

Cognitive Analysis of Conceptual Metaphors in *Brush Talks from Dream Brook*: A Study based on Conceptual Blending Theory

Yi Wang

School of Foreign Language, Southwest Petroleum University, Chengdu 610500, China

Abstract: Conceptual Blending Theory provides a scheme to explain the dynamic characteristics and operational picture of meaning construction of natural language. This paper employs Lakoff & Johnson's Conceptual Metaphor Theory and Gilles Fauconnier & Mark Turner's Conceptual Blending Theory as a foundation. It combines the Metaphor Identification Procedure developed by Pragglejaz Group to systematically identify and classify conceptual metaphors in the humanities section of *Brush Talks from Dream Brook* (420 entries). The research found that structural metaphors are relatively less common, followed by orientational metaphors, with ontological metaphors being the most frequent. Further analysis of the most representative subcategories of these three major classes of metaphors is conducted through exemplification. By dissecting the projection, alignment, and integration of concepts across four mental spaces, the research attempts to elucidate the meaning construction and conceptual integration of these conceptual metaphors.

Keywords: Conceptual Blending Theory, Conceptual Metaphor, *Brush Talks from Dream Brook*, Meaning Construction.

1. Introduction

Brush Talks from Dream Brook is an encyclopedic work that covers various fields, including science, literature, history, and philosophy. It serves as a testament to Shen Kuo's extensive knowledge and versatility. According to records, Shen Kuo was described as "knowledgeable in literature, proficient in astronomy, geography, calendrical calculations, music, medicine, and divination" (Wang Xingguang & Luo Sijing, 2011). While the scientific value of *Brush Talks from Dream Brook* has received significant attention, its contributions to the humanities and social sciences should not be overlooked. Previous research has primarily focused on textual analysis (Li Mei, 2016; Wang Chang, 2004), linguistic studies (Wu Chenxi, 2002; Wang Hong, 2001), the value of musical materials (Zheng Zuxiang, 2010), and aesthetics value (Sha Jundong, 1999; Hou Min, 2005). Additionally, Chinese scholars have employed conceptual metaphors in various textual studies, including Chinese classics. Conceptual Metaphor Theory focuses on one-way mapping between source and target domains. Fauconnier argues that metaphorical cross-domain mappings also involve mental operations such as conceptual integration, emergent structures, compression, and inferential projection.

A complete classification system is challenging given text genre and entry classification. This paper draws inspiration from Professor Pan Tianhua's classification standard, vertically dividing entries into "Natural and Technical Sciences" and "Humanities and Social Sciences," and horizontally distinguishing between "Main Description" and "Relevance" (Pan Tianhua, 2008). Among the 420 entries, this study attempts to analyze metaphorical expressions within the humanities section of *Brush Talks from Dream Brook* from a cognitive perspective, utilizing both Conceptual Metaphor Theory and Conceptual Blending Theory. It aims to elucidate the meaning processing and integration of various metaphors across different mental spaces based on historical and cultural knowledge. This process enhances the understanding of Shen

Kuo's profound grasp of natural science, and unique insights into society, culture, and politics, and enriches our appreciation of the overall value of *Brush Talks from Dream Brook*.

2. Research Background

2.1. Conceptual Metaphor Theory

Lakoff and Johnson's co-authored work, *Metaphors We Live By* published in the 1980s, distinguished metaphor definition from previous studies on metaphor and introduced Conceptual Metaphor Theory (CMT) as a cognitive science framework. CMT considers metaphors as a way to map relatively concrete or familiar concepts onto relatively abstract or unfamiliar concepts for cognitive purposes, aiding in understanding and constructing abstract concepts in terms of the source domain. CMT classifies metaphors into three types: orientational metaphors, ontological metaphors, and structural metaphors. For instance, orientational metaphors have to do with conceptual spaces, such as MORE IS UP and LESS IS DOWN. Ontological metaphors treat abstract concepts or substances as tangible, bounded entities. Structural metaphors use the structure of one concept to understand or construct another.

2.2. Conceptual Blending Theory

In their collaborative work *Conceptual Projection and Middle Spaces*, Gilles Fauconnier and Mark Turner pointed out that there is a "middle space" that always gets involved in conceptual projection from one space to another. This middle space can be an abstract "generic space" or a more complex "blending space". Fauconnier introduced Conceptual Blending Theory in his 1997 publication *Mappings in Thought and Language*, developing the concept of "mental spaces" to explore how linguistic meaning dynamically constructs in thought. As thoughts or discourse unfold, the formation of "conceptual packets" occurs online to facilitate understanding or achieve specific goals (Fauconnier, 1997).

Conceptual blending networks, based on mappings and integration among mental spaces, aid in constructing meaning in language. These networks include Input Space I, Input Space II, Generic Space, and Blending. Elements from input spaces are projecting shared abstract structures, frameworks, or patterns into the generic space for compression through mappings. The blending space ultimately integrates information from these three mapped spaces. The emergent structure in the blending space has to do with three cognitive processes: composition, completion, and elaboration. Composition means composing elements from input spaces for new abstract relations that don't exist in separate mental spaces; completing serves to supplement structures within input spaces; elaboration could "run the blend" according to logic and principles within the space. The four spaces are connected through mapping, but the mappings between spaces are not strictly one-way. Ultimately, this process generates new and creative meanings that are not included in any mental space, shown as in Figure 1.

