

**Subjectivity and Gradability:
On the semantics of the possessive property concept construction in
Mandarin Chinese**

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Introduction: yǒu + NP

In Mandarin Chinese, gradable predicates can be classified into two types based on their morphosyntactic features: one consists of adjectival (e.g., *gāo* ‘tall’ in 1a) and verbal lexemes (e.g., *xǐhuan* ‘to like’ in 1b), and the other consists of verbal phrases formed by the verb *yǒu* ‘to possess, to exist’ and a NP (2).

(1) a. Zhangsan hen *gāo*. <gradable adjective>
 very tall
 ‘Zhangsan is very tall.’

b. Zhangsan hen *xǐhuan* chi mian. <gradable verb>
 very like eat noodle
 ‘Zhangsan likes eating noodle.’

(2) Zhangsan hen *yǒu* *zhìhuì*. <you + NP>
 very have wisdom
 ‘Zhangsan has wisdom.’

Introduction: yǒu + NP

‘you + NP’ and gradable adjectives/verbs share exactly the same distribution: they allow modification by degree morphology such as *hen* ‘very’ (1) and they can be used in degree constructions such as comparatives or degree questions.

(3) Comparative Construction

a. Zhangsan bi Lisi *gao*. <gradable adjective>
tall

‘Zhangsan is taller than Lisi.’

b. Zhangsan bi Lisi *you zhihui*. <you + NP >
have wisdom

‘Zhangsan has more wisdom than Lisi.’

(4) Degree Question

a. Zhangsan duo *gao?* <gradable adjective>
how tall

‘How tall is Zhangsan?’

b. Zhangsan duo *you zhihui?* <you + NP >

‘How wise is Zhangsan?’

Introduction: *yǒu* + NP

‘*you* + NP’ is a productive syntactic structure (rather than an idiomatic expression). There is a non-exhaustive list of gradable ‘*you* + NP’ expressions in Mandarin Chinese.

you + NP	Gloss	Eng. Trans.
you daoli (有道理)	have reason	make sense
you xuewen (有学问)	have knowledge	knowledgeable
you qu (有趣)	have fun	fun
you yongchu (有用处)	have use	useful
you mingqi (有名气)	have fame	famous
you jiazhi (有价值)	have value	valuable
you ke'neng (有可能)	have possibility	possible
you xiwang (有希望)	have hope	hopeful
you weidao (有味道)	have taste	tasteful

Introduction: yǒu + NP

Moreover, speakers are creatively inventing new ‘you + NP’ expressions.

New Expression 1: *you ai* ‘have love’ or *you love*: caring, cozy

(5) Zhangsan changchang bangzhu wo; ta hen you ai (hen you love)
always help me he very you love
‘Zhangsan always helps me; he is very caring.’

(6) Zhe ge fangjian hen you ai.
this Cl room very has love
‘This room is very cozy.’

New Expression 2: *you ganjue* ‘have feel’ or *you feel*: classy, unique

(7) Zhe bu dianying de ge hen you feel.
this Cl movie Nom song very have feel
‘The song in this movie is very unique.’

Introduction: *yǒu* + NP

However, not all NPs can combine with *you* to form a gradable NP. The gradability of ‘*you* + NP’ expressions does not correspond to the mass and count distinction of the NP inside.

- (8) a. *fangzi-li* *you* *ren*. <count noun>
 house-inside have people

 ‘There are people inside the house.’

- b. **fangzi-li* *hen* *you* *ren*.
 house-inside very have people

 Int: ‘There are many people inside the house.’

- (9) a. *beizi-li* *you* *shui*. <mass noun>
 cup inside has water

 ‘There is water inside the cup’

- b. **beizi-li* *hen* *you* *shui*.
 inside very has water

 Int: ‘There is a lot of water inside the cup.’

New Observation: gradability and subjectivity

Moreover, we observe that the gradability of ‘*you + NP*’ predicates correlates to whether they express a subjective meaning. ‘*you + NP*’ predicates are gradable when they are predicates of personal taste (e.g., *fun*) or evaluative predicates (e.g., *wise*).

This correlation is supported by four sets of evidence:

- (i) The faultless disagreement test;
- (ii) The (dis-)ambiguity test;
- (iii) Their semantic relations to subjective attitude predicates (e.g., *find*).
- (iv) Morphological evidence

New Observation: gradability and subjectivity

(i) **The faultless disagreement test:** two speakers can disagree with each other without one of them being at fault. In (10), one of the speakers, Anna or Kim, must be wrong; in (11), our intuition is that both speakers could be right.

