Polarity Shift in the "*bù* 'not' + Adj./Verb" Construction

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Abstract. This paper examines polarity shift in the "不 *bù* 'not' + adj./verb" construction in Chinese. Through quantitative analysis, we demonstrate the widespread occurrence of this phenomenon. By categorizing and analyzing gradable adjectives and psychological verbs, we identify four key conditions for polarity shift within this construction: (1) the adjective or verb belongs to a pair of words with opposing polarities ("adj. - ∼adj."/"verb - ∼verb"); (2) the meaning of "不 *bù* 'not' + adj./verb" is equivalent to its antonymic counterpart, "∼adj."/"∼verb"; (3) the adjective or verb exhibits subjective emotional bias; and (4) an intermediate zone exists between "adj."/"verb" and "∼adj."/"∼verb". We conclude by discussing potential explanations for this phenomenon, including challenges in applying degree semantics to account for polarity shift.

Keywords: Gradable adjectives · Psychological verbs · Negation · Polarity · Degree semantics

1 Introduction

From a logical standpoint, negation implies a binary, contradictory relation, meaning that for a proposition p and its negation $\neg p$, there is no intermediate state between p and $\neg p$. However, in Chinese, when the negation adverb 不 *bù* "not" combines with certain predicates P, the semantic relations between the entire phrase and the predicate vary.

In examples (1), (2), and (3)[1], the bolded segments represent "不 'not' + adj." constructions which respectively negate the propositions "the food is clean", "the step is high", and "the crow is black". In examples (4) and (5), the bolded segments are "不 'not' + verb" constructions that negate the propositions "they like Neo-Confucianists" and "I advocate promoting propaganda".

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[1] Due to length constraints, we have shortened example sentences in this paper. Complete sentences are available in the CLSW 2024 proceedings (Chinese version), sourced from the PKU CCL Corpus [1].

While these expressions negate specific propositions, rewriting them in semantically equivalent affirmative forms reveals varied semantic relations between these affirmative expressions and their negative counterparts. For example, in example (1), the "不 'not' + adj./verb" construction conveys "the food is dirty or problematic"; in example (2), "the step is low or neither high nor low"; in example (3), "the crow is white, gray, or another possible color"; in example (4), "they hate Neo-Confucianists"; and in example (5), "I oppose or neither advocate nor oppose promoting propaganda".

(1)   少年　儿童 应该　不　吃 **不　干净**　食物。
       young child should not eat **not clean** food
       "Children should not eat **unclean** food."

(2)   门前　　　　　　台阶 **不　高**。
       in_front_of_door step **not high**
       "The step in front of the door is **not high**."

(3)   我们 遇到　　一 只　**不　黑**　的 乌鸦。
       we   encounter one CLF **not black** DE crow
       "We encountered a crow that was **not black**."

(4)   他们 **不　喜欢** 理学家。
       they **not like**　Neo-Confucianists
       "They **do not like** Neo-Confucianists."

(5)   对 搞　宣传，　　我 既　　**不　反对**，　也　不　提倡。
       for doing propaganda, I　**neither not oppose**, also not advocate
       "For promoting propaganda, I **neither oppose** it nor advocate for it."

It is relatively straightforward to explain color adjectives like 黑 "black", 白 "white", and 灰 "gray" because they represent a range of colors rather than opposites. However, for pairs such as 干净-脏 "clean-dirty"[2], 高-矮 "high-low", 喜欢-讨厌 "like-hate", and 提倡-反对 "advocate-oppose", which express opposite concepts, the semantic relations are more nuanced. For instance, 不干净 "not + clean" is equivalent to 脏 "dirty", and 不喜欢 "not + like" is equivalent to 讨厌 "hate". In contrast, 不高 "not + high" implies "neither high nor low" combined with 矮 "low", while 不提倡 "not + advocate" suggests "neither advocate nor oppose" along with 反对 "oppose". Thus, for adjectives like 干净 "clean" and verbs like 喜欢 "like", the negation introduced by "不 'not' + adj./verb" does not follow binary logic but instead introduces polarity opposition. Table 1 contrasts

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[2] We propose that there is an intermediate zone between 干净 "clean" and 脏 "dirty" regarding cleanliness, indicating a level of "not quite clean, but not dirty either". An example from the CCL Corpus supports this point: 白花花的水，哪能就这么浪费呀！裤头袜子有什么要紧啊！都是贴身穿的，又不脏。 "Such clean water, how can we just waste it? What's the big deal about not washing underwear and socks? They are worn close to the skin, and they're not dirty." Here, the speaker persuades someone to conserve water by saying that the worn underwear and socks are not dirty, while worn clothes are certainly not clean either.

the logical and actual interpretations of adjectives and verbs in the "不 'not' + adj./verb" construction on a scale of degrees.

