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A study on the path of metaphor construal based on cognitive context in English-Chinese interpreting

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Abstract. As the prerequisite for accurate interpreting output, metaphor construal is a process in which interpreters conceptualize and integrate concepts based on image schemas in the brain, closely linked to cognitive context. This paper introduces the concept of "cognitive context alignment," constructs a relational model between cognitive efficiency and cognitive context alignment, and analyzes the process of metaphor construal from the perspectives of image schemas, relevance, and conceptual integration. It further explores a path for metaphor construal in English-Chinese interpreting based on cognitive context, with the aim of advancing research in metaphor cognition and offering guidance for interpreting practice.

Keywords: metaphor construal, path, cognitive context alignment

1. Introduction

Construal is a key term in cognitive linguistics, referring to the human capacity to understand and express the same real-life scenario through different means [1]. Based on embodied experience, individuals adopt various perspectives to understand events and form cognitively processed knowledge of these events in the brain. Therefore, construal is a process of understanding the world and organizing experiential knowledge, but it is influenced by context and personal experience [1]. As a linguistic phenomenon, metaphor is ubiquitous and universal, serving as a major object of construal in discourse communication. Individuals comprehend metaphors differently depending on their interactive experiences with the external world. In the context of English-Chinese interpreting, metaphorical expressions pose a significant challenge during the information reception and understanding phase. Accurate metaphor interpretation is crucial for conveying information to the audience. Both the production and construal of metaphors are inseparable from cognitive context [2]. In essence, metaphors in interpreting are a cognitive phenomenon, and cognitive context runs through the entire process of their construal. Focusing on cognitive context and using the English-Chinese interpreting scenario as an example, this paper preliminarily explores a path for metaphor construal based on cognitive context, aiming to produce practical research outcomes and provide useful references for interpreting practice.

2. Cognitive context

With the development of cognitive science, perspectives on linguistic context have undergone a cognitive turn. This section reviews the research field of cognitive context. Frege [3] formally proposed the theory of contextuality, asserting that word meaning must be understood within actual situations and in relation to surrounding text. Malinowski [4] introduced the theory of situational context, emphasizing that the situation in which language occurs aids in the construal of communicative discourse. Building on this, Firth [5] proposed the notion of cultural context, arguing that understanding discourse requires consideration of sociocultural factors. Subsequently, Wittgenstein [6] put forth the theory of usage, stating that word meaning should be interpreted through its social use. All of these conceptualizations of context are rooted in the function of language and belong to the realm of functional linguistics. They emphasize the environment or situation in which language occurs—situational elements that can be broken down and analyzed. Influenced by dualistic thinking, these scholars often divided context into categories such as co-text and context, macro-context and micro-context, or objective and subjective context. As a result, these views present context as static, consistent with the traditional linguistic understanding of context. In the 1980s, as cognitive science advanced, its research paradigms were increasingly adopted by linguists. These scholars elevated the traditional view of context to a cognitive level, thereby introducing the concept of cognitive context. According to this perspective, humans categorize and label things with

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similar perceived properties through a series of complex mental processes, forming concepts in the brain and establishing connections between these concepts across different situations. These concepts constitute an individual's knowledge structure. During communication, individuals use these concepts and the present context to make contextual assumptions about the objective world, thereby forming a cognitive context. Cognitive context refers to the generalized and structured pragmatic knowledge system that language users hold about the external world—in other words, the systematized pragmatic knowledge of the language user [7]. Cognitive context can be viewed as an open system: as individuals continually interact with and perceive the external world, they receive new information during communication and construct context through dynamic inferential hypotheses. Consequently, the cognitive context is constantly adjusted and expanded, displaying a dynamic nature. In discourse communication, all interlocutors dynamically construct their own cognitive context based on the continuous inflow of information. Cognitive context is also grounded in Gestalt psychology. The cognitive context constructed through embodied experience is perceived as an integrated whole in which internal elements are inseparable and mutually embedded. Thus, when we perceive and conceptualize an entity, we comprehend it as a holistic gestalt that cannot be disassembled into parts for interpretation. The form and nature of this gestalt are not determined by its individual components but by the overall situation. Accordingly, cognitive context also exhibits a holistic or gestalt nature.