- (10) (a) Anna: zhe ge beizi li *you shui.* <Non-Gradable>
 this Cl cup inside has water
 ‘There is water in the cup.’
 (b) Kim: zhe ge beizi li *mei you shui.*
 this Cl cup inside Neg has water
 ‘There is no water in the cup.’
- (11) (a) Anna: Zhangsan bi Lisi *you zhihui.* <Gradable>
 have wisdom
 ‘Zhangsan has more wisdom than Lisi.’
 (b) Kim: Lisi bi Zhangsan *you zhihui.*
 have wisdom
 ‘Lisi has more wisdom than Zhangsan.’

New Observation: gradability and subjectivity

(ii) **The (dis-)ambiguity test:** some ‘*you* + NP’ predicates are ambiguous between a subjective and a non-subjective reading. They only take on a subjective reading in a degree context.

(12) Zhangsan you wenti.
have question

(i) Zhangsan has a question. (non-subjective)

(ii) Zhangsan is problematic. (subjective)

(13) Zhangsan *hen* you wenti
very have question

(i) *Zhangsan has many questions. (*non-subjective)

(ii) Zhangsan is very problematic. (subjective)

(14) Zhangsan bi Lisi (geng) you wenti.
even have question

(i) *Zhangsan has (even) more questions than Lisi. (*non-subjective)

(ii) Zhangsan is (even) more problematic than Lisi. (subjective)

New Observation: gradability and subjectivity

(ii) The (dis-)ambiguity test

- (15) Zhe dao cai you weidao.
this Cl dish have flavor/smell
(i) ‘This dish has a (bad) smell.’ (non-subjective)
(ii) ‘This dish is tasteful.’ (subjective)
- (16) Zhe ge cai *hen* you weidao.
this Cl dish very have flavor/smell
(i) *This dish has a strong (bad) smell. (*non-subjective)
(ii) This dish is very tasteful. (subjective)
- (17) Zhe ge cai bi na ge cai (geng) you weidao.
this Cl dish that Cl dish even have flavor/smell
(i)*This dish has a stronger smell than that dish. (*non-subjective)
(ii) This dish is more tasteful than that dish (subjective)

New Observation: gradability and subjectivity

(iii) There is a **semantic distinction** between gradable and non-gradable ‘*you + NP*’ predicates when they are embedded under a subjective attitude verb such as *juede* ‘to feel’. (18b) is a weaker statement than (18a), whereas (19a) and (19b) are almost synonymous.

(18) a. beizi li you shui. < Non-gradable >
cup inside have water
‘There is water in the cup.’

b. Wo juede beizi li you shui.
I feel cup inside have water
‘I feel that there is water in the cup.’

(19) a. Zhangsan hen you zhihui. < Gradable >
very have wisdom
‘Zhangsan has a lot of wisdom.’

b. Wo juede Zhangsan hen you zhihui.
I feel Zhangan very have wisdom
‘I feel that Zhangsan has a lot wisdom.’

New Observation: gradability and subjectivity

(iii) Morphological evidence

the suffix *-gan* ‘a feel of, a sense of’ in Mandarin Chinese express a subjective feeling. (All) NPs that bear this suffix can be used with *you* to form a gradable predicate.

(20)

	NP-gan	Gloss
hen you	youmo-gan ‘幽默感’	humor-feel
	xingfu-gan ‘幸福感’	happiness-feel
	juli-gan ‘距离感’	distance-feel
	anquan-gan ‘安全感’	safty-feel
	qinqie-gan ‘亲切感’	friendliness-feel
	shuxi-gan ‘熟悉感’	familiarity-feel

New Observation: gradability and subjectivity

(iii) Morphological evidence

In Mandarin, there are some pairs of NPs that are semantically similar but refer to abstract vs. non-abstract substance, for example *zhihui* ‘wisdom’ vs. *zhishang* ‘IQ’. It is the abstract NP that can combine with *you* to form a gradable predicate.

- (21) a. hen you *zhihui*
 wisdom
 b. *hen you *zhishang*
 IQ

Generalizations and Questions

Empirical Generalizations:

(i) **subjectivity and gradability:**

‘*you* NP’ is gradable when it is a predicate of personal taste (e.g., *you qu* ‘have fun’) or an evaluative predicate (*you zhihui* ‘have wisdom’).

(ii) **Abstract vs. non-abstract NPs:**

There is a sense that NPs inside the gradable ‘*you* NP’ predicates are ‘abstract nouns of sensory quality’ (Parsons 1955, Newman 2000); they denote a quality rather than a concrete object.

