

Challenging the Primacy of Mentalese: the Role of Natural Language in the Creation of New Words

Xiaoxue Zhang *

School of International Relations, Xi'an International Studies University, Xi'an, China

* Corresponding Author Email: yinhaoyao@idy.edu.rs

Abstract. This paper aims to challenge Steven Pinker's argument that new words are primarily rooted in mentalese instead of in natural language. The significance of this research falls into its exploration of the deep interaction between thought and language, which is a long-standing topic in both the philosophy, linguistics, and cognitive science area. By examining the economics of language, language socialization, and sound symbolism, through an analysis of portmanteaus, political terminologies, literary expressions, fan fiction, and brand names, the paper argues that natural language significantly shapes thought and language creation with its adaptability, socio-cultural influence, and phonetic features. This refutation of Pinker's position not only contributes to the broader debate on the relationship between language and thought, but also sheds light on the mechanisms of linguistic innovation. Ultimately, this study reaffirms the pivotal role of natural language in shaping both thought and communication.

Keywords: Language of Thought Hypothesis; Mentalese; natural language; new words.

1. Introduction

The Language of Thought Hypothesis (LOTH) suggests that thinking occurs in mentalese, which is a mental language. Jerry Fodor firstly proposed this hypothesis, which aims to discuss the origin of thought as well as the reasons why mentalese, as an innate representation system, is the primary medium of thought and inference [1]. Steven Pinker, who shares the core notion of this theory with Fodor, proposed additional arguments in chapter 3 of *The Language Instinct* [2] with the title of "Mentalese". To expand on this claim, Pinker argues that even if not all of the new words are created in mentalese, the creation of new words is primarily rooted in this mental language rather than natural language.

As the relationship of language and thought is a fundamental but long-standing debate in philosophy, linguistics, and cognitive science, it is of great significance to recur to LOTH and reconsider the validity of Pinker's argument on new words' creation. Thus, from the perspectives of the economics of language, language socialization, and sound symbolism, this paper aims to disconfirm Pinker's claim and demonstrate that natural language is the one playing a more important role in coining new words rather than mentalese.

2. Word Obeying Principle of Least Effort

2.1. Existing Refutation

First of all, from the perspective of economics of language, the creation of new words is often considered based on the Principle of Least Effort [3]. This means that, new words generally use the minimum cost to achieve the greatest effect of expressing thoughts. Those new words that do not conform to the Principle of Least Effort will either not be coined in the first place or will eventually fade away. Some refutations criticizing Pinker's above argument were also promoted with the similar ideas of this principle. One of which is from Silby, who argues that the meaning of new words can always be expressed in terms of existing words [4]. By using acronyms, he supports that new words usually catch on when they form a complex meaning (or thought) in a quicker and more direct way. In other words, it is the new words coined in natural language that improves the efficiency of thinking.

2.2. Portmanteau's Creation

2.2.1. English portmanteau and its features

Beyond acronyms, portmanteaus can also exemplify how the Principle of Least Effort operates in natural language. Portmanteaus are words formed after word form changes, which include the meaning of grammatical combination as well as morphological word formation characteristics [5]. By blending at least two distinct words into one, new words can be coined by combining the meaning of source words. Gries's study focuses on portmanteaus resulting from two source words [6]. He found that while English portmanteaus exhibit many structural characteristics, their structure is governed by a desire to guarantee the recognizability of these source words. The influence of recognizability and information processing was shown to be highly significant in both graphemic and phonemic form, and for source words up to the breakpoint as well as across whole source words. In other words, phonetic factors play the important role in two-word portmanteaus' creation. While mentalese is a silent medium lacking in phonetic factors, Pinker's argument is challenged by this finding. Despite this, the practices of the Principle of Least Effort in this section would be highlighted, and phonetic effects would be mentioned in more detail later.

2.2.2. Example of Brexit

As a two-word portmanteau, Brexit is a combination of both Britain and exit. The word refers to the withdrawal of Great Britain from the European Union in 2020. Before it was invented, if people would like to express the same meaning as Brexit, they may have to use a longer phrase or sentence like Britain's exit from the European Union or Britain withdraws from the European Union. However, the portmanteau's creation has further enhanced the communicative efficiency while retained the original thoughts of its source words. According to Pinker's argument, if thoughts depend on words, there could be no words to be coined due to the absence of new thoughts which are required to be expressed with the former one. Since words would already contain all of the people's thoughts, which have been formed there in advance, the invention of new words would be unnecessary. Nevertheless, the new coined portmanteaus obeying the Principle of Least Effort (e.g. Brexit) with higher communicating efficiency is of great necessity. Or they would not be widely accepted after their creations. Besides, these new coined words comprising complex thoughts do make thinking more efficient, which cannot be done in the same way in mentalese.