3. Cognitive context alignment in interpreting

The dynamic construction of cognitive context is crucial in interpreting practice. The interpreting process can be divided into five major stages: input, memory, processing, expression, and evaluation. In the input stage, the interpreter must fully comprehend the speaker's discourse; otherwise, subsequent stages would be akin to cooking without rice. In interpreting scenarios, the speaker, interpreter, and audience each possess their own cognitive contexts. In cross-linguistic speech settings, the speaker and audience engage in a relatively one-way flow of information, with the speaker's cognitive context remaining relatively stable within the given time and space, while the audience continuously constructs their own cognitive context in the process of receiving information in order to thoroughly understand the speaker's message. In contrast, in cross-linguistic dialogue scenarios, where turns of speech alternate between participants, both parties continuously construct their cognitive contexts based on the incoming information. Regardless of the type of cross-linguistic communicative situation, the interpreter, acting as the communicative medium, must understand the speaker's discourse accurately and precisely in order to faithfully transmit the message. If accuracy is compromised at any point, the listener will lose alignment with the speaker's context, resulting in communication breakdown. Thus, the cognitive context alignment between speaker and interpreter is essential to ensure the quality of interpreting output. Sperber & Wilson [8] pointed out that successful communication relies on the shared cognitive environment of the communicative parties—in essence, the intersection of the cognitive contexts of the speaker and the interpreter, i.e., the shared cognitive environment. Based on this, the author introduces the concept of Cognitive Context Alignment (CA).

Cognitive context alignment refers to the holistic match and resonance among the speaker, interpreter, and listener in terms of concepts, knowledge, and experience. It is a key factor in facilitating cross-linguistic and cross-cultural communication. However, if the context lacks coherence, or if the interpreter lacks the corresponding schematic framework in their mind, the gestalt formation of the interpreter's cognitive context will be hindered. Specifically, when encyclopedic knowledge is insufficient or the speaker's discourse is ambiguous, the interpreter's dynamic construction of cognitive context will be obstructed, significantly affecting the formation of cognitive gestalt. This in turn reduces the efficiency of relevance, making it difficult for the interpreter to achieve alignment with the speaker's cognitive context and thereby impeding construal. Given the limitations of interpreters' cognitive capacity, the author assumes that the Cognitive Resources (CR) an interpreter can allocate to a given unit of information are relatively fixed. When cognitive context alignment declines, Cognitive Efficiency (CE) also decreases, affecting the quality of interpreting output. Conversely, improved alignment enhances cognitive efficiency and leads to better interpreting performance. The author attempts to describe this relationship in natural language, proposing the Formula (1):

$$Cognitive\ Efficiency\ (CE) = \frac{Cognitive\ Context\ Alignment\ (CA)}{Cognitive\ Resources\ (CR)} \quad (1)$$

According to this formula, when cognitive resources remain relatively fixed, cognitive context alignment is positively correlated with cognitive efficiency. However, during the input stage, metaphor poses a significant barrier to cognitive context alignment. Under the constraint of limited cognitive resources, the accuracy of metaphor interpretation directly affects the alignment between the interpreter and speaker's cognitive contexts, which in turn impacts cognitive efficiency and the quality of interpreting output.

4. Metaphor construal under the guidance of cognitive context

Metaphor, which uses concrete entities to express abstract concepts, serves as a vital window into language and a universal phenomenon in human thought and cognition [9]. It is not merely a rhetorical device at the linguistic level, but a fundamental way of thinking [10]. Accordingly, the conceptual information embedded in metaphors represents overloaded information beyond the literal, which cannot be understood solely through the immediate context. Rather, it requires a more generalized and cognitively structured knowledge framework. This combination of specific context and schematic knowledge constitutes what is referred to

as the cognitive context. Xu Zhanghong [11] posits that the target domain and source domain of a metaphor form the semantic basis of similarity between the cognitive areas of the communicative parties. This similarity is not derived from language per se but is established within the background of the cognitive context. Different cognitive agents may interpret metaphors from varying perspectives, and the cognitive context plays a guiding and constraining role in this process. It helps listeners interpret metaphors from reasonable angles and prevents unrestricted, unfocused thinking. Thus, cognitive context forms the foundation for metaphor construal.

