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Language and Thought: A Critical Reassessment of the Sapir-Whorf Hypothesis

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Abstract

The problem of language and thought has puzzled those major scholars in philosophy, psychology and linguistics. Different perspectives on the relationship between language and thought have led to different debates. This paper analyzes the relationship between language and thought from the perspective of psycholinguistics, and to think critically about the relationship. More specifically, this paper explores the relationship between the two based on a classic hypothesis about how language affects thinking. It mainly includes the following aspects (1) Sapir-Whorf hypothesis of language and thought; (2) Relevant research based on the Sapir-Whorf hypothesis (3) Reflections on the hypothesis (4) Implications for future research. It is concluded that the hypothesis has some limitations and cannot fully reveal the relationship between language and thought.The paper concludes by endorsing a neo-Whorfian position: language biases habitual thought without constraining fundamental cognitive capacities. Future research is encouraged to use experimental techniques in psycholinguistics to explore how language affects thinking or vice versa.

Keywords: *Language, thought, Sapir-Whorf hypothesis, linguistic relativity, linguistic determinism*

1. Introduction

The debate on the relationship between language and thought has aroused from a variety of points of view to explore whether language comes before thought or thought precedes language. A famous description of the relationship between language and thought is expressed by Whorf and Sapir hypothesis. The American anthologist and linguist Sapir makes a clear explanation of the principle of this hypothesis in his essay "The Status of Linguistics as a Science". Whorf based on what Sapir holds makes further progress and delivers his viewpoints on language and thought in his essay "Science and Linguistics". Whorf and Sapir found that human thinking is determined by the classification system of the specific language humans use (Schlenker, 2004). Language is the medium that carries all the infinite capacity contained in the field of the human environment. Language is also the medium of human abstract thinking, which transforms factual objects into abstract symbols. Through this transformation, when the perceived thought process is completed by him, man can think about an object despite the object not being opposed (Suriasumantri, 1998). To be more specific, the term, "Sapir-Whorf Hypothesis" is initially proposed by American linguist Carroll in the 1950s after Sapir and Whorf passed away. There has been a lot of debates about this hypothesis, but there is still no consensus.

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Therefore, based on the Sapir-Whorf hypothesis, this paper will discuss and analyze the deficiencies of the hypothesis on relations between language and thought.

The two key concepts are language and thought. Language is a system of arbitrarily chosen, conventionalized, vocal, graphic or gestural symbols, serving the needs of verbal communication among members of a given community or society (Dong, 2022). Because of the properties, human beings are different from animals. While thought covers a number of different types of mental activity, and lies in the province of cognitive psychology. Apart from language, what makes human beings different from animals is that we can solve complex problems by means of some thinking processes such as perception, analysis, judgement, and logical inference and so on. About thought, Sapir and Whorf never give an explicit explanation, for which is not the focal point for them but language is. Hence, views on thought vary from person to person, and so does the relationship between language and thought. However, language and thought are closely intertwined, and they mutually influence and shape each other (Haque, 2019).

2. Theoretical foundation: Sapir-Whorf Hypothesis

As mentioned in the introduction, the Sapir-Whorf hypothesis has been first put forward by the American linguist Sapir and then progressed by Whorf. The Sapir-Whorf hypothesis hold the view that language shapes thought, and consists of two parts, i.e., the linguistic determinism and the linguistic relativity.

Linguistic determinism refers to the notion that each language determines certain non-verbal cognitive processes. In other words, the structure of language affects the way individual perceive and make sense of the perceptual world. The language we speak helps mould the way of thinking and, as a consequence, different languages may probably express a speaker's unique way of understanding the world.

Linguistic relativity refers to the notion that the cognitive processes determined by different languages are different. In other words, the similarities between languages are relative, and the greater their structural differentiation is, the more diverse their conceptualization of the world will be. Therefore, people who speak different languages have different ways of thinking. As Carroll (1994) put, there are several concepts in this area of debate. The first is that language carves up reality in different ways. Another is that these language differences are covert or unconscious. More specifically, it has been asserted that people are not consciously aware of the way they categorize objects. Third, these language differences affect the way they view the world. Compared with linguistic determinism, linguistic relativity is a more reasonable theory to explain the relationship between language and thinking, and is more accepted by most scholars nowadays.

