

# The positive morpheme in Chinese and the adjectival structure

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## Abstract

Chinese has a positive morpheme that has two allomorphs: a covert one and an overt one (i.e., the degree word *hen*). The former, behaving like a polarity item, only occurs in a predicate-accessible operator<sub>[-wh]</sub> domain with a structure like [OP<sub>[-wh]</sub> ... X<sup>0</sup><sub>[-wh-operator]</sub> [Deg P ... Deg<sup>0</sup><sub>[AP ... ]]]], where the head X<sup>0</sup>, carrying the predicate-accessible operator<sub>[-wh]</sub> feature, not only introduces a predicate-accessible operator<sub>[-wh]</sub> but also licenses the occurrence of a degree phrase headed by the covert positive morpheme (i.e., Deg<sup>0</sup>), while the latter in other contexts. Having this as basis, I propose a condition on saturating Chinese gradable adjectives through which the bifurcated use of the ‘unmarked’ form of Chinese gradable adjectives can be well captured. Besides, the obligatory overt realization of a covert positive morpheme occurring in a predicate-accessible operator<sub>[-wh]</sub> domain, when the predicative adjective is substituted for by a pro-form, further implies that Chinese has an adjectival structure simpler than English. © 2009 Elsevier B.V. All rights reserved.</sub>

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## 1. Introduction

According to Zhu (1980, 1982), Lü et al. (1980:11–12), Lü (1984) and Liu et al. (2001), Chinese adjectives can be divided into two types: Adjectives, belonging to the first type, include non-gradable adjectives such as *zhen* ‘true’, *jia* ‘fake’, *dui* ‘right’, *cuo* ‘false’, *heng* ‘horizontal’, *shu* ‘acock’, *wen* ‘warm’ and *zi* ‘purple’, which are incompatible with any degree adverb, for example *feichang* ‘extremely’; the other type consists of gradable adjectives that allow degree modification. This distinction is clearly shown by the contrast below. (Also see Shi (2001:120–153) for further discussion on the distinctions between Chinese gradable and non-gradable adjectives.)

- (1) a. \*Ni-de da’an (\*feichang) cuo.  
Your answer extremely wrong  
‘\*Your answer is extremely wrong.’  
b. Na-ge nühaizi feichang piaoliang.  
That-CL girl extremely beautiful  
‘That girl is extremely beautiful.’

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To make the murky boundary between the gradable adjective and the verb category clear, Zhu (1982:55) defines the Chinese gradable adjective in a way, as shown by (2) (Chao, 1968; Li and Thompson, 1981; Tang, 1988; Larson, 1991; McCawley, 1992; Paul, 2006).<sup>1</sup>

- (2) X is a gradable adjective if and only if X can be modified by a degree adverb and X cannot take any genuine object(s).

One important syntactic characteristic of Chinese gradable adjectives, as Zhu (1980, 1982) and Liu et al. (2001) point out, is that they cannot occur as predicates unless they appear in complex forms, as the contrast between (3a) and (3b-c) illustrates.<sup>2,3</sup>

<sup>1</sup> In addition, Zhu (1982) argues for a dichotomy of Chinese gradable adjectives into the simple and the complex one. (See Paul, 2006 for further discussion on this classification.) The former includes the mono-syllabic adjective and those whose reduplicated form is in the XXYY syllabic pattern, as shown by (i) and (ii), respectively (Lü et al., 1980).

- (i) da ‘big’  
 (ii) [[<sub>X</sub> gan][<sub>Y</sub> jing]] ‘clean’ (ganganjingjing ‘extremely clean’)

The latter, as Zhu (1982) argues, includes those in (A) the XX-er, XXYY, XYXY, and X-li-XY reduplicated pattern, (B) the X-ZZ reduplicated form, in which the ZZ component functions like a suffix, and (C) forms with adverbs of degree and in coordination, as illustrated by (iii-a–g), respectively (Lü et al., 1980:637–659).

- |          |             |                |                       |
|----------|-------------|----------------|-----------------------|
| (iii) a. | XX-er       | xiaoxiao-er    | ‘really small’        |
| b.       | XXYY        | ganganjingjing | ‘really clean’        |
| c.       | XYXY        | xuebaixuebai   | ‘really snow-white’   |
| d.       | X-li-XY     | hu-li-hutu     | ‘really muddleheaded’ |
| e.       | X-ZZ        | re-huhu        | ‘really hot’          |
| f.       | Deg-A       | feichang re    | ‘extremely hot’       |
| g.       | CON-A-CON-A | you gao you da | ‘both tall and big’   |

Abbreviations used in this paper include: A: adjectives, CL: classifiers, CON: conjunctions, DE: the marker for modifying phrases like genitive phrases, relative clauses, and noun complement clauses in Mandarin Chinese, HEN: the degree word *hen* used as the overt positive morpheme, PAR: particles, and SFP: sentence final particles.

<sup>2</sup> According to Ding et al. (1979), Zhu (1980), Lü (1984), Shi (2001) and Liu et al. (2001), a Chinese gradable adjective always occurs as predicate in a complex form, for example, a form with degree adverbs, and a reduplicated form, but seldom in a simple form, as the contrast between (i)–(iii) and (iv) shows.

- (i) Zhangsan feichang pang.  
 Zhangsan extremely fat  
 ‘Zhangsan is extremely fat.’  
 (ii) Zhangsan pang-pang-de.  
 Zhangsan fat-fat-DE  
 ‘Zhangsan is extremely fat.’  
 (iii) Zhangsan you gao you pang.  
 Zhangsan again tall again fat  
 ‘Zhangsan is both tall and fat.’  
 (iv) \*Zhangsan pang. (see footnote (3))  
 Zhangsan fat  
 ‘Zhangsan is fat.’

The *bu* ‘not’ negation sentence and the contrastive focus construction are two of the limited sentence patterns where a simple adjective can occur as predicate.

- (v) Zhangsan bu pang.  
 Zhangsan not fat  
 ‘Zhangsan is not fat.’  
 (vi) Zhangsan pang, Lisi shou.  
 Zhangsan fat Lisi thin  
 ‘Zhangsan is fat, but Lisi is thin.’

These two sentence patterns, providing a very good empirical starting point for this study, will be detailed in section 3. In order not to digress from the main theme of this study, in the rest of this paper I shall not discuss examples like (ii), which involves reduplication morphology to introduce the speaker’s subjective evaluation of the property expressed by the adjective, and (iii), where the correlative words *you . . . you* ‘again . . . again’, as Zhu (1980:5–6) and Lü et al. (1980:561) argue, function as an intensifier marker to indicate the high degree of the property denoted by the adjectives connected by the correlative words (Zhu, 1980:35–40; Paul, 2006:306, 2007). The degree modification property of the correlative

- (3) a. \*Zhe-ke shu gao.  
This-CL tree tall
- b. Zhe-ke shu feichang gao.  
This-CL tree extremely tall  
'This tree is extremely tall.'
- c. Zhe-ke shu gaogao-de.  
This-CL tree tall-tall-DE  
'This tree is quite tall.'

In other words, in a Chinese adjectival predicate sentence like (3b) the degree adverb (e.g., *feichang* 'extremely') is obligatory. This fact immediately brings us to the question of why the degree adverb is optional in an English adjectival predicate sentence but not in its Chinese counterpart raised by the contrast between (3a-b) and (4a-b).

- (4) a. This tree is tall.  
b. This tree is very tall.

Extending this further, we can have this question reinterpreted as follows: Why does Chinese differ from English in that the latter allows a gradable adjective to occur as predicate in the positive form but the former does not?<sup>4</sup> To answer this question, I shall first explore the question of whether Chinese has a positive morpheme or not by having the contrast between (3a) and (4a) as the empirical starting point. The main theme which I eventually argue for is that Chinese does have a positive morpheme which has two allomorphs: an overt positive allomorph (i.e., the degree word *hen*) and a covert positive allomorph. The occurrence of the latter is subject to the condition on saturating Chinese gradable adjectives. More precisely, the Chinese covert positive morpheme, behaving like a polarity item, only occurs in a predicate-accessible operator<sub>[-wh]</sub> domain contained in the smallest clause that contains the adjectival predicate and the operator with a structure like [Op<sub>[-wh]</sub> ... X<sup>0</sup><sub>[-wh-operator]</sub> [DegP ... Deg<sup>0</sup><sub>[AP ... ]]]], where the head X<sup>0</sup>, carrying the predicate-accessible operator<sub>[-wh]</sub> feature, not only introduces a predicate-accessible operator<sub>[-wh]</sub> but also licenses the occurrence of a degree phrase headed by the covert positive morpheme (i.e., Deg<sup>0</sup>). The predicate-accessible operator<sub>[-wh]</sub> or the predicate-accessible operator<sub>[-wh]</sub> feature then coerces the covert positive morpheme to be marked, and the marked covert positive morpheme further coerces the adjective (phrase) to be marked. An adjective (phrase) marked this way can only convey the positive degree meaning. Having this as background, I then argue that the Chinese covert positive morpheme still has to overtly realize as its overt counterpart *hen* even in a construction where its occurrence is licensed if the predicative adjective is substituted for by the pro-form *nage* 'that'. This characteristic, as I further argue, leads us to suggest that Chinese has an adjectival structure simpler than English (Bresnan, 1973; Corver, 1997).</sub>

words *you ... you* 'again ... again', as Zhu (1980:5–6) argues, is clearly shown by their incompatibility with non-gradable adjectives, as the ungrammaticality of (vii) illustrates.

- (vii) \*Na-ke juzi you cheng you he.  
That-CL tangerine again orange again brown  
'??The color of that tangerine is not only orange but also brown.'

<sup>3</sup> Example (3a), which has a simple adjective as predicate, is gibberish if it is uttered in isolation, but is acceptable if it occurs as the answer for a question like (i), in which a 'comparison' is involved.

- (i) Zhe-ke shu han na-ke shu, na-ke gao?  
This-CL tree and that-CL tree which-CL tall  
'As for this tree and that tree, which one is taller?'

Namely, in such kind of use the adjectival predicate *gao* 'hot' in (3a) means *taller* rather than *tall*. Since sentences with the comparison reading are not our concern here, in the remainder of this paper I shall not discuss the question raised by this kind of example: does Chinese have null comparative morphology?

<sup>4</sup> In this paper, I shall use the term 'the positive form' to represent a predicative adjective modified by the (covert or overt) positive morpheme, for example, *hot* in *coffee is hot*, which has a denotation like [[<sub>DegP</sub> *pos* [[<sub>AP</sub> *hot*]]]] (here the term *pos* represents the covert positive morpheme) (Kennedy, 2005). So, in this paper the term 'the positive form' differs from the other term 'the positive morpheme' in usage. In addition, the term 'the unmarked form' is used to represent an adjectival predicate that is not modified by an overt degree term or a marked degree term, and the term 'morpheme' is used to replace the term 'allomorph' except where confusion might occur. Furthermore, in order to prevent the discussion from digressing from the main theme, I shall put aside examples containing attributive (or pre-nominal) adjectives and non-gradable adjectives.

The organization of this paper is as follows: section 2 begins by introducing the semantics of the positive morpheme and the distinctions between implicit and explicit comparison as basis for discussing Kennedy's (2005, 2007b) claim that Chinese has the degree word *hen* as the positive morpheme, and ends with some challenging data to this claim. I then start section 3 by arguing for the assumption that Chinese has a covert positive morpheme and conclude this section with a descriptive generalization about the distribution of the Chinese covert positive morpheme. Pushing this descriptive generalization further, in section 4 I first propose the condition on saturating Chinese gradable adjectives to regulate the interpretation of the unmarked adjectival predicate in Chinese, and then provide evidence for the implication that the Chinese positive morpheme has two allomorphs: a covert and an overt one (i.e., the degree word *hen*). In section 5, some apparent counterexamples to my assumption on the Chinese positive morpheme are pointed out first, and then I argue that these examples indeed provide strong evidence in support of the assumption that Chinese differs from English in the adjectival structure. Finally, the conclusion is reached in section 6.

## 2. The semantics of the positive form of adjectives and implicit comparison

As is widely assumed in the formal semantics literature, gradable predicates map objects onto abstract representations of measure (i.e., scales) formalized as sets of values (i.e., degrees) ordered along some dimension (e.g., height, length, or weight). For example, Creswell (1977), von Stechow (1984), Heim (1985), and Kennedy and McNally (2005) analyze gradable adjectives as relations between individuals and degrees, assigning them denotations like (5), where **expensive** represents a measure function that takes an individual and returns its value, a degree on the scale associated with the adjective, so that **expensive**(*x*) represents *x*'s price.<sup>5</sup>

$$(5) \quad [[\text{expensive}]] = \lambda d \lambda x. \text{expensive}(x) \geq d$$

However, gradable adjectival predicates with the semantic type  $\langle d, \langle e, t \rangle \rangle$  do not themselves denote properties of individuals (i.e.,  $\langle e, t \rangle$ ); therefore, we need to turn them into one with the semantic type  $\langle e, t \rangle$  by having them combined with something. As von Stechow (1984) and Kennedy and McNally (2005) suggest, this is the job of degree morphology. To put it more precisely, degree morphology saturates and restricts the degree argument of the adjectival predicate (i.e., *d* of  $\langle d, \langle e, t \rangle \rangle$ ) by determining its value. At this point, one question we have to ask is how the degree argument of the positive form of gradable adjective such as *expensive* in (6) is saturated and restricted.

$$(6) \quad \text{The coffee in Milan is expensive.}$$

As the first step in the discussion on the semantics of the positive form of gradable adjectives, I shall introduce the semantics of the positive morpheme as a way to bring us deep into the heart of this study. Does Chinese have a positive morpheme?

### 2.1. The positive morpheme

According to Lewis (1970), Graff (2000), Baker (2002), Kennedy (2005:6), and Kennedy and McNally (2005), the positive form of gradable adjectives, for example *expensive* in (6), seems to have two universal features. The first one which might be putative is that the positive form of gradable adjectives such as *expensive* and *tall*, in contrast with their comparative form (i.e., *more expensive* and *taller*), lacks overt morphology.

The second, as Kennedy (2005:5) argues, is a semantic one. Most gradable adjectives have contextually dependent interpretations in the positive form (with a few important exceptions). For instance, whether example (6) is true or not depends in large part on the context in which it is uttered. To state it more concretely, sentence (6) could be judged true

<sup>5</sup> Bartsch and Vennemann (1972, 1973), Rusiecki (1985) and Kennedy (1999), on the other hand, treat gradable adjectives as functions from individuals to degrees, as shown by (i).

(i)  $[[\text{expensive}]] = \lambda x. \text{expensive}(x)$

However, like the individual-to-degree-relation analysis, the individual-to-degree analysis can also be considered a degree-based approach to the semantics of (gradable) adjectives. And either of them assumes that gradable predicates do not themselves denote properties of individuals, and must combine with something to generate a property of individuals.

if asserted as part of a conversation about the cost of living in various Italian cities, as in (7a), but false in a discussion of the cost of living in Chicago versus Milan, as in (7b).

- (7) a. In Milan, even the coffee is expensive!  
 b. The rents are high in Milan, but at least the coffee is not expensive!

One account for this variability, as Kennedy (2005, 2007b) argues, is to assume a degree morpheme *pos* (i.e., a covert positive morpheme) with a denotation along the lines of (8), where  $s$  is a context-sensitive function from measure functions to degrees that returns a standard of comparison based on properties of the adjective  $g$  (such as its domain) and the context of utterance, to ‘morphologize’ the positive form of gradable adjectives (Kennedy, 2007a:17).

$$(8) \quad [[\text{Deg } pos]] = \lambda g \lambda x. g(x) > s(g)$$

Namely, the positive form of adjectives is evaluated with respect to a context-sensitive function denoted by the covert positive morpheme: a contextual parameter (like the assignment function) that maps a measure function to a degree that represents an appropriate standard of comparison based on features of the context of utterance (what is being talked about, the interests or expectations of the participants in the discourse, etc.). Assuming this, the positive form of adjectives in (7a), for example, has a denotation like (9), which indicates that even though the denotation of the predicate is fixed, its truth conditions will vary according to the contextual features that affect the computation of  $s(\mathbf{expensive})$ .<sup>6</sup>

$$(9) \quad [[[\text{DegP } pos \text{ [AP } expensive]]]] = \lambda x. \mathbf{expensive}(x) > s(\mathbf{expensive}).$$

More importantly here, as Graff (2000) and Kennedy (2005, 2007b) point out, one further fundamental semantic property shown by the positive form of gradable adjective is that it is vague; that is, the positive form due to its conventional meaning gives rise to borderline cases: objects for which it is unclear whether or not the predicate holds, meaning that borderline cases arise because of uncertainty about what exactly this degree is. This fundamental semantic property, as Kennedy (2007b) suggests, is a feature of the context-sensitive function, which is constrained to return a value that counts as a significant degree of the relevant property in the context of utterance (possibly relative to a world; see Kennedy, 2005).

Kennedy (2005) further uses this semantic characteristic of the positive form to divide ‘comparison’ in natural languages into two different modes: explicit and implicit comparison. All natural languages have syntactic categories that express gradable concepts, and also have designated comparative constructions, which are used to express orderings between two objects with respect to the degree or amount to which they possess some property (Sapir, 1944). Interestingly, many languages use specialized morphology to express arbitrary ordering relations, for example the morphemes *more-er*, *less* and *as* specifically for the purpose of establishing orderings of superiority, inferiority and equality in English (i.e., explicit comparison), as illustrated by (10a–c), respectively.

- (10) a. Mercury is closer to the sun than Venus.  
 b. This book is less expensive than that one.  
 c. This book is as expensive as that one.

<sup>6</sup> Another option for the compositional semantics of the positive form of gradable adjectives within the degree-based semantics of gradable adjectives is to assume a lexical type-shifting rule that has the same effect as the *pos* morpheme, as (i) shows (Chierchia, 1998; Kennedy, 2007a:16):  
 (i) For any gradable adjective  $A$ , there is an  $A'$  such that  $[[A']] = \lambda f \lambda x: f(x). [[A]](x)$ ,

where  $f$  is a function from individuals to truth values.

The domain restriction argument of a type-shifted adjective, as Kennedy (2007a) points out, can be saturated by an explicit restriction like a *for-PP*, (e.g., *for a Honda* in (ii)), or via compositional principles which ensure that the domain restriction is ‘passed up’ to the matrix.

(ii) Kyle’s car is expensive for a Honda.

Here, we simply assume the *pos* morpheme analysis, and leave it an open question as to which choice is the correct one. The reason why we adopt the *pos* morpheme option is that it makes the presentation simple and easy.

Whereas, other languages, like Samoan, take advantage of the semantics of the positive form (i.e., the inherent context sensitivity of the positive (unmarked) form) and use it as the primary means of expressing comparison by setting two objects in an adversative relation through conjunction of two positive-form adjectives that are antonymous, as (11) shows (Staseen, 1985).

- (11) Ua tele le Queen Mary, ua la'itiiti le Aquitania.  
Is big the Queen Mary is small the Aquitania  
'The Queen Mary is bigger than the Aquitania.'

Thus, natural languages, as Kennedy (2007b) suggests, use two different modes (i.e., implicit and explicit comparison) to express comparison (Sapir, 1944).

- (12) a. Implicit comparison  
Establish an ordering between objects  $x$  and  $y$  with respect to gradable property  $g$  using the positive form by manipulating the context or context-sensitive function in such a way that the positive form is true of  $x$  and false of  $y$ .
- b. Explicit comparison  
Establish an ordering between objects  $x$  and  $y$  with respect to gradable property  $g$  using special morphology (e.g., *morel-er*, *less*, or *as*) whose conventional meaning has the consequence that the degree to which  $x$  is  $g$  exceeds the degree to which  $y$  is  $g$ .