Table 1. Degrees of "adj."/"verb" and "不 'not' + adj./verb" from Example (1)-(5)

Category	adj./verb	Logical and Actual Degrees On a Scale
Cleanliness	干净 "clean"	*clean* - **not quite clean but not dirty -** dirty
Height	高 "high"	*high* - medium (neither high nor low) - low
Liking	喜欢 "like"	*like* - neither like nor dislike - dislike
Advocacy	提倡 "advocate"	*advocate* - neither advocate nor oppose - oppose

The italicized segments are *degrees of "adj./verb"*. **The bolded** and highlighted segments are **logical** and actual degrees of "不 'not' + adj./verb", respectively.

Examples (1) and (4) highlight a phenomenon where, negation in the "不 'not' + adj./verb" construction does not introduce binary contradiction but rather polarity opposition. We refer to this as **Polarity Shift**, as the negation causes **a semantic shift** toward **the opposite polarity** of what the adjective or verb initially indicates on the scale (from logical to actual degrees, as shown in Table 1). For example, 不干净 "not + clean" shifts in meaning from "not quite clean but not dirty - dirty" to simply "dirty", aligning with 脏 "dirty".

Table 2. 100 Instances of the "不 'not' + adj." Construction in Shuo Wang's Novels

	Percentage
Exhibiting Polarity Shift	40%
Not Exhibiting Polarity Shift	60%

Table 3. Details of Instances Exhibiting Polarity Shift in Table 2

"不 'not' + adj."	Count	"不 'not' + adj."	Count	"不 'not' + adj."	Count
不好 "not + good"	26	不容易 "not + easy"	6	不高兴 "not + happy"	2
不严谨 "not + rigorous"	1	不客气 "not + polite"	1	不明白 "not + clear"	1
不真实 "not + truthful"	1	不真诚 "not + sincere"	1	不自由 "not + free"	1
		Total	**40**		

A quantitative analysis reveals that adjectives frequently exhibit polarity shift. Using a tokenization and POS-tagging tool [2], we extracted and analyzed

the first 100 instances of gradable adjectives in the "不 'not' + adj." construction from 王朔 *Shuo Wang*'s novels 顽主 "The Troubleshooters" and 一点正经没有 "No Seriousness at All"[3]. Of these instances, 40% demonstrate polarity shift, with 26 occurrences of 不好 "not + good". Further details are provided in Table 2 and 3.

This paper explores the features of adjectives and verbs that trigger polarity shift, identifies the conditions under which polarity shift occurs, and proposes a potential explanation for this phenomenon.

2   The Selectivity for Adjectives in Polarity Shift

2.1   Previous Research

The syntactic distribution and semantic features of adjectives in Modern Chinese have been extensively studied [3–7]. A widely accepted view is that Chinese adjectives indicate the properties or states of objects. Zhu argued that adjectives can be classified based on structural complexity into simple forms and complex forms, which correspond to his later termed "gradable adjectives" and "non-gradable adjectives" [3,4][4]. Non-gradable adjectives are primarily descriptive, generally cannot be modified by degree adverbs or 不 "not", do not occur in pairs, and do not exhibit polarity. Therefore, they do not trigger polarity shift in the "不 'not' + adj." construction. This study focuses primarily on gradable adjectives.

Gradable adjectives, which denote properties of objects [3,6], can be further subdivided based on syntactic distribution and semantic features. [11] identified a series of gradable adjectives that appear in pairs, such as 大-小 "big-small" and 长-短 "long-short", based on their ability to occur in the "adj. + 了 (*le*) + quantifier" construction. [8] classified adjectives according to their scalar features into three types: 干净 "clean"-type words, 大小 "big-small"-type words, and

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[3] 王朔 *Shuo Wang* is a contemporary Chinese novelist whose works are widely regarded as representative of Modern Chinese and are thus frequently used in linguistic analyses.