3. Critical Review of Supporting Evidence

Boroditsky (2011) explored the influence of language on human cognition and perception. The authors discuss the Sapir-Whorf hypothesis, which states that the structure and vocabulary of language can shape our thoughts and influence the way humans perceive and understand the world. This paper discusses the study of how language affects color perception, emphasizing that languages with different color categories can affect individuals' perception and differentiation of colors. The study also explored the effects of language differences on spatial cognition and time perception. Different languages may adopt different spatial reference systems, such as using absolute terms (such as "left" and "right") or relative terms (such as "north" and "south"), which may affect the way individuals navigate and perceive space. The paper emphasized that language is not only a means of communication, but also a cognitive tool that shapes how we conceptualize and understand our environment. Taken together, Boroditsky's article provides a comprehensive overview of the impact of language on human cognition and perception, highlighting the complex relationship between language, thought, and human understanding of the world. Gennari and Fisher (2017) examined how language influences the conceptualization and mental representation of events. The study used eye tracking methods to observe the eye movements of participants as they watched visual scenes depicting different types of events. Participants included English speakers and Spanish speakers, as the two languages differ in grammatical structure and verb tense systems. The results revealed cross-language differences in event processing. English speakers make a strong distinction between the perfect and the imperfect of verbs, and they tend to treat events as complete and bounded. Spanish speakers, however, made less strict distinctions in terms of verbs and tend to treat events as ongoing and continuous. Eye tracking data showed that language context influenced participants' attention and eye movement patterns during event perception. Differences in event conceptualization between the two language groups support the idea that language shapes how individuals psychologically represent and conceptualize events.

Moreover, Davidoff, Fonteneau, and Goldstein (2016) examined the relationship between color naming and color perception. The study focused on the role of language in color perception, highlighting the influence of color naming systems on our ability to discriminate and categorize different hues. The authors present evidence from cross-cultural studies that demonstrate how language can shape color perception by affecting the salience of certain color categories. This study emphasize that color categorization is not solely determined by universal physiological mechanisms but is also influenced by cultural and linguistic factors. Different languages have distinct color naming systems, with some languages having more or fewer color terms than others. This variation in color vocabulary impacts individuals' color perception and their ability to discriminate between different hues. The authors concluded that language plays a significant role in shaping our experience and understanding of color. The paper emphasizes the importance of considering language and cultural influences when studying color perception and highlights the dynamic interaction between language, cognition, and color experience.

Chen, Peng, and Xing (2016) studied the influence of language on pre-attentive perception, which refers to the early and automatic processing of sensory information before conscious awareness. The researchers investigated whether the language individuals speak affects their perception of basic visual features such as color and shape. They conducted a series of experiments with participants who spoke either English or Chinese, because the two languages differ in how they classify and label colors and shapes. The results of this study suggest that language does shape the perception of pre-attention. English speakers have different color terms for different colors, and their color recognition is faster and more accurate than Chinese speakers. Chinese speakers, on the other

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hand, showed greater sensitivity and discrimination to shape-related features. The study also highlights the bidirectional relationship between language and perception, demonstrating that language not only reflects our perceptual experiences but also plays a role in shaping them. The overall findings support the idea of linguistic relativity, suggesting that the language spoken influences how we perceive and categorize the world around us.

However, there are some objections to the hypothesis from linguists and researchers of psycholinguistics. They put forward that the same idea can be expressed in different ways. For instance, a person can say whatever he wants in one language, so that there are parallel features between one language and another. One of the facts that proves this objection is in the field of development. Several cases from everyday life have shown that infants who have not yet mastered optimal language are able to reason about more than they are interested in. For example, babies 3-4 months old can understand distance and solve problems related to distance. Babies around 5 months old can understand simple arithmetic. Babies were shown two objects, and when two objects were hidden, they tried to find both objects (Widhiarso, 2009).