These two modes of comparison (i.e., explicit and implicit comparison), as Kennedy (2007b) further argues, differ from each other in the following ways: First, since the semantics of the positive form, for example [[[<sub>DegP</sub> pos [<sub>AP</sub> expensive]]]] in (9), requires that the differential degree between expensive( $x$ ) and  $s$ (expensive) cannot be 'crisp' and has to be greater than some contextually determined norm, implicit comparison induced by the positive form of gradable adjectives, as expected, differs from explicit comparison in acceptability, especially in contexts involving crisp judgments (i.e., very slight differences between the compared objects) (Kennedy, 2007a:17). For example, explicit comparison in (13a) simply requires an asymmetric ordering between the degrees to which two objects possess the relevant property (i.e., the length of essays); therefore, crisp judgments are not problematic (Kennedy, 2005:11).<sup>7</sup>

- (13) Context A: Essay 1 is 10,000-words long and essay 2 is 5000-words long.
- a. Essay 1 is longer than essay 2.  
**long**( $e_1$ ) > **long**( $e_2$ )
- b. Compared to essay 2, essay 1 is long.  
**long**( $e_1$ ) >  $s[e_2]$ (**long**)
- (14) a. Context B: Essay 1 is 10,000-words long and essay 2 is 9900-words long.  
Essay 1 is longer than essay 2.  
**long**( $e_1$ ) > **long**( $e_2$ )
- b. ??Compared to essay 2, essay 1 is long.  
**long**( $e_1$ ) >  $s[e_2]$ (**long**)

However, implicit comparison in (13b) requires the first novel to have a degree of length that is significant relative to the region of the scale whose lower bound is the length of the second essay; namely, the difference between the two

<sup>7</sup> Since either a positive or comparative form of English adjectives can be modified by adverbials like *compared to*, *with respect to*, and so forth, I follow Kennedy's (2007b) suggestion that *compared to*, *with respect to* and similar expressions modify the contextual parameters with respect to which the standard of comparison used to fix the extension of the positive or comparative form is evaluated.

(i) Compared to that essay, this essay is long.  
(ii) Compared to that essay, this essay is longer.

In other words, the semantic function of expressions like *compared to* is to manipulate the context relative to which the positive or comparative form is evaluated so that it only includes the argument of the adjective and the argument of *compared to*. So, I do not consider or treat expressions like *compared to* an implicit or explicit comparison marker.

degree values of length (i.e., the difference between the length of 10,000 words and the length of 5000 words), as Context A shows, must be significantly greater than some contextually determined norm and, in addition, induces a contextually given threshold specifying the degree of length that essay 1 has to exceed to be significantly long. However, in a context where very small differences in a property never count as being significant, a sentence involving implicit comparison cannot be true. For example, (14b) cannot possibly be true in Context B, which makes it an infelicitous description of such a state of affairs.

Second, implicit comparison, but not explicit comparison, generates an implicature that the positive form is false of the subject, as the contrast between (15a) and (15b) illustrates (Kennedy, 2007b).

- (15) a. ??That essay is long compared to this one, and it's already quite long.  
b. That essay is longer than this one, and it's already quite long.

Third, as discussed by Rotstein and Winter (2004), Kennedy and McNally (2005), and Kennedy (2007b), not all gradable adjectives have context dependent standards in the positive form; for instance, adjectives like *wet*, *open*, *bent*, and *impure* are special in having positive forms in which the standard of comparison is a minimum value on the scale: *x is bent* is true as long as *x* has a non-zero degree of bend. Since the standard of comparison is not dependent on the context, I would expect a *compared to* constituent not to have any semantic effect on the interpretation of such adjectives; therefore, sentences containing a *compared to* constituent and adjectives with a positive form in which the standard of comparison is a minimum value on the scale should be infelicitous. This expectation indeed is borne out by the fact, as the contrast below indicates.

- (16) a. B is more bent than A.  
b. ??Compared to A, B is bent.

Fourth, as Kennedy (2007b) points out, composition of a measure phrase and a gradable adjective generates a predicate that is no longer context dependent; therefore, implicit comparison, as shown by the contrast between (17a) and (17b), differs from explicit comparison in that the former is impossible in a *compared to* construction that involves composition of a measure phrase and a gradable adjective because once a (non-explicit-comparison-denoting) adjective combines with a measure phrase, there is no standard of comparison left over to manipulate.

- (17) a. ??Compared to Lee, Kim is 10 cm tall.  
b. Kim is 10 cm taller than Lee.

Having as background knowledge the semantics of the positive form of (English) gradable adjectives and the semantic distinctions between the implicit and the explicit comparison, now let us return to the question of whether Chinese has the positive morpheme raised by the contrast between (3a) and (4a) (repeated as (18a and b)).

- (18) a. \*Zhe-ke shu gao.  
This-CL tree tall  
b. Zhe-ke shu feichang gao.  
This-CL tree extremely tall  
'This tree is extremely tall.'

Below, I first point out that, although Kennedy's (2005, 2007b) claim that the degree word *hen* can be considered the overt positive morpheme in Chinese is on the right track, some challenging data to his claim are still found. These data then become the central issue of section 3, where a descriptive generalization about the distribution of the Chinese covert positive morpheme will be made.

## 2.2. Kennedy (2005): *hen* as the positive morpheme in Chinese

Following Xiandai Hanyu Xuci Lishi [Examples and Explanation of the Functional Words of Modern Chinese] (1982:243–244) and Sybesma (1999:26–27), Kennedy (2005, 2007b) suggests that the degree word *hen* can be



considered the overt counterpart of the covert positive morpheme in Chinese.<sup>8,9</sup> I shall argue that this idea can be justified because of the following facts: First, as Zhang (2002:169) points out, a predicative adjective modified by the degree word *hen*, for example *hen qiong* ‘very poor’ in (19a-b), always displays the contextually dependent interpretation as the positive form of English gradable adjectives does.

- (19) a. Ta hen qiong, lian chi fan de qian dou mei you.  
He HEN poor even eat meal DE money all not have  
‘He is poor. He even does not have money to eat meals.’  
b. Ta hen qiong, lian xiao qiche dou mai-bu-qi.  
He HEN poor even small car all buy-not-afford  
‘He is poor. He even cannot afford a small car.’

Second, Kennedy’s (2005) claim that the degree word *hen* is the positive morpheme in Chinese can be adduced by the crisp judgment about borderline cases (i.e., objects for which it is unclear whether or not the predicate holds). The contextually dependent interpretations shown by the positive form of adjective, as Kennedy (2005, 2007b) argues, can be well accounted for by the delineation function. Since the delineation function is constrained to return to a value that counts as a significant degree of the relevant property in the context of utterance, a difference in acceptability is predicted when the context involves distinctions between objects based on minor but noticeable differences in degree. Here relevant to this characteristic is sentence (20), which contains a predicative adjective modified by *hen*, is unacceptable in scenario (21A), which involves crisp judgment, but acceptable in scenario (21B), which does not:

- (20) Gen na-ke shu bi-qilai, zhe-ke shu hen gao.  
With that-CL tree compare-qilai this-CL tree HEN tall  
‘Compared with that tree, this one is tall.’  
(21) Context A: This tree is 15 meters tall while that tree is 13 meters tall.  
Context B: This tree is 15 meters tall while that tree is 5 meters tall.

In other words, in (20) the (implicit) comparison implied by the predicate *hen gao* ‘HEN tall’ requires ‘this tree’ to exceed ‘that tree’ in height by a significant amount.

Kennedy’s (2005) assumption that the degree word *hen* is the overt positive morpheme in Chinese not only well accounts for why (22a) is grammatical but (22b), if uttered in isolation, is not, and it also explains why the predicative adjective modified by *hen* in (22a) (i.e., *hen gao* ‘HEN tall’) displays the contextually dependent interpretation.

- (22) a. Zhe-ke shu hen gao. (Gen san-ceng lou yiyang gao/Gen meiguo  
This-CL tree HEN tall With three-story building same tall/With American  
hong-shan yiyang gao).  
redwood same tall  
‘This tree is tall. (It is as tall as a three-story building/an American redwood.)’  
b. \*Zhe-ke shu gao.  
This-CL tree tall

<sup>8</sup> This assumption, as Kennedy (2005:6) points out, makes the first (putative) universal feature of the positive form of gradable adjectives (i.e., being the absence of overt degree morphology) questionable.

<sup>9</sup> In *Xiandai Hanyu Xuci Lishi* [Examples of Explanation of the Functional Words of Modern Chinese] (1982:243–244), the word *hen* is considered to have two different functions. One is that of an intensifier like English *very*. The other function might be paraphrased as a marker for the positive degree. As an intensifier, *hen* is stressed, but as a positive degree marker it is not. The reason why *hen* can function as the most ‘neutral positive degree marker’, as *Xiandai Hanyu Xuci Lishi* (1982) argues, is because ‘when Chinese adjectives are used predicatively, they mostly have a contrastive meaning. (...) Predicative adjectives to which *hen* has been added lack this comparative (i.e., contrastive) sense. In this use, *hen*’s grammatical function is much stronger than when it serves as an intensifier’ (translated by Sybesma (1999:26–27)).



Assuming that a gradable adjective is with the semantic type  $\langle d, \langle e, t \rangle \rangle$ , the adjective *gao* ‘tall’ in (22a-b) cannot itself denote properties of individuals (i.e.,  $\langle e, t \rangle$ ). Hence, I need to turn it into one with the semantic type  $\langle e, t \rangle$  by having it combined with a degree term. The assumption that the degree term *hen* in (22a) is the overt positive morpheme provides a natural way to explain why (22a) is grammatical but (22b), if uttered in isolation, is not. Because the degree argument of *gao* ‘tall’ in (22a) is saturated by the overt positive morpheme *hen* but that of *gao* ‘tall’ in (22b) is not. Additionally, given the semantics of the overt positive morpheme *hen*, the semantic characteristic shown by the predicative adjective modified by the degree term *hen* in (22a) (i.e., the predicate *hen gao* ‘HEN tall’ displays the contextually dependent interpretation) is naturally derived.

The examples considered so far seem to make Kennedy’s (2005) claim convincing. Yet his claim is challenged by examples like (23), in which the gradable adjective *gui* ‘expensive’ and *pianyi* ‘cheap’ both occur as predicate independently and convey the positive degree meaning only in each conjunct clause.

- (23) Kafei gui, hongcha pianyi.  
Coffee expensive black-tea cheap  
‘Coffee is expensive, but black tea is cheap.’

So, here I run into a dilemma. On the one hand, suppose Chinese does not have the covert positive morpheme which functions to turn a gradable adjective with the semantic type  $\langle d, \langle e, t \rangle \rangle$  into one with the property of individuals (i.e.,  $\langle e, t \rangle$ ). I then will have a type-mismatch between *gui* ‘white’ and *kafei* ‘coffee’ in the first conjunct clause of (23), and the same also happens between *pianyi* ‘cheap’ and *hongcha* ‘black tea’ in the second conjunct clause. On the other hand, if I assume the existence of the covert positive morpheme in Chinese in order to explain why (23) is grammatical, then I would fail to account for the ungrammaticality of (22b).

### 3. The descriptive generalization about the distribution of the covert positive morpheme in Chinese

I shall start this section by arguing that in Chinese some adjectival predicate constructions indeed contain a covert positive morpheme. Then I end with the descriptive generalization that the Chinese covert positive morpheme, behaving like a polarity item, only occurs in a predicate-accessible operator<sub>[<sub>-wh</sub>]</sub> domain contained in the smallest clause that contains the adjectival predicate and the operator.

#### 3.1. The unmarked adjective in Chinese

According to Xiandai Hanyu Xuci Lishi (1982:243–244) and Sybesma (1999:26–27), Chinese adjectives differ from their European counterparts in that the latter choose the unmarked option for the positive degree but the former the unmarked option for the comparative. Namely, in European languages the comparative is morphologically marked whereas in Chinese the positive degree is marked by the most neutral ‘positive degree marker’ *hen*, as shown by the contrast between (24a-b) and (25a-b).

- (24) a. John is taller.  
b. John is tall.
- (25) a. (Zhangsan han Lisi, shei gao?) Zhangsan gao.  
(Zhangsan and Lisi who tall) Zhangsan tall  
‘(As for Zhangsan and Lisi, who is taller?) Zhangsan is taller.’  
b. Zhangsan \*(hen) gao.  
Zhangsan HEN tall  
‘Zhangsan is tall.’

However, actually the language fact is more complex than what Xiandai Hanyu Xuci Lishi (1982) and Sybesma (1999) indicate. As Zhu (1980:26–27) and Liu et al. (2001:196–197) point out, in Chinese it is possible for a positive-degree-denoting ‘unmarked’ gradable adjective to occur as predicate though the distribution is limited to the following

constructions: the *bu* ‘not’ negation sentence, the contrastive focus construction, the *ma* particle question, the epistemic adjectival small clause, the conditional, and sentences ending with the sentence final particle *le*, as shown by (26a–f), respectively (Tang, 1998:149; Huang and Li, 2008). (See footnote (1) for the distinctions between simple and complex (gradable) adjectives in Chinese.)

- (26)
- a. Zhangsan bu gao.  
Zhangsan not tall  
‘Zhangsan is not tall, but the possibility of Zhangsan’s being short is not excluded.’  
\*‘Zhangsan is not taller.’
  - b. Zhangsan gao, Lisi ai.  
Zhangsan tall Lisi short  
‘Zhangsan is tall, but Lisi is short.’  
\*‘Zhangsan is taller, but Lisi is shorter.’
  - c. Zhangsan gao ma?  
Zhangsan tall SFP  
‘Is Zhangsan tall?’  
\*‘Is Zhangsan taller?’
  - d. Zhangsan yaoshi linse dehua, jiu bu hui qing ni chi fan.  
Zhangsan if stingy PAR then not will invite you eat rice  
‘If Zhangsan is stingy, he will not treat you to dinner.’  
\*‘If Zhangsan is more stingy, he will not treat you to dinner.’
  - e. Zhangsan xiao ni ben. (Tang, 1998; Huang and Li, 2008)  
Zhangsan deride you stupid  
‘Zhangsan derided you as being stupid.’  
\*‘Zhangsan derided you as being more stupid.’
  - f. Hua hong le. (Zhu, 1980)  
Flower red SFP  
‘The flower got red.’  
\*‘The flower got redder.’

Although the range of environments that sanction the positive-degree-denoting ‘unmarked’ adjectival predicate is not so wide, they look (totally) independent from each other. At this point, one question immediately comes out. What is the descriptive generalization about the distribution of such kind of simple gradable adjectival predicates?

In the following, I shall first argue that all of these constructions contain the covert positive morpheme, and then reach this descriptive generalization about the distribution of the Chinese covert positive morpheme. The Chinese covert positive morpheme, behaving like a polarity item, can only occur in a predicate-accessible operator<sub>[-wh]</sub> domain contained in the smallest clause that contains the adjectival predicate and the operator.

### 3.2. The basic data

In this subsection, I will discuss environments that sanction the positive-degree-denoting ‘unmarked’ adjectival predicate one by one and then argue that the descriptive generalization about the distribution of the covert positive morpheme in Chinese is the following:

- (27) In Chinese, the covert positive morpheme only occurs in a predicate-accessible operator<sub>[-wh]</sub> domain with a structure like [Op<sub>[-wh]</sub> . . . X<sup>0</sup><sub>[-wh-operator]</sub> [Deg P . . . Deg<sup>0</sup><sub>[AP . . .]]], where the head X<sup>0</sup>, carrying the predicate-accessible operator<sub>[-wh]</sub> feature, not only introduces a predicate-accessible operator<sub>[-wh]</sub> but also functions to license the occurrence of a degree phrase headed by the covert positive morpheme (i.e., Deg<sup>0</sup>). And this domain must be contained in the smallest clause that contains the adjectival predicate and the operator.</sub>

Based on this descriptive generalization, in section 4 I shall propose a licensing condition on saturating Chinese gradable adjectives to regulate the interpretation of the unmarked adjectival predicate in Chinese.

### 3.2.1. The *bu* negation sentence

The fact that the simple form of Chinese gradable adjectives can independently occur as predicates in a *bu* ‘not’ negation sentence like (28) immediately raises two questions related to the central issue of this paper (i.e., does Chinese have a positive morpheme?). First, how can the degree argument of the simple gradable adjectival predicate *gao* ‘tall’ get saturated if the negation marker *bu* ‘not’ is not considered a degree adverb?

- (28) Zhangsan bu gao.  
Zhangsan not tall  
‘Zhangsan is not tall, and the possibility of Zhangsan’s being short is not excluded.’

Second, as the semantic interpretation of (28) indicates, the negated adjectival predicate *bu gao* ‘not tall’ means anything but ‘tall’ and does not exclude the possibility of Zhangsan’s being short; this interpretation implies that what is negated in (28) cannot simply be the adjective phrase *gao* ‘tall’. Here, I would like to argue that the answer for the second question indeed provides a way to account for the first one.

As Graff (2000) and Kennedy (2005, 2007b) point out, in addition to the contextually dependent interpretations, the positive form of gradable adjectives shows another semantic characteristic: it establishes an ordering between objects  $x$  and  $y$  with respect to gradable property  $g$  denoted by the positive form, and  $g(x)$  must exceed  $g(y)$  by a significant amount. One option for the compositional semantics of the positive form of gradable adjectives, as Kennedy (2007a:17) suggests, is to assume a degree morpheme *pos* (i.e., the covert positive morpheme) with a denotation along the lines of (29) to ‘morphologize’ the positive form of gradable adjectives (Sapir, 1944; Kennedy, 2005).

- (29)  $[[_{\text{Deg}} \textit{pos}]] = \lambda g \lambda x. g(x) > s(g)$

Within (29),  $s$  is a context-sensitive function from measure function to degree which, based on properties of the adjective  $g$  and the context of utterance, further returns a value that counts as a significant degree of the relevant property in the context of utterance; namely,  $g(x)$  must exceed  $g(y)$  by a significant amount. To state it more clearly, the difference between  $g(x)$  and  $g(y)$  must be significantly greater than some contextually determined norm and, in addition, induces a contextually given threshold specifying the degree of height Zhangsan has to exceed to be significantly tall.

Given this semantic property of the positive morpheme, the semantic interpretation of (28) (i.e., Zhangsan is not tall, and the possibility of Zhangsan’s being short is not excluded) inspires us to analyze (28) as (30), in which there is a degree projection headed by the *pos* morpheme above the adjective phrase *gao* ‘tall’ (in section 4.3, I shall argue that the covert positive morpheme (i.e., the *pos* morpheme) is in complementary distribution with its overt counterpart *hen*). (I will not touch on the issue of  $A^0$ -to- $\text{Deg}^0$  movement at this point.)

- (30) Zhangsan bu  $[_{\text{DegP}} \textit{pos} [_{\text{AP}} \textit{gao}]]$ .  
Zhangsan not tall  
‘Zhangsan is not tall.’

As clearly indicated by such a syntactic structure, what is directly negated in (30) is the degree phrase headed by the covert positive morpheme rather than the adjective phrase *gao* ‘tall’. So, I would expect example (28) to mean that it is not the case that Zhangsan’s height exceeds the contextually determined standard height of human beings by a significant amount. In other words, Zhangsan’s height might exceed the contextually determined standard height but the difference between the degree value of Zhangsan’s height and the standard height is not significant, and this does not exclude the possibility of Zhangsan’s being short, as the grammaticality of (31), provided by one of the anonymous reviewers, shows.

- (31) Zhangsan bu gao, shijishang Zhangsan suan shi ai de.  
Zhangsan not tall actually Zhangsan consider is short DE  
‘Zhangsan is not tall, and actually he can be considered as being short.’

Thus, the semantic interpretation of a *bu* ‘not’ negation sentence containing a simple adjectival predicate implies that Chinese does have the covert positive morpheme.<sup>10</sup>

However, behind the assumption that (28) has a syntactic structure like (30) is the question of how the negation marker *bu* ‘not’ induces the occurrence of the covert positive morpheme. In the following, I shall argue that in Chinese the negation markers *bu* ‘not’ and *meiyou* ‘not’ are functional heads, projecting as a negative phrase, and select as complement an aspect phrase if the predicate denotes an event or is able to take an aspect marker such as *-le*, *-guo*, *-zhe* and *zai* but select a degree phrase complement if the predicate denotes a state, to which no aspect marker can attach (Ernst, 1995; Lin, 2003).<sup>11</sup>

As is widely known, Chinese has two negation markers: *bu* ‘not’ and *meiyou* ‘not’ (Wang, 1965; Chao, 1968; Li and Thompson, 1981). The negation marker *bu* ‘not’ is used with bare verbs and modals, while *meiyou* ‘not’ is used with various aspects and with accomplishment verbs, as the contrast between (32) and (33) illustrates.

