Gradability, Subjectivity and the Semantics of the Adjectival *zhen* 'real' and *jia* 'fake' in Mandarin

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Abstract. In this paper, we provide an empirical description and a theoretical analysis of the adjectival *zhen* 'real' and *jia* 'fake' in Mandarin Chinese. The two adjectives manifest resistance to degree modifiers, and thus have been traditionally treated as non-gradable adjectives. Empirical evidence, however, shows that they can actually fuse both degree intensification and expressive meanings together. Based on their semantic behaviors, we follow recent advances in multidimensional semantics to propose that *zhen* and *jia* are mixed items with bi-dimensional semantics, i.e., the judge of truth-value as the descriptive meaning, and the degree of similarity/deviation between the facts and the subjective expectations as the expressive meaning.

Keywords: Adjectives · Gradability · Subjectivity · Multidimensional semantics · Mandarin Chinese

1 Introduction

This study provides a semantic account for the adjectival *zhen* 'real' and *jia* 'fake' in Mandarin Chinese. In general, the intersection rule is applicable to most of the [A+NP] constructions, as shown in (1). However, *zhen* and *jia* in (2) seem to be counterexamples to this rule.

(1) ⟦A NP⟧ = ⟦A⟧ ∩ ⟦NP⟧
⟦hei zhenzhu⟧ = ⟦hei⟧ ∩ ⟦zhenzhu⟧ = λx.**black**(x) ∧ **pearl**(x)
(2) a. ⟦zhen junzi⟧ = λx.**real**(x) ∧ **gentleman**(x)
= λx. **gentleman**(x) ∧ **gentleman**(x) = 1 [Redundancy]
b. ⟦jia zhengju⟧ = λx.**fake**(x) ∧ **proof**(x)
= λx. **proof**(x) ∧ **proof**(x) = 0 [Contradiction]

In addition, based on their original logical meanings that denote truth-values, *zhen* and *jia* have been treated as non-gradable adjectives in many analyses ([1, 2], a. o.); while some other works [3, 4] have pointed out that *zhen* and *jia* can actually give rise

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to the gradable readings. The examples are provided in (3). So far, there has been no consensus regarding whether the adjectival *zhen* and *jia* are gradable or not.

(3) a. 烟台缴获 4 万元很真的假饮料。
Yantai jiaohuo si wan yuan hen zhen de jia yinliao.
Yantai capture 4 ten.thousand yuan very real DE fake drink
'Yantai officers have captured the fake drinks that look very real, valued RMB 40,000.'

b. 这个数据可能不准确，但其他数据更假。
Zhege shuju keneng bu zhunque, dan qita shuju geng jia.
this data probably not accurate, but other data more fake
'These data are probably not accurate, but other data look more fake.'

In this paper, we present a novel solution to the semantic puzzles of the adjectival *zhen* and *jia* in Mandarin. The goals of the study are twofold. First, we report some fresh observations to demonstrate that the gradable uses of *zhen* and *jia*, differing from their logical uses, can pass the tests of faultless disagreement and judge dependence, and thus show the subjectivity. To our knowledge, this (non-)subjective patterns of *zhen* and *jia* have received little attention in the theoretical literature. Second, we develop a multidimensional analysis of *zhen* and *jia*. Unlike the traditional truth-conditional semantics, the multidimensional semantics assumes that meanings operate on both the at-issue dimension and the CI (conventional implicature) dimension. In line with this approach, *zhen* and *jia* are analyzed as mixed items to capture both of their logical and subjective meanings.

2 Previous Analyses

As mentioned above, the lexical semantics of *zhen* and *jia* has been a long debated issue in the literate (cf. [1–6], a. o.). Roughly speaking, the existing accounts can be divided into two frameworks, i.e., descriptive linguistics and degree semantics. The former was argued by [1, 3, 5, 6]; whereas the latter was proposed by [2, 4]. In this section, we provide a brief review of these accounts.

