

A Study on Ambiguity of Chinese “De”-Construction Based on the Qualia Role

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Abstract: In modern Chinese, “De” (的) -Construction is widely used, and the “NP1+的+NP2” structure often leads to ambiguity. According to the theory of qualia structure, analyzing the qualia roles of nouns can explain the causes and semantics behind the ambiguity formation. The activation of implicit predicates is used to differentiate semantics. As some nouns can also function as verbs, a multifaceted structure, “NP1/VP+的+NP2,” is created. Moreover, for “de” (的) -construction where the qualia roles of nouns are the same, the interpretative power is evidently compromised. This phenomenon is related to cultural background, pragmatic communication, and other factors, causing the extension and expansion of semantic connotations in the “de” (的) -construction. Therefore, the generation of ambiguity is unrelated to the qualia roles of noun materials.

Keywords: qualia role, implying predicate, “de” (的) -construction, ambiguity

1. Introduction

In modern Chinese, the character “的” is generally regarded as the most frequently used and versatile character, and the “de” (的) -construction has long been a focus of research for scholars both in China and abroad. Corpus data collected from various online sources reveals that the “de” (的) -construction can be paired with diverse lexical attributes, showcasing a robust combinatory functionality. After organizing the corpus data and reviewing relevant literature [1], the “NP1+的+NP2”, a genitive construction linked by the character “的” is identified as the most prone to ambiguity. In actual usage, this construction can convey different meanings in various contexts. For instance, in the phrase “六月的荷塘” (lotus pond in June/June’s lotus pond), due to semantic and pragmatic differences, this genitive construction can signify two distinct meanings: one referring to a lotus pond in the month of June and the other to a lotus pond owned by an individual named “六月” (June). Not all structures, however, are ambiguous, as some are internally constrained and do not exhibit polysemy, such as in “书的封面” (book cover), which falls outside the scope of this discussion. This paper exclusively examines genitive constructions with ambiguity.

Regarding the ambiguity in the “NP1+的+NP2” structure, the Generative Lexicon Theory offers an effective approach to explain the reasons and mechanisms behind its ambiguity. Scholars have

extensively discussed this issue, primarily approaching it from the perspective of implying predicates [2]. They argue that the key to interpreting the semantics of this structure lies in identifying the implied predicates. Therefore, the ambiguity is generally attributed to the diversity of implied predicates. In other words, if the implied predicates in this structure are the same, no ambiguity arises [3]. However, through corpus collection, instances of genitive constructions with ambiguity are found that cannot be solely attributed to the diversity of implied predicates. Nevertheless, this does not entirely negate the explanatory power of the Generative Lexicon Theory for this structure. The ambiguity in the “NP1+的+NP2” structure can be considered a result of the different qualia roles assumed by the noun phrases, leading to distinct implied predicates [4]. Based on this foundation, this paper primarily explores the interpretative power of qualia roles in the “的” genitive structure, categorizing the ambiguity issue into situations where qualia roles are the same and situations where they differ. It aims to provide explanations for the causes and semantics of ambiguity in different scenarios.

2. Qualia Structure Theory in Generative Lexicon Theory

Professor Pustejovsky, through the observation and study of conventional polysemous relationships, attempted to establish a framework that could construct models in language theory and simultaneously explain practical issues in language application. In the 1990s, he founded the Generative Lexicon Theory (GLT). GLT posits that lexicons should not only list the meanings of words but also explain the dynamic and creative usage of words. It advocates that the meanings of words are compositional, dynamic, and generative. For the sake of economy and learnability, different meanings of “logical polysemous relationships” can be attributed to the various usages of words. In other words, this relatively stable individual lexical item, when incorporated into a sentence, can acquire innovative usages in context. These innovative usages can be obtained through several procedures, providing encoded knowledge for each lexical item in the system, primarily concerning qualia roles, semantic types, and some combinatory generation mechanisms [5].

Qualia Structure are the most central content in the Generative Lexicon Theory, reflecting fundamental human understandings and perceptions of objects. As early as 1995, Pustejovsky classified the qualia roles of nouns into four types: formal roles, constitutive roles, telic roles, and agentive roles. formal roles describe attributes that distinguish an object within a larger cognitive domain; Constitutive roles describe the relationship between an object and its component parts; telic roles describe the purpose and function of an object; agentive roles describe how an object is formed or produced. It is crucial to note that these four roles are broad categories for classifying nouns and can be further refined into more specific categories, a subject that has also been studied by other scholars. These four types of qualia roles bridge the gap between linguistic knowledge and encyclopedic knowledge, providing a knowledge-based vocabulary description method for the computational features of language. Building upon qualia roles and semantic types, the Generative Lexicon Theory has continuously developed and refined, further elucidating four different mechanisms for the combination of lexical items. The analytical approach of Qualia Structure Theory holds significant implications for describing and interpreting the semantics of structures, with a broad range of applications, including teaching Chinese as a foreign language and computer recognition, among others.