- (32) a. Zhangsan bu lai.  
Zhangsan not come  
‘Zhangsan is not coming.’  
b. Zhangsan bu/\*meiyou hui qu.  
Zhangsan not/not will go  
‘Zhangsan will not go.’
- (33) a. Zhangsan meiyou qu xuexiao.  
Zhangsan not go school  
‘Zhangsan did not go to school.’  
b. \*Zhangsan bu qu-le xuexiao.  
Zhangsan not go-ASP school  
‘Zhangsan did not go to school.’  
c. \*Zhangsan meiyou qu-le xuexiao.  
Zhangsan not go-ASP school  
‘Zhangsan did not go to school.’  
d. Zhangsan meiyou qu-guo.  
Zhangsan not go-ASP  
‘Zhangsan has not been (there).’  
e. \*Zhangsan bu qu-guo.  
Zhangsan not go-ASP  
‘Zhangsan has not been (there).’

According to Cheng et al. (1997:57–58), the same agreement restriction also holds between the negation and the verb/aspect in Chinese negative particle questions, as shown below.

- (34) a. \*Ta qu-le bu?  
He go-ASP NEG  
‘Did he go?’

<sup>10</sup> As one anonymous reviewer says, this only shows that DegP can accommodate the possibility of Zhangsan’s being short. So, there is no logical necessity that Zhangsan’s being short depends on the claimed semantics of DegP. As I have pointed out, the meaning of (30) is: It is not the case that Zhangsan’s height exceeds the contextually determined standard height of human beings by a significant amount, and the possibility of Zhangsan’s being short is not excluded. This meaning, as I have argued, can be well captured if the existence of a degree phrase headed by the covert positive morpheme is assumed for (30). If we do not make this assumption here, some other mechanism still has to be proposed to derive the meaning naturally; otherwise, the meaning of (30) cannot be well captured. Thus, there must be a logical necessity that Zhangsan’s being short depends on some mechanism that can derive the meaning of (30) straightforwardly. And DegP, as I have argued, is the candidate that fits in with (30) best.

<sup>11</sup> Lin (2003) argues, the distribution of the Chinese negation marker *bu* ‘not’ and *mei* ‘not’ is aspectually sensitive. The negation marker *bu* ‘not’ aspectually selects as complement a stative situation that requires no input of energy in order to obtain that situation while the negation marker *mei* ‘not’ aspectually selects a dynamic and bounded event as complement (Ernst, 1995).

- b. \*Ta qu-guo bu?  
He go-ASP NEG  
'Has he gone?'
- c. Ta qu bu?  
He go NEG  
'Is he going?'
- (35) a. Ta qu-le meiyou?  
He go-ASP NEG  
'Did he go?'
- b. Ta qu-guo meiyou?  
He go-ASP NEG  
'Has he been (there)?'
- (36) a. Ta hui/yinggai/neng qu bu?  
He will/should/can go NEG  
'Will/Should/Can he go?'
- b. \*Ta hui/yinggai/neng qu meiyou?  
He will/should/can go NEG  
'Will/Should/Can he go?'

For example, in (34a-b), the negation marker *bu* 'not' that appears as a question particle cannot appear with the perfective aspect *-le* or the experiential aspect *-guo*. In contrast, as (35a-b) indicate, we can use the negative question particle *meiyou* 'not' with these two aspect markers. The same contrast also obtains in (36a-b), which contain a modal. This leads Cheng et al. (1997) to suggest that the use of *bu* 'not' versus *meiyou* 'not' depends on the verb/aspect or modal in the sentence regardless of whether or not the negation markers are used as regular negative markers or question particles.

Given this, Cheng et al. (1997) suggest that if the agreement relation between the negation marker and the verb/aspect shown by Chinese negative particle questions is due to a selection relation between negation and verb/aspect, this agreement phenomenon can be captured by assuming that the negation marker moves to the C position in overt syntax. The fact that agreement holding for typical negation forms also holds for negative question particles then can be naturally derived because they are in fact the same elements. Cheng et al. (1997) convincingly argue for this assumption by providing the following pieces of strong evidence: First, in cases where the matrix and embedded verbs share the same agreement requirement, ambiguity arises, as (37) illustrates.

- (37) Ta yiwei [ni qu] bu?  
He think you go NEG  
a. 'Does he think or not think that you are going?'  
b. 'Does he think that you are going or not going?'

Although the negative question particle *bu* 'not' is in the matrix C indicating that the sentence is a matrix yes-no question, the (a) and (b) readings indicate that example (37) is ambiguous between the matrix and the embedded readings. The matrix reading arises when the negation marker *bu* 'not', as in (38a), occurs in the matrix clause while the embedded reading arises if the negation marker *bu* 'not', as (38b) shows, occurs in the embedded clause and then moves to the matrix.

- (38) a. Ta bu yiwei [ni (hui) qu].  
He not think you will go  
'He doesn't think that you will go.'
- b. Ta yiwei [ni bu qu].  
He think you not go  
'He thinks that you are not going.'

Second, as Cheng et al. (1997) point out, in a case where the negation marker only holds an agreement relation with the matrix verb, the sentence is not ambiguous, and the same also obtains when the agreement relation only holds between the embedded verb and the negation marker, as shown by (39)–(40), respectively.

- (39) Ta yiwei [ni qu-guo] bu?  
He think you go-ASP NEG  
a. ‘Does he think or not think that you have been (there)?’  
b. \*Does he think that you have been (there) or you haven’t been (there)?’
- (40) Ta hui yiwei [ni qu-guo] meiyou?  
He will think you go-ASP NEG  
a. ‘\*Will he think or not think that you have been (there)?’  
b. ‘Will he think that you have been (there) or you haven’t been (there)?’

In (39), the negative question particle is *bu* ‘not’ and only can the matrix verb *renwei* ‘think’ satisfy the agreement requirement because the embedded verb *qu* ‘go’ has the experiential marker *-guo* attached to it; therefore, the question, as expected, does not have an embedded reading. On the other hand, the negative question particle in (40) is *meiyou* ‘not’ and only the embedded predicate can agree with it since the matrix has the modal *hui* ‘will’. And again, as expected, the question does not have a matrix reading.

Central to Cheng et al. (1997) is the assumption that the negation marker *bu* ‘not’ and *meiyou* ‘not’ are functional heads that select as complement an aspect phrase, and there exists an aspectual selection restriction between the negation marker and the complement. Semantically, the aspectual meaning of a sentence enables us to grasp what type of situation is involved; and its viewpoint presents an event by focusing on all or part of that situation, rather as a camera lens may focus. In Chinese, viewpoints are usually indicated by overt aspect markers such as *-le*, *zai*, *-guo*, and *-zhe*. According to Smith (1997) and many others, there are at least two major viewpoint types, perfective and imperfective. Their properties are summarized below:

- (41) Main types of viewpoints  
*Perfective* viewpoints focus on the situation as a whole, with initial and final points.  
*Imperfective* viewpoints focus on part of a situation, including neither initial nor final point.

The distribution and interpretation of viewpoint indicators (i.e., aspect markers) is sensitive to the situation types and the constellation of a verb and its arguments. Situation types in Chinese, as Smith (1997) suggests, are generally distinguished as States, Activities, Accomplishments, Semelfactives, and Achievements in terms of how they differ from each other in the temporal properties of dynamism, durativity, and telicity, as summarized in (42):

- (42) Basic situation types  
*States* are static, durative (*know the answer, love Mary*)  
*Activities* are dynamic, durative, atelic events (*laugh, stroll in the park*)  
*Accomplishments* are dynamic, durative, telic events consisting of a process with successive stages and an outcome (*build a house, walk to school, learn Greek*)  
*Semelfactives* are dynamic, atelic, instantaneous events (*tap, knock*)  
*Achievements* are dynamic, telic, instantaneous events (*win the race, reach the top*)

So, in framing a sentence the speaker chooses situation type and viewpoint, subject to the pattern of the language. For instance, (43a) states the temporal schema of an Accomplishment: I and F indicate initial and final points, the dots indicate internal stages. (43b) states the imperfective viewpoint schema: the dots indicate internal stages of a situation. The slashes in (43c) indicate the interval actually presented in the sentence.

- (43) Composite temporal schema for Mary was walking to school  
a. [Mary walk to school] I ..... F (Accomplishment schema)  
b. [be + ing] ... (Imperfective schema)  
c. Mary was walking to school I .. //// ... F (Composite schema)



The slashed period represents an interval of Mary's walking to school, an interval that includes neither the initial nor the final point. In other words, the aspectual information conveyed by a sentence is represented with a composite viewpoint and situation type temporal schema, and aspect markers function as viewpoint to present an event by focusing all or part of that situation.

However, Chinese adjectives in most cases do not take an aspect marker. If there does exist an aspectual selection restriction between the negation marker *bu* 'not' and the adjectival predicate complement, some element that plays a function analogous to what an aspect marker does to a VP has to occur in a *bu* 'not' negation sentence containing a simple adjectival predicate. Assuming this, in the following I shall argue that the degree term in an adjectival predicate sentence indeed plays such a role.

According to Kennedy and McNally (2005), the distribution and interpretation of degree modifiers is sensitive to two major classificatory parameters about the scale structure of gradable adjectives: (A) whether a gradable predicate is associated with what we call an OPEN or CLOSED scale, and (B) whether the standard of comparison for the applicability of the predicate is absolute or relative to a context. For example, proportional degree modifiers are only compatible with closed-scale (or absolute limit) gradable adjectives that map their arguments onto scales with maximal and minimal elements, while non-proportional ones with open-scale (or relative) gradable adjectives, as illustrated by (44a-b)–(44a-b), taken from Kennedy and McNally (2005:355), respectively.

- (44) Closed Scale Adjectives  
 a. The room was 100% full/empty.  
 b. The flower was fully open/closed.
- (45) Lower Closed Scale Adjectives  
 a. ??The pipe is fully bent.  
 b. The pipe is now fully straight.
- (46) Upper Closed Scale Adjectives  
 a. We are fully certain about the results.  
 b. ??We are fully uncertain about the results.
- (47) Open Scale Adjectives  
 a. ??Her brother is completely tall/short.  
 b. ??The pond is 100% deep/shallow.

The selection restriction between degree modifiers and the scale structure of gradable adjective shown above in some sense is analogous to the selection restriction between aspect markers and the situation type of verbs. So, I have strong reason to say that the role that degree morphemes play with respect to gradable adjectives is analogous to the role that aspect markers play with respect to verbs. Thus, it is not unreasonable for us to say that the negation marker *bu* 'not' in examples like (28) selects a degree phrase as complement.

Furthermore, Lee and Pan (2001:711–713), similar to Li (1992:139) in analyzing the negation marker *bu* 'not' as an operator<sub>[-wh]</sub>, argue that the negation marker *bu* 'not' is a focus-sensitive operator by pointing out that sentence (48a–d) only differ from each other in the location of focus (Jackendoff, 1972; Jacobs, 1983; Rooth, 1992).

- (48) a. Lisi bu [*chi*]<sup>f</sup> fan, ta [*zuo*]<sup>f</sup> fan.  
 Lis not eat rice he cook rice  
 'He does not eat the meal, but he cooks it.'
- b. Lisi bu chi [*fan*]<sup>f</sup>, ta chi [*mianbao*]<sup>f</sup>.  
 Lis not eat rice he eat bread  
 'He does not eat the rice, but he eats bread.'
- c. Lisi bu [*chi fan*]<sup>f</sup>, ta [*shuijiao*]<sup>f</sup>.  
 Lis not eat rice he sleep  
 'He does not eat his meal, but he sleeps.'
- d. Lisi [*bu*]<sup>f</sup> chi fan, wo hai yiwei ta hui chi.  
 Lis not eat rice I yet think he will eat  
 'He will not have a meal, though I expect he will.'

To describe the semantic interpretation of (48a–d) clearly, Lee and Pan (2001) incorporate Rooth's (1992) alternative semantics of focus into their semantic analysis of the Chinese negation marker *bu* 'not'; that is, the effects of focus on semantics, for instance that in (49a), can be said to be the introduction of a set of alternatives (i.e., the focus semantic value introduced by the focus interpretation operator  $\sim$  (i.e.,  $[[\text{likes} [\text{Sue}]_F]^f$  shown by (49c)) that contrasts with the ordinary semantic meaning of the VP  $[\text{VP likes} [\text{Sue}]_F]$  (i.e.,  $[[\text{likes} [\text{Sue}]_F]^o = \text{likes Sue}$ ).

- (49) a.  $[_S \text{ Mary likes } [\text{Sue}]_F]$ .  
 b.  $[_S [_{NP} \text{ Mary}] [_{VP} [_{VP} \text{ like } [\text{Sue}]_F] \sim C]]$   
 c.  $[[[_{VP} \text{ likes } [\text{Sue}]_F]]^f = \{\lambda x[\text{like}(x, y)] \mid y \in E\}$ , where  $E$  is the domain of individuals. (e.g., *likes Jane* or *likes Lisa*)  
 d.  $\forall P[P \in C \wedge P(m) \rightarrow P = \lambda x[\text{like}(x, s)]$

So, Lee and Pan (2001:712–713) suggest that the semantic interpretations of (48a–d) can be simply represented by (50a–d), respectively.

- (50) a.  $[[[\text{NEG } [\text{Ta } \textit{chi}_f \textit{fan}]]]]$   
 Assertion: *bu*  $[[[\text{Ta } \textit{chi } \textit{fan}]]]$   
 Presupposition: There is an alternative to *chi* 'eat', call it P, such that  $[[[\text{Ta } P \textit{fan}]]]\textit{fan}]]]$   
 b.  $[[[\text{NEG } [\text{Ta } \textit{chi } \textit{fan}_f]]]]$   
 Assertion: *bu*  $[[[\text{Ta } \textit{chi } \textit{fan}]]]$   
 Presupposition: There is an alternative to *fan* 'rice', call it y, such that  $[[[\text{Ta } \textit{chi } y]]]$   
 c.  $[[[\text{NEG } [\text{Ta } [\textit{chi } \textit{fan}]_f]]]]$   
 Assertion: *bu*  $[[[\text{Ta } \textit{chi } \textit{fan}]]]$   
 Presupposition: There is an alternative to *chi fan* 'eat rice', call it P, such that  $[[[\text{Ta } P]]]$ .  
 d.  $[[[\text{ASSERT } [[[\text{Ta } \textit{bu}_f \textit{chi } \textit{fan}]]]]]]$   
 Assertion:  $[[[\text{Ta } \textit{bu } \textit{chi } \textit{fan}]]]$   
 Presupposition: There is an alternative to *Ta bu chi fan* 'he not eat rice', which is  $[[[\text{Ta } \textit{chi } \textit{fan}]]]$ .

Hence, it is not implausible for us to say that the negation marker *bu* 'not', being a focus-sensitive operator, carries the focus operator  $[-_{\text{wh}}$ ] feature, and a *bu* 'not' negation sentence containing a simple adjectival predicate, for example (30) repeated as (51a), has a syntactic structure like (51b), in which the negation marker *bu* 'not' not only carries the (focus interpretation) operator feature (or introduces an operator) but also selects a degree phrase headed by the covert positive morpheme as complement.

- (51) a. Zhangsan  $bu$   $[_{\text{DegP}} \textit{pos } [_{\text{AP}} \textit{gao}]]$ .  
 Zhangsan not tall  
 'Zhangsan is not tall.'  
 b. Zhangsan  $[_{\text{NegP}} \text{Op } [[[_{\text{Neg}} \textit{bu}_{[\text{operator}]}] [_{\text{DegP}} \textit{pos } [_{\text{AP}} \textit{gao}]]]]]$ .

Before moving into the next construction that sanctions the positive-degree-denoting 'unmarked' adjectival predicate, one point I cannot skip here is that my proposal on the *bu* 'not' negation sentence like (51a) is immediately challenged by examples in (52), where the negated adjectival predicate (e.g., *bu-shufu* 'uncomfortable') conveys a contrary reading different from what the negated predicate *bu gao* 'not tall' in (28), repeated as (53), does (Lü, 1984:223–229).

- (52) a. Zhangsan *jintian shengti bu-shufu*.  
 Zhangsan today body uncomfortable  
 'Today, Zhangsan is uncomfortable.'  
 b. Zheli *jiaotong bu-fangbian*.  
 Here transportation inconvenient  
 'Here the transportation is inconvenient.'  
 c. Ni *zheme zuo bu-daode*.  
 You this-way do immoral  
 'You, given doing things this way, are immoral.'

- d. Caipan bu-gongping.  
Referee not fair  
'The referee is unfair.'
- e. Laoshi jintian bu-gaoxing.  
Teacher today unhappy  
'The teacher is unhappy today.'
- (53) Zhangsan bu gao.  
Zhangsan not tall  
'Zhangsan is not tall, and the possibility of Zhangsan's being short is not excluded.'

As Jespersen (1924:322), Klima (1964), Lü (1984:223–229), and Teng (1985:471) point out, the distinction between the negated adjectival predicate *bu gao* 'not tall' and a contrary-reading-denoting negated adjectival predicate like *bu-shufu* 'uncomfortable' in fact corresponds to the contradictory (e.g., black vs. non-black) versus contrary (e.g., black vs. white) distinction. Furthermore, Teng (1985:471–473) argues that contradictory terms are syntactic facts while contrary terms are lexical facts because of the following syntactic and semantic distinctions. First, only contrary terms, like adjectives, can be modified by intensifiers.

- (54) a. Zhangsan jintian feichang bu-shufu.  
Zhangsan today extremely uncomfortable  
'Today Zhangsan is extremely uncomfortable.'
- b. Laoshi zuotian feichang bu-gaoxing.  
Teach yesterday extremely unhappy  
'The teacher was extremely unhappy yesterday.'
- (55) a. \*Zhangsan feichang bu gao.  
Zhangsan extremely not tall
- b. \*Tang feichang bu tian.  
Soup extremely not sweet

Second, contrary terms behave like adjectives in being able to occur as comparative predicates, as the contrast below indicates.

- (56) a. Wo jintian bi zuotian (geng) bu-shufu.  
I today compare yesterday more uncomfortable  
'I am more uncomfortable than I was yesterday.'
- b. \*Zhangsan bi Lisi (geng) bu gao.  
Zhangsan compare Lisi more not tall

Since a predicate in comparatives must specify a definite property, either positive or negative in meaning, and cannot refer to the absence of a certain property, which contradictory terms indicate, a contradictory term can occur in comparatives only when the negation marker *bu* 'not' precedes the comparative marker *bi* 'compare', as (57) illustrates.

- (57) Zhangsan bu bi Lisi gao.  
Zhangsan not compare Lisi tall  
'Zhangsan is not taller than Lisi.'

Thus, along a line the same as Teng (1985:472), I suggest that the negation marker *bu* 'in/un-/dis-' of the contrary terms like *bu-shufu* 'uncomfortable' is a negative prefix whereas the negation marker *bu* 'not' of the contradictory terms, for instance *bu gao* 'not tall', is a sentential negation. The morphological operation done by the negative prefix *bu-* 'in-/un-/dis-' to the adjectival stem in cases like *bu-shufu* 'uncomfortable' is somewhat analogous to what reduplication morphology does to an adjectival stem, for example, *honghong-de* 'red-red-DE' and *hong-tongtong* 'red-tongtong/quite red'. So, I would expect that the negative prefix *bu-* 'in-/un-/dis-' makes a simple adjective become a complex one that can occur as predicate independently, and the fact bears out this expectation, as shown by (52a–e).

### 3.2.2. The contrastive focus construction

A comparative construction semantically functions to establish orderings of superiority, inferiority, or equality between the two comparing degrees, each associated with one of the compared entities or concepts. Although the contrastive focus construction also involves ‘comparison’, ‘the comparison’ involved in this construction somewhat is relative, meaning that ‘contrast’ functions to highlight that one of the two contrasted entities or concepts has a particular quality by having it compared with the other. More concretely, ‘contrast’ (i.e., relative comparison), as Liu (2004:32) and Xu (2007:48) suggest, functions to show either (A) one contrasted entity or concept has the [+A] quality while the other the [–A] quality (e.g., the [+tall] quality versus the [–tall] quality), (B) one contrasted entity or concept carries a quality opposite to that of the other along the same dimension (or scale) (e.g., *tall* versus *short*), or (C) one contrasted entity or concept has quality A while the other has quality B, as illustrated by (58a–c), respectively.<sup>12</sup>

- (58) a. Zhangsan gao, Lisi bu gao.  
Zhangsan tall Lisi not tall  
‘Zhangsan is tall, but Lisi is not tall.’  
b. Zhangsan gao, Lisi ai.  
Zhangsan tall Lisi short  
‘Zhangsan is tall, but Lisi is short.’  
c. Zhe-duo hua hong, na-duo huang.  
This-CL flower red that-CL yellow  
‘This flower is red, but that one is yellow.’