2.2.3. Potential objection

Some objections targeting at portmanteaus like Brexit might be that it was the idea of doing what the thought contained in Brexit that appeared first, then this concept in mind could guide the country to take the corresponding action. Followed by that, natural language merely served as a tool in this process to reflect the external change driven by thought, and this new portmanteau is a final product of thought residing in mentalese. However, even if mentalese can provide cognitive elements that are essential for having a concept to invent something new, it is still far from being the root for this new concept or new word's creation. To further explain the reason why mentalese only functions as a provider of cognitive elements while natural language is the pivotal language organizing them in a meaningful way, the following argument would focus on the abilities that mentalese lacks but are unique of natural language in socio-cultural contexts.

3. Word in Socio-cultural Construction

3.1. Political Terminology

The creation of political terminology is tightly connected to socio-cultural context. As the perspective from economics of language only preliminarily explains the first-order laws of vocabulary evolution (i.e., the static characteristics of the origin of new words as a whole), if language is regarded as a product of society itself, people can explore the laws of language change in specific environments from the perspective of language socialization [7]. Political terminologies were usually

created in a historical context closely related to specific political systems and social changes. The concept of them did not exist before the emergence of their corresponding systems. The political terminology Separation of Powers in this case can be taken as an example. If this terminology were mentioned to people in the Assyrian Empire, they would not understand this concept, as there was no such corresponding decentralization system, and the basic cognitive elements in mentalese have not been combined properly. Thus, mentalese in this case only plays a role of giving these elements, but lacks the ability of combining them. If mentalese is the primary root for new words' creation, the emergence of many political terminologies' creation would be meaningless.

3.2. Classical Literature

The Merchant of Venice is a literary work from Shakespeare, and initially the mentioned merchant was no more than just a character from this novel. However, the concept of The Merchant of Venice over time has been enriched. It not only refers to the profession itself, but also has gradually evolved into a synonym for a specific social phenomenon outside the literature field. When Shakespeare created The Merchant of Venice, he might have many different ways to describe this character and his background. If mentalese determines the creation of all vocabulary, then the writer's expression choices should be limited, and there should be only a certain way to be selected. However, this is not the case. Shakespeare could freely shape the character through rich literary expressions, and there is not the only choice of a certain language of the mind behind this. This creative freedom reflects the flexibility and diversity of natural language.

3.3. Fan Fiction

Fan fiction is a new story created by fans based on existing works. Even if these works always share the most basic background settings and characters, there are still significant divergences between the original work and its fan fictions. The story of the video game Black Myth: Wukong is one of the examples. Inspired by the Chinese classical literature Journey to the West, the main characters were all derived from this famous work, but the specific settings, storyline, and language style are all distinct from the original one. Even if there is already a story like Journey to the West, there is no guarantee that with all the essential cognitive elements given by mentalese, other people can create a story with a storyline like Black Myth: Wukong, instead of a story of some other settings and structures. Underlying this is the simple fact that a creative process is not just about extracting existing ideological elements from mentalese, but also using the adaptability and diversity of natural language, which differentiates the fan fictions from the original story. For writing a fan fiction, writers are expected to combine existing cultural and linguistic expressions, constructing new concepts and plots. Natural language enables writers to give new meanings within the existing framework, which makes it a process that goes beyond the scope of mentalese. Hence, the vital role of natural language in creating vocabularies and concepts is apparent.

3.4. Transformation of Old Thought

3.4.1. Example of YOLO

A meme is something that is imitated, which is transmitted through imitation. If the imitation occurs, something must be transmitted, which is the meme [8]. Originating in digital culture, meme words often acquire specific meanings that reflect certain cultural phenomena, shared experiences, or humorous contexts. They tend to evolve rapidly, taking on new meanings or being adapted to new contexts within a short period of time. YOLO (You Only Live Once), as a meme word, is a motto conveying a message that people should take risks and live to the fullest for life is a onetime thing. The meaning underlying the word is not new, while some voices even claim that it can be traced back to the Latin phrase Carpe diem or seize the day. If it is true, YOLO, compared to the Latin phrase, is shorter, which are more widely known partly attributing to the popularity of English. Nevertheless, no matter where the word was derived from, the provided modern shorthand for a pre-existing concept has shown that new words can emerge in natural language, adapting to changes in specific

environments without the monopoly of mentalese. Although the thought contained in YOLO might not be totally the same with its etymology, and there may be some existing new thoughts added in given the passing time, the core meaning between them remains the same. The slight differences in meaning can be better understood as cultural adaptations within natural language, which evolves to convey the core meaning in more contextually relevant forms.