In the descriptive approach, the gradability of certain items is diagnosed by their co-occurrences with degree modifiers. [1, 5, 6] claim that *zhen* and *jia* cannot be further modified by any intensifiers or degree adverbs, and therefore should be treated as non-gradable adjectives. However, [3] has adopted a corpus survey, which clearly confirms that *zhen* and *jia* can co-occur with some typical degree modifiers in Mandarin, like *hen* 'very' and *geng* 'more'. The examples are shown above in (3). In short, this descriptive approach fails to clarify the gradability of *zhen* and *jia*, as it largely depends on the degree modifiers as the only diagnosis, whereas the empirical distribution is actually complicated.

Unlike the descriptive account, the works based on degree semantics, following [7], assume that gradable adjectives, which denote sets of ordered degrees on particular property dimensions, can usually appear in comparatives. Under this framework, [2]

identifies *zhen* and *jia* as non-gradable adjectives, although [2] has noticed that *zhen*/*jia* is felicitous in Mandarin comparatives, as illustrated in (4) and (3b).

(4) 梦想比现实更真。
Menxiang bi xianshi geng zhen.
dream COMP reality more ture
'A dream is more true than reality.'

To explain these counter-examples, [2] proposes that *zhen* and *jia* are used in their non-literal senses. Their gradable uses do not represent their primary meanings, so they can still be categorized as non-gradable adjectives. This analysis, however, is not convincing enough, as [2] has not provided persuasive arguments to explain why the gradable uses of *zhen* and *jia* are not idiosyncratic but productive.

Contrary to [2, 4], on the grounds that *zhen* and *jia* are found in the environments where typical gradable adjectives occur, concludes that they are essentially gradable adjectives. [4] further claims that they are associated with an upper-closed and a bottom-closed scale respectively, Although [4] adopts a formal treatment of *zhen* and *jia*, he has not paid enough attention to their subjective uses.

To summarize, it remains to be explored whether the two adjectives are gradable or not. Moreover, the semantics of *zhen* and *jia* have not yet received formal analyses except [4], and the combination of [A+NP] also requires explanation. In the following sections, we will present some fresh empirical generalizations and then propose our novel solution.

3 Some Empirical Observations

In this section, we argue that *zhen* and *jia* in gradable uses have some additional subjective flavor, while this flavor is gone in their logical uses. The subjectivity can be tested by two methods, namely, Faultless Disagreement and Judge Dependence.

3.1 Faultless Disagreement

One of the usual tests to identify subjective adjectives is faultless disagreement ([8, 9], a. o.), as illustrated below:

(5) a. Speaker A: The chili is tastier than the soup!
Speaker B: No, the soup is tastier! (**faultless**)
b. Speaker A: Anna is taller than Zoe.
Speaker B: No, Zoe is the taller of the two! (**factual only**)

In (5a), the statements of both speaker A and speaker B can be true at the same time. In line with this effect, the gradable uses of *zhen* and *jia* show the faultless, i.e., subjective disagreement:

(6) Speaker A: 我可能{喝了假酒，读了假大学}！
Wo keneng {hele jiajiu, dule jia daxue}!
'I probably {have drunk counterfeit wine, registered in fake colleges…}!'
Speaker B: 不，你没有。你{喝的是真酒，读的是真大学}！
Bu, ni meiyou. Ni {he de shi zhen jiu, du de shi zhen daxue…}!
'No, you haven't. What {you have drunk is real wine, registered in is real colleges...}!' (**faultless**)

By contrast, the logical uses of *zhen* and *jia* are factual only, as shown in (7), which means either speaker A or speaker B is right in a certain possible world, i.e., their statements cannot be true at the same time. Hence, the logical uses are factual only, parallel to the typical case (5b).

(7) Speaker A: 这个命题是真的。
Zhege mingti shi zhen de.
'This proposition is ture.'
Speaker B: 不，这个命题是假的。
Bu, zhege mingti shi jia de.
'No, this proposition is false.' (**factual only**)

3.2 Judge Dependence

Another widely accepted diagnosis of subjectivity is whether the implicated judge can be introduced by a PP (cf. [8, 10], a. o.). The predicates of personal taste allow an overt opinion-holder, i.e., the 'judge-PP'; while the non-subjective ones cannot. See the contrast below:

(8) a. The book was interesting to/for me.
b. ?? Anna is intelligent to/for me.