Simply put, what are contrasted in a contrastive focus construction are two different ‘categories’ of property (e.g., the [+tall] category versus the [–tall] category, the *tall* category versus the *short* category, and the *red* category versus the *yellow* category) rather than two different ‘degrees’ of some property, as shown by the contrast between (59a) and (59b) in grammaticality.<sup>13</sup>

- (59) a. \*Zhangsan feichang gao, Lisi you-dian gao.  
Zhangsan extremely tall Lisi a-little-bit tall  
‘??Zhangsan is extremely tall, but Lisi is a little bit tall.’  
b. Zhangsan feichang gao, Lisi you-dian ai.  
Zhangsan extremely tall Lisi a-little-bit short  
‘Zhangsan is extremely tall, but Lisi is a little bit short.’

<sup>12</sup> According to Staseen (1985), in languages like Samoan and Hixkaryana, comparison is effected by means of an adversative coordination of two clauses that contrast the target and standard of comparison along some dimension by using antonymous predicates or negation.

- (i) Ua loa lenei va’a, ua puupuu lena. (Samoan)  
Is long this boat is short that  
‘This boat is longer than that boat.’  
(ii) Kaw-ohra naha Waraka, kaw naha Kaywerye. (Hixkaryana)  
Tall-not he-is Waraka tall he-is Kaywerye  
‘Kaywerye is taller than Waraka.’

However, the semantic interpretation of (58b) implies that Chinese does not belong to this type of languages in expressing comparison; in other words, Chinese further differs from them in using the contrastive focus construction to highlight that one contrasted entity or concept has quality A while the other quality B rather than to convey a meaning of comparison.

<sup>13</sup> However, one might consider sentences like (i), where the degree value denoted by the degree adverb *hen* ‘very’ seems to be in contrast with that denoted by the degree adverb *geng* ‘more’, as counterexample to my claim that what are contrasted in a contrastive focus construction are two different ‘categories’ of property rather than two different ‘degrees’ of some property.

- (i) Zhangsan hen gao, Lisi geng gao.  
Zhangsan very tall Lisi more tall  
‘Lisi is even taller than Zhangsan is.’

However, as Xing (2004:216–217) argues, this kind of construction, instead of being analyzed as a contrastive focus construction, is a type of multi-clausal sentence (i.e., *dijin ju* ‘the increment construction’), in which there exists an incremental relation between the degree of Zhangsan’s height and that of Lisi’s. So, examples like (i) are not counterexamples to my claim.

According to the semantic property of the contrastive focus construction, it is not implausible for us to say that, to make the contrast achieved by a contrastive focus construction possible, the relevant category to which the relevant property of each contrasted entity or concept belongs must be identified first. The identification of the category of some gradable property associated with some entity or concept implies the relation between the degree of some property carried by such an entity or concept and the standard degree on the scale denoted by the same property must be identified first. According to von Stechow (1984) and Kennedy and McNally (2005), it is the degree morpheme (or the degree adverb) that does this job. So, I suggest that, in a contrastive focus construction like (58a–c), it is the contrastive function that induces the occurrence of a default degree morpheme in each conjunct clause.

More significantly, the contrast that example (58b) is felicitous under scenario (60A) rather than (60B) brings us further information to help identify the nature of the default degree morpheme occurring in a contrastive focus construction like (58b).

- (60) A. Suppose the standard height for a man is 175 centimeters. Zhangsan is 185 centimeters tall and Lisi is 160 centimeters tall.  
 B. Suppose the standard height for a man is 175 centimeters. Zhangsan is 177 centimeters tall and Lisi is 173 centimeters tall.

As this contrast indicates, in (58b) the height of Zhangsan must exceed the contextually determined standard degree of human height by a significant amount, and the height of Lisi must be lower than the contextually determined standard degree of human height by a significant amount. This constraint leads us to suggest that the default degree morpheme in the contrastive focus construction like (58b) is the covert positive morpheme.

Furthermore, since a focus phrase, as Rooth (1992) suggests, involves ordinary semantic value contributed by the focus operator  $\sim$  and it is the contrastive focus function that licenses the occurrence of the covert positive morpheme, I suggest that a contrastive focus construction like (58b) has a syntactic structure like (61), in which there exists a focus head  $\text{Foc}^0$  carrying the operator feature. In addition, the focus head  $\text{Foc}^0$  not only introduces an operator but also licenses the occurrence of a degree phrase headed by the covert positive morpheme.<sup>14,15</sup>

- (61) [Zhangsan [ $\text{FocP}$  Op [ $\text{Foc}^0_{[+operator]}$  [ $\text{DegP}$  *pos* [ $\text{AP}$  *gao*]]]]], [Lisi [ $\text{FocP}$  Op [ $\text{Foc}^0_{[+operator]}$  [ $\text{DegP}$  *pos* [ $\text{AP}$  *ai*]]]]].  
 Zhangsan *pos* tall Lisi *pos* short  
 ‘Zhangsan is tall, but Lisi is short.’

### 3.2.3. The *ma* particle question

According to Shi (2001:260–263), a *ma* particle question like (62) should be distinguished from one like (63), in which the adjective occurs within the *shi* . . . *de* ‘is . . . DE’ sequence, because the former behaves the same as (64) in

<sup>14</sup> Assuming that the focus operator licenses the occurrence of the covert positive morpheme, I would expect examples like (i)–(ii) to be grammatical and the fact bears out this expectation (The verb *shi* ‘is’ in (ii) functions to introduce a focus operator).

(i) Zhe-ke shu gao<sub>F</sub>.  
 This-CL tree tall  
 ‘This tree is tall<sub>F</sub>.’

(ii) Meicuo! wo shi qiong<sub>F</sub>, dan wo kao ziji guo huo.  
 No-mistake I is poor but I depend self live alive  
 ‘No mistake! I am poor<sub>F</sub>, but I make a living by myself.’

<sup>15</sup> The other way to help identify the category of a property denoted by an adjectival predicate in Mandarin Chinese is adopt a construction like (i), in which the adjective occurs in-between *shi* ‘is’ and the particle *de* (Ding et al., 1979:23).

(i) Zhangsan shi gao de, Lisi shi ai de.  
 Zhangsan is tall DE Lisi is short DE

‘The height of Zhangsan belongs to the category of being tall, but that of Lisi the category of being short.’

Here, I would suggest that, like degree morphology, *shi* . . . *de* in sentences like (i) functions as a type-shifter in shifting a type  $\langle d, \langle e, t \rangle \rangle$  term into a type  $\langle e, t \rangle$  term, or that *shi* . . . *de* alternatively functions to nominalize the adjective in a sense that the adjective in-between is construed as a nominal rather than an adjective. I shall leave it open for further research which one is correct.

asking about the degree of the property denoted by the adjectival predicate whereas what the latter asks about is the category to which the property denoted by the adjective occurring between *shi* ‘is’ and *de* ‘DE’ belongs.

- (62) Zhe-duo hua hong ma?  
This-CL flower red SFP  
‘Is this flower tall?’
- (63) Zhe-duo hua shi hong de ma?  
This-CL flower is red DE SFP  
‘Does the color of this flower belong to the category of being red?’
- (64) Zhe-duo hua you duo hong?  
This-CL flower have more red  
‘How red is this flower?’

The way in which (62) differs from (63), as Shi (2001:260–263) and Xu (2007) clearly point out, can be shown by how their answers differ from each other; that is, the answer for a *ma* particle question like (62) must be one like (65a–d), which only differ from each other in the degree adverb occurring inside, rather than those like (66), which simply identifies the color category of the flower as the category of being red.

- (65) a. Zhe-duo hua hen hong.  
This-CL flower very (or HEN) red  
‘This flower is (very) red.’
- b. Zhe-duo hua feichang hong.  
This-CL flower extremely red  
‘This flower is extremely red.’
- c. Zhe-duo hua xiangdang hong.  
This-CL flower quite red  
‘This flower is quite red.’
- d. Zhe-duo hua you-dian hong.  
This-CL flower a little bit red  
‘This flower is a little bit red.’
- (66) Zhe-duo hua shi hong de.  
This-CL flower is red DE  
‘The color of this flower belongs to the category of being red.’

As von Stechow (1984) as well as Kennedy and McNally (2005) suggests, a degree adverb, for example those in (65a–d), functions to regulate the relationship between the degree of some property carried by the entity or concept modified by the adjectival predicate and the contextually determined standard degree on the scale denoted by the same property. Thus, it is not unreasonable for us to say that, in examples like (62), there exists a default degree morpheme (i.e., *deg*) which regulates the relationship between the degree value of this flower’s redness and the contextually determined standard degree of flowers’ redness and this relation is the target of being asked about in a *ma* particle question like (62). Assuming this, I suggest that example (62) has a rough structure like (67) in syntax.

- (67) Zhangsan *deg* gao ma?  
Zhangsan tall SFP  
‘Is Zhangsan tall?’

My assumption about the syntactic structure of a *ma* particle question like (62) further works together with the fact that example (67) can only have (68a) rather than (68b) as answer to provide us information for identifying the nature of this default degree morpheme.



- (68) a. Zhangsan *deg* gao a, yi kan jiu zhidao.  
 Zhangsan tall SFP one look then know  
 ‘Of course. Zhangsan is tall; it is so clear. You even don’t need to look deeper.’
- b. \*Zhangsan *deg* gao a, buguo kan bu tai chulai.  
 Zhangsan tall SFP but look not too come-out  
 ‘Of course. Zhangsan is tall. But if you don’t look carefully, it is hard to recognize that Zhangsan is tall.’

According to Chao (1968), and Li and Thompson (1981), one important semantic (or pragmatic) characteristic of the *ma* particle question is that it can be functionally characterized as a request for specific information. For example, suppose you have already known that Zhangsan is tall. Some day, while talking with someone, you heard from him/her that Zhangsan is not tall, which makes you puzzled. So, you might ask question (67) to clarify the conflict and reconfirm your presupposition that the proposition denoted by *Zhangsan deg gao* ‘Zhangsan deg tall’ is true. As the contrast between (68a) and (68b) indicates, the answer for question (67) has to convey a sense that Zhangsan’s height must exceed the contextually sensitive standard height of human beings by a significant amount. Based on this semantic property, I suggest that the default degree morpheme *deg* in a *ma* particle question like (67) is the covert positive morpheme.

More importantly, since the question particle *ma* can be further considered a question operator or a functional head with the operator feature, I can say that the degree phrase in the *ma* particle question like (67) in fact is introduced by a head carrying the operator feature as the degree phrase is in the contrastive focus construction and the *bu* ‘not’ negation sentence’. So, I suggest that (67) has a more elaborated syntactic structure like (69), in which the question particle head *ma*, which carries an operator feature, not only introduces an operator but also introduces a degree phrase headed by the covert positive morpheme.

- (69) [Op [<sub>DegP</sub> Zhangsan [[<sub>Deg</sub> *pos*] [<sub>AP</sub> gao]]] *ma*<sub>[+operator]</sub>]?  
 Zhangsan *pos* tall SFP  
 ‘Is Zhangsan tall?’

So, the meaning that (67) actually conveys is: Does Zhangsan’s height exceed the contextually determined standard height of human beings by a significant amount?<sup>16</sup>

### 3.2.4. The conditional

As Huang and Li (2008) point out, the antecedent clause of bare (or simple) conditionals might take a simple adjective as predicate, as (70) illustrates.

- (70) Zhangsan yaoshi gao dehua, Lisi jiu bu ai.  
 Zhangsan if tall PAR Lisi then not short  
 ‘If Zhangsan is tall, then Lisi is not short.’

Lewis (1975) argues that conditionals containing adverbs of quantification are not really conditionals but rather quantificational constructions, headed by the adverb of quantification, in which the antecedent clause functions as a restrictor on the quantifier. As for ‘bare’ conditionals where there is no operator that the *if*-clause could restrict, Kratzer (1978, 1986), by taking (71a) as example, which has a slightly simplified logical form like (71b), suggests that they are implicitly modalized and the modal is usually the epistemic modal *must*.

<sup>16</sup> The same also obtains in the *ba* particle question, which, as Chao (1968) and Li and Thompson (1981:309) argue, is used only in a context where the speaker has an intent stronger than what s/he has in the *ma* particle question to request the hearer to reconfirm his/her presupposition, as (i) illustrates.

(i) Zhe-duo hua hong ba?  
 This-CL flower red SFP  
 ‘This flower is red, OK?’

- (71) a. If my hen has laid eggs today, then the Cologne Cathedral will collapse tomorrow morning.  
 b. [must: my hen laid eggs today] the Cologne Cathedral will collapse tomorrow morning.

In terms of Kratzer (1991), (71a) is true in a world *w* if and only if the Cologne Cathedral will collapse tomorrow morning is true in all those worlds *w'* that are accessible from *w* and in which my hen has laid eggs today. Here, which worlds are accessible, as Kratzer (1991) suggests, depends on the modality expressed by the implicit epistemic modal. To answer this question, Kratzer (1991:654) uses example (72a–b) with the following scenario to show that epistemic interpretations of modals are relativized to the evidence available in the utterance situation. Suppose a man is approaching both of us. You are standing over there. I am further away. I can only see the bare outlines of the man, in view of *my* evidence, the person approaching may be Fred. You know better. In view of *your* evidence, it cannot possibly be Fred; it must be Martin. If this is so, *my* utterance of (72a) and *your* utterance of (72b) are both true.

- (72) a. The person approaching might be Fred.  
 b. The person approaching cannot be Fred.

This evidence amounts to saying that epistemic interpretations of modals are relativized to the evidence available in the utterance situation, and different utterances of one and the same sentence involving such a modal might express different propositions.

Here relevant to our discussion on examples like (70) is that, according to Halliday (1970), Palmer (1986), Kratzer (1991), and Huddleston and Pullum (2002), epistemic modality, expressing ‘necessity in view of available evidence’ in the utterance situations, qualifies the speaker’s commitment to the truth of the modalized proposition. Thus, example (71a), which contains the implicit epistemic modal *must*, is true iff the Cologne Cathedral will collapse tomorrow morning is true in all those worlds *w'* consistent with what the speaker knows (i.e., the speaker’s encyclopedic knowledge) and in which my hen has laid eggs today. To state it more clearly, for example, a possible world in which the sun rises from the west must be excluded because such a world is impossible based on the speaker’s encyclopedic knowledge. Further, the speaker draws the conclusion that my hen has laid eggs today from evidence of whose truth *s/he* has direct knowledge rather than asserts something.

Adopting Kratzer’s (1991) theory of bare conditionals, we can analyze a Chinese simple conditional like (70), repeated as (73a), as a quantificational construction, headed by the implicit modal (i.e., the implicit epistemic modal *must* in (73b)), in which the antecedent clause functions as a restrictor on the quantifier, as shown by (73b).

- (73) a. Zhangsan yaoshi gao dehua, Lisi jiu bu ai.  
 Zhangsan if tall PAR Lisi then not short  
 ‘If Zhangsan is tall, then Lisi is not short.’  
 b. [must: Zhangsan gao] Lisi jiu bu ai.

Given the epistemic modality expressed by the implicit epistemic modal *must* (i.e., the necessity in view of available evidence in the utterance situation), the speaker must have a commitment to the truth of the modalized proposition; that is, (73a) is true iff *Lisi bu ai* ‘Lisi is not short’ is true in all those worlds *w'* consistent with what the speaker knows (i.e., the speaker’s encyclopedic knowledge) and in which *Zhangsan gao* ‘Zhangsan tall’ is true. And the speaker draws the conclusion that *Zhangsan gao* ‘Zhangsan tall’ is true from evidence whose truth *s/he* has direct knowledge of rather than asserting something. So, the speaker must have a commitment to the truth value of the proposition *Zhangsan gao* ‘Zhangsan tall’.

To define the truth value of the proposition *Zhangsan gao* ‘Zhangsan tall’, we have to know the basic usage of the Chinese non-comparison-denoting gradable adjectives like *gao* ‘tall’ in the proposition *Zhangsan gao* ‘Zhangsan tall’. In Chinese, a non-comparison-denoting gradable adjectival predicate, for example *gao* ‘tall’, conveys one of the following two meanings, depending on the sentence pattern in which it occurs. On the one hand, the adjectival predicate *gao* ‘tall’, when occurring in the *shi . . . de* sentence pattern like (74a), expresses the meaning that the height of the predicatee (i.e., Zhangsan) belongs to the [+tall] category; on the other hand, when occurring in a degree adjective sentence pattern like (74b), the adjectival predicate *gao* ‘tall’ expresses the actual degree of Zhangsan’s (i.e., the predicatee’s) height.

- (74) a. Zhangsan shi gao de.  
Zhangsan is tall DE  
'The height of Zhangsan belongs to the category of being tall.'
- b. Zhangsan hen gao.  
Zhangsan very tall  
'Zhangsan is (very) tall.'

However, in a Chinese bare conditional like (73a), the adjective *gao* 'tall' does not occur in the *shi . . . de* sentence pattern; therefore, to make the truth value of the proposition *Zhangsan gao* 'Zhangsan tall' in the antecedent clause *ruguo Zhangsan gao dehua* 'if Zhangsan tall PAR' definite, a covert degree morpheme is obligatorily required to help define the relation between the degree value of Zhangsan's height and the contextually determined standard degree of human height. This immediately leads us to suggest that in a Chinese bare conditional containing an adjectival predicate, the implicit epistemic modal, which semantically functions as a 'necessity' operator, introduces an epistemic operator and licenses the occurrence of a covert degree morpheme.

Furthermore, the fact that the counterfactual reading of (73a) is possible in scenario (75a) rather than (75b) provides one way for us to take away the mysterious veil that covers the semantic content of this covert degree morpheme:

- (75) a. Suppose the standard height of a man is 175 centimeters. Zhangsan is 177 centimeters tall and Lisi is 169 centimeters.
- b. Suppose the standard height of a man is 185 centimeters. Zhangsan is 177 centimeters tall and Lisi is 165 centimeters.

More precisely, this contrast implies that the difference between the degree value of Zhangsan's height and the contextually determined standard degree of human height must be greater than the contextually determined norm to induce a contextually given threshold specifying the degree of height Zhangsan has to exceed to be significantly tall. Thus, it is not unreasonable for us to assume that in the antecedent clause of a Chinese bare conditional like (73a), the implicit epistemic modal *must*, given its context-sensitivity and relevance to a person's evidence, functions to license the occurrence of a covert degree morpheme, and the best candidate for this degree morpheme is the covert positive morpheme.

Given that the necessity operator introduced by the implicit epistemic modal in a (Chinese) bare conditional plays the crucial role in licensing the occurrence of the covert positive morpheme, I further suggest that a Chinese bare conditional containing a simple adjectival predicate like (73a) has a syntactic structure like (76), where the implicit epistemic modal which carries an operator feature introduces an operator to license the occurrence of the covert positive morpheme.<sup>17</sup>

- (76) [<sub>CP</sub> Zhangsan yaoshi [<sub>EpistP</sub> Op [[<sub>Epist</sub> *must*<sub>[+operator]</sub>] [<sub>DegP</sub> *pos* gao]]] dehua], Lisi jiu bu ai.  
Zhangsan if tall PAR Lisi then not short  
'If Zhangsan is tall, then Lisi is not short.'

Behind my assumption that the Chinese bare (or simple) conditional containing a simple adjectival predicate involves an epistemic operator to license the occurrence of the covert positive morpheme is the idea that epistemic modality plays the crucial role in licensing the occurrence of the covert positive morpheme. In natural languages, epistemic modality in fact still can be expressed by epistemic modals, verbs, adverbs, and particles as well as through

<sup>17</sup> Pointing out that *if*-clauses are not the only clauses that function as restrictive devices for operators, Partee (1984) makes a similar point with respect to *when*-clause. So, we expect that a bare adjectival predicate is allowed in a *dang*-clause (i.e., *when*-clause) in Chinese, and the fact bears out this expectation.