3. Ambiguity in “的” Genitive Constructions with Different Qualia Roles

3.1. Ambiguity in the “NP1+的+NP2” Structure

The Generative Lexicon Theory (GLT) provides a scientific theoretical foundation for explaining and

differentiating the ambiguity in the “NP1+的+NP2” structure. Before the emergence of GLT, determining whether a linguistic structure had ambiguity often required the use of substitution methods and common-sense considerations to discuss different scenarios. Regarding the genitive construction with the character “的” this involved manually identifying the “implied” “predicate.” With the consideration of qualia structure, “predicate implication” gains scientific theoretical support by restricting the implied predicates in the “Noun/Verb+的+Noun” structure to the relevant qualia roles of the noun acting as the head or modifier [6]. The following analysis provides specific examples:

A:

福建的朋友 (friends from Fujian / friends owned by Fujian)

艺术家的气质 (qualities possessed by an artist / qualities resembling an artist)

演员的父亲 (father of an actor/actress / father in the role of an actor/actress)

B:

鲁迅的书 (books written by Lu Xun / books owned or related to Lu Xun)

周星驰的电影 (movies directed by Stephen Chow / movies acted in by Stephen Chow)

丘吉尔的故事 (stories told by Churchill / stories about Churchill)

莫奈的画像 (Portraits painted by Monet/Painting a portrait of Monet)

C:

你的棋 (chessboard owned by you / your skill in chess*)

乔丹的篮球 (basketball owned by Jordan / Jordan’s basketball skills*)

In these three sets of examples, fundamentally, the ambiguity arises from the various qualia roles of NP (including NP1 and NP2), leading to differences in the implied verbs. Understanding how GLT explains the causes of ambiguity in this structure, i.e., the interpretation of homophonic ambiguity, reveals that through analyzing the qualia roles of nouns, the different meanings expressed by these genitive structures can be deciphered.

(1) The ambiguity in genitive constructions of Type A stems from the different qualia roles of NP1, resulting in varied implied verbs. When “福建” (Fujian) serves as a formal role, the implied verbs express the relational properties of “coming from” and “having” in relation to “朋友” (friends). Conversely, when “福建” (Fujian) functions as a agentive role, the implied verbs express the non-inherent possessive relationship of “having” in relation to “friends.” Similarly, when “艺术家” (artist) can act as both a performer and a dispositional role, the implied verbs are respectively “having” and “resembling,” expressing the semantics of possession and attributes. In the case of “父亲” (father) and “演员” (actor) expressing inherent possessive relationships, corresponding verbs cannot be supplied, but when expressing relational properties, the implied verb is the agentive role “as.”

Ultimately, the different qualia roles are fundamentally determined by the semantic features of NP1 itself. For instance, in the case of “artist” it refers not only to a category of people but also to the characteristics these people possess. Knowledge and life experiences often prompt us that the qualities possessed by musicians, painters, dancers, etc., are unique and not comparable to those of ordinary individuals. These characteristics, such as long hair, a beard, or a tall figure, have become distinctive signs of individuals in this category. Therefore, pin “艺术家的气质”, “artist” not only forms possession semantics as normal [+mankind], but can also forms attribute semantics as specific [+trait] which means “qualities resembling those of an artist.” The same reasoning applies to “演员的父亲”, where “actor” can function as [+identity] forming attribute structure except as [+person] forming possession structure. Therefore, further interpretation of the ambiguity in “de”-construction can be based on the semantic features of qualia roles, providing important insights for explaining the

ambiguity in structures with identical qualia roles.

(2) In Group B, the principles are similar to Group A, with the key difference being that in Group B, NP2 assumes different qualia roles. For instance, in “鲁迅的书”, the book can play an agentive role, with the implied predicate being “written.” It can also play a formal role, with the implied predicate being “stored.” Furthermore, it can play a telic role, where “narrate” is the function of the “book”. Similarly, in “周星驰的电影”, “电影” (‘movie’) can be filmed—acting as an agentive role, and it can be directed—acting as a formal role. It’s essential to note that in Group B, the qualia role of NP1 changes along with the variation in NP2’s qualia role. For example, “Monet” can serve as the subject of a painting (painter), producing the painting, and also as the object of a painting, constituting the painting.