Theoretical Question:

What is the semantic difference between abstract and non-abstract NPs that conditions the gradability of ‘*you* NP’ predicates?

Existing Proposal

Francez and Koontz-Garboden (2010, 2015, 2017) observe that there are many languages like Mandarin Chinese which has two types of Property Concept (PC) constructions: one makes use of PC adjectives and the copular verb (e.g., *Kim is wise*), and the other makes use of PC nominals and a possessive or an existential morpheme (e.g., *Kim has wisdom*).

TYPE	LANGUAGE	PARAPHRASE
Nominal possessive marking 'have'	Ulwa Ulwa, Huitoto, Hausa	— She has strength. She is with strength.
Existential: BEARER pivot	Hausa	There is her with strength.
Existential: PROPERTY pivot	Hausa	There is strength at her.
Existential: possessive NP pivot	Bisa	There is her strength.

TABLE 1. Possessive strategies of predication.

(Francez and Koontz-Garboden 2015, 542)

Existing Proposal

They also observe that PC nominals (e.g., *wisdom*) is a subclass of mass nouns that denote abstract quality. They propose:

(i) Abstract quality nouns (e.g., *wisdom*), unlike non-quality mass nouns (e.g., *water*), denote a set of ‘portions’ of the relevant substance. Portions are a primitive entity (of type p).

$$(22) [[\textit{wisdom}]] = \lambda p_p. \textit{wisdom}(p)$$

In (22), the PC nominal *wisdom* denotes a set of wisdom portions (of type $\langle p, t \rangle$).

(ii) Portions are **totally** ordered by a preorder \leq (smaller than or equal to), unlike individuals or events that are **partially** ordered by a mereological part-whole relation.

$$(23) [[\textit{water}]] = \lambda x_e. \textit{water}(x)$$

Existing Proposal

(iii) The role of a possessive (or an existential) morpheme is to relate individuals to portions.

$$(24) \quad [[have]] = \lambda P_{\langle p,t \rangle} \lambda x \lambda D. \exists^D z [P(z) \wedge \pi(x, z)]$$

In (23a), P is variable over (abstract) substances. π is a possessive relation. D is a variable over sets of portions; it provides a domain restriction for the existential quantifier such that the value of z is restricted to portions that count as ‘big enough’ in the context.

$$(25) \quad [[John\ have\ wisdom]] = \exists^D z [\text{wisdom}(z) \wedge \pi(\text{John}, z)]$$

On this analysis, the sentence *John has wisdom* has the truth-conditions in (25): it is true iff there is a portion of wisdom that counts as ‘big enough’ in the context and John possesses it.

A Degree Interpretation

For our purposes, we need to translate Francez and Koontz-Garboden's portion-based analysis into a degree-based one, because given the exactly same distribution of gradable adjectives and 'you + NP' predicates in degree constructions, we want to assign them a uniform semantics.

- (26) a. $[[gao]] = \lambda d \lambda x. \text{height}(x) \geq d$ $\langle d, \langle e, t \rangle \rangle$
b. $[[you\ zhihui]] = \lambda d \lambda x. [\text{wisdom}(d) \wedge \pi(x, d)]$ $\langle d, \langle e, t \rangle \rangle$

Hence, in this degree-based analysis, PC nominals are scale denoting, and the possessive morpheme relates individuals to scales.

- (27) a. $[[zhihui]] = \lambda d. \text{wisdom}(d)$
b. $[[you_{\text{gradable}}]] = \lambda P_{\langle d, t \rangle} \lambda d \lambda x. [P(d) \wedge \pi(x, d)]$

A Degree Interpretation

In addition, we need a non-gradable interpretation of *you* when it combines with a non-quality mass noun (e.g., *water*).

- (28) a. $[[you_{\text{non-gradable}}]] = \lambda P_{\langle e,t \rangle} \lambda x. \exists z [P(z) \wedge \pi(x, z)]$
b. $[[you\ shui]] = \lambda x. \exists z [\text{water}(z) \wedge \pi(x, z)]$

Hence, we have two semantics for *you* in Mandarin:

- (29) Denotations of *you* (to be revised):
- | | |
|---|--------------|
| a. $[[you_{\text{non-gradable}}]] = \lambda P_{\langle e,t \rangle} \lambda x. \exists z [P(z) \wedge \pi(x, z)]$ | Non-gradable |
| b. $[[you_{\text{gradable}}]] = \lambda P_{\langle d,t \rangle} \lambda d \lambda x. [P(d) \wedge \pi(x, d)]$ | Gradable |

Remaining Issues

There are still some issues:

1. It is still not very clear why the gradable *you* in (29b) needs to project a degree argument.
2. The semantics of the gradable *you* does not express a correlation between gradability and subjectivity. Why does it need to encode such a correlation in its semantics?

