An Analysis of the Polysemy “HEAD” Based on Prototype Theory*

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Abstract—As a universal language phenomenon, polysemy shows the economical, creative and flexible features of human language and also reflects the approach people used for cognition. The study of polysemy of human body words can better uncover the process and the ways of semantic extension of human body words and uncover the relation between the deepening of cognition and extension of word meaning on account of the fact that human body words are termed as meta-notion of cognition. Head, one of the most important parts of human body, not only controls human’s mental and physical activities, but is closely related to thoughts. By making an assay of the semantic extension of English polysemy “HEAD” from the perspective of prototype theory in cognitive linguistics, this thesis explores the reasons for its meaning extension and the process of meaning extension, in an attempt to verify the psychological and cognitive processes underlying polysemy proposed by some linguists.

Keywords—polysemy; prototype theory; “HEAD”

I. INTRODUCTION

Polysemy is a universal phenomenon of language and reflects the economical principle of language. It eases the burden of remembering words through reducing the quantity of words by endowing a word with more than one meaning. Prototype theory refers to a mode of graded categorization in cognitive science, where some members of a category are more central than others [1]. Cognitive linguists hold that a polysemy result from people’s constantly deepening cognition toward the world. It is a popular statement proposed by the famous philosopher Protagoras that man is the measure of all things, which indicate that people are inclined to conceptualize the world based on their experience, and that human body, as meta-notion of cognition, plays an important role in the process of people’s categorization of the world. The meanings of human body words are increasingly extending to meet people’s increasing need of expression.

This thesis analyzes polysemy from a micro perspective. It studies the specific polysemous word “HEAD” based on a relatively prototype theory. HEAD is representative of human organs for it is one of the most indispensable and familiar parts

of human body and it are closely related with human thought. Therefore, analyzing the polysemy “HEAD” is helpful in exploring the underlying human cognition system and the reasons for the occurrence of polysemy. Besides, since bodily experience is the key for human to understand the world and head is a representative of human body, if there is a possibility to figure out the internal structure of a human body word in which there is a prototypical meaning and other derived meanings, it can shed some light on the study of other polysemous words.

II. LITERATURE REVIEW

A. The Development of Prototype Theory

The classical approach of categorization, which is believed to begin with Aristotle, can be traced back to Greek antiquity. Although the Aristotelian theory sheds some light on the classification of various chaotic objects in the world, it cannot work when used to explain some words, especially polysemous words. The inadequacies of Aristotelian theory were first put forward by Ludwig Wittgenstein in his book *Philosophical Investigations* with his proposition of “family resemblance”. He used the example of “game” to state that not all members of the category “game” have the same features. Rather, all members are linked together with the help of family resemblance[2]. After that, American anthropologists Brent Berlin and Paul Kay studied human’s categorization of colors and found that we classify colors based on the focal colors. Then, on the basis of the researches done by previous researchers, the psychologist Eleanor Rosch did more researches about categorization and concluded previous researcher’s conclusions, and proposed the prototype theory. Prototype theory is one of the most famous and significant theories proposed by cognitive linguists, and the main content of this theory can be included as follows:

First, every member of a category is either typical or non-typical. If a member is typical, it is representative and has all of the features of this category. If a member is non-typical, it only has parts of the features of this category.

Second, not all concepts have a clear-cut boundary and they may overlap with each other sometimes, which overthrows Aristotle’s point of view that categories have clear boundaries and they are unrelated to one another.

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Third, members of a category are characterized by family resemblance, which refers to the fact that all members are similar in one aspect or more than one aspects and that all meanings of the same word are interweaved.

Generally speaking, there are two main cognitive devices involved in the process of meaning extension of polysemy - metaphor and metonymy. Lakoff & Johnson (1980) , who proposed the conceptual metaphor theory in their work *Metaphors We Live By*, believe that metaphor is not only a figure of speech that directly refers to one thing by mentioning another for rhetorical effect, but a vital way of thinking, of understanding the world[3]. Taylor puts forward the theory of meaning chain in which he holds that polysemy is linked to human's metaphorical thinking. Therefore, it is reasonable to believe that metaphor works in the process of meaning extension. Since then, more and more linguists, both home and abroad, study polysemy from the perspective of metaphor, i.e., Cai Longquan (2004) thinks that polysemy is a result of metaphorization and that the reason for ubiquitous polysemy is the universality of metaphorical thinking[4].

In addition to metaphor, metonymy is the other main cause of polysemy. Metonymy, in the cognitive literature, is defined as a cognitive process in which the vehicle provides mental access to the target within the same domain. Metonymy is a vital cognitive device we people use to understand the world. The best example is that we often use parts of an object to refer to the object.

Both metaphor and metonymy works in the process of meaning extension for both are important ways of conceptualizing the world. Ungerer & Schmid (2006) believe that both metaphor and metonymy are basic models of meaning construction and they are both based on human's experience, and that they are the main reasons for the occurrence of polysemy[5][6].