Furthermore, it must be acknowledged that in practical contexts, structural ambiguity often does not require analysis of the types of qualia roles, as the overall meaning of the structure is not only influenced by the semantics of the structure, but also by how both parties in communication psychologically judge the nouns in the structure. For example, although there is a problem of ambiguity in the structure of “Lu Xun’s books”, it is common knowledge that “Lu Xun” is the most important writer in daily communication. Therefore, this biased structure often refers to “books written by Lu Xun”, so there is usually no ambiguity in communication. In other words, “Sb.’s book”, if “Sb.” [+writer], then “XX” often plays a agentive role; If “Sb.” [-writer], then “Sb.” often plays a formal role. It can be seen that in actual communication, both dialogue parties can automatically differentiate ambiguity through semantic features and directly filter out the possibility of another meaning. If we turn “Sb.’s book” into “Sb.’s novel”, the situation becomes even more complex, because in real life, novels play an agentive role, that is, the possibility of implicit predicate being “write” is much greater than that of “book”. It can be seen that the theory of property structure can be used to explain the generation of ambiguity and the differentiation of its meaning. However, for the semantic selection of a specific “的” word with a biased structure in pragmatics [7], it is necessary to analyze the specific semantic characteristics and cultural background of the noun in detail.

(3) Group C has certain unique characteristics compared to Groups A and B. This is because nouns like “棋” (‘chess’) and “篮球” (‘basketball’) in this category possess both material and conceptual meanings, similar to “本子” (‘notebook’) and “数学” (‘mathematics’). For example, in “小明的数学非常好” (‘Xiaoming’s mathematics is excellent’), the fixed interpretation is usually that Xiaoming excels in the subject of mathematics, demonstrating a high level of proficiency. The commonality lies in the ambiguity arising from the different qualia roles of NP2. In Chinese, nouns often exhibit polysemy, where they can be interpreted as concrete or abstract. [8] The interpretation of a noun like “棋” as a concrete or abstract concept depends mainly on contextual modulation. If contextual modulation emphasizes a formal role, it is interpreted concretely; if it emphasizes an agentive role, it is interpreted abstractly. When “棋” is treated as a tangible entity, the implied predicates are “having” and “buying,” representing formal roles. When “棋” is considered in an abstract sense, the implied predicate “how well it is played” is expressed later as a complement, and the “chess skills” is produced by NP1, making it an agentive role.

3.2. Ambiguity in the Structure of “NP/VP+的+NP”

Let’s examine examples:

报告的问题 (the problems of the report/ reported issues)

分析的材料 (analysis of materials /analyzed materials)

The ambiguity arising from this structure can be explained using the same GLT procedure as in

3.1(B). That is, the noun “问题” (‘issues’) in the structure can assume two different qualia roles: as a “constitutive role” in “the issues raised in the report” or as an “agentive role” in “the issues mentioned in the report.”

The issue to be addressed here is that these structures seem to be more easily distinguished from a traditional part-of-speech perspective. When “报告” (‘report’) functions as a verb, it forms a verb-object phrase (V-O phrase), and when it functions as a noun, it forms a genitive-structure phrase. In this case, the crossing of the genitive structure and the V-O phrase creates a polysemous phrase.

3.3. Ambiguity in Complex Compound “的” Structures

Consider examples:

咬死了猎人的狗 (the dog that bit the hunter to death/the hunter’s dog who was bitten to death)

抢走了裴瑜的男人 (the man who took away Pei Yu/Pei Yu’s man who was taken away)

This classic structural ambiguity is resolved through hierarchical analysis. GLT can also analyze the qualia roles of “狗” (‘dog’) and “男人” (‘man’) to resolve this issue, bringing it back to the “鲁迅的书” (‘books by Lu Xun) problem.

4. Ambiguity Issues in “NP1+的+NP2” with Identical Qualia Role

Language is not merely a discourse system for conveying information; it also encompasses an individual’s thought processes, cultural background, and serves as a carrier of intrinsic national culture. Therefore, the generativity and creativity of words in practical application go beyond what logical reasoning systems can cover.