[4] Zhu classified adjectives in Modern Chinese into two types, 性质形容词 "property adjectives" and 状态形容词 "state adjectives", which respectively indicate the properties and states of objects. "Property adjectives" include monosyllabic adjectives (e.g., 大 "big", 红 "red", 多 "many") and some bisyllabic adjectives (e.g., 干净 "clean", 大方 "generous", 规矩 "proper"). "State adjectives", on the other hand, include reduplicative forms (e.g., 老老实实 "honest", 黑乎乎 "darkish"), adjectives with postmodifiers (e.g., 黑乎乎 "darkish", 黑咕隆咚 "pitch-black"), 煞白 "deathly pale"-type words, "很/挺 'very' + adj. + 的 *de*" construction (e.g., 挺好的 "pretty good"), and compounds with internal parallel structures (e.g., 又高又大 "tall and big"). Although this classification is widely recognized among Chinese linguists, it lacks direct counterparts in English linguistics. From the perspective of degree semantics, "property adjectives" can be seen as "gradable adjectives" and "state adjectives" as "non-gradable adjectives". In this paper we use the terms gradable and non-gradable adjectives to refer to these two types.

冷热 "cold-hot"-type words. [9] categorized adjectives into four types based on their quantitative features: rank-order adjectives, percentage adjectives, extreme adjectives, and positive/negative value adjectives. [6] divided adjectives into quantitative and non-quantitative categories based on their ability to be modified by degree markers. [16] classified adjectives into relative and absolute ones based on the presence of an upper or lower bound in their scalar structure, and into gradable and non-gradable adjectives based on their degree of gradability. [10] categorized adjectives into seven types based on their gradable structures: nominal adjectives, totally open ordinal adjectives, lower closed interval adjectives, upper closed interval adjectives, totally closed interval adjectives, totally open interval adjectives, and lower closed ratio adjectives.

Most research has centered on the gradability, scalar structure, and quantitative features of gradable adjectives, laying a foundation for discussing polarity in this section. However, existing studies have rarely examined the semantic features of the "不 'not' + adj." structure, especially in relation to polarity shift. Previous discussions mainly address when 不 "not" can modify adjectives and the its relation to degree semantics. For example, [9] noted that "any adjective that can be modified by the sequence 有点儿-很-最 'a little-very-most' can also be negated by 不 'not' ", and that the "不 'not' + adj." construction denotes a lower scalar degree. Some issues, like category overlaps, remain unresolved.

This section provides a detailed classification and analysis of gradable adjectives and examines the selectivity for adjectives in the "不 'not' + adj." construction that triggers polarity shift.

2.2   Classification of Adjectives

For a "不 'not' + adj." construction to trigger polarity shift, the adjective must belong to a pair of adjectives denoting opposing polarities. Thus, each category comprises pairs of gradable adjectives with opposite polarities.

高-低 "High-Low" Category. The 高-低 "high-low" category includes adjectives that describe the degree to which an object exhibits specific physical properties or dimensions. For example, 桌子很长/短 "the table is very long/short" refers to the table's position along the dimension of length. Between these polarities, there is often an intermediate zone, such as 高-**中**-低 "high-**middle**-low" or 早-**准时**-晚 "early-**on time**-late". Even without an explicit linguistic form for "middle/medium", phrases like 不胖不瘦 "not fat + not thin", 不浓不淡 "not thick + not light", and 不远不近 "not far + not near" reflect a cognitive recognition of this intermediate zone. These adjectives convey objective attributes and people generally show no subjective emotional preference for either polarity. This category aligns closely with the 量度形容词 "scalar adjectives" as defined in [11].

(6) 俺的 脚　不　重。
   my　foot **not heavy**
   "My foot is **not heavy**."

(7) 隔　　条　不　窄　　　的 胡同 就是 中队部。
   across CLF **not narrow** DE alley is　　squad-headquarters
   "The squad headquarters is right across a **not narrow** alley."