3.4.2. Example of chivalry

In this aspect, the evolved concept of chivalry is similar to YOLO, which contains potential meaning variations. Although chivalry is not a meme word, the concept is also a product of natural language's adaptation in different socio-cultural contexts as YOLO. Originally, chivalry referred to a specific code of conduct followed by knights, emphasizing bravery, honor, and gallantry toward women. However, as societies transitioned from feudalism and the importance of knights diminished, the original concept of chivalry became less relevant. Over time, the word chivalry evolved in natural language to reflect more general ideas of politeness and courteous behavior, especially in the context of how men treat women. Had chivalry not adapted to these broader, more universally applicable meanings in natural language, the original concept tied solely to the medieval knightly code would be likely to have faded completely from cultural relevance. The example of chivalry demonstrates that how a concept can persist or become obsolete depending on its ability to adapt within the evolving frameworks of natural language and culture. Thus, if it was not the adaptation ability of natural language, the main thought of YOLO maybe could not be passed down till now, and the meme word would not be coined in the first place. It is natural language that plays a more important role in this coining process rather than a mental language, which is lack of such adaptation ability.

4. Word of Sound Symbolism

4.1. Phonetic Effects

Pinker mentions that mentalese is a silent medium in people's brains. In other words, mentalese lacks features of phonology. Moreover, he argues that people's thought resides in this medium, and thought only appears in the form of natural language when people need to communicate with others. The following argument would show how new words can be coined based on the absent part in mentalese, and the way natural language contributes to shaping thought. It has been shown that the manner in which phonetic effects of brand names manifest is automatic in as much as it is uncontrollable, outside awareness and effortless [9]. Based on a certain brand positioning, companies with different market orientations usually create a brand name serving for the purposes of better promoting their products to consumers. Cole gave a few examples to show how features of phonology, which do not exist in mentalese, can work in branding [10]. Kleenex (a line of paper-based facial tissues), as one of which, is from the Kimberly-Clark Corporation, whose name was coined because it had a K as its endowment, and it was hoped would be associated by sound with clean.

This is related to another finding that is: consumers tend to gather information from phonemes in a brand name, using the information to deduce its product's features and evaluating the brand. During this process, the expectation of consumers for this certain product can be unconsciously created by the sound within the brand name [11]. Such branding strategy utilizes phonological elements absent in mentalese, supporting the view that natural language plays a direct role in shaping consumers' thought. As what Pinker claims, thought is the resider of mentalese, and natural language is used for merely making formed thought translated. However, these findings are contrary to his argument, natural language is neither merely a translation of thought, nor manipulated by thought, natural language can shape thought. The creation of new words is primarily rooted in natural language with phonemes rather than mentalese, a silent mental language Pinker thinks where thought resides.

4.1.1. Phonetic Features of Olay

To further illustrate what kinds of phonetic features can contribute to sound branding, the phonemes in the skincare brand Olay can be analyzed. First of all, the word Olay did not exist in English until it was specifically coined for the later skincare product line. The phonemes in this brand name include two vowels: /oʊ/, /eɪ/, and one consonant: /l/. While consumers prefer brand names containing vowels associated with desirable product category attributes, and a back vowel can convey the meanings of slow and round, a back vowel /oʊ/ representing the O sound in this brand name may contribute to giving consumers a smoothing effect [12]. Besides, a skin moisturizing product would be perceived as softer if the brand name does not contain voiced obstruents [13]. Olay is also in line with this finding, whose component phonemes do not include any voiced obstruent.

After analyzing the phonemes in Olay, it has demonstrated how these phonemes can contribute to conveying a sense of feeling which is associated with the brand's attributes, as well as more congruent with consumers' expectation given the sound of the brand name. Yorkston and Menon's study concludes that products whose brand names are more congruent with their features are of greater possibility to gain more popularity in marketing [9]. As one of the most profitable skincare brand in the world, Olay's success may be viewed from this less mentioned perspective. Beyond that, it is of more importance to see how natural language, with its rich symbolic potential, to be integral to shaping thought, which not merely a translation of mentalese is.