B. Recent Relevant Researches

Currently, it seems that linguistics are inclined to study prototype theory from a relatively macro perspective. For instance, some domestic scholars are endeavoring to study the merit and setbacks of this theory such as Yu Jianliang and Huang Hebin [7]. Some are trying to take advantage of this theory in language acquisition, especially in teaching of lexicology, such as Liang Xiaobo and Li Yongzhong [8].

Language changes as society changes, and the changed word meanings are inseparably related to the prototype. To put it another way, concepts have an internal structure, with the best or prototypical examples close to the core and less typical members arranged in successively more peripheral regions. Based on the assumption that these non-prototypical members of a polysemous word are derivations of the prototypical member and that the meanings are grounded in human's ability of categorization. By exploring the reasons of meaning extension of the polysemy "HEAD" and verifying the psychological and cognitive processes underlying polysemy from the perspective of prototype, this study favors the scientific development of prototype theory in polysemy study.

III. ANALYSIS OF THE POLYSEMY "HEAD"

A. Definition of "HEAD" by Oxford English Dictionary

An obvious feature of meaning extension is that it is a diachronic process. "HEAD" was first derived from proto-Germanic word "haubudam", and then became "heafod" in Old English, referring to "top of the body", also "upper end of a slope", also "chief person, leader, ruler; capital city" [9].

To explore the reasons for meaning extension of "HEAD", the first thing to do is to find the original meaning of "HEAD". The original meaning of "HEAD" can be verified according to the sequence of meanings compiled in Oxford English Dictionary because *Oxford English Dictionary* is a diachronic dictionary based on corpus and is praised as Bible of dictionaries in which all word meanings and examples are ranked according to the sequence of their occurrence in diachronic corpus. Thus, the sequence of word meanings in *Oxford English Dictionary* reflects the sequence of their occurrence in life, with the original meaning on top of the sequence and the latest emerging meaning on bottom of it. According to *Oxford English Dictionary*, the main meanings of "HEAD" are as follows [10].

TABLE I. MEANINGS OF "HEAD" GIVEN BY *OXFORD ENGLISH DICTIONARY*

(1)	the part of the body on top of the neck containing the eyes, nose, mouse and brain
(2)	the mind or brain
(3)	the size of a person's or animal's head, used as a measurement of distance or height
(4)	the person in charge of a group of people or an organization
(5)	end of an object
(6)	source
(7)	the top or highest part of something
(8)	the position at the front of a line of people
(9)	used to say how many animals of a particular type are on a farm, in a head, etc.
(10)	the central part of a phrase
(11)	chief or principal
(12)	move towards

B. The Prototypical and Extended Meaning of "HEAD"

According to the feature of Oxford English Dictionary mentioned before, it can be verified that the original meaning of the polysemy "HEAD" is "the part of the body on top of the neck containing the eyes, nose, mouse and brain". This meaning is the most typical and representative and all other meanings of "HEAD" are derived from it, which, to some degree, verifies the proposition that people are inclined to categorize unfamiliar and new concept in terms of familiar and old concept.

All the features of men's heads are probably sources of meaning extension of "HEAD", especially the position of head, the figure of head and the importance of head. Based on the data collected in *Oxford English Dictionary*, it is obvious that these derived meanings are formed with the help of the two cognitive instruments, metaphor and metonymy, which will be illustrated as follows.

1) *The meaning extension of "HEAD" by metaphor:* Metaphor exists not only in language but in thoughts. It helps

us to conceptualize the abstract and unfamiliar domains in terms of familiar and concrete domains. It is also a cognitive method of meaning extension and it to some degree can explain the process of meaning changing from the prototypical meaning to derived ones. More importantly, metaphor is often described in terms of target domain and source domain, with the target domain being the experience described by the metaphor and the source domain being the means for people to describe the experience.

With the help of metaphor, the meanings from (5) to (8) are derived from the prototypical meaning of “HEAD”. Meaning (5) – “end of an object”, is typically associated with the position of head – end of human body. Meaning (6) – “source”, and meaning (8) – “the position at the front of a line of people”, are also derived from the position of head – the start of human body. Meaning (7) – “the top or highest part of something”, can still be seen as resulting from the meaning extension triggered by the position of head – the highest part of human body.

What’s more, meaning (4) – “the person in charge of a group of people or an organization”, and meaning (10) – “the central part of a phrase”, are also formed by means of metaphor. Another feature of human head, the importance of head, triggered these two meanings.

In examples such as “the head of a nail”, “the head of the river”, “They finished the season at the head of their league”, “The prince rode at the head of his regiment”, etc., the source domain is human body and the target domain can be everything that has a concrete body like a nail, or even an abstract “body”, like a river and a regiment. That implies that people are often apt to structure one concept according to another, thus the words used to describe the source domain can also be used to describe the target domain, which is in accordance with the theory of structural metaphor proposed by Lakoff & Johnson.