(i) Dang Laowang gaoxing de shihou, ta jiu hui qing pengyou chi fan.  
When Laowang happy DE moment he then will invite friend eat rice  
'When Laowang is happy, he always treats his friends to a meal.'

the implicit epistemic modal. So, I predict that a Chinese simple adjectival predicate can occur in constructions containing these elements, and the fact bears out this prediction, as shown by (77a–f), respectively (Chao, 1968:803–804, 807–808; Liu et al., 2001:412–424).<sup>18</sup>

- (77) a. Zuo zhe-jian shi, Zhangsan hui jinshen, ni fangxin. (epistemic modal)  
Do this-CL thing Zhangsan will careful you feel-easy-in-mind  
'Zhangsan will be careful in doing this task; you can set your mind at ease.'
- b. Wo renwei ta wuli. (epistemic verb)  
I think s/he unreasonable  
'I think s/he is unreasonable.'
- c. Wo aonao ta wuzhi. (epistemic verb)  
I feel-annoyed s/he ignorant  
'I feel annoyed at her/his being ignorant.'
- d. Dajia dou zhidao ta wuli. (epistemic verb)  
Everyone all know s/he unreasonable  
'Everyone knows that s/he is unreasonable.'
- e. Zhangsan huoxu/keneng/kongpa/xiangbi wuzhi, cai hui zuo  
Zhangsan perhaps/possibly/probably/most-probably ignorant then will do  
chu zhe-zhong shi lai. (epistemic adverb)  
out this-CL thing come  
'Perhaps/Possibly/Probably/Most probably, Zhangsan is ignorant; therefore, he has done such a thing.'
- f. Zhangsan gao ba/a/ou! (epistemic particle)  
Zhangsan tall SFP  
'Zhangsan is tall!'

### 3.2.5. The epistemic adjectival small clause

According to Tang (1998:143), Huang (2006:350), and Huang and Li (2008), a simple adjective, for example *sha* 'silly' and *ben* 'stupid', can occur as the predicate of an epistemic adjectival small clause (henceforth EA-SC) that occurs as complement of an epistemic verb that involves a stronger subjective judgment of the speaker. Such verbs include *xiao* 'deride', *ma* 'scold', *kua* 'praise', *xian* 'disfavor', *xiwang* 'hope', and *yuanliang* 'forgive', as (78a–f) illustrate.

- (78) a. Zhangsan xiao [EA-SC ni sha].  
Zhangsan deride you silly  
'Zhangsan derided you as being silly.'
- b. Zhangsan ma [EA-SC ni ben].  
Zhangsan scold you stupid  
'Zhangsan criticized you for being stupid.'
- c. Zhangsan kua [EA-SC wo congming].  
Zhangsan praise I smart  
'Zhangsan praised me for being smart.'

<sup>18</sup> In addition, being a concessive subordinator, *suiran* 'although' can be used epistemically; for example, as (i) shows, Zhangsan does not ask for help from others for making a living in spite of the fact that he is poor, which might reasonably have led one to conclude that Zhangsan asks help from others for making a living (Sweetser, 1990:79).

(i) Zhangsan suiran qiong, danshi ta yizhi kao ziji guo huo.  
Zhangsan although poor but he always depend self live alive  
'Although Zhangsan is poor, he makes a living by himself.'

So, a Chinese simple adjective can occur as a predicate independently in a subordinate clause introduced by the concessive subordinator *suiran* 'although' when it is used epistemically. Since epistemic-modality-denoting elements might differ from each other in the strength of the speaker's subjective judgment on or mental attitude to the proposition, the acceptability for examples in (77) might vary for different native speakers. However, all of my informants agree that it is hard to say any of them is ungrammatical.

- d. Zhangsan xian [EA-SC wo zang].  
Zhangsan disfavor I dirty  
'Zhangsan disfavors me for being dirty.'
- e. Zhangsan xiwang [EA-SC ni xingfu].  
Zhangsan hope you happy  
'Zhangsan wishes you well.'
- f. Zhangsan yuanliang [EA-SC ni wuzhi].  
Zhangsan forgive you ignorant  
'Zhangsan forgave your being ignorant.'

As Tang (1998:162) further claims, the adjectival predicate in the epistemic adjectival small clause is a bare lexical projection (i.e., AP); however, this claim is immediately challenged by examples like (79a-b), where the adjectival predicate is modified by the degree word *hen*.

- (79) a. Zhangsan xiao [EA-SC ni hen sha].  
Zhangsan deride you very silly  
'Zhangsan derided you as being so silly.'
- b. Zhangsan ma [EA-SC ni hen ben].  
Zhangsan scold you very stupid  
'Zhangsan criticized you for being so stupid.'

Another piece of strong evidence against the assumption that the adjectival predicate in the epistemic adjectival small clause is a bare lexical projection, as Stowell (1995:284–285) points out, is this. Suppose, for instance, that a small clause VP or AP simply denotes an eventive or stative situation. It is possible to suppose that such an expression could serve as the object of a verb of perception or causation, because an act of perception or causation involves a direct relation with an event or situation, as Safir (1993) and Higginbotham (1983), among others, have observed. However, for a predicate involving a mental attitude or speech act (i.e., epistemic verbs), the relation is mediated by a propositional relation of truth or existence. For instance, when one considers John clever, one does not enter into a direct relation with John's state of cleverness; instead, one enters into a relation of belief in (the truth of) the proposition that cleverness holds of John. For this reason, it makes sense that small clause complements of propositional attitude verbs (i.e., the epistemic verb) should have at least one functional category dominating the small clause core; therefore, the syntax can provide a distinction between a category denoting a situation and a category denoting (the truth of) the proposition that this situation describes.

In addition, Rapoport (1995:175) provides a contrast like that between (80a) and (80b) to show that small clauses must describe a characterization about which an opinion or judgment (a mental attitude or speech act) can be expressed.

- (80) There are lots of fools in this room.  
a. \*I find/think Smith and Jones two of them.  
b. I consider Smith and Jones two of them.

As Rapoport (1995:175) argues, when no expression of an opinion can be involved, the small clause is unacceptable. For example, in (80b), when *consider* is used in this strict judgmental sense, what is asserted when the second sentence is uttered is just that Smith and Jones are fools, not that Smith and Jones are two of the fools in this room.

Since epistemic modality deals with a speaker's evaluation or judgment of, degree of confidence in, or belief of the knowledge upon which a proposition is based; and epistemic modality, which is semantically represented by an epistemic operator, may be indicated by modal verbs, a particular grammatical mood on verbs, an affix, a particle, adverbials, or a certain intonational pattern, I suggest that a Chinese construction containing an epistemic adjectival small clause like (79a) has a syntactic structure like (81), in which the epistemic verb, carrying the epistemic operator feature, introduces an epistemic operator.

- (81) Zhangsan [<sub>VP</sub> Op ... [<sub>V</sub> xiao]<sub>[+epistemic operator]</sub> [<sub>EA-SC/DegP</sub> [[<sub>Deg</sub> Deg [<sub>AP</sub> ni [[<sub>A</sub> sha]]]]]].  
 Zhangsan deride you silly  
 ‘Zhangsan derided you as being silly.’

And it is this epistemic operator that licenses the occurrence of an epistemic adjectival small clause that projects as a degree phrase headed by the covert positive degree morpheme (see (76) and Lin, 1998).

### 3.2.6. The construction ending with the sentence final particle *le*

Although a simple gradable adjective, as Zhu (1980, 1982), Sybesma (1999:27) and Liu (2004:662) point out, can independently occur as predicate in sentences ending with the sentence final particle *le*, it is not the case that all simple gradable adjectives can do so, as the contrast between (82a–c) and (83a–c) shows.

- (82) a. Tian hei/liang le.  
 Sky black/bright SFP  
 ‘It got dark/It dawned.’  
 b. Hua hong/huang le.  
 Flower red/yellow SFP  
 ‘The flower got red/yellow.’  
 c. Shui re/leng le.  
 Water hot/cold SFP  
 ‘The water got hot/cold.’
- (83) a. \*Zhangsan congming/ben le.  
 Zhangsan smart/stupid SFP  
 ‘\*Zhangsan got smart/stupid.’  
 b. \*Ni-de nüer piaoliang/cou le.  
 You-DE daughter beautiful/ugly SFP  
 ‘\*Your daughter got beautiful/ugly.’  
 c. \*Zhangsan zhengzhi/chengshi le.  
 Zhangsan upright/honest SFP  
 ‘\*Zhangsan got upright/honest.’

Intuitively, the contrast above implies that only ‘adjectives’ compatible with a change of state (or an inchoative reading) can occur on its own as predicate in a sentence ending with the sentence final particle *le*. In addition to this property, the simple adjectival predicate occurring in this construction still has the following characteristics: First, as examples like (82a–c) indicate, following the change of state is a pure state, and this state can be continued because a perfective inchoative state, as (84) shows, can be conjoined with an imperfective clause, without inducing any contradiction.

- (84) Shui gangang re le, erqie dao xianzai hai hen re.  
 Water just-now hot SFP and arrive now still very hot  
 ‘The water got hot just now, and it is still hot now.’

In other words, the state following the change of state has no culmination entailment.

Second, in this kind of construction the simple adjectival predicate modified by the adverb *jihu* ‘almost’ induces event cancellation only, as (85) illustrates.

- (85) Zhangsan jihu shengqi le.  
 Zhangsan almost angry SFP  
 ‘Zhangsan almost got angry.’  
 Context: Lisi did something annoying and then he immediately apologized to Zhangsan, so Zhangsan didn’t get angry.’



As the interpretation of (85) indicates, the adverb *jihu* ‘almost’ takes scope over the entire event, including the change of state and the state following; therefore, we can say that there was almost an event of being angry. So, example (85) is acceptable in the event cancellation context.

Third, when the simple adjectival predicate occurs under negation, only the event cancellation reading is available, as (86) shows.

- (86) Hua mei hong.  
Flower not red  
‘The flower did not get red.’

Namely, the predicate should be translated as an inchoative, meaning that ‘The flower did not get red’, rather than a state, meaning that ‘The flower is not red.’ This interpretation involves negation taking scope over the entire event which includes the change of state and the state following and not just the second sub-event, which is the plain state itself.

Fourth, accomplishments always yield past culminated events in out-of-the blue contexts, and the event denoted is interpreted as having culminated, as (87) shows.

- (87) Mary wrote a story.  
Speaker’s comments: ‘she wrote it . . . she finished.’

Significantly here, in an out-of-the blue context the simple adjectival predicate in sentences ending with the sentence final particle *le* yields a past inchoative translation as well as a present stative translation in its basic form, as the interpretation of (88) indicates.

- (88) Hua hong le.  
Flower red SFP  
‘The flower got red, and is still red now.’

Namely, the predicate *hong le* ‘red SFP’, though having the past reading, does not represent culmination of the entire event.

Fifth, although in an out-of-the blue context the simple adjectival predicates in sentences ending with the sentence final particle *le* yield both inchoative and stative readings in their simple form, the addition of punctual adverbials induces an inchoative reading only, as shown by examples like (89).

- (89) Shui san-dian-zhong de shihou re le.  
Water three-o’clock DE moment hot SFP  
‘The water got hot at three o’clock.’

These specific properties shown by the simple adjectival predicate in the sentence ending with the sentence final particle *le* immediately remind us of Bar-el’s (2005) cross-linguistic study on aspects, which challenges the claim made by most of the work in this area, which finds that aspectual systems are all structured in the same way. According to Smith’s (1997) theory of aspects, temporal schema for aspectual classes refers to the properties in (90a–d), which distinguish five temporal schemata, as illustrated by (91a–e), respectively.

- |      |    |                    |            |                                   |
|------|----|--------------------|------------|-----------------------------------|
| (90) | a. | _____              | [+Static]  | Undifferentiated period of states |
|      | b. | .....              | [+Dynamic] | Successive stages of events       |
|      | c. | I F <sub>Arb</sub> |            | Initial and arbitrary endpoints   |
|      | d. | I F <sub>Nat</sub> |            | Initial and natural endpoints     |
- 
- |      |    |                |                              |
|------|----|----------------|------------------------------|
| (91) | a. | Activities     | I . . . . F <sub>Arb</sub>   |
|      | b. | Accomplishment | I . . . . F <sub>Nat</sub>   |
|      | c. | Semelfactives  | E                            |
|      | d. | Achievements   | . . . . E <sub>R</sub> . . . |
|      | e. | States         | (I)____(F)                   |

As Smith (1997:22) states, the initial endpoints of events are natural since they represent a change from a state of rest; whereas, the final endpoints are either natural or arbitrary. However, Bar-el (2005:7) argues that the presence/absence of initial and final points in the Salish language Skwxwu7mesh are not like the inventory suggested by Smith (1997) for English. Heavily relying on Rothstein's (2004) proposal on aspectual classes, in which initial and final points are represented as BECOME events in the predicate representations, Bar-el (2005) first assumes that initial points should be distinguished from final points based on whether they are an initial sub-event ( $e_1$ ) or a final sub-event ( $e_2$ ), as shown by (92a-b) respectively, and then argues that predicates can be distinguished from each other based on the presence of intrinsic initial and final points (Dowty, 1979).<sup>19</sup>

- (92) a. Initial points:  $\lambda e.\exists e_1\exists e_2[e = {}^S(e_1 \cup e_2) \wedge (\text{BECOME}(P))(e_1) \wedge (\text{DO}(P))(e_2)]$   
 b. Final points:  $\lambda e.\exists e_1\exists e_2[e = {}^S(e_1 \cup e_2) \wedge (\text{DO}(P))(e_1) \wedge (\text{BECOME}(P))(e_2)]$

More precisely, the representation in (92a) indicates that there is an event that consists of two sub-events: the first one is an initial BECOME event and the second one is a final DO event. In contrast with this, the representation in (92b) states the reverse: there is an event that consists of two sub-events: the first one is an initial DO event and the second one is a final BECOME event.

Assuming these, Bar-el (2005:8), based on the presence and absence of initial and final points of Skwxwu7mesh predicates (see (93a-d)), proposes the following inventory of predicate classes in Skwxwu7mesh, as shown by (94a-d), where a comparison between the initial and final point of Skwxwu7mesh and English predicates is given.

- (93) Skwxwu7mesh predicates: initial and final points  
 a. Activity: +Initial point, –Final point (e.g., *swim, rest, laugh*)  
 b. Accomplishment: –Initial point, –Final point (e.g., *write a book, fix the car*)  
 c. Achievement: +Initial point, +Final point (e.g., *win, arrive, find a rock*)  
 d. Inchoative State: +Initial point, –Final point (e.g., *(get) angry, (get) cloudy*)
- (94) Predicate representations: Skwxwu7mesh versus English  
 a. Activity:  
 Skwxwu7mesh:  $\lambda e.\exists e_1\exists e_2[e = {}^S(e_1 \cup e_2) \wedge (\text{BECOME}(P))(e_1) \wedge (\text{DO}(P))(e_2)]$   
 English:  $\lambda e.(\text{DO}(P))(e)$   
 b. Accomplishment:  
 Skwxwu7mesh:  $\lambda e.[[\text{DO}(P)](e) \wedge [\forall w'[w' \text{ is an inertia world w.r.t. } w \text{ at the beginning of } e \rightarrow [\exists e' [\text{culminates}(e') \text{ in } w' \wedge e \text{ causes } e' \text{ in } w']]]]]$   
 English:  $\lambda e.\exists e_1\exists e_2[e = {}^S(e_1 \cup e_2) \wedge (\text{DO}(P))(e_1) \wedge (\text{BECOME}(P))(e_2)]$   
 c. Achievement:  
 Skwxwu7mesh:  $\lambda e.(\text{BECOME}(P))(e)$   
 English:  $\lambda e.(\text{BECOME}(P))(e)$   
 d. Inchoative State:  
 Skwxwu7mesh:  $\lambda e.\exists e_1\exists e_2[e = {}^S(e_1 \cup e_2) \wedge (\text{BECOME}(P))(e_1) \wedge P(e_2)]$   
 English:  $\lambda e.P(e)$

<sup>19</sup> Based on Dowty (1979), Rothstein (2004) proposes the following verb class templates in a neo-Davidsonian theory of verb representations where verbs are predicates of events. States are bare event predicates, activities are bare event predicates under the scope of a DO operator and achievements are bare event predicates under the scope of a BECOME operator. Accomplishments are more complex in that they are created by summing an activity and a culmination point:

- (i) States  $\lambda e.P(e)$   
 (ii) Activities  $\lambda e.(\text{DO}(P))(e)$   
 (iii) Achievements  $\lambda e.(\text{BECOME}(P))(e)$   
 (vi) Accomplishments  $\lambda e.\exists e_1\exists e_2[e = {}^S(e_1 \cup e_2) \wedge (\text{DO}(P))(e_1) \wedge (\text{BECOME}(P))(e_2)]$

Relevant to Chinese sentences like (82a–c), where the predicate is a bare adjective, are the characteristics of Skwxwu7mesh inchoative states. According to Bar-el (2005), the Skwxwu7mesh inchoative state, which consists of two sub-events (an initial BECOME sub-event and a pure state), has an initial change of state (represented as an initial BECOME sub-event) built into the representation. This assumption, as Bar-el (2005) argues, is mainly based on the following empirical facts: First, Skwxwu7mesh inchoative states can be continued because a perfective inchoative state, as (95) shows, can be conjoined with an imperfective clause, without inducing any contradiction (Bar-el, 2005:94).<sup>20</sup>

- (95) chen t'ayak' ti natih i na7-xw chen wa t'a-t'ayak'  
 1s.SG angry DET morning CONJ RL-still 1B.SG IMPERF REDUP-angry  
 'I got mad this morning, and I'm still mad.'

In other words, inchoative states have neither culmination entailment, which further suggests that inchoative states have no final points.

Second, Skwxwu7mesh inchoative states modified by the adverb *kilh* 'almost' induce event cancellation only, as (96a), taken from Bar-el (2005:112), illustrates.

- (96) a. *kilh* chen t'ayak'.  
 Almost 1S.SG angry  
 'I almost got angry.'  
 Context: John did something annoying and then he immediately apologized,  
 so I didn't get angry.  
 b. almost  $\lambda e. \exists e_1 \exists e_2 [e = {}^S(e_1 \cup e_2) \wedge (\text{BECOME}(\text{ANGRY}))(e_1) \wedge \text{ANGRY}(e_2)]$

As (96b) shows, the adverb *kilh* 'almost' takes scope over the entire event; therefore, (96b) correctly predicts that there was almost an event of being angry. So, example (96a) is acceptable in the event cancellation context.

Third, when the Skwxwu7mesh inchoative state occurs under negation, only the event cancellation reading is available, as (97) shows (Bar-el, 2005:120).

- (97) haw k-an i t'ayak'.  
 NEG IRR-1CNJ PART angry  
 'I didn't get mad.'

Namely, the predicate should be translated as an inchoative, meaning that 'I didn't get mad', rather than a state, meaning that 'I am not mad.' This interpretation involves negation taking scope over the entire event and not just the second sub-event, which is the plain state itself.

Fourth, in Skwxwu7mesh Accomplishments, as Bar-el (2005:126) argues, always yield past culminated events in out-of-the blue contexts, and the event denoted is interpreted as having culminated, as (98) shows.

- (98) na xel'-t-as ta sxwexwiy'am' lha Mary.  
 RL write-TR-3ERG DET story DET Mary  
 'Mary wrote a story.'  
 Speaker's comments: 'she wrote it ... she finished.'

Significantly here, in an out-of-the blue context Skwxwu7mesh inchoative states yield past inchoative translations as well as present stative translations in their basic form, as the interpretation of (99), taken from Bar-el (2005:126), indicates.

<sup>20</sup> Abbreviations used in examples taken from Bar-el (2005) include: DET: determiners, CNJ: conjunction, ERG: ergative, IMPERF: imperfective, IRR: irrealis, NEG: negation, OBL: oblique, PART: particles, REDUP: reduplicant, RL: realis, SG: singular, and TR: transitivizer.

- (99) chen t'ayak'.  
 1S.SG angry  
 'I got angry/upset, and am still angry/upset now.'

In other words, Skwxwu7mesh inchoative states, though having past readings, do not represent culminations of the entire event.

Fifth, although, in out-of-the blue contexts, Skwxwu7mesh inchoative states, as Bar-el (2005:171) points out, yield both inchoative and stative readings in their simple form, the addition of punctual adverbials induces an inchoative reading only, as shown by (100).

- (100) chen t'ayak' na7 t-kwi an'us-k /ti natlh.  
 1S.SG angry LOC OBL-DET two-o'clock /DET morning  
 'I got mad at two o'clock/this morning.'

These characteristics provided by Bar-el (2005) to support the assumption that the Skwxwu7mesh 'adjectives' in (95)–(100) denote an inchoative state with a predicate representation like (94d) repeated as (101) have as their Chinese counterparts the properties shown by (84)–(89):

- (101) Skwxwu7mesh Inchoative State:  
 $\lambda e.\exists e_1\exists e_2[e = {}^S(e_1 \cup e_2) \wedge (\text{BECOME}(P))(e_1) \wedge P(e_2)]$

So, I have strong reason to believe that Chinese 'adjectives' that can independently occur as predicates in sentences ending with the sentence final particle *le* in fact denote inchoative states with a predicate representation like (101) rather than pure states.

