

Schema Representation, Semantic Network Construction and Construal of the English Direction Preposition “To” and “Toward(s)”

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Abstract: For a long time, prepositions have been a class of words that have attracted the attention of scholars. However, from the perspectives of Structural Linguistics, Transformational-generative Linguistics, and Functional Linguistics, different scholars have emphasized the collocation of prepositions with other parts of speech to form a conventional linguistic unit, but have not studied the prepositions themselves. So far, most studies on English prepositions from the perspective of cognitive linguistics have focused on the prepositions with obvious spatial conceptual meaning. Still, there has not been sufficient cognitive research for some prepositions without spatial conceptual meaning. Therefore, this article selects the direction prepositions “to” and “toward(s),” from the perspective of cognitive linguistics, using category theory, schema theory, and construal theory, and combining the metaphor and metonymy to extend the meaning, to analyze and distinguish, finally construct schema representation, semantic network and construal of the English direction preposition “to” and “toward(s)”.

Keywords: Direction preposition “to” “toward(s)”; Schema; Semantic network; Construal; Category; Metaphor; Metonymy

Online publication: October 29, 2024

1. Introduction

People and objects exist in space and time. In space, there are two states of motion and movement. How does language construct spatial relationships? In English, prepositions are the most spatial relation words. Cognitive linguists have made great progress in the field of prepositions. The concept of space is considered to be the most closely integrated concept with human cognition, and the spatial meaning contained in English prepositions is also the first cognition and the most original meaning of the prepositions. So far, most studies on English prepositions from the perspective of cognitive linguistics have focused on spatial prepositions with obvious spatial conceptual meanings, such as in, over, on, at, up, down, etc. However, there has not been

sufficient cognitive research on some prepositions that do not contain obvious spatial concepts in their existing meanings. Therefore, this paper chooses the directional prepositions “to” and “toward(s)” and attempts to study the meaning of the English directional prepositions “to” and “toward(s)” from the perspective of cognitive linguistics and within the framework of category, schema and construal theory, and analyzes and distinguishes the meanings of the prepositions “to” and “toward(s)” by combining metaphorical and metonymic extension. It provides a new approach to the study and teaching of prepositions in English.

Cognitive linguists believe that semantics is a psychological phenomenon and a product of the process of conceptualization of the human brain. The formation of concepts is mainly based on the classification of the objective world, and the process of semantic formation is equivalent to the process of conceptualization. Human beings form basic image schemas based on physical experience in the real world, and then we use these basic image schemas to organize more abstract thinking, thus gradually forming our semantic structure ^[1]. The development of cognitive linguistics provides a new perspective for the study of foreign language teaching. The prototype category theory holds that the semantic structure of polysemic prepositions is a category centered on the prototype meaning, with prototype and marginal meanings. Archetypal sense is regarded as the most representative sense in the semantic category. It is the first one that people recognize and the first one that prepositions acquire. Other meanings are based on archetypal meanings as cognitive reference points, using schematics, metonymic, and metaphorical cognitive patterns to extend the family similarity to form a semantic web. Based on the network of preposition polysemy, this paper studies the polysemy of prepositions from a cognitive point of view using schematology, conceptual metaphor, and metonymy theoretical systems, which can help reveal the internal cognitive mechanism of the generation of a certain sense, enable language learners to have a deeper understanding of the polysemic structure of prepositions, and help students grasp the semantic extension of polysemic prepositions.

2. Theoretical basis

In the 1930s, British psychologist F.C. Bartlett proposed schema theory to expound the role of background knowledge in language understanding. He defined schema as “the structure of previously acquired background knowledge.” Concepts are not stored in memory in isolation but are interconnected, forming cognitive structural schemata that reflect interconnected things in reality. Schema is formed based on a human’s physical experience and perception of the objective world and connects its abstract concept with the concrete image structure. Image schema plays an important role in category construction, concept formation, metaphor analysis, meaning understanding, and logical reasoning. We can use the rich experience network and conceptual structure formed by an image schema or multiple image schemas to understand the interrelation between multiple meanings of prepositions and deduce their extended meaning based on the core meaning ^[2-4]. Image schema enables learners to better understand the internal structure of meanings of prepositions, especially how metaphorical meanings are derived from their archetypal meanings.