4.2. Repeated Two-syllable Brand Name

While there are more brands using phonetic features in natural language to create their names for better promotion, the formation of these names is not an arbitrary process. For brands which have already had an original name, but still would like to take more advantages from phonetic features without changing the existing name, the Chinese logistics brand Cainiao Network is an instance. In its application interface, the brand displays itself as Cainiao Guoguo (guo means parcel in English) the nick name, because it has been shown that companies can always benefit from repeated two-syllable brand names [14]. Based on what have been discussed above, it can be seen that a brand name is often informed by the existing sounds and their associated meanings within natural language, negating the need for a silent medium to facilitate this process. Thus, the process of coining new words is driven by the symbolic potential of natural language, demonstrating a more significant role of natural language in creating such new words.

5. Conclusion

This paper has critically examined Steven Pinker's argument that new words are primarily created in mentalese, a hypothetical mental language distinct from natural language. By examining various linguistic phenomena through the lenses of the economics of language, language socialization, and sound symbolism, this paper highlights the critical role natural language plays in the creation of new words.

First, from the perspective of economics of language, this paper discussed how Principle of Least Effort drives the coining of new words in natural language. Examples such as portmanteaus demonstrated that new words are created to enhance communicative efficiency, and new coined words comprising complex thoughts make thinking more efficient. Moreover, a potential objection of portmanteaus was taken into account.

Given that, the following argument focuses on the unique abilities of natural language in socio-cultural context. Exploring through the evolution of political terminology, classical literature, fan fictions and two expressions containing old thoughts, the argument from the perspective of language socialization further explains the reason why mentalese, in these cases, cannot be of more help than providing relevant cognitive elements. Instead, natural language is the language with socio-cultural adaptability necessary for creating new concepts and words that organizes these elements and fills the gap.

Following this, the role of sound symbolism in branding was proposed, where the phonetic features of words influence consumer perception and thought. Contrary to Pinker's argument, without much help from mentalese (i.e., a silent medium lacking of phonological elements), a new brand name containing phonetic features can be innovatively created. Beyond that, people are using the symbolic potential of natural language to shape thought, which demonstrates natural language's more significant role in creating such new words.

Therefore, the evidences presented above strongly suggest that natural language, rather than mentalese, is the primary driver of new word creation, disconfirming Pinker's claim that mentalese is the main source of linguistic innovation.

References

- [1] Fodor, J. A. (1975). *The Language of Thought*. Harvard University Press
- [2] Pinker, S. (2007). *The Language Instinct: How the Mind Creates Language*. Penguin UK, 55-82.
- [3] Zipf, G. K. (1949). *Human Behavior and the Principle of Least Effort: an Introduction to Human Ecology*. Cambridge: Addison Wesley.
- [4] Silby, B. (2000). Revealing the language of thought. *PhilPapers*. Retrieved August, from <https://philpapers.org/archive/SILRTL>, 71.
- [5] Si, F. (2018). On the Theoretical Framework of Classification of English Word formation. *Journal of Huaqiao University (Philosophy & Social Sciences)*, (03), 153.
- [6] Gries, S. T. (2004) Shouldn't It Be Breakfunch? A quantitative Analysis of Blend Structure in English. *Linguistics*, 42(3), 639-667.
- [7] Wang, Y. (2023). A study on the formation of new words in contemporary English: a study based on the language economics and language sociology of the online version of the Merriam-Webster Dictionary. *Lexicographical Studies*, (06), 94.
- [8] He, Z. (2007). *New Development in Pragmatics: Relevance, Adaptation and Memetics*. ShangHai Education Publishing House, 142.
- [9] Yorkston, E., & Menon, G. (2004). A Sound Idea: Phonetic Effects of Brand Names on Consumer Judgments, *Journal of Consumer Research*, Volume 31, Issue 1, June 2004, 43–51, <https://doi.org/10.1086/383422>.
- [10] Cole, D. (1999). I don't think so: Pinker on the mentalese monopoly. *Philosophical Psychology*, 12(3), 283–295.
- [11] Pathak, A., Velasco, C., & Spence, C. J. (2019). The sound of branding: an analysis of the initial phonemes of popular brand names. *Journal of Brand Management*, 27(3), 339-354.
- [12] Klink, R. R. (2003). Creating meaningful brands: the relationship between brand name and brand mark. *Marketing Letters*, 14(3), 143–157.
- [13] Pathak, A., Calvert, G. A., & Lim, L. K. S. (2020). Harsh voices, sound branding: How voiced consonants in a brand's name can alter its perceived attributes. *Psychology & Marketing*, 37(6), 837–847.
- [14] Ye, W., Xu, S., & Zhou, X. (2024). Impact of repeated two-syllable brand names on consumer ethical responses in different moral contexts: A mind perception theory perspective. *Acta Psychologica Sinica*, (05), 665.