Furthermore, the contrast between (82a–c) and (83a–c) leads us to suggest that 'adjectives' in Chinese at least have to be divided into two sub-types, depending on the situation type they denote. One, having individual-level adjectives like *congming* 'smart' as a member, denotes a pure state with a representation like  $\lambda e.P(e)$ , and the other, consisting of stage-level adjectives like *hei* 'dark/get dark', might denote either a pure state with a representation like  $\lambda e.P(e)$  or an inchoative state with a representation like (101). Since an inchoative state focuses on the initial BECOME sub-event rather than the pure state, it is not unreasonable for us to say that a Chinese 'adjective' that denotes an inchoative state in fact can be considered a (dynamic) verb (or has been coerced to become a verb by the sentence final particle *le*); therefore, it is not necessary for this 'adjective' to be modified by a degree term. Or to put it another way, what is focused in (82a–c) is the change of state (i.e., the initial BECOME sub-event) rather than the change of degree; therefore, no degree term is needed.<sup>21</sup> Thus, sentences like (82a–c), in which no degree term is found, are grammatical. Given this, I would exclude examples like (82a–c) from being evidence in support of the assumption that Chinese has a covert positive morpheme.

Thus far, I can summarize the discussion on the distribution of the Chinese covert positive morpheme with the descriptive generalization that all the constructions that allow a non-explicit-comparison-denoting bare adjective to occur as predicate are alike in containing an operator domain in which the occurrence of the covert positive morpheme is licensed, as shown below.

<sup>21</sup> Since a Chinese sentence involving a change of state always ends with the sentence final particle *le*, I would expect an achievement verb like *si* 'die' as well as an inchoative-state-denoting verb like *hong* 'getting red' to occur in this kind of sentence, and the fact bears out this expectation, as (i) and (ii) illustrate.

- (i) Zhangsan si le.  
 Zhangsan die SFP  
 'Zhangsan died.'  
 (ii) Hua hong le.  
 Flower red SFP  
 'The flower got red.'

In other words, in cases like (i) and (ii), there is no degree but a qualitative change (i.e., from 'not dead' to 'dead', or from 'not being red' to 'being red').

- (102) a. Zhangsan [<sub>NegP</sub> Op [[<sub>Neg</sub> *bu*<sub>[+operator]</sub>] [<sub>DegP</sub> *pos* [<sub>AP</sub> *gao*]]]].  
 Zhangsan not tall  
 ‘Zhangsan is not tall.’
- b. [Zhangsan [<sub>FocP</sub> Op [<sub>Foc</sub><sup>0</sup><sub>[+operator]</sub> [<sub>DegP</sub> *pos* [<sub>AP</sub> *gao*]]]], [Lisi [<sub>FocP</sub> Op [<sub>Foc</sub><sup>0</sup><sub>[+operator]</sub> [<sub>DegP</sub> *pos* [<sub>AP</sub> *ai*]]]]].  
 Zhangsan *pos* tall Lisi  
*pos* short  
 ‘Zhangsan is tall, but Lisi is short.’
- c. [Op [<sub>DegP</sub> Zhangsan [[<sub>Deg</sub> *pos*] [<sub>AP</sub> *gao*]]] *ma*<sub>[+operator]</sub>]?  
 Zhangsan *pos* tall SFP  
 ‘Is Zhangsan tall?’
- d. [<sub>CP</sub> Zhangsan *yaoshi* [[<sub>EpistP</sub> Op [<sub>Epist</sub> *musi*<sub>[+operator]</sub>] [<sub>DegP</sub> *pos* *gao*]]] *dehua*], Lisi *jiu bu ai*.  
 Zhangsan if tall PAR Lisi then not short  
 ‘If Zhangsan is tall, then Lisi is not short.’
- e. Zhangsan [<sub>VP</sub> Op ... [<sub>v</sub> *xiao*]<sub>[+epistemic operator]</sub> [<sub>EA-SC/DegP</sub> [[<sub>Deg</sub> *Deg*] [<sub>AP</sub> *ni* [[<sub>A</sub> *sha*]]]]]].  
 Zhangsan deride you silly  
 ‘Zhangsan derided you as being silly.’

Given that this operator is introduced either by a head that selects a degree phrase functioning as predicate (i.e., the negation marker *bu* ‘not’ and the epistemic modal) or a head that licenses the occurrence of a covert degree head (i.e., the covert positive morpheme) projecting as the adjectival predicate, I further confine this operator to a predicate-accessible operator by assuming that a predicate is accessible to a predicate-accessible operator if and only if no other operator intervenes in-between. Thus, I can say that the Chinese covert positive morpheme, behaving like a polarity item, must occur in a predicate-accessible operator domain contained in the smallest clause that contains the adjectival predicate and the operator.

However, assuming that the covert positive morpheme only occurs in a predicate-accessible operator domain, I would expect the question particle *ne*, which introduces (or functions as) an operator and functions to type a question as a *wh*-question in Chinese, to license the occurrence of the covert positive morpheme, contrary to fact, as the interpretation of examples like (103) shows.

- (103) Shei *gao ne*?  
 Who tall SFP  
 ‘Who is taller (than somebody known from the context)?’

Given this, I would further restrict the predicate-accessible operator domain to a predicate-accessible operator<sub>[-wh]</sub> domain. Namely, the Chinese covert positive morpheme only occurs in a predicate-accessible operator<sub>[-wh]</sub> domain contained in the smallest clause that contains the adjectival predicate and the operator.

The descriptive generalization that the Chinese covert positive morpheme behaves like a polarity item and has to occur in a predicate-accessible operator<sub>[-wh]</sub> domain contained in the smallest clause that contains the adjectival predicate and the operator immediately brings us the following question that needs further consideration: can the overt positive morpheme *hen* occur in this domain (Kennedy, 2005)? If it can, why does it still allow the covert counterpart? If not, why? To answer this question, in the next section I shall propose the condition on saturating Chinese gradable adjectives to regulate their semantic interpretation.

#### 4. The proposal

Before going into the details of the condition on saturating Chinese gradable adjectives, I shall introduce as preliminary Lu and Ma’s (1999) study on the classification of Chinese degree adverbs and the restrictions on their distribution.

#### 4.1. Preliminary

According to Ma (1992), Lu and Ma (1999) and Zhang (2002), Chinese degree adverbs can be classified as three types, depending on their distribution in the following kinds of constructions: the *bi* ‘compare’ comparative, the *bi-qilai* ‘compare-qilai/compared with’ construction, and the non-comparative construction; each type further consists of a strong and a weak group. To state it more clearly, the *geng* type (i.e., the *more* type) includes those that can only occur in the *bi* ‘compare’ comparative and the *bi-qilai* ‘compare-qilai/compared with’ construction, the *hen* type (i.e., the *very* type) consists of those that can only occur in the *bi-qilai* ‘compare-qilai/compared with’ construction and non-comparative constructions, and the *zui* type (i.e., the *most* type) contains those only occurring in the superlative, as illustrated by examples in (104)–(107), respectively.

- (104) a. Zhangsan *bi* Lisi *gengjia/gengwei/yuefa/yuejia/hai* *nuli*. (strong group)  
Zhangsan compare Lisi more/more/more/more/even diligent  
‘Zhangsan is even more diligent than Lisi is.’
- b. Zhangsan *bi* Lisi *shaowei/shao/shaoshao/duoshao/*  
Zhangsan compare Lisi slightly/rather/a little bit/somewhat/  
*lüewei/lüelüe yonggong yi-dian*. (weak group)  
slightly/slightly hard-working a little bit  
‘Zhangsan works slightly/rather/a little bit harder than Lisi does.’
- (105) a. Gen Zhangsan *bi-qilai*, Lisi *gengjia/gengwei/yuefa/yuejia/hai* *nuli*. (strong group)  
With Zhangsan compare-qilai Lisi more/more/more/more/even diligent  
‘Compared with Zhangsan, Lisi is even more diligent.’
- b. Gen Zhangsan *bi-qilai*, Lisi *shaowei/shao/shaoshao/duoshao/*  
With Zhangsan compare-qilai Lisi slightly/rather/a little bit/somewhat  
*lüewei/lüelüe yonggong yi-dian*. (weak group)  
slightly/slightly hard-working a-little-bit  
‘Compared with Zhangsan, Lisi works slightly/rather/a little bit harder.’
- (106) a. (Gen Zhangsan *bi-qilai*), Lisi *hen/ting/shifen/?wanfen/*  
With Zhangsan compare-qilai Lisi very/rather/very/extremely/  
*feichang/yichang/ji/jiduan shengqi*. (strong group)  
abnormally/too/extremely/extremely angry  
‘(Compared with Zhangsan), Lisi is very/rather/extremely/abnormally/extremely/extremely angry.’
- b. (Gen Zhangsan *bi-qilai*), Lisi *youdian/youxie shengqi*. (weak group)  
With Zhangsan compare-qilai Lisi a little bit/slightly angry  
‘(Compared with Zhangsan), Lisi is a little bit angry.’
- (107) a. Zhangsan *zui/zuiwei/ding* *congming*. (strong group)  
Zhangsan most/most/extremely smart  
‘Zhangsan is smartest.’
- b. Zhangsan *bijiao/jiao/jiaowei/hai* *congming*. (weak group)  
Zhangsan relatively/rather/rather/even smart  
‘Zhangsan is relatively/rather/even smarter.’

Based on this way of classifying Chinese degree adverbs and the restrictions on their distribution proposed by Lu and Ma (1999) and others, in the following I shall propose a condition on saturating Chinese gradable adjectives through which the semantic interpretation of Chinese unmarked predicative adjectives is well regulated.

#### 4.2. The condition on saturating Chinese gradable adjectives

Now, let us return to the observation about the use of the unmarked form of Chinese gradable adjectives made by Xiandai Hanyu Xuci Lishi (1982:243–244) and Sybesma (1999:26–27); that is, Chinese adjectives differ from their



European counterparts in that the latter use the unmarked form to express the positive degree while the former use the unmarked form to express the explicit comparison. Put another way, in European languages the comparative is morphologically marked whereas in Chinese the positive degree is morphologically marked by the most neutral ‘positive degree marker’ *hen*, as the contrast between (108a-b) and (109a-b) shows (see footnote (9)).<sup>22</sup>

- (108) a. John is taller.  
b. John is tall.
- (109) a. (Zhangsan han Lisi, shei gao?) Zhangsan gao.  
(Zhangsan and Lisi who tall) Zhangsan tall  
‘(As for Zhangsan and Lisi, who is taller?) Zhangsan is taller.’  
b. Zhangsan \*(hen) gao.  
Zhangsan HEN tall  
‘Zhangsan is tall.’

In other words, if no other factors prevent the Chinese unmarked adjectival predicate in a construction, for instance the simple adjectival predicate *gao* ‘tall’ in (109a), from expressing the explicit comparative meaning, the ‘corresponding’ positive degree meaning of this adjectival predicate, as (109b) shows, must be expressed by the marked form (i.e., *hen gao* ‘HEN tall’).

However, as I have pointed out, the Chinese covert positive morpheme, behaving like a polarity item, has to occur in a predicate-accessible operator<sub>[-wh]</sub> domain and an ‘unmarked’ form of Chinese gradable adjectives occurring in a predicate-accessible operator<sub>[-wh]</sub> domain (e.g., *gao* ‘tall’ in (102a)) can only convey the positive degree meaning. This bifurcated use of the ‘unmarked’ form of Chinese gradable adjectives (e.g., the ‘unmarked’ form *gao* ‘tall’ in (102a) and the unmarked form *gao* ‘tall’ in (109a)) leads us to the following proposal on how to license the occurrence of the Chinese covert positive morpheme and to regulate the semantic interpretation of an ‘unmarked’ adjectival predicate in Chinese.

- (110) The Condition on Saturating Chinese Gradable Adjectives
- In Chinese, an adjective is unmarked if it is not modified by a marked degree term, for example *feichang* ‘extremely’ or *geng* ‘more’, and an unmarked adjective can only express the explicit comparison meaning.
  - The degree argument of an unmarked adjective must be  $\theta$ -bound by an explicit-comparison-compatible degree term known from the context or the *bi* ‘compare’ phrase in a *bi* ‘compare’ comparative if the unmarked adjectival predicate occurs in a *bi* ‘than’ comparative (Higginbotham, 1985).<sup>23</sup>
  - The  $\theta$ -binding relation between the degree argument of the unmarked adjective and the explicit-comparison-compatible  $\theta$ -binder is blocked (i) if a marked degree term occurs in the smallest clause containing the unmarked adjective but the  $\theta$ -binder is provided by the context, or (ii) if both the  $\theta$ -binder (i.e., the *bi* ‘compare’ phrase) and the marked degree term occur in the smallest clause containing both of them and the former c-commands the latter; the  $\theta$ -binder (i.e., the *bi* ‘compare’ phrase) and the marked degree term must be semantically compatible (see (104a-b)–(107a-b)).
  - The semantic meaning of the marked degree term determines whether the adjectival predicate marked conveys a comparative or a positive degree meaning (see (104a-b)–(107a-b)).
  - If  $\theta$ -binding fails, the degree term occurring in the smallest clause that contains the unmarked adjective must be marked; otherwise, the sentence will be ungrammatical.

<sup>22</sup> An unmarked adjectival predicate in Chinese, as shown by (109a), is gibberish if uttered in isolation. The reason why *hen* can have this function, as Xiandai Hanyu XuCi Lishi (1982:243–244) suggests, is because when adjectives are used predicatively, they mostly have a contrastive meaning. (...) Predicative adjectives to which *hen* has been added lack this comparative sense. In this use, *hen*’s grammatical function is much stronger than when it serves as an intensifier.

<sup>23</sup> Another possibility is to assume the existence of a covert comparative morpheme. In order to make the presentation simple and easy, here we leave it open for further research whether Chinese has a covert comparative morpheme.

- f. A degree term is marked (i) if it has the overt phonetic form, or (ii) if it is the covert positive morpheme in which case it has to occur in a predicate-accessible operator<sub>[-wh]</sub> domain contained in the smallest clause that contains the adjectival predicate and the operator with a structure like [Op<sub>[-wh]</sub> ... X<sup>0</sup><sub>[-wh-operator]</sub> [DegP ... Deg<sup>0</sup><sub>[AP ...]]], where the head X<sup>0</sup>, carrying the predicate-accessible operator<sub>[-wh]</sub> feature, not only introduces a predicate-accessible operator<sub>[-wh]</sub> but also licenses the occurrence of a degree phrase headed by the covert positive morpheme (i.e., the degree head Deg<sup>0</sup>). Within such a domain, the predicate-accessible operator<sub>[-wh]</sub> feature or the predicate-accessible operator<sub>[-wh]</sub> coerces the covert positive morpheme to be marked, and the marked covert positive morpheme then coerces the adjective (phrase) to be marked. An adjectival predicate marked this way can only convey the positive degree meaning.</sub>
- g. A predicate is accessible to an operator if and only if no other operator intervenes in-between.
- h. A marked degree term cannot be marked again.

Let us use (109a) to exemplify this condition first. In (109a), the smallest clause is the whole sentence (i.e., *Zhangsan gao* ‘Zhangsan tall’) and does not contain any marked degree term or  $\theta$ -binder, and the context provides an explicit-comparison-compatible  $\theta$ -binder to bind the degree argument of the unmarked adjectival predicate *gao* ‘tall’; therefore, (109a) conveys a comparative meaning; whereas, in examples like (109b), the overt degree term *hen* (i.e., the neutral positive degree marker) blocks the  $\theta$ -binding relation between the contextually provided  $\theta$ -binder and the degree argument of the unmarked adjective *gao* ‘tall’ and determines the interpretation of (109b) as the positive degree meaning.

Similar to (109a), in a Chinese construction containing the phrase *gen X bi-qilai* ‘with X-compare-qilai’ like (111a), neither occurrence of any overt degree term nor predicate-accessible operator<sub>[-wh]</sub> is found in the smallest clause (i.e., *zhe-jian ganjing* ‘this-CL clean’) containing the bare adjectival predicate *ganjing* ‘clean’; the degree argument of the unmarked adjectival predicate *ganjing* ‘clean’ can only be  $\theta$ -bound by the contextually known  $\theta$ -binder, which further determines the meaning of (111a) as a comparative one.<sup>24</sup>

- (111) a. Gen na-jian bi-qilai, zhe-jian ganjing.  
With that-CL compare-qilai this-CL clean  
‘Compared with that room, this room is cleaner.’
- b. Gen na-jian bi-qilai, zhe-jian<sub>1</sub> hen<sub>i</sub> ganjing<sub><1, Gi></sub>.  
With that-CL compare-qilai this-CL very clean  
‘Compared with that room, this room is very clean.’

<sup>24</sup> Assuming Kennedy’s (2007b) analysis of expressions like *compared to* and *with respect to*, I suggest that the function of expressions like *gen X bi-qilai* ‘with X compare-qilai/compared to X’ that can occur in a positive-degree-denoting or an explicit-comparison-denoting sentence is to modify the contextual parameters with respect to which the standard of comparison used to fix the extension of the positive or comparative form is evaluated, or is to manipulate the context relative to which the positive or comparative form is evaluated.

- (i) Gen na-jian bi-qilai, zhe-jian hen ganjing.  
With that-CL compare-qilai this-CL HEN clean  
‘Compared to that room, this room is clean.’
- (ii) Gen na-jian bi-qilai, zhe-jian ganjing.  
With that-CL compare-qilai this-CL clean  
‘Compared to that room, this room is cleaner.’

This assumption implies that *gen X bi-qilai* ‘with X compare-qilai/compared to X’ differs from degree adverbs in that it does not modify the gradable predicate directly, and the contrast below bears out this implication.

- (iii) \*Zhe-jian gen na-jian bi-qilai ganjing.  
This-CL with that-CL compare-qilai clean
- (iv) Zhe-jian feichang/bi na-jian ganjing.  
This-CL extremely/compare that-CL clean  
‘This room is extremely clean/This room is cleaner than that room.’

In other words, the phrase *gen X bi-qilai* ‘with X compare-qilai/compared to X’ is not a ‘true’ degree term because it cannot directly modify a gradable predicate as a degree term like *feichang* ‘extremely’ or *bi* ‘compare’ phrase does.

However, in (111b) the overt positive morpheme *hen* occurs in the smallest clause containing the bare adjectival predicate; the adjectival predicate hence gets marked and can express the positive degree meaning only.

In a *bi* ‘compare’ comparative like (112a), the *bi* ‘compare’ phrase *bi Lisi* ‘compare Lisi’  $\theta$ -binds the degree argument of the unmarked adjective *gao* ‘tall’, and makes the sentence express the comparative meaning.

- (112) a. Zhangsan<sub>1</sub> [bi Lisi]<sub>i</sub> gao<sub><1, Gi></sub>.  
Zhangsan compare Lisi tall  
‘Zhangsan is taller than Lisi.’  
b. \*Zhangsan bi Lisi feichang gao.  
Zhangsan compare Lisi extremely tall

However, the incompatibility between the *bi* ‘compare’ phrase *bi Lisi* ‘compare Lisi’ and the degree adverb *feichang* ‘extremely’ in semantics results in the ungrammaticality of (112b) (Lu and Ma, 1999).

On the other hand, examples like (113a–d) all involve a predicate-accessible operator<sub>[-wh]</sub> domain in which the predicate-accessible operator<sub>[-wh]</sub> or the predicate-accessible operator<sub>[-wh]</sub> feature coerces the covert degree head (i.e., the covert positive morpheme) to be marked. The marked covert positive morpheme then coerces the adjective (phrase) to be marked, and determines the adjectival predicate in (113a–d) to express the positive degree meaning.