Construal plays a key role in the form and meaning of language expression. Langacker introduced the concept of “construal” in 1997, defining it as “the multidimensional ability of people to conceive and describe the same situation in different ways” ^[5]. The meaning of a language expression is not only the conceptual content it evokes but also how that content is interpreted ^[2]. Langacker proposed four dimensions of specificity: level of specificity, focusing, salience, and perspective. Prominence is an analytic dimension closely related to detail and focus. Generally speaking, the more detailed the conceptual content represented by semantics or the

more foreground position it is placed in the conceptual cognitive domain, the more prominent it is. Langacker discussed the prominence dimension from two aspects: profile and base, trajectory and landmark^[6]. The projectile and the boundary mark can distinguish the difference in the status of each participant in the highlighted side relationship, that is, the degree of prominence between different participants in the highlighted relationship is also different. The most prominent participant is defined as the projectile, which is the main focus of the side relationship, while the other participants as the secondary focus the boundary mark.

3. Construal of semantic network for schematic representation of English directional preposition “to”

Based on the definition of the Oxford Advanced English-Chinese Double-Interpretation Dictionary of the corpus, this study extracts the meaning of the preposition “to” and analyzes its prototypical meaning and semantic extension mapped to the time domain, the state domain, the object domain, the emotion domain, the objective domain, the comparison domain, and the degree domain from a cognitive perspective, to construct the cognitive semantic network schema of the preposition “to.”

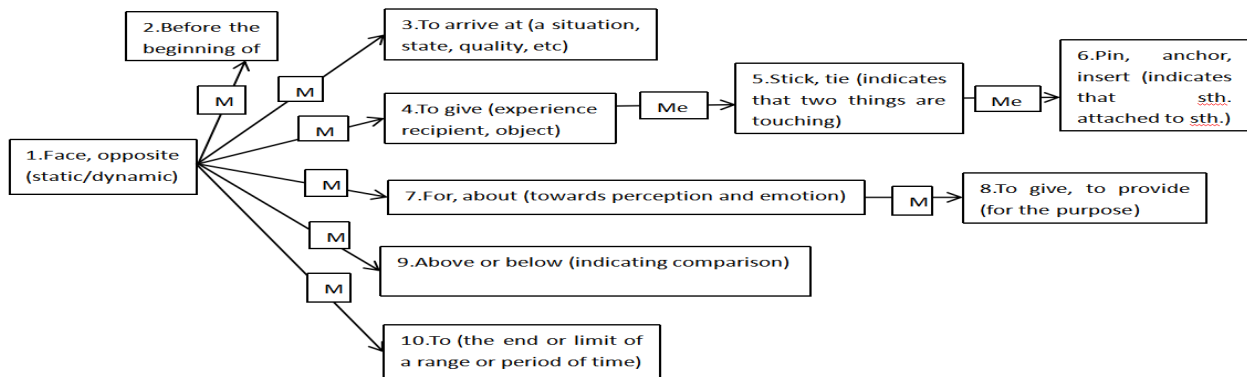


Figure 1. Cognitive semantic network schema of the preposition “to” (M stands for metaphor; Me stands for metonymy)

The archetypal meaning of the preposition “to” is “toward or against (a direction or place).” The cognitive semantic network schema of “to” shows that it derives atypical and marginal meanings from this typical sense through radiative and chained extensions, forming a complex network structure. The ambiguity of “to” is rooted in its directional feature and results from the continuous semantic extension generated by metaphorical and metonymic cognitive mechanisms.

4. Construal of semantic network for a schematic representation of English directional preposition “toward(s)”

Based on the definition of the Oxford Advanced English-Chinese Double-Interpretive Dictionary of the corpus, this study extracts the meaning and examples of the preposition “toward(s)” and analyzes the prototypical meaning and its semantic extension to the object domain, time domain, emotion domain, outcome domain, and destination domain mainly from a cognitive perspective. The cognitive semantic network schema with the preposition “toward(s)” is constructed.

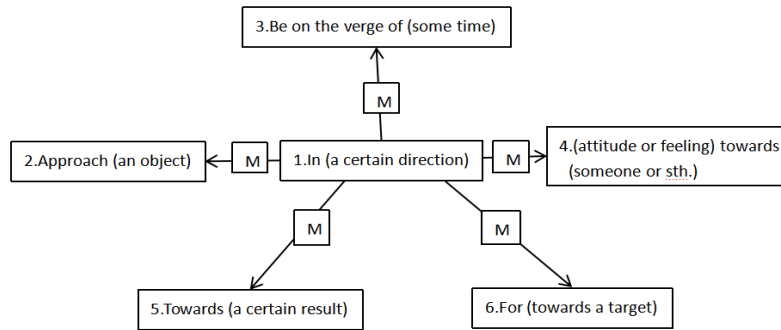


Figure 2. Cognitive semantic network schema of preposition “toward(s)” (M stands for metaphor)

The archetypal meaning of the preposition “toward(s)” is “to move closer in a certain direction (infinitely closer, but not touching).” According to the cognitive semantic network schema, “toward(s)” extends from this prototypical meaning to atypical and marginal senses, forming a radiative network. Its polysemy is rooted in the directional feature of “getting closer to a certain direction” as the cognitive reference point and results from the metaphorical cognitive mechanism’s semantic extensions. These derived meanings remain closely related to the archetypal semantics. When the prototypical meaning of “toward(s)” is mapped onto other domains, new meanings arise, all based on and connected to its original sense.

