the term *instance* to refer to the feature-location pair and the term *occurrence* to refer to the distinct features that might undergo Agree. Thus, in (36), in the pre-Agree state (the left side of the arrow), there are two occurrences of the T features; in the post-Agree state (the right side of the arrow), there are two instances. Deletion applies then to the uninterpretable instance of the feature T.

Coming back to Chinese, the S head, being the locus of specificity, has an *i*SPECIFIC feature that is unvalued, []. The *i*SPECIFIC feature always gives rise to a specific interpretation, but is unvalued for definiteness. The *i*SPECIFIC [] feature on the S head, the probe, has to agree with a goal in its c-command domain. Two types of classifiers can be drawn from the lexicon. It either has an *u*SPECIFIC [+def] value, or it can come with no SPECIFIC feature/definiteness value at all.⁵

- (37) S: *i*SPECIFIC [] = interpretable SPECIFIC feature but unvalued
 CL: *u*SPECIFIC [+def] or \emptyset = uninterpretable SPECIFIC feature with a [+def] value or no SPECIFIC feature/value

When the classifier contains no SPECIFIC feature/value, the *i*SPECIFIC [] feature on the S head remains unvalued. This state of affairs will cause a crash at LF unless there is a default rule to assign a value to the S head for interpretation. I suggest that a default rule at LF assigns an indefinite interpretation to an unvalued S head. The rule can be stated as follows:

- (38) An unvalued S head is assigned an indefinite interpretation at LF.

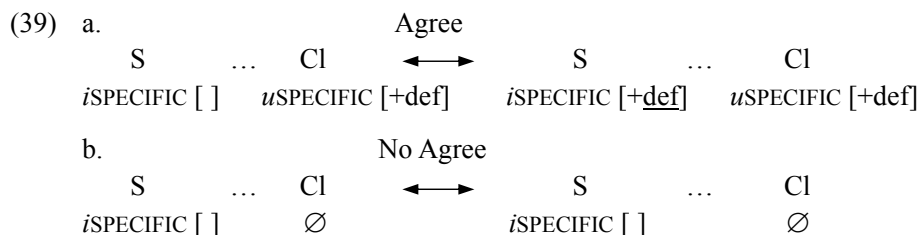
In order to make sure an uninterpretable feature will be matched with an interpretable one, following Pesetsky & Torrego (2004), I adopt Brody's (1997) Thesis of Radical Interpretation, which requires all syntactic elements to be semantically interpretable. This will force all the uninterpretable features to match with an interpretable counterpart. Pesetsky & Torrego (2004) notes that Brody's (1997) Thesis of Radical Interpretation differs from the deletion of uninterpretable features after checking in that

⁵ There is at least one Chinese dialect which seems to support the existence of the 'definite' and the 'indefinite' type of classifiers. In Wenzhou, [CI-N] phrases can be interpreted as either definite or indefinite depending on the tone of the classifier (Cheng & Sybesma 2005). When the classifier bears its original tone, the interpretation of the [CI-N] phrase is indefinite; when the classifier changes into a dipping tone, the [CI-N] phrase is definite:

(i) dou31 kau35	(ii) dou212 kau35
CL dog	CL dog
→ 'a dog'	→ 'the dog'

“it is not uninterpretable features that delete at the interface with the semantic component—because there can be no uninterpretable features at the semantic interface. There are only uninterpretable instances of features, and every feature must have at least one interpretable instance” (Pesetsky & Torrego 2004:8). This implies that when the SP layer is not projected, the classifier has to be of the type that contains no feature/value because otherwise the uninterpretable instance of the SPECIFIC feature cannot be matched with an interpretable instance of the SPECIFIC feature.

The relationship between the S head and the classifier head is illustrated as follows:



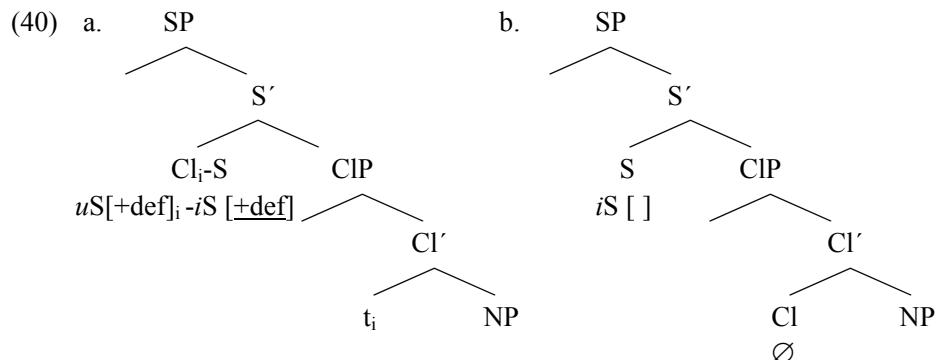
I assume that when there is an Agree relation between the S head and the Cl head, the Cl (both the feature and the category) needs to move to the S head (different from Pesetsky & Torrego 2004). This assumption is important in accounting for why [Nume-Cl-N] phrases are always indefinite and the requirement for the definite classifier to be overt in licensing bare modifiers, which will be made clear in §6 and §7 respectively. With all these tools in place, we can now proceed to the structures of different noun phrases.