Adjectives in the 高-低 "high-low" category do not trigger polarity shift. Each word in a pair from this category can occur in the "不 'not' + adj." construction, but this creates binary contradiction rather than polarity opposition. Whether negating the positive or negative polarity, "不 'not' + adj." semantically corresponds to "∼adj."[5] in combination with the intermediate zone between "adj." and "∼adj.", as seen in examples (2), (6), and (7). For instance, "The foot is not heavy" in example (6) is equivalent to "The foot is light" ∨ "The foot is neither heavy nor light." Similarly, "The alley is not narrow" in example (7) equals "The alley is wide" ∨ "The alley is neither wide nor narrow."

干-湿 "Dry-Wet" Category. This category also describes objective properties. For example, 这抹布是干/湿的 "the rag is dry/wet" refers to the moisture level of the rag. Similar to 高-低 "high-low", the 干-湿 "dry-wet" category includes two opposing polarities and people show no subjective emotional bias toward either polarity. However, unlike the 高-低 "high-low" category, 干-湿 "dry-wet" lacks an intermediate zone. For instance, an object is "dry" only when all moisture is completely removed and the humidity is reduced to zero, whereas any non-zero humidity is considered "wet". Due to this feature, polarity opposition aligns with contradictory opposition here: 不干 "not dry" = 湿 "wet", and 不湿 "not wet" = 干 "dry". Thus, polarity shift does not occur in this category.

(8) 什么 东西 掉进 水里 也　 打　不　湿?
   what thing falls into　water also **not wet**
   "What could fall into the water but **not get wet**?"

(9) 人们　在 研究　　不　纯　　的 气体。
   people are studying **not pure** DE gases
   "People are studying **impure** gases."

Currently, only two pairs fall into this category: 干-湿 "dry-wet" and 纯-杂 "pure-impure", as illustrated in examples (8) and (9).

诚实-虚伪 "Honest-Deceitful" Category. This category describes subjective qualities related to emotions, character, or evaluations. People generally have strong preferences for the positive polarity, such as 诚实 "honesty", 安全 "safe",

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[5] In this paper, we use "∼adj." and "∼verb" to refer to the antonymic counterparts of "adj." and "verb", respectively.

and 公平 "fair", while rejecting the negative polarity, such as 虚伪 "deceitful", 危险 "danger", and 偏心 "biased".

For adjectives in this category, the "不 'not' + adj." construction is semantically equivalent to the antonymic adjective "~adj.", regardless of whether it denotes a positive or negative polarity. For example, 不明确 "not + clear" in example (10) means "vague"/"chaotic", while example (11) demonstrates that 不安全 "not + safe" conveys 安全的反义词 "the antonym of security". Like 干-湿 "dry-wet", this category lacks an intermediate zone, with no cognitive state between polarities such as "neither clear nor vague", "neither tidy nor messy", or "neither safe nor dangerous". Therefore, polarity shift does not occur in this category either.

(10)   目的 **不 明确** 的 管理,   必然   是 混乱   的。
        goal **not clear** DE management, inevitably is chaotic DE
        "Management with **unclear goals** will inevitably be chaotic."

(11)   金融   安全   的 反义词   是 金融   **不 安全**,   但 绝对
        financial security DE antonym is finance **not secure**, but absolutely
        不是 危机 爆发。
        not   crisis outbreak
        "The antonym of financial security is **financial insecurity**, but it is certainly not crisis outbreak."

积极-消极 "Positive-Negative" Category. This category also describes subjective qualities, particularly psychological traits or evaluations, and is influenced by cultural factors and personal experiences. People often favor positive adjectives like 开心 "happy", 幸运 "lucky", and 成熟 "mature", while disfavoring negative ones like 伤心 "sad", 倒霉 "unlucky", and 幼稚 "childish".

An intermediate zone occurs between in this category. For instance, between 熟悉 "familiar" and 陌生 "unfamiliar", there is a state like "normal friend", and between 详细 "detailed" and 简略 "concise", there is 详略得当 "detailed and brief appropriately".

The intermediate zone allows for polarity shift, but only for the positive ends of these pairs. In contexts like 情绪不稳定 "emotion + unstable" in example (12), 必然出大乱子 "inevitably cause big trouble" in example (13), and the magazine title 小流氓 "little rascal" in example (14), expressions such as 不坚强 "not + strong", "不镇静" "not + calm", and 不文雅 "not + refined" exhibit negative polarities, which oppose the polarities indicated by 坚强 "strong", 镇静 "calm", and 文雅 "refined".