Essentially, metaphor involves a process of conceptualization and conceptual integration based on image schemas, and it is linked to the knowledge structures derived from the speaker's embodied experience in the objective world. In English-Chinese interpreting scenarios, the interpreter, as the initial receiver of metaphorical information, must comprehend the metaphor and activate inference mechanisms to extract and generate appropriate image schemas. The construal process involves the interpreter using image schemas as mediators to construct and integrate concepts in the mind according to the evolving cognitive context, thereby establishing optimal similarity-based connections and aligning with the speaker's cognitive context. Lakoff's framework explains metaphors through the source domain, target domain, and Image Schema (IS). The source domain corresponds to the metaphorical expression, the target domain to the conceptual meaning, and the similarity between them is referred to as the ground. Based on this, the author argues that metaphor construal in English-Chinese interpreting primarily involves the target domain, source domain, image schema, and the ground. The relationship from the source to the target domain is one of mapping, and metaphors generally fall into three categories: co-occurrence of source and target domains, elided target domain, and elided source domain. Regardless of the form, the key to metaphor interpretation lies in identifying the optimal similarity connection between the source and target domains—i.e., determining the ground. Only by doing so can the interpreter align with the speaker's cognitive context. During interpretation, the interpreter identifies the image schema through activation and inference, then correctly comprehends the target (or source) domain. This is followed by context-based hypothesizing to construct an optimal similarity link to the source (or target) domain, ultimately identifying the ground. This entire process is anchored in the interpreter's cognitive context. Throughout English-Chinese interpreting, interpreters constantly receive information from the speaker, and the specific context evolves continuously. Meanwhile, new information also activates the interpreter's schematic knowledge, placing the cognitive context in a state of dynamic expansion—represented in diagrams as a dashed frame. As shown in the quadrilateral model, metaphor construal begins with the target and source domains, uses image schemas for categorization and conceptualization, and establishes the optimal similarity connection through context-based predictions to determine the ground. This lays the foundation for subsequent metaphorical meaning construction and can be seen as a preliminary model of the interpreter's metaphor construal path. The following sections will explore this path across three dimensions—image schema, relevance, and conceptual integration—to facilitate the alignment of cognitive contexts between the speaker and interpreter.

5. Analysis of the metaphor construal process

5.1. Image schemas: the foundation of metaphor construal

Image schemas are derived from schema theory. The concept of the schema was first introduced by the ancient Greek philosopher Kant [12], who saw it as a link between perception and concepts—an intermediary connecting concepts and objects, a necessary component for constructing images and generating meaning, and a shared imaginative structure among individuals [13]. Later, Bartlett [14] described schemas as a type of cognitive structure in humans, comprising a set of basic schemas that aid in the understanding of new phenomena. These scholars all recognized that schemas are abstract knowledge structures formed in the brain through interactive experiences with the external world, serving as a medium for understanding objective reality. Lakoff combined the notions of image and schema to propose the concept of the "image schema," categorizing them into six major types, such as the container schema, part-whole schema, and linking schema.

The most fundamental aspects of human embodied experience are the "body" and "space," and the interaction between the two forms the basis of initial conceptualization. Through metaphorical projection, these concepts extend to time and other semantic domains [14]. Lakoff and Johnson [15] point out that humans unconsciously conceptualize language metaphorically based on spatial experiences. In the context of English-Chinese interpreting, interpreters must first identify the source domain (or target domain) by drawing upon pre-existing image schemas in the brain. This process can occur through assimilation—where the source domain (or target domain) is aligned with an existing image schema, resulting in a quantitative change—or through accommodation, where a new image schema is created in the brain, leading to a qualitative transformation. Both methods lay the groundwork for establishing optimal similarity mapping. In some metaphorical expressions, the source domain may not be explicitly stated but is instead embedded in the verb or the surrounding context. Interpreters must infer the image schema based on the verb or contextual clues. For instance, consider the sentence: The sight filled her with fear. The source domain is not directly expressed, but it can be inferred from the verb fill. The verb fill implies a specific context, which activates the corresponding image schema in the brain. The verb denotes the action of filling, leading to the inference of the container image schema, with fear being the liquid or substance contained within. The container schema is a type of spatial schema commonly present in the human brain and can be easily retrieved through assimilation. In conclusion, the extraction and generation of image schemas provide a solid foundation for the construal of metaphors.