There is another evidence which holds that humans can think even without using language and no deaf child can understand the structure of language signs. These children can find signals and their own movements to communicate their thoughts and desires (Widhiarso, 2009). Although most scientists think of language as a social object, built on a protocol that facilitates communication, Chomsky has a different concept. According to the language "natural objects are part of the human biological endowment". Language is a natural object that is part of the advantage that humans possess (Ludlow, 2000). In Chomsky's view, language is a reflection of the mind and a product of human intelligence. By understanding the structure, organization, and programming of natural language, we can use research to understand the characteristics of human nature (Chomsky, 1983). Chomsky's view is contrary to Skinner's view of the process of language acquisition in children, as well as to Sapir and Whorf's view. Since these things are indirect, we can conclude that language has no connection with thought.

In addition, human beings can think without language, but language skills facilitate learning and remembering, identify issues and draw conclusions. Language allows individuals encode events and objects in the form of words. As Schlenker (2004) put, humans do not exactly use the words in thinking, because if you use a human thinking by using the words of patients who have language deficits will automatically have trouble in thinking. In this way, the hypothesis can not explain all the phenomenon related to language and thought. There is a lack of scientific evidence to reveal the deep mechanism of how language affect people's thoughts.

4. Reflections on the hypothesis

Sapir and Whorf 's ideas guide social reality and individual thinking about a problem and a social process. The individual does not just live in the objective world, and not just carry out social activities as commonly understood, but is determined by a specific symbolic language and is the medium of social communication. No two languages are similar enough to represent the same reality. Many people live in the same world, but with different characteristics. In that case, it can be drawn that human world view is shaped by language. Language is different, so worldview is different (Widhiarso, 2009). There are two main possible views about the relationships between language and thought, i.e., language determines or influences thought, thought determines or influences language.

As for language determines or influences thought, it can be explained through Figure 1 in the following. Human beings first recognize external things through perception, then classify them through language, and then form a deep impression in memory, forming a conscious language system; At any time, when we need to express some idea with an expression, we simply judge based on what we remember in our minds and make a choice, accompanied by logical reasoning to express it. This is the construction of some ideas under the constraint of language. The limitations of language to a certain extent limit our description of things, and thus limit our reasoning ways of thinking. For example, the fuzziness and implication of Chinese lead to the construction of Chinese thinking, which is characterized by fuzzy thinking and spiral thinking. Compared with Chinese, the simplicity of English sentence structure and the accuracy of tense lead to the construction of linear thinking and accurate thinking (Dong, 2022).

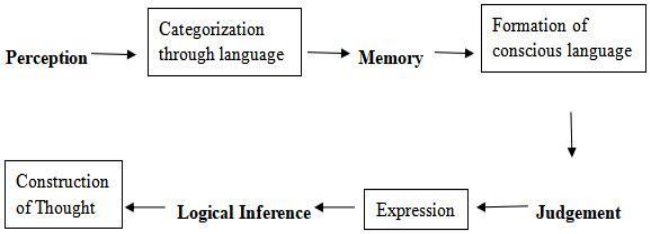

Figure 1. Processes of determination from language to thought (Dong, 2022)

As for the view that thought determines or influences language, this has nothing to do with the Sapir-Whorf hypothesis, because neither Sapir nor Whorf paid much attention to ideas. But it should be noted that the famous Soviet psychologist Vygotsky, who studied the relationship between speech and thought, has made great achievements of the view. He claimed that the development of thought and language proceeded separately until the age of two, and that it was not until that age that they merged into a new form. Thought becomes discourse, and discourse becomes more rational. Thus, language serves the mind, just as people speak through their thoughts. Piaget is a familiar figure in cognitive psychology who supports this view, through his observations on the cognitive aspects of child development. He found that cognitive aspects of a child's development influence language use.

Figure 2 displays a thinking model, which shows that we select expressions which we can search in our mind and describe the outside world by using those conscious words. This is the construction of our cognition. From this point of view, therefore, language is not so much universal as the universality of our cognition.