6. The structures of different noun phrases

In this section, I shall provide the structures of different noun phrases and show how their interpretations are derived. Since the focus is on the interaction between the SP layer and the CIP layer, I would only focus on noun phrases where the SP layer is projected. In other words, only specific noun phrases will be discussed.

6.1 [Cl-N] phrases

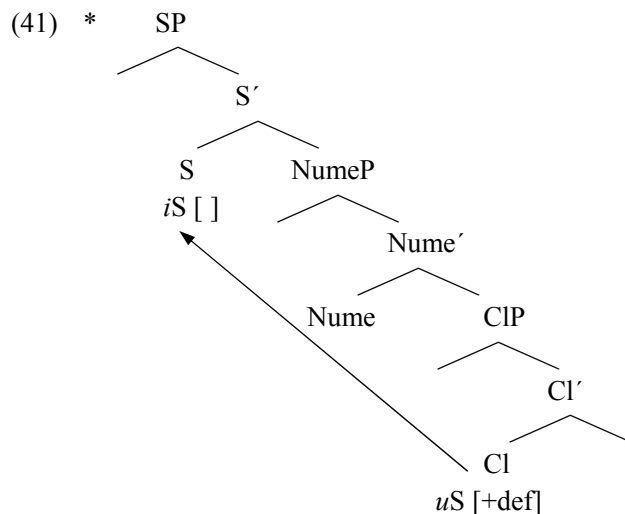
[Cl-N] noun phrases can be either definite or indefinite. In the former case, the classifier comes with a *u*SPECIFIC [+def] feature, as in (40a); in the latter case, the classifier comes with no SPECIFIC feature/value, ∅, as in (40b). For ease of exposition, the SPECIFIC feature will be represented as ‘S’ in the following discussion.



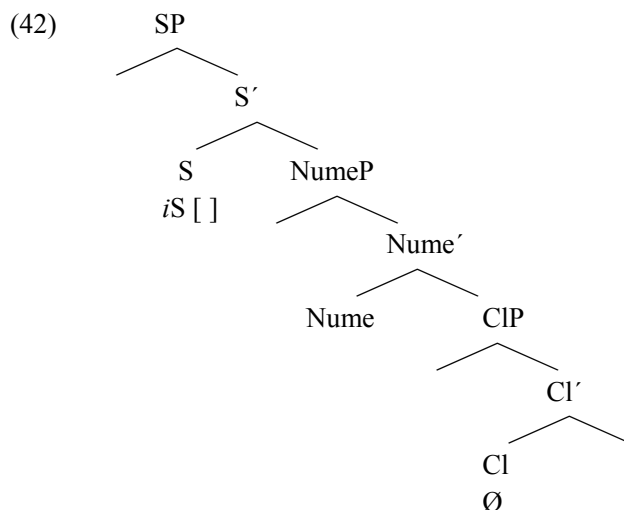
In (40a), the $iS []$ feature on S is the probe and the $uS [+def]$ feature is the goal. The $iS []$ feature on the S head agrees with the $uS [+def]$ feature on the classifier. The classifier, with its $uS [+def]$ feature, moves to the S head. The noun phrase is interpreted as definite. In (40b), there is no Agree. The S head remains unspecified in syntax. The S head gets assigned an ‘indefinite’ interpretation at LF by the default rule stated in (38).

6.2 [Nume-Cl-N] phrases

[Nume-Cl-N] phrases are always indefinite. In other words, the numeral is incompatible with a classifier with a $[+def]$ value. As a result, the S head in a [Nume-Cl-N] phrase can never receive a $[+def]$ value. The ‘incompatibility’ can be made more explicit derivationally. Consider the structure in (41):