(12) 总   有人   情绪   不 稳定、理智 **不 坚强**。
      always someone emotions not stable, sense **not strong**
      "There are always people who have unstable emotions, and **weak** senses."

(13) 事   到   临头 **不 镇静**，必然   出   大乱子。
      matter arrive hushy **not calm**, inevitably cause big-trouble
      'When it comes to a critical moment, if one is **not calm**, it will inevitably lead to major trouble."

(14) 他 将   **不 文雅**   的 《小流氓》   刊名   改 为
      he changed **not refined** DE "Little-Rascals" magazine-title to be
      《龙虎门》。
      "Dragon-Tiger-Gate"
      "He changed the **unrefined** magazine title 'Little Rascals' to 'Dragon Tiger Gate.'"

However, the negative ends in the 积极-消极 "positive-negative" category do not trigger polarity shift in the "不 'not' + adj." construction. As seen in examples (15) and (16), the negation in these cases introduces contradictory relation rather than polarity shift, so 不消极 "not negative" ≠ "positive" and 不保守 "not conservative" ≠ "avant-garde".

(15) 我 希望 一切 问题   都 以 **不 消极**   的 方式   解决。
      I   hope all   problems all with **not negative** DE manner resolve
      "I hope all problems are resolved in a **non-negative** manner."

(16) 这个 计划 既   **不 保守**，   也 不 前卫。
      this plan both **not conservative**, also not avant-garde.
      "This plan is **neither conservative** nor avant-garde."

2.3   Summary

Based on the previous discussion, the conditions required for polarity shift in the "不 'not' + adj." construction can be summarized as follows:

(I) The "adj." belongs to a pair of words with opposing polarities ("adj. -∼adj.");
(II) The meaning of "不 'not' + adj." is equivalent to "∼adj.";
(III) The "adj." exhibits subjective emotional biases;
(IV) An intermediate zone exists between "adj." and "∼adj.".

Table 4 shows the distribution of these conditions and the occurrence of polarity shift across the adjective classifications discussed in this section. We observe a continuum-like distribution across Conditions I, II, III, and IV from the top to the bottom of the table, with one exception in Condition IV, where the first and fourth categories contrast with the second and third. Polarity shift occurs only in the 积极-消极 "positive-negative" category, with an asymmetry between the positive and negative ends.

Table 4. Conditions for Polarity Shift based on Classification of Adjectives

Category		Cond. I	Cond. II	Cond. III	Cond. IV	Polarity Shift
高-低 "high-low"	positive	+	-	-	+	-
	negative	+	-	-	+	-
干-湿 "dry-wet"	positive	+	+	-	-	-
	negative	+	+	-	-	-
诚实-虚伪 "honest-deceitful"	positive	+	+	+	-	-
	negative	+	+	+	-	-
积极-消极 "positive-negative"	positive	+	+	+	+	+
	negative	+	-	+	+	-

*"+/−" indicates whether the condition or conclusion holds.

Condition II aligns closely with the definition of polarity shift, but lacks the concept of "shift". Notably, Conditions II and IV are intrinsically connected: if Condition IV does not hold-meaning no intermediate zone exists between the two polarities-then Condition II must hold, implying that negating one polarity inevitably points to the opposite polarity. Only when Condition IV holds can contradictory and polarity oppositions along the scale diverge, allowing polarity opposition to replace the contradictory opposition and enabling polarity shift along the scale.

3 The Selectivity for Verbs in Polarity Shift

3.1 Insights from the Classification of Adjectives

Following a similar approach as in the previous section, polarity shift in the "不 'not' + verb" construction theoretically requires the verb to exhibit polarity, meaning it must possess degree semantics, allowing modification by negation adverbs like 不 "not" and degree adverbs like 很 "very", 有点 "kind of", or 最 "most". A notable class of verbs with these features is psychological verbs.

Psychological verbs in Chinese have received relatively little attention in existing research, especially concerning degree semantics. [12] noted that psychological verbs semantically describe mental activities and can be syntactically identified by their appearance in the "Subject (a person) + 很 'very' + verb + Object" construction. The consistent modifiability of psychological verbs by 很 "very" sets them apart from other verbs, making them similar to adjectives. For this reason, [12] suggested classifying them as "adjectival verbs". Subsequent research has largely confirmed that the ability to combine with 很 "very" is a distinguishing feature of psychological verbs and explored this syntactic phenomenon from various perspectives [13,14].