The gradable uses of *zhen* and *jia*, once again, in line with the subjective predicates (8a), allow the implicated judge, as illustrated in (9). By contrast, the logical uses resist the judge-PPs as (10), showing that they are not subjective.

(9) a. 让假发在别人看来更真。

Rang	jiafa	zai	bieren	kanlai	geng	zhen.
make	wig	at	others	see.from	more	real

'Make the wig look more authentic for others.'

b. 这些数据对读者来说很假。

Zhexie	shuju	dui	duzhe	laishuo	hen	jia.
these	data	to	readers	from.say	very	fake

'These data are very fake to the readers.'

(10) a. ?? 他的陈述对法官来说很真。
?? Ta de chenshu dui faguan laishuo hen zhen.
he DE statement for judge from.say very real
'His statement looks very real to the judge.'

b. ?? 这个命题对教授来说更假。
?? Zhe ge mingti dui jiaoshou laishuo geng jia.
this CL proposition for professor from.say more fake
'This proposition is more fake to the professor.'

3.3 Interim Summary

To recap, *zhen* and *jia* have some mixed properties. On the one hand, they pattern with non-subjective items in their logical uses, as shown in the examples above, where the predicates that they are involved resist the implicated judge argument; on the other, *zhen* and *jia* pattern with evaluative/subjective adjectives in their gradable uses, where the faultless disagreements are natural, and the overt judge-PP are well accepted. In the next section, we will develop a formal account for such mixed properties in a multi-dimensional semantics framework.

4 A Multidimensional Account

The mixed properties of *zhen* and *jia* are liable to two possible analyses: (a) to claim that they are homophonous, i.e., the different uses are attributed to the logical *zhen1/jia1* vs. the gradable *zhen2/jia2*, and (b) to propose a unified account in a novel framework. The homophonous approach, however, fails to predict the various readings of [A+NP] combinations. As shown by the examples in (11), *jia jiu* 'fake/counterfeit wine' can either belong to the wine or not, whereas *jia lingzi* 'extra collar' is essentially a collar, and *zhen qiang* 'real gun' is a gun as well. The homophonous account cannot predict these readings correctly, since it assumes all *zhen/jia* are homophonous, and thus have two readings, i.e., the logical meaning and the gradable one, which is obviously not the case.

(11) a. 假酒 jia jiu 'fake wine[-wine]; counterfeit wine[+wine]'
b. 假领子 jia lingzi 'extra collar [+collar]'
c. 真枪 zhen qiang 'real gun [+gun]'

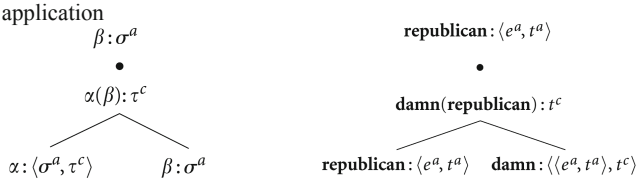
In this section we provide a unified account in the framework of multidimensional semantics. While the idea that certain expressions specifically convey attitude, emotions and evaluations on the part of the speaker has been around for several decades, only in recent years expressive meanings have received a significant amount of attention in formal semantics ([11–13], a. o.). [11] provides the first attempt to formalize this class of meaning, outlining several properties that distinguish it from truth-conditional ones. Most recently, [14, 15] have shown how the subjective/expressive meanings of adverbs in Mandarin can receive a formal semantic treatment as well.