5.2. Relevance: the implicit mechanism in discourse communication

Sperber and Wilson [8] proposed Relevance Theory, which holds that in the process of communication, individuals rely on cognitive principles to connect incoming information with pre-existing schematic knowledge in their minds. Through deductive reasoning, they seek optimal relevance, aiming to align cognitive contexts between communicators in the most economical way possible. The principle of relevance applies to both discourse production and construal. One party must interpret the discourse of the other in order to produce appropriate discourse in return, ensuring smooth communication; thus, discourse construal is of critical importance. In communication, discourse can be classified into explicature and implicature. Explicature refers to utterances that convey information in a direct and straightforward manner, whereas implicature refers to what is commonly known as the "unsaid meaning"—the speaker's communicative intent embedded in the discourse. To interpret implicature, the listener must continually formulate hypotheses about the cognitive context, and through reasoning, adjust and refine these hypotheses to match the speaker's cognitive environment, thereby seeking the optimal relevance. Therefore, the principle of relevance also reflects the dynamic nature of cognition, which aligns with the dynamic nature of the cognitive context. Prior to Relevance Theory, Garfinkel [16] introduced the notion of the infinite "indexicality" of natural language and practical activities—that is, any meaningful symbol or act does not exist in isolation but rather within an endless chain of indices. This feature also makes relevance-seeking possible. In an interpreting scenario, the speaker and the interpreter form the two parties of communication. While receiving the speaker's utterances, the interpreter must continuously construct and test hypotheses about the speaker's cognitive context in order to achieve alignment.

As a non-literal use of language, metaphor belongs to implicature and can only be understood through inferential reasoning. Relevance Theory is applicable to analyzing such figurative language containing implied meaning. Metaphors are characterized by both similarity and dissimilarity—two interdependent aspects that cannot be separated through binary opposition. Similarity refers to the shared attributes between the source domain (vehicle) and the target domain (tenor), but it is not equivalent to analogy, which highlights their dissimilar nature. Dissimilarity refers to the semantic conflict between tenor and vehicle. As the cognitive context evolves, a metaphorical vehicle may come to represent a tenor with seemingly no shared attributes, and vice versa. Yet, guided by the cognitive context, interlocutors can identify similarity within dissimilarity. The author argues that while semantic conflict exists between the tenor and vehicle, both reside within a conceptual continuum and are linked by "family resemblances" within this continuum. These resemblances constitute the similarity found within dissimilarity. The process of metaphor construal, therefore, involves locating these family resemblances within a conceptual continuum to determine the optimal similarity-based relevance—namely, to identify the metaphorical entailment. Such similarity-seeking relies on the cognitive context. For example, in the sentence Money is the lens in the camera, the vehicle lens and the tenor money fall into entirely different categories from the perspective of traditional semantics and appear to lack similarity, making it difficult for the listener to establish a connection. However, from a cognitive contextual perspective, the lens can present a person from various angles, and money can reflect one's character. By integrating this information, one can infer the family resemblance within the conceptual continuum—namely, that mirrors reflect—thus identifying the metaphorical entailment. In this way, listeners can discover similarity within dissimilarity, build the optimal similarity-based mapping between tenor and vehicle, and thereby accurately construct metaphorical meaning.