In addition to their degree semantics, psychological verbs inherently carry subjective emotional bias, aligning with the conclusions drawn in the previous

section. This section categorizes psychological verbs to examine their ability to exhibit polarity shift in the "不 'not' + verb" construction[6].

3.2   Classification of Psychological Verbs

爱-恨 "Love-Hate" Category. This category of psychological verbs has emotional polarities on a scale, such as 爱-恨 "love-hate", with an intermediate zone between these polarities. For instance, in example (17), the elderly woman 不爱 "not + love" drinking water, but this does not imply that she hates it-there is a neutral state where one feels neither joy nor aversion. For both positive and negative verbs in pairs of this category, the "不 'not' + verb" construction does not trigger polarity shift, as shown in examples (18) and (19). Tokyo residents 不欣赏 "not + appreciate" large courtyards, but this does not mean they 嫉妒 "envy" them. Similarly, 不嫉妒 "not + envy" others does not mean 羡慕 "admire" them.

> (17)   老年   妇女   往往 **不 爱**   喝   水。
> elderly women often **not love** drink water
> "Elderly women often **does not love** to drink water."

> (18)   东京   居民   **不 欣赏**   深宅 大院。
> Tokyo residents **not appreciate** large courtyards
> "Tokyo residents **do not appreciate** large courtyards."

> (19)   画师们 **不   嫉妒** 他人。
> painters **not envy** others
> "Painters **do not envy** others."

明白-纳闷 "Understand-Be Puzzled" Category. This category, silimar to the 干-湿 "dry-wet" category of adjectives, has no intermediate zone between polarities. Here, "不 'not' + verb" is semantically equivalent to the antonymic verb "~verb", and polarity shift does not occur. For example, in example (20), 不明白 "not + understand" means 纳闷 "being puzzled". Currently, the only pair of verbs identified in this category is 明白-纳闷 "understand-be puzzled".

> (20)   自己 **不   明白**   该   向   哪个   方向   努力。
> self   **not understand** should towards which direction strive
> "One **does not understand** in which direction to strive."

喜欢-讨厌 "Like-Dislike" Category. This category also includes emotional polarities but with an intermediate zone. For instance, between "喜欢" "like" and 讨厌 "dislike", there exists a state of "not yet liking, but also not disliking".

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[6] Some common psychological verbs, such as 感谢 "appreciate", 怀念 "miss", 强调 "emphasize", and 后悔 "regret", are not included in this discussion because they lack corresponding opposites in terms of polarity.

Similarly, between 信任 "trust" and 怀疑 "doubt", there is a state where one "has not yet established trust, but also does not suspect". For positive verbs in this category, occurring in the "不 'not' + verb" construction results in polarity shift. For example, in example (21), 不关心民间疾苦 "not + care about + the people's suffering" implies "ignore the people's suffering", and in example (22), 不满意 "not + be satisfied" means 失望 "be disappointed".

(21)   要   改正   **不 关心** 民众 疾苦   的 作风。
        must correct **not care** public hardships DE workstyle

        "The workstyle of **not caring** about the public's hardships must be corrected."

(22)   你 如果 **不 满意**,   可以 改   到   你 满意   为止。
        you if   **not satisfied**, can change until you satisfied end

Negative ends in this category, similar to those in the 积极-消极 "positive-negative" category of adjectives, do not trigger polarity opposition. For instance, in examples (23) and (24), 不忽视 "not + ignore" and 不失望 "not + be disappointed" do not imply 重视 "value" or 满意 "be satisfied". Therefore, polarity shift doesn't occur in these cases.

(23)   杰斐逊   并 **不**   **忽视**   财产权。
        Jefferson **not ignore** property rights

        "Jefferson **did not ignore** property rights."

(24)   他 **不** 让 人   **失望**。
        he **not** let people **down**

        "He **do not let** people **down**."

To better showcase the characteristics of adjectives and verbs across categories and support future research, we provide additional examples in Tables 6 and 7 in the appendix. Due to space constraints, only Chinese terms are provided.