The most fundamental assumption of multidimensional semantics is that meanings operate on different dimensions. An utterance may express both an at-issue (truth-conditional) content in the descriptive dimension and a conventional implicature in the expressive dimension. Informally, the expressive meaning is like "double assertion", or some side comment by the speaker. [11] introduces a new semantic type for CI (expressive content) in the semantic system. The semantic types organize the semantic lexicon, and they index the denotation domains. The semantic types in L_{CI} are defined as below:

(13) a. e^a and t^a are basic at-issue types.
b. e^c and t^c are basic CI types.
c. If τ and σare at-issue types, then <τ, σ> is an at-issue type.
d. If τ is an at-issue type and σis a CI type, then <τ, σ> is a CI type.
e. The full set of types is the union of the at-issue and CI types.

The at-issue content is marked by the superscript "a", and the expressive content by the superscript "c". [11] proposes the following CI application rule for semantic composition when an expressive item (such as *damn*) combines with an item that only has descriptive meaning (such as *Republicans*), as illustrated below:

(14) CI application



(14) serves as the standard rule of functional application. It states that if α is a term of type <τ, σ>, and β is a term of type σ then α(β) is a term of type τ. The bullet "•" is a metalogical symbol to separate the at-issue content from the CI content. This provides a straightforward account of the distributional pattern of *zhen* and *jia*, especially their logical and subjective uses.

Following this line of thought, we assume that *zhen* and *jia* have bi-dimensional meanings as well. In the descriptive dimension, *zhen* and *jia* maintain their original logical functions, i.e., to judge the truth-value of propositions, and thus display non-gradable uses. In the expressive dimension, *zhen* and *jia* convey the speaker's judge towards the degree of similarity/deviation between the facts and the subjective expectations. To formalize the subjective expectations, we incorporated [16] 's PROTOTYPE function into their lexical semantics. This has enabled us to capture the expressive content of *zhen* and *jia*, as the prototypes for each individual's perspective can be variable. Hence, the semantic expressions are shown below:

(15) ⟦zhen⟧= λPλx.P(x) • λPλx**. similarity** (x, **prototype**(P)) ≥ !s
(x has the property of P, and the similarity between x and the prototype of P has exceeds a certain standard !s)
(16) ⟦jia⟧= λPλx.¬P(x) • λPλx**. deviation** (x, **prototype**(P)) ≥ !s
(x does not have the property of P, and the deviation between x and the prototype of P has exceeds a certain standard !s)

Unlike the exiting analyses, this account treats the subjective content as a part of *zhen* and *jia*'s lexical semantics. This semantics contains a degree component which measures the similarity/deviation between the individual x and the prototype of P, thus correctly predicting that *zhen* and *jia* are gradable. Moreover, the semantic puzzle of [*zhen/jia*+NP] is solved, since *zhen junzi* 'real gentleman' is more than gentleman, but also conveys the subjective attitude that the speaker evaluates this individual is very close to her/his certain standard of being a gentleman. Therefore, the meaning of *zhen* is not redundant according to this analysis. And this semantics works well for *jia* similarly, check the formulas:

(17) ⟦zhen junzi⟧=λx. **gentleman** (x)
• λx**. similarity** (x, **prototype**(**gentleman**)) ≥ !s
(18) ⟦jia zhengju⟧=λx. ¬**evidence** (x)
• λx**. deviation** (x, **prototype**(**evidence**)) ≥ !s

5 Conclusion

To conclude, in this paper we discussed the semantic behaviors of the adjectival *zhen* and *jia* in Mandarin Chinese. The two adjectives have been traditionally treated as non-gradable and cannot be modified by degree words (cf. [1, 2, 5, 6], a. o.). However, there are ample data showing that both *zhen* and *jia* can present in gradable context. Here we provided some fresh empirical evidence to suggest that the two adjectives display both gradable and non-gradable uses. The mixed properties of *zhen* and *jia* can be attributed to their bi-dimensional semantics, i.e., the judge of truth-value as the descriptive meaning, and the degree of similarity/deviation between the facts and the subjective expectations as the expressive meaning. Hence, it is the descriptive dimension that makes *zhen* and *jia* act as non-gradable adjectives in their pure logical uses; while the expressive dimension is responsible for their gradable distribution and semantic behaviors like judge-dependence and subjectivity.

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