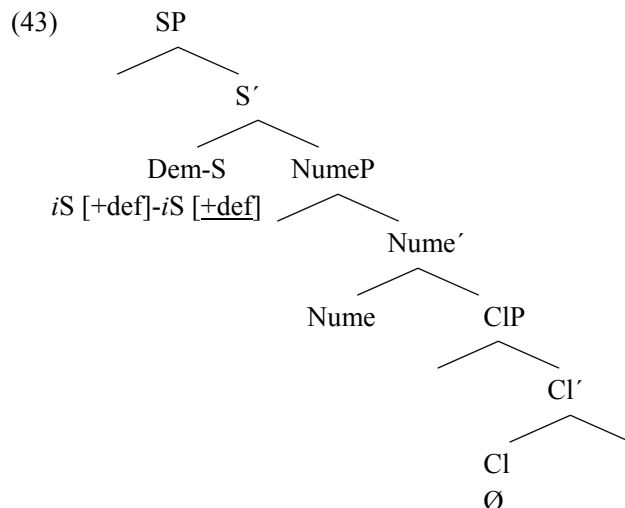
The *iS* [] feature on the S head probes. The classifier, with its *uS* [+def] feature, has to move up to the S head. I assume that the overt numeral will block the movement of the classifier. In other words, the presence of an overt numeral head is incompatible with a [+def] classifier, accounting for the indefinite interpretation of [Nume-Cl-N] phrases. When the classifier contains no feature/value, there is no Agree. The classifier does not have to move and is thus compatible with the presence of the numeral. This is illustrated below:



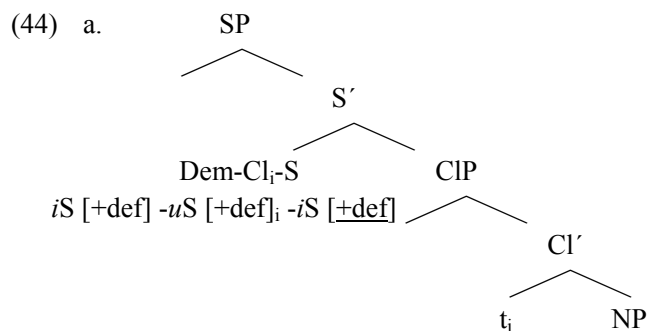
The noun phrase is interpreted as specific indefinite.

6.3 [Dem-(Nume)-Cl-N] phrases

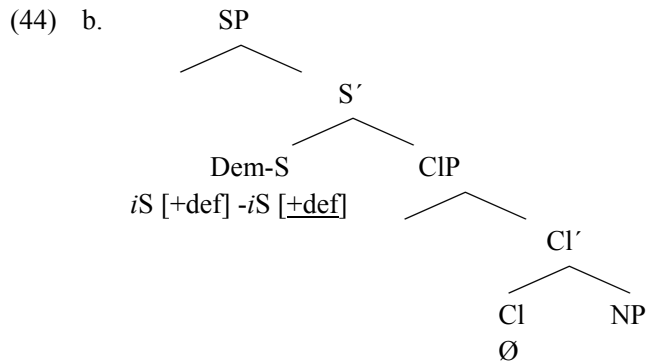
Noun phrases containing the demonstrative are always definite, even in the presence of the numeral. Assuming that numerals are not compatible with classifiers with a *uS* [+def] feature. The definiteness of the [Dem-Nume-Cl-N] phrases has to come from a source other than the classifier. I assume that demonstratives are inherently definite, so they carry a *iS* [+def] feature. When a demonstrative is merged in the S head, the S head receives a [+def] value from the demonstrative. Structurally, it can be represented below:



When the numeral is absent, the demonstrative is compatible with both types of classifiers, one with a $\mu S[+def]$ feature and one with no feature/value \emptyset . When the classifier has a $\mu S[+def]$ feature, the classifier, with its $\mu S[+def]$ feature will move to S to agree with the $iS[]$ feature on the S head. The $iS[+def]$ feature on the demonstrative will also agree with $iS[]$ feature on the S head. This is shown in (44a).

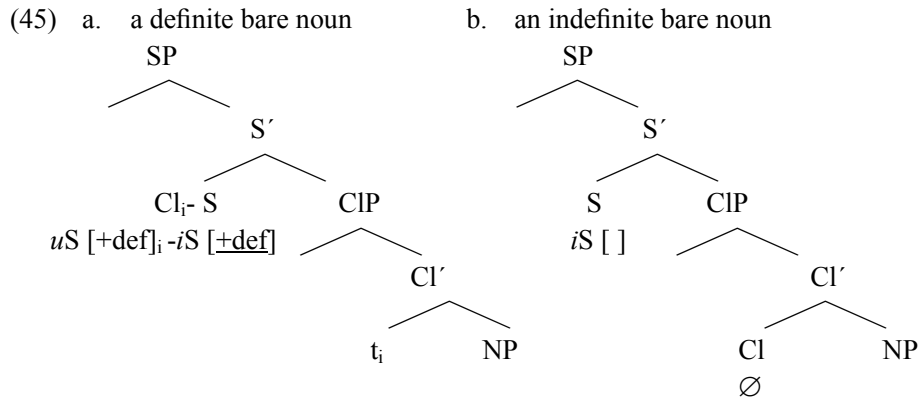


When the classifier has no feature/value, only the $iS[+def]$ feature on the demonstrative agrees with $iS[]$ feature on the S head. This is illustrated in (44b).