- (113) a. Gen Zhangsan bi-qilai, [Op<sub>[-wh]</sub> [DegP Lisi [[Deg pos] [AP gao]]] ma<sub>[+operator]</sub>]<sup>?</sup>  
With Zhangsan compare-qilai Lisi tall SFP  
‘Compared with Zhangsan, is Lisi tall?’  
b. Gen Zhangsan bi-qilai, Lisi [NegP Op<sub>[-wh]</sub> [[Neg bu<sub>[+operator]</sub>] [DegP pos [AP gao]]]].  
With Zhangsan compare-qilai Lisi not tall  
‘Compared with Zhangsan, Lisi is not tall.’  
c. Gen Zhangsan bi-qilai, Lisi yaoshi [EpistP Op<sub>[-wh]</sub> [[Epist must<sub>[+operator]</sub>] [DegP pos gao]]] dehua,  
With Zhangsan compare-qilai Lisi if PAR  
Wangwu jiu bu ai.  
Wangwu then not short  
‘Compared with Zhangsan, if Lisi is tall, then Wangwu is not short.’  
d. Gen Zhangsan bi-qilai, [Lisi [FocP Op [Foc<sup>0</sup> <sub>[+operator]</sub>] [DegP pos [AP gao]]]],  
With Zhangsan compare-qilai Lisi pos tall  
[Wangwu [FocP Op [Foc<sup>0</sup> <sub>[+operator]</sub>] [DegP pos [AP ai]]]].  
Wangwu pos short  
‘Compared with Zhangsan, Lisi is tall and Wangwu is short.’

Whereas, although the epistemic-modality-denoting adverb *keneng* ‘probably’, *kending* ‘certainly’, or *xiangbi* ‘most probably’ in (114a) introduces a predicate-accessible operator<sub>[-wh]</sub>, the  $\theta$ -binding relation between the epistemic operator and the degree argument of the unmarked adjective *gao* ‘tall’ is blocked by the focus interpretation operator  $\sim$  introduced by the focus marker *shi* ‘is’. This focus interpretation operator, as (114b) shows, focuses on individuals (i.e., *Zhangsan*) and introduces a set of alternatives that contrasts with the ordinary semantic meaning of the sentence (i.e., (114c)).<sup>25</sup>

- (114) a. Keneng/Kending/Xiangbi (shi) Zhangsan<sub>F</sub> gao.  
Probably/Certainly/Most probably is Zhangsan tall  
Probably/Certainly/Most probably, it is Zhangsan that is taller.’  
b. [[[NP Zhang]<sub>F</sub> [AP gao]]]<sub>F</sub> (e.g., *Lisi gao* ‘Lisi is taller’ or *Wangwu gao* ‘Wangwu is taller’).  
c. [[[NP Zhang]<sub>F</sub> [AP gao]]]<sub>F</sub><sup>0</sup> = Zhangsan is taller.

<sup>25</sup> In Chinese, if an epistemic-modality-expressing element occurs in the initial position of a sentence, the subject of that sentence is always focalized, and it is not necessary for the focus marker *shi* ‘is’ to occur overtly in such kind of examples.

So, in (114a) the function of the focus marker *shi* ‘is’ not only prevents the predicate-accessible operator<sub>[-wh]</sub> from coercing the unmarked adjectival predicate to be marked but also functions as an ‘escape hatch’ through which the discourse-presupposed  $\theta$ -binder (provided by a presupposed topic like *Zhangsan han Lisi, shei gao* ‘As for Zhangsan and Lisi, who is taller?’) binds the degree argument of the unmarked adjectival predicate *gao* ‘tall’ (see (110g)). So, (114a) can only express the comparative meaning.

Assuming the condition on saturating Chinese gradable adjectives, I would expect the degree term *hen* occurring in an operator<sub>[-wh]</sub> domain not to be considered the overt counterpart of the positive morpheme because it is not unreasonable for us to say that a degree term cannot be marked more than once. In the following, I shall argue that the degree term *hen* that occurs in the predicate-accessible operator<sub>[-wh]</sub> domain contained in the smallest clause that contains the adjectival predicate and the operator in fact is an intensifier marker. This further implies that the Chinese positive morpheme has two allomorphs: a covert one and an overt one that are in complementary distribution.

#### 4.3. Complementary distribution: the covert and the overt positive morpheme in Chinese

As I have argued, the Chinese covert positive morpheme, behaving like a polarity item, can only occur in a predicate-accessible operator<sub>[-wh]</sub> domain contained in the smallest clause that contains the adjectival predicate and the operator with a structure like [Op<sub>[-wh]</sub> . . . X<sup>0</sup><sub>[-wh-operator]</sub> [DegP . . . Deg<sup>0</sup> [AP . . . ]]], where the head X<sup>0</sup>, carrying the predicate-accessible operator<sub>[-wh]</sub> feature, introduces a predicate-accessible operator<sub>[-wh]</sub> and functions to introduce a degree phrase headed by the covert positive morpheme (i.e., Deg<sup>0</sup>). Within this domain, the predicate-accessible operator<sub>[-wh]</sub> feature or the predicate-accessible operator<sub>[-wh]</sub> coerces the covert positive morpheme (i.e., Deg<sup>0</sup>) to be marked, and the marked covert positive morpheme then coerces the adjective (phrase) to be marked. An adjective marked this way can only express the positive degree meaning. I further suggest that a degree term cannot be marked more than once. Thus, I would expect the degree term *hen* occurring in the predicate-accessible operator<sub>[-wh]</sub> domain not to be analyzed as the overt counterpart of the covert positive morpheme.<sup>26</sup> In the following, I shall provide sufficient evidence to show that the degree term *hen* can only function as an intensifier marker when it occurs in the predicate-accessible operator<sub>[-wh]</sub> domain. First, in a *bu* ‘not’ negation sentence like (115a), if the degree word *hen* functions as the overt positive morpheme, I would expect (115a) to be the same as (115b) in denoting a contradictory meaning: *although cherries are expensive, these are not expensive*, contrary to fact.

- (115) a. ?Yingtao gui sui gui, haihao bu hen gui.  
 Cherry expensive though expensive still-good not very expensive  
 ‘Although cherries are expensive, these are not very expensive.’  
 b. \*Yingtao gui sui gui, haihao bu gui.  
 Cherry expensive though expensive still-good not expensive  
 ‘\*Although cherries are expensive, these are not expensive.’

<sup>26</sup> Although it might cause meaning change, the deletion of the degree word *hen* in constructions containing a predicate-accessible operator<sub>[-wh]</sub> domain does not cause them to become ungrammatical, as example (i)–(vi) illustrate.

- (i) Haihao! Zhe dongxi bu (hen) gui.  
 Good-enough This thing not very expensive  
 ‘Good enough! This thing is not (too) expensive.’  
 (ii) Hua (hen) hong ma?  
 Flower very red SFP  
 ‘Is the flower (very) red?’  
 (iii) Zhangsan (hen) gao, Lisi (hen) ai.  
 Zhangsan very tall Lisi very short  
 ‘Zhangsan is (very) tall, but Lisi is (very) short.’  
 (iv) Zhangsan xiao ni (hen) sha.  
 Zhangsan deride you very stupid  
 ‘Zhangsan derided you as being (very) stupid.’  
 (v) Zhangsan yaoshi (hen) linse dehua, jiu bu hui qing ni chi fan.  
 Zhangsan if very stingy SFP then not will invite you eat rice  
 ‘If Zhangsan is (very) stingy, then he will not treat you to dinner.’

This implies that negation of the adjectival predicate *hen gui* ‘very expensive’ by the negation marker *bu* ‘not’ in (115a) does not exclude (115a) from entailing that *cherries are expensive*; therefore, the degree word *hen* ‘very’ in (115a) can only be analyzed as an intensifier marker. This intensifier marker requires the difference between the degree of the relevant property denoted by the adjectival predicate modified by it (i.e., the intensifier marker *hen*) and the contextually determined standard degree of the same property to be much greater than that between the degree of the relevant property denoted by the positive form of that predicate and the contextually determined standard degree of the same property. In other words, the contrast between (115a) and (115b) provides strong evidence in support of the assumption that the degree word *hen* in a *bu* ‘not’ negation sentence containing an adjectival predicate can only function as an intensifier marker.

Second, according to Li and Thompson (1981:549–551), in Chinese a speaker might use a *ma* particle question like the one in (116Q) (i.e., *Yingtao hen gui ma* ‘Cherry very expensive SFP’) to reconfirm his/her specific request.

- (116) Q: Yingtao hen gui ma?  
Cherry very expensive SFP  
‘Are cherries very expensive?’
- A: Shei shuo de. Yingtao gui sui gui, haihao bu hen expensive  
Who say DE Cherry expensive though expensive still-good not very gui.  
‘Who dares to say *yes*. Cherries are expensive but these are not very expensive.’
- (117) Q: Yingtao gui ma?  
Cherry expensive SFP  
‘Are cherries expensive?’
- A: \*Shei shuo de. Yingtao gui sui gui, haihao bu expensive  
Who say DE Cherry expensive though expensive still-good not gui.  
\*‘Who dares to say *yes*. Cherries are expensive, but these are not expensive.’

Namely, the speaker wants to make sure that the proposition denoted by *Yingtao hen gui* ‘Cherry very expensive’ is true. However, as *shei shuo de* ‘who say DE’ in (116A) indicates, the addressee gives the speaker a negative response by saying that *Yingtao bu hen gui* ‘Cherry not very expensive’. This implies that if the degree word *hen* in (116A) is analyzed as the overt positive morpheme, (116A) would denote a contradictory meaning as (117A) does (i.e., Cherries are expensive but not expensive). However, this is contrary to fact. Hence, the contrast between (116) and (117) clearly indicates that the degree word *hen* in a *ma* particle question like (116A) has to be analyzed as an intensifier marker.

Third, assuming that the overt and the covert positive allomorphs are in complementary distribution in Chinese and each conjunct clause of a contrastive focus construction like (118a) contains a covert positive morpheme, I would expect the degree adverb *hen* in (118b) to function as an intensifier marker rather than as the overt positive morpheme.

- (118) a. Zhangsan *pos* gao, Lisi *pos* ai.  
Zhangsan *pos* tall Lisi *pos* short  
‘Zhangsan is tall, and Lisi is short.’
- b. Zhangsan hen gao, Lisi hen ai.  
Zhangsan very tall Lisi very short.  
‘Zhangsan is very tall, and Lisi is very short.’

This expectation in fact is not implausible. As the contrast between (119a) and (119b) shows, if the degree word *hen* in (119a) is analyzed as the overt positive morpheme, I would expect (119a) to be the same as (119b) in not entailing that *Zhangsan is tall though he is not very tall, and Lisi is short though he is not very short*.

- (119) a. Zhangsan han Lisi, hai mei dao yi-ge hen gao yi-ge hen ai  
Zhangsan and Lisi still not arrive one-CL very tall one-CL very short  
de dibu, cong-qi-liang zhi neng shuo yi-ge gao yi-ge ai.  
DE stage at-best only can say one-CL tall one-CL short  
‘As for the height of Zhangsan and that of Lisi, we cannot say Zhangsan is very tall and Lisi is very short; at best, we can only say Zhangsan is tall and Lisi is short.’

- b. Zhangsan han Lisi, hai mei dao yi-ge gao yi-ge ai de  
 Zhangsan and Lisi still not arrive one-CL tall one-CL short DE  
 dibu, cong-qi-liang zhi neng shuo yi-ge bu gao yi-ge bu ai.  
 stage at-best only can say one-CL not tall one-CL not short  
 ‘As for the height of Zhangsan and that of Lisi, we cannot say that Zhangsan is tall and Lisi is short; at best, we can only say that Zhangsan is not tall and Lisi is not short.’

However, this expectation is not borne out. Given this, I suggest that the degree word *hen* in a contrastive focus construction like (119a) can only be analyzed as an intensifier marker; otherwise, (119a) cannot get an interpretation that it has.

Fourth, like the contrast between (120a) and (120b), if the degree word *hen* in an epistemic adjectival small clause construction like (120a) is analyzed as the overt positive morpheme instead of an intensifier marker, I would expect (120a) to denote a contradictory reading as (120b) does; however, this expectation is not borne out.

- (120) a. Wo bu shi xiao ni ben, ershi xiao ni hen ben.  
 I not is deride you stupid but deride you very stupid  
 ‘I derided you not as being stupid, but as being very stupid.’  
 b. \*Wo bu shi xiao ni ben, ershi xiao ni ben.  
 I not is deride you stupid but deride you stupid  
 ‘\*I derided you not as being stupid, but as being stupid.’

So, the degree word *hen* in an epistemic adjectival small clause construction can only be analyzed as an intensifier marker.

Following the same reasoning, the degree word *hen* in a conditional like (121a) should be analyzed as an intensifier marker rather than as the overt positive morpheme; otherwise, a contradictory reading is inevitable.

- (121) a. Zhangsan yaoshi bu shi linse ershi hen linse dehua, jiu bu hui qing ni chi fan.  
 Zhangsan if not is stingy but very stingy PAR then not will invite you eat rice  
 ‘If Zhangsan is stingy rather than very stingy, he will not treat you to dinner.’  
 b. \*Zhangsan yaoshi bu shi linse ershi linse dehua, jiu bu hui qing ni chi fan.  
 Zhangsan if not is stingy but stingy PAR then not will invite you eat rice  
 ‘\*If Zhangsan is stingy rather than stingy, he will not treat you to dinner.’

The preceding discussion makes it clear that in Chinese the positive morpheme has two allomorphs: one is the covert positive allomorph (i.e., the *pos* morpheme), and the other is its overt counterpart *hen*. The former only occurs in a predicate-accessible operator<sub>[-wh]</sub> domain contained in the smallest clause that contains the adjectival predicate and the operator while the latter in other contexts. And the occurrence of the covert positive allomorph is subject to the condition on saturating Chinese gradable adjectives in (110) above.<sup>27</sup>

Before reaching the conclusion, in the following I shall use my proposal on the Chinese positive morpheme as basis to explore the structure of Chinese adjective phrases, and then point out how the structure of adjective phrases in Chinese differs from their English counterparts.

<sup>27</sup> One anonymous reviewer reminds me of the possibility of treating the overt positive morpheme *hen* as an operator like those that can license the occurrence of the bare adjective predicate (e.g., the negation and the conditional operator). This alternative, as the reviewer says, has the following advantages: First, semantically, *hen* is quantificational (since all other bare adjective licensing adverbs describe degrees of a property, the same way may be said of them all); second, the account of bare adjectives will be unified. Prima facie, this alternative appears to make the account unified; however, it does not because treating *hen* as an operator will force us to assume that there are two different types of operators here. One includes operators that can license the occurrence of the covert positive morpheme, and the covert positive morpheme later saturates the degree argument of gradable adjectives; the other has as member the operator *hen*, which, being a degree adverb, saturates the degree argument of gradable adjectives directly. In other words, the alternative that the reviewer suggests in fact does not succeed in ‘unifying’ the account.



## 5. A typological perspective on adjectival structures

In the preceding section, I have argued that the Chinese positive morpheme has two allomorphs: the covert positive allomorph and its overt counterpart *hen*. The former only occurs in constructions that involve a predicate-accessible operator<sub>[-wh]</sub> domain, including the *bu* ‘not’ negation sentence, the contrastive focus construction, the *ma* particle question, the conditional, and the epistemic adjectival small clause. In this section, I shall first point out that even in these constructions the covert positive morpheme must be realized overtly if the predicative adjective is substituted for by the pro-form *nage* ‘that-CL’, which is often used to substitute for an adjective with adversatively negative meaning, as examples in (123) illustrate:

- (122) Q: Zhe jiahuo linse ma?  
This guy stingy SFP  
‘Is this guy stingy?’  
A: Zhe jiahuo linse a!  
This guy stingy SFP  
‘This guy is stingy!’
- (123) Q: Zhe jiahuo \*(hen) nage ma?  
This guy HEN that-CL SFP  
‘Is this guy stingy?’  
A: Zhe jiahuo \*(hen) nage a!  
This guy HEN that-CL SFP  
‘This guy is stingy!’

This characteristic, as I shall argue, not only provides us a good starting point to investigate the syntactic operation involved in the Chinese adjectival structure, but also serves as a target of comparison with corresponding structures in English. By doing so, I argue that Chinese has an adjectival structure simpler than English.

### 5.1. *Nage* pronominalization and *hen* support

According to Williams (1981) and Higginbotham (1985), there exists a selection restriction between the functional head that functions as an operator and the lexical category that contains a relevant argument bound by that operator. For example, T(ense) selects a predicative verb and functions as an operator to  $\theta$ -bind the event argument (i.e., E) of the verb, as (124a–b) illustrate.

- (124) a. sleep, +V –N, <1, E> (1 represents the thematic argument.)  
b. [<sub>TP</sub> John [<sub>T</sub> [<sub>T</sub> +Pst]<sub>i</sub>] [<sub>VP</sub> slept<sub><1, E></sub>]]

That is, the lexical item in (124a) (i.e., *sleep*) has an open ‘referential’ event argument position and so denotes ‘each of the various sleeping events’. This open place can be  $\theta$ -bound (expressed here by coindexation of the operator and the referential event argument position) by the operator T<sup>0</sup> that restricts the denotation of the predicative verb. To put it informally,  $\theta$ -binding of the event role of *sleep* by the past tense operator restricts the denotation of the lexical verb *sleep* to ‘each of the sleeping events that took place in the past’.

Likewise, as Higginbotham (1985) suggests, a similar selection restriction also exists between a functional degree word (henceforth Deg<sup>0</sup>) and a gradable predicative adjective. Namely, Deg<sup>0</sup> selects a predicative adjective and functions as an operator to  $\theta$ -bind the degree argument of the predicative adjective. For instance, the  $\theta$ -grid of *tall* in (125) contains two argument positions: the thematic argument position indicated by 1, which represents a Theme, and the referential degree argument position G.

- (125) tall, +V +N, <1, G>

Since the degree argument G is open in (125), the adjective *tall* denotes each of the degrees of ‘tallness’ (i.e., a set of degrees). Hence, the degree argument G of the adjective *tall* must be  $\theta$ -bound by a degree head (i.e., Deg<sup>0</sup>) to restrict the denotation of the adjective *tall* to a property along a scalar dimension of degrees, as shown by (126a–c).



- (126) a. John will never be [<sub>DegP</sub> that<sub>i</sub> tall<sub><1, Gi></sub>].  
 b. John is [<sub>DegP</sub> as<sub>i</sub> tall<sub><1, Gi></sub> as Bill is].  
 c. John is [<sub>DegP</sub> more<sub>i</sub> intelligent<sub><1, Gi></sub> than Bill is].

Following the  $\theta$ -binding theory proposed by Williams (1981) and Higginbotham (1985), I suggest that in Chinese the covert positive morpheme functions as a  $\theta$ -binder to restrict the degree argument (i.e., the G variable) of the adjective in the *bu* ‘not’ negation sentence, the contrastive focus construction, the *ma* particle question, the conditional, and the epistemic adjectival small clause. I further suggest that syntactically the adjective has to overtly raise to the Deg<sup>0</sup> position which is occupied by the covert positive morpheme because of the affixal feature of the covert positive morpheme, as (127a–e) illustrate.

- (127) a. Zhangsan bu [<sub>DegP</sub> [<sub>Deg</sub> gao<sub>i</sub>-pos] [<sub>AP</sub> [A t<sub>i</sub>]]].  
 Zhangsan not tall-pos  
 ‘Zhangsan is not tall.’  
 b. Zhangsan [<sub>DegP</sub> [<sub>Deg</sub> gao<sub>i</sub>-pos] [<sub>AP</sub> [A t<sub>i</sub>]]], Lisi [<sub>DegP</sub> [<sub>Deg</sub> ai<sub>j</sub>-pos] [<sub>AP</sub> [A t<sub>j</sub>]]].  
 Zhangsan tall-pos Lisi short-pos  
 ‘Zhangsan is tall, but Lisi is short.’  
 c. [[Zhangsan [<sub>DegP</sub> [<sub>Deg</sub> gao<sub>i</sub>-pos] [<sub>AP</sub> [A t<sub>i</sub>]]]] ma]?  
 Zhangsan tall-pos SFP  
 ‘Is Zhangsan tall?’  
 d. Zhangsan xiao [<sub>EA-SC/DegP</sub> ni [<sub>Deg</sub> [<sub>Deg</sub> sha<sub>i</sub>-pos] [<sub>AP</sub> t<sub>i</sub>]]].  
 Zhangsan deride you silly  
 ‘Zhangsan derided you as being silly.’  
 e. Zhangsan yaoshi [<sub>DegP</sub> [<sub>Deg</sub> linse<sub>i</sub>-pos] [<sub>AP</sub> [A t<sub>i</sub>]]], jiu bu hui qing ni chi fan.  
 Zhangsan if stingy then not will invite you eat rice  
 ‘If Zhangsan is stingy, then he will not treat you to dinner.’