2) *The meaning extension of “HEAD” by metonymy:* Metonymy is another cognitive device of semantic extension which helps us to understand the non-prototypical members of “HEAD”. From the list of meanings of the polysemy “HEAD”, it is found that the two other parts of speech, adjective and verb, are also derivations of the prototypical meaning with the help of metonymy. Based on the analysis about prototype before, it is clear that meaning (11) – “chief or principal”, and the meaning (12) – “move towards”, are derived from the meanings of “HEAD” as a noun. Meaning (11) is triggered by the importance of head, and meaning (12) may be associated with the function of head. The central nervous system in head controls human’s physical and psychological activities, thus the central nervous system also takes command of what direction to move towards.

Moreover, meaning (9) – “used to say how many animals of a particular type are on a farm, in a head, etc.”, and meaning (3) – “the size of a person’s or animal’s head, used as a measurement of distance or height”, can be regarded as the metonymical usage of the prototype. In meaning (9), “head” is used to indicate an animal for every animal has a head if it is alive. In the sentence “She is a good head taller than her sister”,

the size of a head is used as a type of measurement and the meaning of “HEAD” in this sentence is clearly derived from the figure of head.

What’s more, meaning (2) – “the mind or brain”, can also be regarded as a metonymical usage of the original meaning of “HEAD” because the central nervous system which is inseparable from thought is part of head. In the example “I sometimes wonder what goes on in that head of yours.”, “HEAD” means mind or brain, namely the function of thinking. The special function of head is still an abstract aspect of the concept “HEAD”.

IV. CONCEPTUALIZATION OF “HEAD”

It is well known that head is one of the most important part of human body and any injury to head may be dangerous and that head is the organ that controls almost all human physical and psychological activities. Head is just like a commander. The importance of head is categorized to understand other concept, especially abstract concept. The “head” of a group of people or of an organization is equally significant because he usually guides or directs the team and makes decisions which are key to the development of a group. The “head” of a phrase is the center of a phrase for the head and the whole phrase have the same distribution, for without a head, a phrase would never be formed.

Based on the analysis of these meanings, it can be concluded that the extended meanings of “HEAD” are all derived from the prototypical meaning, the meaning (1), by means of metaphor or metonymy. To make it clear, the twelve meanings of “HEAD” compiled in *Oxford English Dictionary* are briefly stated by the numbers from (1) to (12). The twelve numbers represents the twelve meanings of “HEAD” respectively. The following picture is used to explain the relation between the prototype and other derivations.

Fig. 1. The relationship of 12 meaning of “HEAD”.

Through the analysis of the meanings of “HEAD” as exemplified in the previous section, some conclusions can be made:

On the one hand, semantic category of the English word “HEAD” centers on the prototypical meaning of “HEAD”, and the main prototypical features of this word are “part of human body”, “important to human”, “end of human body” and these features of “HEAD” are the base of its meaning extension. Extended meanings of the polysemy “HEAD” are all derived

from the original meaning and the polysemous word “HEAD” has a fuzzy boundary instead of a clear-cut boundary. This fact is in line with the point of view held by both western and eastern philosophers that people conceptualize the world from the near to the distant, from the external and physical to the internal and abstract and with the point of view held by some cognitive linguists that meaning is embodied and meaning extension is a result of increasing bodily experience.

On the other hand, metaphor and metonymy, as two important ways of human’s conceptualizing the world, assert great influence on meaning extension. People tend to understand one concept in terms of another when there is a similarity between the two. With reference to the polysemy “HEAD”, for example, it is used to refer to the end or start part of objects like plant, slope and a bottle of water because both these objects and human have a “body” and the “body” has ends. Metaphor is an indispensable part of human categorization, or a basic way of organizing our thoughts about the world. Therefore, metaphorical meanings of “HEAD” are developed through the metaphorical mapping from prototypical domain to non-prototypical domains. And metonymy is also necessary to semantic extension. This implicitly suggests that the phenomenon of polysemy is closely linked with human’s cognitive system and that the process of meaning change is in general accordance with the process of cognition change.

V. CONCLUSION

Based on the prototype theory, this thesis analyzes the polysemy “HEAD”, which is a representative human body word, by means of explanation to the cause of polysemy and its formation process. The meanings of “HEAD” are relevant in one aspect or another and the extended meanings of this word originate from the prototypical meaning. The members of the semantic category of “HEAD” are either typical or non-typical, depending on how many features they share with the prototypical member. That is to say, the more typical a member is, the more often it is used when people need to materialize the concept. Furthermore, the meaning extension of the typical human body word “HEAD” reflects the fact that physical and concrete objects like human body are meta-notions in the process of conceptualizing the world and people are always inclined to understand the world based on their bodily experience. They tend to conceptualize abstract and new concept in terms of familiar and concrete concept. With the usage of metaphor and metonymy in the process of meaning extension of “HEAD”, it is reasonable to believe that conceptualizers are key to the formation of meanings because the development of their cognition directly asserts effect on the extension of word meaning. In other words, the development of cognition of men is the main cause of the emergence of polysemy and of the meaning change.

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