3.3 Summary

The conditions required for polarity shift in the "不 'not' + verb" construction can be summarized as follows. Table 5 demonstrates the distribution of these conditions and the occurrence of polarity shift across the (psychological) verb classifications.

(I)   The "verb" belongs to a pair of words with opposing polarities ("verb - ∼verb");
(II) The meaning of "不 'not' + verb" is equivalent to "∼verb";
(III) The "verb" exhibits subjective emotional biases;
(IV) An intermediate zone exists between "verb" and "∼verb".

The conditions above are parallel to those for the "不 'not' + adj." construction, as discussed in Sect. 2.3. Therefore, the conditions for polarity shift in the "不 'not' + adj./verb" construction can be uniformly presented as follows:

Table 5. Conditions for Polarity Shift based on Classification of Verbs

Category		Cond. I	Cond. II	Cond. III	Cond. IV	Polarity Shift
爱-恨 "love-hate"	positive	+	-	+	+	-
	negative	+	-	+	+	-
明白-纳闷 "understand-be puzzled"	positive	+	+	+	-	-
	negative	+	+	+	-	-
喜欢-讨厌 "like-dislike"	positive	+	+	+	+	+
	negative	+	-	+	+	-

*"+/−" indicates whether the condition or conclusion holds.

(I)   The "adj."/"verb" belongs to a pair of words with opposing polarities ("adj. - ∼adj."/"verb - ∼verb");

(II) The meaning of "不 'not' + adj./verb" is equivalent to "∼adj."/"∼verb";

(III) The "adj."/"verb" exhibits subjective emotional biases;

(IV) An intermediate zone exists between "adj."/"verb" and "∼adj."/"∼verb".

4   Discussion

The analyses in the previous sections reveal that the occurrence of polarity shift in the "不 'not' + adj./verb" construction is closely related to the scalar properties of adjectives and verbs. This phenomenon occurs only when there is an intermediate zone between two polarities, allowing the meaning of the entire phase to shift from a combination of the intermediate zone and one polarity to the other polarity on a scale. Furthermore, our discussion indicates that, beyond the other three prerequisites-(1) the adjective or verb must have polarity, (2) the meaning of "不 'not' + adj./verb" must be equivalent to "∼adj."/"∼verb", and (3) an intermediate zone must exist between "adj."/"verb" and "∼adj."/"∼verb"-the subjective emotional bias of "adj."/"verb" also plays a critical role in exhibiting polarity shift.

Degree semantics introduces "degree" as a key element in semantics, suggesting that gradability in natural language is tied to scalar structures [7,15–17]. For adjectives, degree semantics formalizes their function as mapping an individual x to a specific value (or range) y on a relevant scale axis.

[7,17] each proposed models of scalar structure for positive and negative adjectives in Chinese (see Fig. 1). [17] argued that positive and negative adjectives map to complementary intervals: positive adjectives relate to a range from zero to a positive value $[0, n]$, which is always positive and monotonically increasing with a minimun value 0, while negative adjectives project onto a range from a positive value down to negative infinity $[-\infty, n]$, with no minimum value or objective zero point. [7] proposed that the positive range extends from a standard point $(N - p)$ upwards to infinity $[N - p, +\infty]$, while the negative range extends from a negative standard point $(N - n)$ down to the base of the scale (namely 0) $[0, N - n]$, with a 中庸区间 "medium zone" between the two standard points $[N - n, N - p]$. Both models claim that they can explain the asymmetric

syntactic distribution in antonymous adjective pairs, such as the phenomenon that only positive adjectives can combine with the degree marker 度 "degree" to form metonymic expressions and the relation between presupposed degrees of adjectives and their compatibility with the "X (an object) + 有多 'how much' + adj.?" construction.
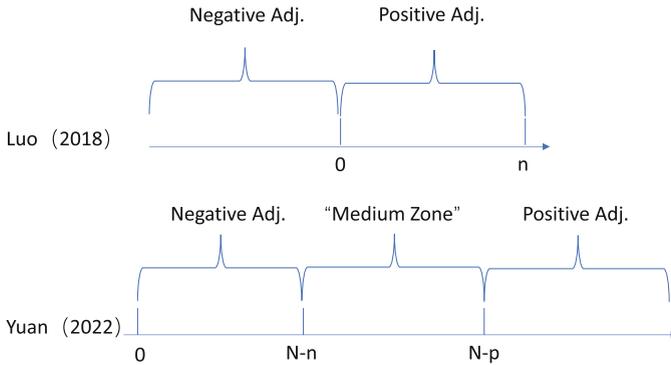