In the interpreting context, the interpreter's construal of metaphors is influenced mainly by cultural specificity, background knowledge, and specific situational context. The first two belong to the interpreter's internal schematic framework, while the latter pertains to the discourse context—in short, all are shaped by the cognitive context. In a metaphor, the tenor and vehicle represent two cognitive domains: the source domain and the target domain. Metaphor construal involves interpreting the mapping between these two domains. As previously mentioned, due to the dissimilarity inherent in metaphor, the vehicle can, through conceptual integration and as human cognition advances, come to represent new tenors. Therefore, in the mapping process, the interpreter must formulate hypotheses about the target domain (or source domain) based on the received vehicle (or tenor)—a process known as context hypothesis. A context hypothesis is also a form of prediction—inferring hidden information from the known content of a metaphorical utterance. Conceptual metaphors exhibit systematicity, which can be divided into two levels: the linguistic level and the conceptual level [17]. Metaphor can be viewed as a system, with the linguistic level representing explicit information—the utterance the interpreter hears—and the conceptual level representing implicit information—communicative and cognitive information hidden behind the utterance. This system can be described using the Grey System Theory proposed by Deng Julong in 1986. A grey system is composed of known and unknown information, where the unknown information is the "grey area." People can extract and analyze valuable parts of the known information—a process known as grey prediction—to recognize patterns within the system. Based on this framework, metaphor can be seen as a grey system, and the process of predicting unknown information from explicit linguistic cues can be regarded as grey prediction. The interpreter engages in grey prediction by leveraging linguistic relevance and indexicality alongside their internal schematic knowledge to accurately grasp the metaphorical system. During the hypothesis phase, the interpreter's mind constructs a set of hypothetical contexts. Based on specific discourse, experiential knowledge frameworks, and cultural knowledge, the interpreter extends and analogizes meaning, identifying optimal similarity within dissimilarity and aligning their cognitive context with that of the speaker, thereby constructing metaphorical meaning. This process constitutes conceptual categorization.

5.3. Conceptual blending and the interpretation of metaphors

Regarding the interpretive process outlined above, this study argues that it can be analyzed and substantiated using the conceptual blending theory proposed by Fauconnier [18]. Conceptual blending is a cognitive activity that takes place at the mental level of the cognitive subject. It enables the integration and generation of more complex and abstract concepts, as well as the creation of novel ones. Fauconnier & Turner [19] discussed how information from two cognitive domains (mental spaces) can be blended to form new conceptual meanings and proposed a conceptual blending model. This model includes at least two input spaces, a generic space, and a blended space. The input spaces represent the two cognitive domains; the generic space serves the function of categorization; and the blended space is where conceptual construction and meaning generation occur. Crucially, relevance is the premise of conceptual blending, playing an essential role in the process. Building upon the conceptual blending model proposed by Fauconnier & Turner, this study puts forward a conceptual blending model for metaphor interpretation by translators, explaining the metaphor interpretation process at the level of mental spaces (see Figure 1):

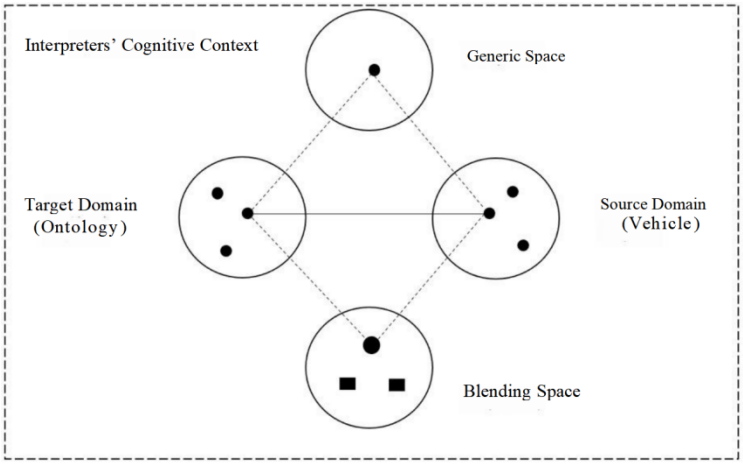

Figure 1. Conceptual blending model in metaphor

As shown in Figure 1, a metaphor consists of two major cognitive domains: the source domain and the target domain. The translator first extracts partial information from both domains (i.e., certain attributes of the tenor and the vehicle, connected by solid lines in the diagram, indicating the conditions for mapping). These are then categorized within the generic space and matched accordingly, before being mapped onto the blended space. The interpretation of image schemas is a prerequisite for categorization. Based on the categories generated in the generic space, the translator can construct metaphorical meanings within the blended space. In this construction process, aligning the translator's cognitive context with that of the speaker is crucial. Through mapping, the process may generate more abstract and complex concepts based on shared attributes between the two domains (as indicated by the solid dot in the figure), or it may yield entirely new meanings—novel concepts (as indicated by the solid rectangle). This process vividly reflects both the similarities and differences inherent in metaphor and is premised on relevance, with the translator's cognitive context running throughout.