5. Contrast of the construal of prepositions “to” and “toward(s)”

The semantic differences between prepositions to and “toward(s)” are compared according to their cognitive semantic network schema, as shown in **Figure 3** below.

meaning	to	toward (s)
prototypical meaning	To, towards, against (a certain direction or place)	Getting closer and closer in one direction, but not touching
Time domain	Before the beginning of	Be on the verge of (some time)
State domain	To arrive at (a situation, state, quality, etc)	/
Object domain	To give (experience recipient, object); Stick, tie (indicates that two things are in contact); Pin, anchor, insert (indicates that <u>sth.</u> attached to <u>sth.</u>)	Approach (an object)
Affective domain	For, about (towards perception and emotion)	(attitude or feeling) towards (someone or <u>sth.</u>)
Destination domain	To give, to provide	For (towards a target)
Comparison domain	Above or below (indicating comparison)	/
Degree domain	To what extent	/
Result domain	/	Towards (a certain result)

Figure 3. The semantic differences between prepositions “to” and “toward(s)”

From **Figure 3**, the following conclusions can be drawn:

- (1) The archetypal meaning of the preposition “to” is that it moves in a certain direction or place, and the projectile can have a distance from the boundary mark, contact with the boundary mark, or enter the range of the boundary mark. The preposition “toward(s)” means that the projectile is moving closer and closer in one direction without making contact with the boundary.
- (2) The prepositions “to” and “toward(s)” can both be mapped from the archetypal meaning to the time domain. The preposition “to” indicates the time difference from the boundary mark, while the preposition “toward(s)” emphasizes the time left for the projectile to approach the boundary mark. They express similar meanings but different perspectives. The preposition “toward(s)” takes the projectile as a reference.
- (3) The preposition “to” can be mapped from its archetypal meaning to the state domain, indicating the meaning of “to (a situation, state, property, etc.)” while the preposition “toward(s)” cannot be mapped to the state domain.
- (4) The prepositions “to” and “toward(s)” can both be mapped from the archetypal meaning to the object domain. The preposition “to” represents the meaning of “to (an object)” and on the basis of this meaning, the meaning of contact is metonymically extended, that is, “stick, tie (indicating that two things touch).” Based on the meaning of contact, the meaning of attachment is extended in a metonymic way, that is, “nail, anchor, and embed.” The preposition “toward(s)” means close to (an object). Both can be mapped to object domains, but the preposition “to” has a richer meaning.
- (5) The prepositions “to” and “toward(s)” can both be mapped from the archetypal meaning to the target domain. The preposition “to” indicates the meaning of “to provide” and emphasizes contact with the boundary. The preposition “toward(s)” means “used toward (a target).”
- (6) The preposition “to” can be mapped from the archetypal meaning to the domain of comparison, and is used to compare the characteristics, performance, quantity, value, and other attributes of two things or people, while the preposition “toward(s)” has no such meaning.
- (7) The preposition “to” can be mapped from the archetypal meaning to the degree domain, indicating “to what extent.” The preposition “toward(s)” does not have that meaning.
- (8) The preposition “toward(s)” can be mapped from its archetypal meaning to the resulting domain, meaning “toward, close to (a result),” whereas the preposition “to” has no such meaning.

6. Conclusion

This paper first analyzes the semantics of English directional prepositions “to” and “toward(s)” from the perspective of prototype category theory, and finds that these semantics are based on their prototype meanings. The semantic structure of the prepositions expands in a radial and chained manner around its prototypical sense, and finally forms a semantic network of “to” and “toward(s).” Although the semantic network of “to” and “toward(s)” is very large, its semantic expansion mechanism is the same, and it is extended based on its archetypal sense, by extracting the features of archetypal sense, and through cognitive thinking modes such as metaphor and metonymy. In the process of semantic radiation, the way of construal plays a crucial role. The process of semantic radiation “to” and “toward(s)” is the process of understanding different target domains, highlighting the influence of boundary markers on the projectile in the schema and highlighting the influence of the projectile

on the boundary markers by taking its prototype meaning schema as the source domain. This study constructs a schematic representation semantic network of the two English directional prepositions and represents the semantic difference between them utilizing the target-boundary identification solution. The cognitive research on the polysemy of the two English directional prepositions not only helps learners to learn many meanings of them but also provides an effective path for learners to learn polysemous words.

Disclosure statement

The author declares no conflict of interest.

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