6.4 Bare nouns

As noted earlier, I assume that the Classifier Phrase is always present in Chinese bare nouns due to the multi-functions of the classifier, definite and indefinite bare noun phrases will have the following structures:



When the classifier is definite, as in (45a), the classifier, with its $uS [+def]$ feature, has to move to the S head. Again, when the classifier has no feature, as in (45b), no Agree takes place and the S head remains unvalued and consequently receives an indefinite interpretation from LF.

7. The licensing of modifiers

The impetus for developing a structural account for the encoding of referential properties in Chinese comes from the interaction between modifier positions and

referential properties. In what follows, I would discuss how the licensing of modifiers in the referential domain can be cast in structural terms in accordance with the theory proposed here.

Recall that the following observations were previously made:

- (46) a. Only a specific [Nume-Cl-N] phrase would allow a marker modifier appearing to its immediate left.
 b. Only a definite [Cl-N] phrase would allow a bare modifier appearing to its immediate left.

The pattern above can be partially explained assuming that (i) that only specific noun phrases project the SP layer and (ii) modifiers reside in the SP layer. For non-specific noun phrases, no modifiers can appear to the left of the classifier or the numeral because the superstructure of the noun phrase ends in the Classifier Phrase or the Numeral Phrase.

With respect to the different types of modifiers, a marker modifier can appear to the left of a [Nume-Cl-N] phrase as shown in §4.1. A marker modifier can also appear to the left of a [Dem-(Nume)-Cl-N] phrase, as in (47):

- (47) sik⁶jin¹ ge³ go² saam¹ go³ hok⁶saang¹
 smoke MARKER DEM three CL student

Translated into structural terms, it means that both a definite and an indefinite specific noun phrase (i.e. an S that has a [+def] value and an S that is valueless) allow a marker modifier to appear in SpecSP. In other words, marker modifiers are oblivious of the definiteness value of the S head. Bare modifiers can appear to the left of a [Dem-(Nume)-Cl-N] and a definite [Cl-N] phrase. However, [bare modifier-Nume-Cl-N] phrases are bad. In structural terms, it means that only an S head with a [+def] value can license bare modifiers in SpecSP.⁶

However, merely definiteness is not enough. As noted earlier on, an overt classifier is also necessary. Definite bare nouns (e.g. Mandarin) cannot license bare modifiers. Why is an overt classifier necessary? I would like to suggest that it is an overt S head that is needed.

If the S head is the licenser for bare modifiers, it is plausible that some requirements would be posted on S in order for it to license bare modifiers in its spec. On the other hand, it is unclear how the classifier, (which is at least one projection down), is relevant in the licensing of element in SpecSP. The situation can be made sense of if the

⁶ [marker modifier-Cl-N] phrases are also horrendously bad. It is unclear to me why it is the case.

overt classifier requirement is viewed as an overt S requirement. The shift of perspective is possible as in the present analysis; feature movement has to be accompanied by category movement (Chomsky 1995). Only when the classifier is definite, will the S head be filled by an overt classifier. Consequentially, only when the classifier is definite, are bare modifiers in SpecSP licensed. When the demonstrative is present, however, then the demonstrative makes the S head overt, and licensing is again possible.

8. Conclusions

In this paper, I proposed a formal account for the encoding of referential properties in the Chinese nominal. For a certain Chinese noun phrase with a surface sequence X, each of X's possible referential interpretations is linked unambiguously to a corresponding underlying structure with a certain feature specification. Different underlying structures with different feature make-up might give rise to identical surface sequences as in a Chinese nominal, not all functional heads with varying feature specification are provided with distinct morphology. In such cases, X is ambiguity and is compatible with several interpretations.

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漢語名詞指稱特徵的編碼

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從對修飾語的位置的研究可以發現，漢語中類似專指 (specificity) 和定指 (definiteness) 等指稱性特徵與數詞之上的某個結構密切相關。這個結構被稱為專指短語，這個短語的投射能產生專指的意義，中心語 S 的特徵決定一個名詞短語的定指意義。並非所有的名詞短語都可以被看作有定的。對定指意義的限制可以從理論上加以闡釋，定指意義是由專指短語和量詞短語之間的一致 (Agree) (Chomsky 2000, Pesetsky & Torrego 2004) 關係決定的。每個指稱意義都一定與帶有某種特徵的相應名詞短語相關聯。

關鍵詞：定指，專指，量詞，修飾語