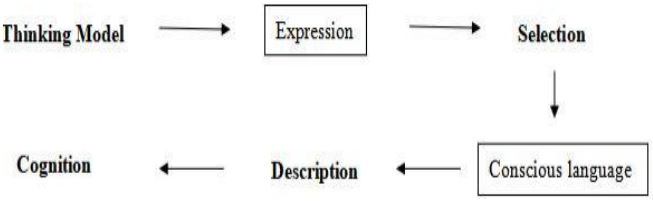

Figure 2. Processes of determination from thought to language (Dong, 2022)

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Language provides a means of expressing and communicating human thoughts. It allows humans to articulate and externalize their ideas, emotions, and perceptions. Through language, human can organize, structure, and manipulate thoughts, facilitating higher-level cognitive processes Consider the description of colors. For people whose native language has only three words "black", "white" and "red" to describe the entire colorful world, even though there are no corresponding words to distinguish between red and orange, it does not mean that they actually think red and orange are the same in their minds. It is their trichromatic thinking pattern that determines their expression of color to be only three words, and then according to their own judgment and choice, they say "red" for both red and orange. At the same time, in the future, whenever they encounter an orange, they will not hesitate to say "red" to describe it. This immediate response depends entirely on their thinking model (Dong, 2022).

Some of the existing literature tend to support the hypothesis of linguistic determinism, which holds that language affects and even determines the way individuals think and perceive the world. According to this view, the structure, vocabulary, and concepts present in a language shape the cognitive processes and the worldview of its speakers. Moreover, it was found that language plays a crucial role in the way that human conceptualize and categorize the world. Though Whorf provides many examples of how language may influence cognition, he does not provide convincing evidence for his hypothesis. These are profound ideas which are not easily amendable to the experimental test. The status of the hypothesis depends on how everyone takes it to mean (Birjandi & Sabah, 2012). For example, if the claim is that the presence of a language feature determines a specific mode of thought that cannot be attained in any other languages, then the hypothesis needs to be revised.

Ultimately, the productive question is not “Does language shape thought?” but “When, how, and under what cognitive and ecological conditions does language modulate which aspects of thinking?” Answering this question requires interdisciplinary collaboration and methodological pluralism — a legacy of the Sapir-Whorf tradition that remains vital today.

5. Contemporary Neo-Whorfian Perspectives

Modern researchers largely reject determinism while refining relativity. Slobin’s (1996) “thinking for speaking” framework proposes that during speech planning, speakers are forced by their language’s grammatical requirements to attend to certain aspects of events (e.g., whether an action is completed in Russian or ongoing in English). This online effect does not claim that thought outside language is constrained.

Boroditsky (2018) summarizes the current consensus: language is a “tool for thought” that directs attention and biases habitual cognition, much as a lens focuses light without creating the scene. This perspective is empirically testable, avoids strong determinism, and respects universal cognitive constraints.

6. Implications for future research

It is recommended that future studies conduct longitudinal studies to examine developmental aspects of the relationship between language and thought. They can follow individuals over time to see how their language use and thought processes evolve over time, especially during childhood and adolescence. It is also suggested to use advanced research methods and techniques to gain a deeper understanding of the relationship between language and thinking. For example, researchers might consider using eye-tracking technology, virtual reality, or computational models to study real-time perception and cognitive processes influenced by language. Finally, the study encourages interdisciplinary collaboration among researchers in linguistics, psychology, cognitive science, anthropology, neuroscience, and related fields. Collaborative efforts may provide a holistic understanding of the language-thought relationship and facilitate the integration of different perspectives and approaches.

7. Conclusion

The current study analyzes the relationship between language and thought from the perspective of psycholinguistics. On the basis of the Sapir-Whorf hypothesis, we discussed the main distinctive feature of linguistic determinism and the linguistic relativity. The Sapir-Whorf Hypothesis survives not as a bold claim of linguistic determinism but as a qualified principle of linguistic relativity. After critically examining the evidence, this paper concludes that: Linguistic determinism is untenable. Speakers of different languages can understand concepts not lexicalized in their language, and basic cognition (e.g., object permanence, numerosity) exists without language. Linguistic relativity is defensible when properly constrained. Language influences attention, memory bias, and speed of processing in specific domains (color, space, time) under specific task conditionsAt present, it is generally accepted that language affects our way of thinking, and some research evidences have been obtained. However, some researchers believe that thinking also affects language use. Therefore, this hypothesis is limited.Future research must use non-verbal tasks, control for culture and education, and specify the cognitive mechanisms involved (e.g., verbal mediation, attentional weighting). Future research should also consider using psycholinguistic experimental techniques, such as eye movement, EEG, fMRI and other cutting-edge methods, to deeply explore the relationship between language and thinking, in order to reveal its essence in language and cognition.

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