In summary, after extracting and generating image schemas, the translator can apply the principle of relevance to form contextual hypotheses. During this hypothesizing phase, the translator may construct several cognitive models (CMs) at the mental level and determine the optimal relevance of similarities between the tenor and the vehicle through analogical reasoning, thereby interpreting the metaphorical base and grasping the hidden communicative messages embedded in metaphorical discourse. This process enables contextual alignment between the speaker and the translator and facilitates the construction of metaphorical meaning through conceptual blending. As previously discussed, metaphor is a process of conceptualization and conceptual blending based on image schemas. Thus, the translator's interpretation of metaphors is essentially a mental process of categorization and conceptualization, as well as one of achieving cognitive contextual alignment with the speaker. This part of the process is considered the latter stage of metaphor interpretation. Combined with the earlier stage proposed above, this study presents a full path of metaphor interpretation in interpreting, grounded in cognitive context, as illustrated in the following diagram (Figure 2):

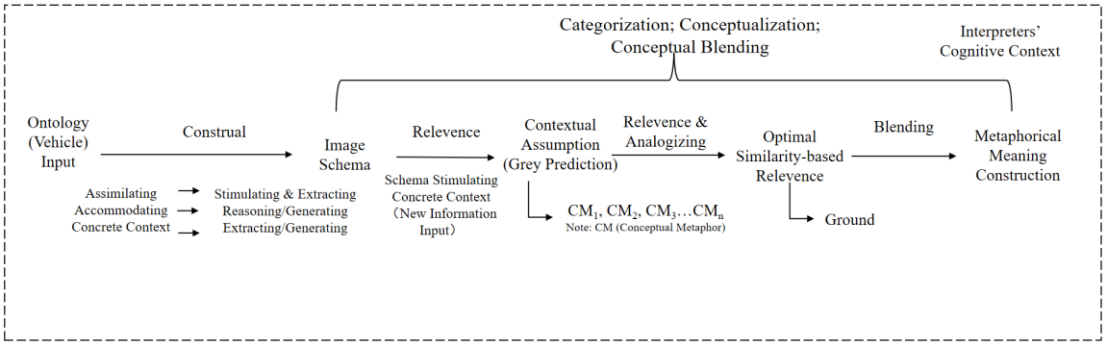

Figure 2. Interpretation path of metaphor in English-Chinese interpreting based on cognitive context

As shown in Figure 2, the entire process of metaphor interpretation by interpreters relies on the translator's cognitive context. As the translator continuously receives new information, their cognitive context also evolves, which is represented by dashed rectangles in the diagram. This path encompasses the four key elements of metaphor interpretation and is entirely based on cognitive context.

6. Conclusion

The cognitive context runs through the entire process of metaphor interpretation by interpreters. Whether it involves the inference and generation of image schemas, the formulation of contextual hypotheses, or conceptual blending, the cognitive context plays a crucial role throughout. The alignment of cognitive contexts is key for translators to correctly interpret metaphors and accurately construct metaphorical meaning. This study contends that metaphor is a process of conceptualization and conceptual blending based on image schemas. In English-Chinese interpreting, the interpretation of metaphors is essentially a mental process in which the interpreter conceptualizes and blends concepts, while simultaneously aligning their cognitive context with that of the speaker. This process encompasses the extraction and generation of image schemas, the formulation of contextual hypotheses, conceptual blending, and the construction of meaning. The interpretive path proposed in this study precisely reflects the processes of conceptualization and conceptual blending. It aligns with the essential nature of metaphor generation and interpretation, highlights the foundational role of cognitive context, and demonstrates both the similarities and differences inherent in metaphor. These elements jointly affirm the validity of the proposed interpretive path. Metaphor is an extremely complex cognitive process; this paper offers only a preliminary exploration of the metaphor interpretation path based on cognitive context, with the hope of providing a foundation for more in-depth research in the future.

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