The introduction of GLT holds groundbreaking significance and practical value in this information age. However, attempting to explain the warmth of linguistic meaning with a “cold” theory may have inherent limitations. Nevertheless, this should not lead to the denial of its immense theoretical value in explaining and differentiating ambiguity issues. In the pragmatic use of language, real situations can be both simplified and complicated. Qualia role analysis can effectively explain and differentiate ambiguity in “的” structures, but when it comes to structures where nouns share identical qualia roles, the explanatory power evidently falters. In the author’s exploration of communicative language in real-life situations, it is observed that instances exist where identical qualia roles result in homonymous yet structurally ambiguous phenomena, or what can be termed as “non-constitutive” ambiguity. It is crucial to note that these cases often stem from the dynamic, generative, and creative nature of language. They are closely linked to human cognitive processes, cultural backgrounds, and factors related to multimodal communication. This paper categorizes such phenomena into the following four types:

4.1. Rhetorical Ambiguity

Consider the following examples:

明天的太阳 (The sun tomorrow)

落日的余晖 (The afterglow of the setting sun)

未知的黑洞 (The unknown black hole)

For instance, in “The sun tomorrow,” “tomorrow” can refer narrowly to the day immediately following “today,” or it can represent an abstract future day, possibly every day in the future. Similarly, “sun” can denote the qualia celestial body, or metaphorically, someone or something embodying the characteristics of the sun. Despite the lack of a change in the qualia roles structurally, the entry into

the “de” (的) -construction introduces semantic ambiguity and polysemy. When such phrases are incorporated into sentences, the meanings become even more ambiguous, as in the example, “Be careful; I’ll make sure you don’t see the sun tomorrow.” The same applies to “The afterglow of the setting sun” and “The unknown black hole.” The Chinese nouns themselves may have a simple nature, but the entry into the “de” (的) -construction complicates and diversifies their semantics, giving rise to ambiguity.

4.2. Emotional Ambiguity

Consider the examples:

“My daughter”

“My pig”

For example, the term “daughter” within the “de” (的) -construction can have various extended meanings in practical use. Some mothers, due to psychological reasons, may refer to their sons as “my daughter.” Additionally, people may use the term for pets or even use it metaphorically for a celebrity they are fervently supporting. In this context, the ambiguity of “daughter” arising from these situations is unlikely in other language structures. However, the qualia roles in these cases are identical, and the implicit predicate can be supplemented with “ownership.”

4.3. Ambiguity in Solidification

Consider the examples:

“Hidden corner”

“The bargeman on the Volga River”

“The girl wearing pearl earrings”

For instance, “The girl wearing pearl earrings” can refer to a girl characterized by the act of “wearing pearl earrings,” or it can signify Vermeer’s painting or a film by Peter Weber.

4.4. Ambiguity in Reference in Communication

Consider the examples:

“The corner of the right mouth”

“Your eyebrows”

In “The corner of the right mouth,” the term “right” may possess ambiguity in reference to spatial direction in actual situations. For instance, if individuals A and B are facing each other while eating, and A says to B, “The corner of your right mouth has some rice on it,” the term “right” may refer either to the right side from A’s perspective or from B’s perspective.

In “Your eyebrows,” the term “eyebrows” in practical conversation may not specifically denote the anatomical feature but could refer to the lines drawn by a girl using an eyebrow pencil. Alternatively, it might refer to frost condensation on eyebrows during the winter in the northern regions.

5. Conclusion

In summary, based on the analysis of the qualia roles of noun phrases within “de” (的) -construction, this paper categorizes ambiguous “的” attributive structures into two situations: those where the qualia roles are either the same or different. When the qualia roles differ, the theories of Generative Lexicon Theory (GLT) and Predicate Entailment provide a comprehensive explanation for the formation and mechanism of ambiguity in “NP1+的+NP2,” enabling effective differentiation of

ambiguity. In cases where “NP1” can function as a “VP” within the structure, there is no need to analyze the qualia roles to distinguish and differentiate ambiguity. Regarding the semantic selection of ambiguity, it is crucial to consider the actual context and background knowledge. Concrete analysis based on the specific semantic features of nouns is essential. Even when qualia roles are identical, there are still special cases exhibiting ambiguity. This paper classifies such situations into four categories: rhetorical, emotional, solidification-based, and ambiguity in communicative reference. Despite the limited explanatory power of qualia roles in these scenarios, understanding the semantics of these structures can be achieved through specific analyses of noun semantic features and pragmatic meanings in real-life situations.

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