Background: Taxonomy of scales

Measurement theory offers a four-level classification of measurement (Stevens 1946, 1975):

(i) **Nominal-scale measures:** equality vs. inequality

Examples: true-values {0, 1}, genders {Female, Male}, Parts of speech {verbs, nouns, adjectives, prepositions}

(ii) **Ordinal-scale measures:** equality vs. inequality; greater than/less than

Examples: a swimming competition (first, second, third, etc.)

Taxonomy of scales

(iii) **Interval-scale measures:** equality vs. inequality, greater than/less than, *an arbitrary zero point , the difference between two values is meaningful.*

Examples: the year date in calendars, temperature in the Celsius or Fahrenheit scale.

(iv) **Ratio-scale measures:** a numerical system that possesses a meaningful (unique and non-arbitrary) zero.

Examples: quantity, length, weight, duration, etc.

Our Proposal

Our Proposal:

(i) Quality and non-quality NPs are associated with different measurement scales. Quality NPs are associated with an **ordinal scale**, while non-quality NPs are associated with a **ratio scale**.

	Scale of measurement	Properties
Quality NPs	Ordinal scale	Total ordering; no zero point
Non-Quality NPs	Ratio scale	Total ordering; absolute zero point

(ii) The semantics of the possessive/existential morpheme *you* in Mandarin Chinese makes reference to the **(absolute or relative) zero** point on a measurement scale. It indicates that the quantity of the relevant substance is greater than zero.

Our Proposal

(iii) When *you* combines with a non-quality NP, it indicates that the quantity of the relevant substance is greater than zero, which is entailed by the existential quantifier. (31a) is equivalent to (31b).

$$(31) \quad \begin{array}{l} \text{a. } [[\textit{you}_{\text{non-gradable}}]] = \lambda P_{\langle e,t \rangle} \lambda x. \exists z [P(z) \wedge \pi(x, z) \wedge \underline{|z| > 0}] \\ \text{b. } [[\textit{you}_{\text{non-gradable}}]] = \lambda P_{\langle e,t \rangle} \lambda x. \exists z [P(z) \wedge \pi(x, z)] \end{array}$$

(iv) When *you* combines with a quality NP, it coerces the ordinal scale to contain an arbitrary zero point which is set to be a subjective value \mathbf{d}_j decided by the speaker.

$$(32) \quad [[\textit{you}_{\text{gradable}}]]^j = \lambda P_{\langle d,t \rangle} \lambda d \lambda x. [P(d) \wedge \pi(x, d) \wedge \underline{\mathbf{d} > \mathbf{d}_j}]$$

Therefore, gradability is a result of coercing a relative ‘zero’ point on an ordinal scale.

Our Proposal

Evidence in support of associating quality and non-quality NPs with two different types of measurement scales:

(i) While it is easy to define conventional measuring unit (kilograms, liters, etc.) on a ratio scale, it is not so on an ordinal scale.

Sassoon (2010, 161) observes: “Emotions are internal states. It is hard to come up with conventions as to which emotional extent should be mapped to 1, 2, 3, etc....So no object can be agreed upon by all the community of speakers to constitute a unite object.”

Proposal

(ii) While a ratio scale with an absolute zero does not allow negative values; an ordinal scale with a relative zero does.

(33) a. Zhangsan mei you zhihui.
Neg have wisdom
'Zhangsan has no wisdom.'

b. Zhangsan hen/feichang/tai mei you zhihui.
very/extraordinarily/too Neg have wisdom
'Zhangsan lacks a great deal of wisdom.'

Conclusions

- (i) In this talk, we have shown that in Mandarin Chinese there are two groups of gradable predicates, one consisting of gradable adjectives (e.g., *tall*) and gradable verbs (e.g., to *like*) and the other consisting of verbal phrases formed by the possessive morpheme *you* and a quality NP.
- (ii) We have shown that there is a correlation between the gradability of *you* + NP expressions and their subjective meanings: gradable *you* + NP are predicates of personal taste or evaluative predicates.
- (iii) We developed a degree-based analysis based on Francez and Koontz-Garboden (2015) with the innovation that quality NPs and non-quality NPs are related to different measurement scales. Gradability is a result of coercing a relative zero point on an ordinal scale.
- (iii) Our analysis shows that the grammar of natural language is sensitive to the distinctions of measurement theory of taxonomy of measurement types (Sassoon 2010).

Selected References

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