Fig. 1. Scalar Structures of Adjectives [7,17]

This paper does not intend to examine the syntactic and semantic details of gradable adjectives fully, nor to judge the superiority of these two scalar models. However, based on previous discussions, [17]'s model does not account for the intermediate zone between polarities, as observed in categories like 高-低 "high-low", 积极-消极 "positive-negative", 爱-恨 "love-hate", and 喜欢-讨厌 "like-dislike". Furthermore, neither model offers an potential explanation for polarity shift. They do not address the coexistence and distinction between contradictory and polarity opposition on a scale. An open question remained: could subjective emotional bias, as highlighted in Condition IV, pose challenges to modeling scalar structure?

Pragmatic analysis might offer new insights. [18] applied game theory to analyze the use of euphemistic expressions to express negative meanings (e.g., 不太聪明 "not + very + smart" as a euphemism for "stupid"). He observed that (1) euphemistic expressions are particularly effective in softening a speaker's tone, making the language more appropriate for some situational context, and (2) once these euphemistic expressions with negative meanings become conventionalized and grammaticalized, they develop into a communicative strategy that serves both speaker and listener. This convention makes speakers more likely to adopt euphemistic expressions in such cases.

In polarity shift, subjective preferences for positive terms in pairs from categories like 积极-消极 "positive-negative" or 喜欢-讨厌 "like-dislike" influence the pragmatic and emotional nuances of these words, affecting their frequency and distribution. People often combine positive words with negation to express negative meanings rather than using inherently negative words. Over time, this

usage pattern can shift the opposition type in "不 'not' + adj./verb" construc-
tions, reinterpreting contradictory opposition as polarity opposition and giving
rise to polarity shift.

We recommend further research on incorporating subjective emotional bias
into degree semantics and scalar structure to explain the coexistence of contra-
dictory and polarity opposition on scales. Additionally, the impact of emotional
bias on the syntax and semantics of relevant adjectives and verbs, as well as
the psychological basis for intermediate zones between polarities, merits deeper
investigation.

Appendix

Table 6. Example Adjective Pairs by Category

Category	Examples
高-低 "high-low"	高-低(矮) 大-小 长-短 宽-窄 厚-薄 粗-细 深-浅 重-轻 远-近 快-慢 多-少 贵-便宜 早-晚 老-少 胖-瘦 硬-软 密-疏 稠-稀 浓-淡 清-浊 热-冷 满-空 好-坏(差)
干-湿 "dry-wet"	干-湿 纯-杂
诚实-虚伪 "honest-deceitful"	诚实-虚伪 安全-危险 公平-偏心 踏实-担心 自然-牵强 明确-含糊 清楚-模糊 整齐-杂乱
积极-消极 "positive-negative"	积极-消极 干净-脏 好-坏 好看-难看 灵活-死板 熟练-生疏 深刻-肤浅 高兴-难过 开心-伤心 细心-粗心 镇静-慌张 干脆-拖拉 坚强-软弱 详细-简略 光荣-可耻 严格-宽松 聪明-笨 清醒-糊涂 果断-犹豫 开明-保守 节俭-浪费 舒服-难受 幸福-痛苦 安静-吵闹 民主-专制 大方-小气 文雅-粗俗 熟悉-陌生 幸运-倒霉 主动-被动 热心-冷淡 认真-马虎 简单(容易)-困难 成熟-幼稚 宽裕-拮据 常见-罕见 善良-邪恶

Table 7. Example Verb Pairs by Category

Category	Examples
爱-恨 "love-hate"	爱-恨 欢迎-讨厌 提倡-反对 欣赏(羡慕)-嫉妒 惦记-忘记
明白-纳闷 "understand-be puzzled"	明白-纳闷
喜欢-讨厌 "like-dislike"	喜欢-讨厌 赞同(同意)-反对 关心-忽视 信任-怀疑 理解-误解 满意-失望 重视-轻视 尊重-轻慢

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