However, what needs special attention here is that when the adjective in (127a–e) is substituted for by the pro-form *nage* ‘that’ or *zhege* ‘this’, the degree word *hen* is obligatorily required; otherwise, the sentence will be ungrammatical.<sup>28</sup>

<sup>28</sup> As one reviewer points out, it is possible for us to analyze *nage* ‘that’ as a noun phrase, which, through the degree word *hen*, can be coerced to behaving like an adjective and occurring in the position for an adjective. I agree with the reviewer in that the coercion analysis is a possible alternative. However, compared with the analysis I proposed, the coercion analysis has to explain why there exist a lot of nouns that cannot be coerced, and it is not necessary for these nouns to belong to some specific category, as shown by examples below (Chao, 1968).

- (i) Individual nouns:  
 a. \*Zhangsan hen ren/hen lang/hen zhu.  
 Zhangsan HEN person/HEN wolf/HEN pig  
 b. Zhangsan hen shenshi.  
 Zhangsan HEN gentleman  
 ‘Zhangsan is gentle.’  
 (ii) Material nouns:  
 a. \*Zhangsan hen xue/hen shui/hen qiyou.  
 Zhangsan HEN snow/HEN water/HEN gas  
 b. Zhangsan hen youtiao.  
 Zhangsan HEN Chinese-deep-fried-fluffy-dough-stick  
 ‘Zhangsan is foxy.’  
 (iii) Group nouns:  
 \*Zhangsan hen tuanti/hen jieji.  
 Zhangsan HEN group/HEN class  
 (iv) Abstract nouns:  
 \*Zhangsan hen liliang.  
 Zhangsan HEN power

Moreover, the obligatoriness of *hen* in (128a–e) leads us to analyze *hen* as the overt positive morpheme because deletion of an intensifier marker from a sentence, as I have pointed out, does not necessarily make the sentence ungrammatical (see footnote (26)).

- (128) a. Zhangsan bu [<sub>DegP</sub> [<sub>Deg</sub> \*(hen)] [<sub>AP</sub> [<sub>A</sub> nage]]].  
 Zhangsan not HEN that  
 ‘Zhangsan is not so.’
- b. Zhangsan [<sub>DegP</sub> [<sub>Deg</sub> \*(hen)] [<sub>AP</sub> [<sub>A</sub> nage]]], Lisi [<sub>DegP</sub> [<sub>Deg</sub> \*(hen)] [<sub>AP</sub> [<sub>A</sub> zhege]]].  
 Zhangsan HEN that Lisi HEN this  
 ‘Zhangsan is tall, but Lisi is short.’
- c. [[Zhangsan [<sub>DegP</sub> [<sub>Deg</sub> \*(hen)] [<sub>AP</sub> [<sub>A</sub> nage]]]] ma?  
 Zhangsan HEN that SFP  
 ‘Is Zhangsan tall?’
- d. Zhangsan xiao [<sub>DegP/mall clause</sub> ni [<sub>Deg</sub> [<sub>Deg</sub> \*(hen)] [<sub>AP</sub> [<sub>A</sub> nage]]]].  
 Zhangsan deride you HEN that  
 ‘Zhangsan derided you as being silly.’
- e. Zhangsan yaoshi [<sub>DegP</sub> [<sub>Deg</sub> \*(hen)] [<sub>AP</sub> [<sub>A</sub> nage]]], jiu bu hui qing ni chi fan.  
 Zhangsan if HEN that then not will invite you eat rice  
 ‘If Zhangsan is stingy, then he will not treat you to dinner.’

Here, example (128a–e) immediately brings us the question of why the overt realization of the covert positive morpheme blocks the pro-form *nage* ‘that’ from head raising to the Deg<sup>0</sup> position. I shall argue that examples in (128) and (129) offer a key for us to answer this question.

- (129) a. Xiaoxin! Na-tiao gou hui [<sub>VP</sub> yao ren] ou!  
 Care That-CL dog will bite people SFP  
 ‘Be careful! That dog bites.’
- b. Xiaoxin! Na-tiao gou hui [<sub>VP</sub> nage] ou!  
 Care That-CL dog will that SFP  
 ‘Be care! That dog bites.’

Crucially, examples in (128) and (129) imply that the pro-form *nage* ‘that’ is indefinite in the category status and needs some functional head that functions as a  $\theta$ -binder to help identify its category. For example, in (129b) the modal auxiliary *hui* ‘will’, which always functions as an operator to  $\theta$ -bind the event argument of verbal predicates, functions to help identify *nage* ‘that’ as a verbal predicate; therefore, the modal auxiliary *hui* ‘will’ cannot be omitted in (129b). Following the same reasoning, I suggest that the overt positive morpheme *hen* not only functions as a  $\theta$ -binder but also helps identify the pro-form *nage* ‘that’ as an adjective in (128a–e). In other words, it is the non-adjectival nature of the pro-form *nage* ‘that’ that blocks *nage* ‘that’ from raising to the Deg<sup>0</sup> position in (128a–e). Hence, the covert positive morpheme must overtly realize as its overt counterpart *hen* to support the degree morphology (or the affixal feature of the covert positive morpheme). So, I suggest that the overt realization of the covert positive morpheme as *hen* in cases like (128a–e) not only functions to ‘support’ the degree morphology as *do* support does for the grammatical tense morphology in English but also helps to identify the categorical status of the pro-form *nage* ‘that’.<sup>29</sup>

Having the discussion on *nage* pronominalization as preliminary, in the following, I shall introduce Corver’s (1997) study on *so* pronominalization in the English adjectival predicate sentence, which in turn serves as the basis for my comparative study on the Chinese and the English adjectival structure.

<sup>29</sup> Alternatively, the overt realization of the covert positive morpheme as *hen* can be understood as a strategy for recovering the semantic content of the pro-form *nage* ‘that’.

5.2. *So pronominalization and much support in English adjectival structures*

Corver (1997) argues for Bresnan's (1973) proposal that a distinction should be made within the degree system between quantifier-like degree items ( $Q^0$ : *more*, *less*, *enough*, and the dummy *much*) and determiner-like degree items ( $Deg^0$ : *as*, *how*, *that*, *so*, and *too*).<sup>30</sup> The overt evidence for this distinction, as Corver (1997) argues, comes from English adjectival predicate sentences, where the entire adjectival predicate or part of the adjectival predicate is substituted for by the pro-form *so* (see (130a–b)–(131a–c)).

- (130) a. John seems fond of Mary, and Bill seems so too.  
 b. John seems too tall to serve in a submarine, and Bill seems so too.
- (131) a. John is fond of Mary. Bill seems [much *less so*].  
 b. Of all the careless people, no one is [*more so than* Bill].  
 c. John is good at mathematics. He seems [*enough so to enter our graduate program*].

As Corver (1997) argues, if the degree words such as *less*, *more*, and *enough* belong to the same class of items as *how*, *so*, *too*, and *that*, one would expect the latter to be able to co-occur with a pro-form *so* as well; however, the fact does not bear out this expectation, as (132a–d) illustrate.

- (132) a. John is fond of Mary. \*Maybe he is [too so].  
 b. \*The weather was hot in Cairo – [so so, that we stayed indoors all day].  
 c. \*John told me he is afraid of spiders, but I wonder [how so] he really is.  
 d. \*John is wild about Madonna, but I am not really [that so].

So, behind the contrast between (131a–c) and (132a–d) is the intuition that there is a split within the class of degree words with regard to *so* pronominalization: the quantifier-like elements *more*, *less*, and *enough* can combine with the pro-form *so* while the determiner-like degree items cannot. More interestingly, as Corver (1997:127) points out, (132a–d) become acceptable if the quantifier *much* is inserted in-between the determiner-like word and the pro-form *so*, as shown below.

- (133) a. John is fond of Mary. Maybe he is [too much so].  
 b. The weather was hot in Cairo – [so much so, that we stayed indoors all day].  
 c. John told me he is afraid of spiders, but I wonder [how much so] he really is.  
 d. John is wild about Madonna, but I am not really [that much so].

These empirical facts, as Corver (1997:127) argues, are important for the following two reasons. First, they provide overt evidence for Bresnan's (1973) intuition that there is a QP headed by  $Q^0$  in adjectival structures introduced by determiner-like degree words. Second, the co-occurrence of the quantifier *much* with determiner-like degree items is expected under Bresnan's (1973) split degree system hypothesis. However, Bresnan's (1973) proposal is critically challenged by the contrast between (134a) and (134b).

- (134) a. [ $DegP$  [ $Deg$  too] [ $QP$  [ $Q$  (\**much*)] [ $AP$  intelligent]]]  
 b. [ $DegP$  [ $Deg$  too] [ $QP$  [ $Q$  \*(*much*)] [ $AP$  so]]]

Namely, the quantifier-like degree word *much* cannot occur in front of the adjective; however, if the adjective is substituted for by the pro-form *so*, the quantifier-like degree word *much* must be inserted between the determiner-like degree word and the adjective.

Although agreeing with the specific criticism of Bresnan's (1973) proposal, especially examples like (134a), Corver (1997) argues that Bresnan's (1973) split degree system hypothesis in fact is retainable (Jackendoff, 1977). Adopting Higginbotham's (1985)  $\theta$ -binding theory, Corver (1997:128–131) argues that  $A^0$ -to- $Q^0$  raising, as in (135), is driven by

<sup>30</sup> Differing from Bresnan's (1973) analysis, Corver (1997) makes a distinction between two types of *much*'s: the lexical *much* and the functional (or dummy) *much*. The latter occurs in *so* pronominalization contexts while the former elsewhere.

the need to overcome a violation of the principles of thematic discharge, which ultimately fall under the overarching condition of Full Interpretation (Higginbotham, 1985; Chomsky, 1995).

(135)  $[_{\text{DegP}} [_{\text{Deg}} \text{too}] [_{\text{QP}} [_{\text{Q}} \text{intelligent}_i] [_{\text{AP}} [_{\text{A}} t_i]]]]$

To put it more precisely, the  $\theta$ -grid of *intelligent*, as (136) shows, contains two argument positions: the thematic argument position indicated by 1, which represents a Theme, and the referential argument position G.

(136) *intelligent*, +V +N, <1, G>

Given that the degree argument G is open in (136), the adjective *intelligent* denotes each of the degrees of ‘intelligence’ (i.e., a set of degrees).  $\theta$ -binding of the G variable by the Deg operator realizes the property denoted by the adjectival predicate *intelligent* along a scalar dimension of degrees; that is, the functional degree words occupying  $\text{Deg}^0$  and  $\text{Q}^0$  serve as operators and must bind a referential degree argument position associated with the adjectival predicate. Like many other licensing relations, the  $\theta$ -binding relation, as Higginbotham (1985) suggests, must be local; therefore,  $\text{A}^0$ -to- $\text{Q}^0$  raising must apply in order to create a local relation within adjectival expressions introduced by  $\text{Deg}^0$ , as (137) illustrates.

(137)  $[_{\text{DegP}} \text{too}_i [_{\text{QP}} [_{\text{Q}} \text{intelligent}_{<1, G_i>j}] [_{\text{AP}} [_{\text{A}} e_j]]]]$

However, as the contrast between (134a) and (134b) indicates, whenever the adjective (i.e., *intelligent*) is substituted for by the pro-form *so*, determiner-like degree words like *too* cannot be local to the pro-form *so* and the quantifier-like degree word *much* must be inserted in-between. This ‘phenomenon’, as Corver (1997:160) argues, indeed results from the interaction among the non-adjectival nature of the pro-form *so*, the  $\text{A}^0$ -to- $\text{Q}^0$  movement and  $\theta$ -binding because the pro-form *so* is a pro-predicate, which is used to substitute for phrases of different categorical types, as shown by (138a–d), respectively.

- (138) a. John [<sub>VP</sub> hated Sue] and Bill did so too.  
 b. John is [<sub>NP</sub> a fool] and so is Bill.  
 c. John is [<sub>AP</sub> afraid of cats] and so is Bill.  
 d. John is [<sub>PP</sub> into Zen] and so is Bill.

The non-adjectival status of the pro-form *so*, as Corver (1997) argues, makes it not undergo head raising to  $\text{Q}^0$ . The absence of an adjectival head  $\text{A}^0$  in (134b) precludes the licensing of the  $\text{Q}^0$  position via  $\text{A}^0$ -to- $\text{Q}^0$  raising. Given the absence of  $\text{A}^0$ -to- $\text{Q}^0$  movement, a process provided by the Universal Grammar, the language-specific rule of *much* support is invoked here. Hence, Corver (1997:134–135) suggests that, analogously to the dummy verb *do*, whose traditional interpretation is that of a substitute for the main verb, the dummy quantifier *much* functions as a substitute for the adjectival predicate.<sup>31</sup>

More precisely, the dummy adjectival quantifier *much*, as Corver (1997:134–135) suggests, copies the referential degree argument position G associated with the pro-form *so*. In this way, *much* support rescues the structure in (134b), because it enables  $\theta$ -binding of the referential argument by the Deg operator: the dummy element *much*, carrying the copied degree argument, enters into a local head–head relation with the c-commanding Deg operator, as (139) shows.

(139)  $[_{\text{DegP}} \text{too}_i [_{\text{QP}} \text{much}_{<G_i>} [_{\text{AP}} \text{so}_{<1, G_i>}]]]$

So, in (139) the Deg operator takes scope over the degree denoted by the pro-form *so* by  $\theta$ -binding the copied degree argument on the dummy quantifier *much*. In other words, the referential argument G associated with the pro-form *so* is bound via its copy, which is carried by the dummy quantifier *much*.

The central idea behind Corver’s (1997) proposal is that quantifier *much* in a string like *too much so* functions as a dummy (i.e., semantically empty) element, whose appearance is required for the satisfaction of one of the interface

<sup>31</sup> According to Chomsky’s (1995) theory of derivational economy, operations that are universally available are more economical than (learned) language-specific rules; therefore, Universal Grammar operations are more economical. So, the computational system requires a derivation to take the fewest language-particular rules to satisfy the interface conditions.

conditions (Chomsky, 1995). Furthermore, the dummy status of *much* in examples like (139) implies (A) that it does not have the status of an operator (i.e., it does not have to bind a variable within its scope domain), and (B) that it does not by itself (i.e., in its  $\theta$ -grid) contain a degree argument *G* (i.e., a variable) that must be bound by a *Deg* operator. These characteristics of the dummy *much*, as shown by (140a–b) respectively, help explain why a determiner-like degree word like *too*, *so*, *as*, or *how* is obligatorily required in cases like (133a–d).<sup>32</sup>

- (140) a. \*?This story is interesting, [much so] I think.  
b. John is fond of Mary. Maybe he is [too much so].

### 5.3. Chinese has an adjectival structure simpler than English

Corver (1997) provides examples like (141), which involves *so* pronominalization and *much* support, as overt evidence for the split degree system hypothesis proposed by Bresnan (1973).

- (141) John is fond of Mary. Maybe he<sub>1</sub> is [<sub>DegP</sub> too<sub>i</sub> [<sub>QP</sub> much<sub><Gi></sub> [<sub>AP</sub> so<sub><I, Gi></sub>]]].

Namely, there is a *QP* headed by *Q*<sup>0</sup> in the adjectival structures introduced by determiner-like degree words. However, according to my study on *nage* ‘that’ pronominalization and *hen* support shown by the Chinese adjectival structures, I would like to suggest that Chinese simply has an adjectival structure introduced by a functional degree projection headed by the positive morpheme without having a *QP* in-between, as (142) illustrates.

- (142) a. Zhe jiahuo<sub>i</sub> [<sub>DegP</sub> [<sub>Deg'</sub> [<sub>Deg</sub> hen]<sub>i</sub> [<sub>AP</sub> nage<sub><I, Gi></sub>]]]. (*nage* means *stingy*.)  
This guy HEN that  
‘This guy is stingy.’  
b. \*Zhe jiahuo [<sub>DegP</sub> [<sub>Deg'</sub> [<sub>Deg</sub> tai<sub>i</sub>] [<sub>QP</sub> [<sub>Q'</sub> [<sub>Q</sub> hen] [<sub>AP</sub> nage<sub><I, Gi></sub>]]]].  
This guy too HEN that

Hence, as one of the main themes that I want to argue for in this paper, I suggest that Chinese has an adjectival structure simpler than English.<sup>33</sup>

<sup>32</sup> So, even though *Q* is said to be necessary for binding  $\langle G \rangle$ , we still need the extra *DegP* to capture the syntactic structure of English adjectival degree structures, for example a sting like *too much so*.

<sup>33</sup> As Zhang (2002) points out, degree adverbs like *shaowei* ‘slightly’ and *you-dian* ‘a little bit/comparatively’ can co-occur as degree modifiers in pre-predicate position, as examples like (i) illustrate.

- (i) Zhangsan shaowei you-dian pang.  
Zhangsan slightly a little bit fat  
‘Zhangsan is a little bit slightly fat.’

More significantly here, the adjective *pang* ‘fat’ in (i) can be substituted for by the pro-form *nage* ‘that’, which might suggest that Chinese adjective phrases have a structure, as shown by (iii), as complex as English adjective phrases do.

- (ii) Zhangsan shaowei you-dian nage.  
Zhangsan slightly a little bit that  
‘Zhangsan is a little bit slightly fat.’

- (iii) Zhangsan [<sub>DegP</sub> shaowei [<sub>DegP</sub> you-dian [<sub>AP</sub> pang]]].

Along a line suggested by Zhang (2002), I assume that cases like (i) involve the degree-adverb-doubling phenomenon and have a structure like (iv), in which the degree adverb *shaowei* ‘slightly’ functions to modify the other degree adverb *you-dian* ‘a little bit’ pragmatically.

- (iv) Zhangsan [<sub>DegP</sub> [shaowei you-dian] [<sub>AP</sub> [<sub>A'</sub> [<sub>A</sub> pang]]]]

This assumption in fact is not implausible because the degree adverb *shaowei* ‘slightly’ has to co-occur with the degree adverb *yi-dian* ‘a little bit’. More importantly, if *shaowei* ‘slightly’ occurs, then *you-dian* ‘a little bit’ has to occur, and only the former is optional, as the contrast below indicates.

- (v) Zhangsan (shaowei) you-dian pang.  
Zhangsan slightly a-little-bit fat  
‘Zhangsan is (a little bit) slightly fat.’  
(vi) Zhangsan shaowei \*(you-dian) pang.  
Zhangsan slightly a-little-bit fat  
‘Zhangsan is (slightly) a little bit fat.’

In addition, like Corver's (1997) proposal that the dummy *much* must be distinguished from the lexical contentful *much*, I suggest that the overt positive morpheme *hen* must be distinguished from the intensifier marker *hen* 'very' in Chinese, too. However, I still point out that the overt positive morpheme *hen* indeed differs from the dummy *much* in that the former can function as operator to  $\theta$ -bind the degree argument while the latter cannot.

## 6. Concluding remarks

In this paper, I argued that, like English, Chinese has a covert positive morpheme, which is in complementary distribution with its overt counterpart *hen*. The former, behaving like a polarity item, only occurs in a predicate-accessible operator<sub>[-wh]</sub> domain while the latter in other contexts, and the occurrence of the covert positive morpheme is subject to the condition on saturating Chinese gradable adjectives given in (110). I then pointed out that in constructions where the occurrence of the covert positive morpheme is licensed, the covert positive morpheme still has to be realized as its overt counterpart *hen* if the predicative adjective is substituted for by the pro-form *nage* 'that'. Having compared *nage* pronominalization with its English counterpart, I argued Chinese has an adjectival structure simpler than English. As main theme I eventually argued for, the condition on saturating Chinese gradable adjectives might sound simple; however, this condition indeed raises the following question which is theoretically significant but lacks a definite answer at the present stage. Strictly speaking, the condition on saturating Chinese gradable adjectives is only descriptively adequate; therefore, it leaves unexplained why the Chinese covert positive morpheme appears only in predicate-accessible operator<sub>[-wh]</sub> domain. However, it is worth noting that the same kind of question can also be asked about the Chinese existential polarity *wh*-phrase; namely, why should Chinese existential polarity *wh*-phrases only appear in a local proposition in which they do not have existential import (Lin, 1998:230)? The same question can also be asked about the English polarity *any*, which only occurs in downward-entailing contexts as described by Ladusaw (1980). There must be some 'force' that makes the Chinese covert positive morpheme subject to the condition on saturating Chinese gradable adjectives which further governs its distribution. At the present stage, I do not have a definite answer for this question and leave it for future investigation.

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