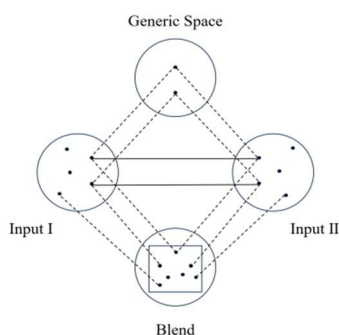


Figure 1. conceptual integration network (Fauconnier 1997:151)

The conceptual integration network, as depicted in Figure 1, can involve more than four mental spaces and blending spaces. In this network, each circle serves as a mental space, and the dots in these circles denote abstract information within those spaces. The solid lines connecting two input spaces represent projections after element matching. Elements from input spaces are selectively mapped to the generic space and the blending space based on different discourse contexts. Abstract information shared by both input spaces is projected into the generic space (represented by dashed lines) as communication or thought continues. Simultaneously, input spaces can project information into the blending space (indicated by intersecting dashed lines). Finally, the blending space integrates information selectively from these input spaces, which leads to generating an emergent structure (represented by the "box" within the blending space). This dynamic interaction among the four spaces enables unique cognitive operations underlying meaning construction, metaphorical creativity, meaning generation, and novel concept formation.

Conceptual Metaphor Theory (CMT) and Conceptual Blending Theory complement each other in explaining metaphors. CMT focuses on cross-domain mappings between source and target domains, bridging abstract concepts and natural language. What we previously considered as separate phenomena such as counterfactuals, frames, conceptualization, metonymy, and metaphor, are consequences of humans' fundamental integration abilities for double-scope blending. That is to say, these phenomena happen to emerge within the general principles and goals of

integrated networks. Entrenched metaphors in thought and language across different cultures involve not only mappings between source and target domains but also complex multi-space patterns, such as emergent structure. Mappings cannot fully explain the deeper meanings of those conceptual metaphor systems and intricate emergent structures.

3. Research Methods

This study employs data from *Brush Talks from Dream Brook*. Based on Conceptual Metaphor Theory and Conceptual Blending Theory, this article aims to elaborate on the deeper meanings of the metaphorical vocabulary and also analyzes how these conceptual metaphors are integrated through various spaces. Both quantitative and qualitative research methods are used. The specific process is as follows: (1) Adopt the Metaphor Identification Procedure (MIP) proposed by Pragglejaz Group to identify the metaphors in the humanities section (420 entries) and then extract metaphorical lexical units; conduct a qualitative analysis on the identified metaphorical vocabulary. (2) Attempt to further explore the integration and operational processes across four mental spaces.

The specific steps of MIP are as follows: (1) Read through the text and grasp the general meaning of the text; (2) Identify the lexical units in the text and make clear whether they have contextual meanings other than basic meanings; (3) Determine the metaphorical vocabulary. Therefore, it is necessary to clarify that: a distinction needs to be made between the linguistic level and the conceptual level for those have been identified content. Firstly, clarify and sort out the metaphorical expressions at the linguistic level. However, "units smaller than lexical units, units larger than lexical units or equivalent units do not fall into the category of lexical units" (Steen, G. J, 2010). For lexical units with ambiguous meanings, the CCL (Center for Chinese Linguistics PKU) is used as a Chinese reference corpus to retrieve their typical collocations for comparison to determine whether they have metaphorical meanings or basic meanings. This corpus includes modern Chinese, ancient Chinese, and Chinese-English sentence-aligned parallel corpora, spanning from the 11th century BC to the present.

4. Results and Discussion

4.1. Usage of Conceptual Metaphors

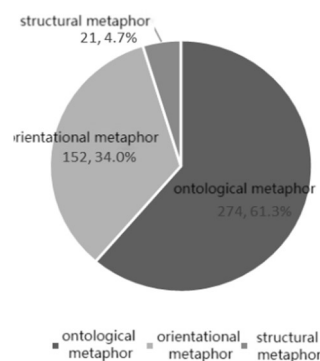


Figure 2. usage of metaphors

In this paper, MIP is first used to identify and preliminarily determine metaphorical lexical units. Then metaphorical lexical units with ambiguous meaning are to be identified with the help of the CCL corpus. Finally, the identified metaphorical lexical units are classified and analyzed

statistically. The results show that a total of 447 metaphorical expressions are identified from the humanities section of *Brush Talks from Dream Brook*, among which 274 are ontological metaphors, accounting for 61.3%; 152 are orientational metaphors, accounting for 34.0%; and 21 are structural metaphors, accounting for 4.7% (Figure 2).

As shown in Figure 2, structural metaphors are less frequent, orientational metaphors are more common, and ontological metaphors are the most prevalent. Ontological metaphors make complex or abstract concepts easier to understand within the humanities section, covering disciplines such as management, philosophy, art, history, etc. Also, the complexity of each field may necessitate the use of ontological metaphors for explanation. Orientational metaphors are intuitive and effective in expressing spatial relationships, facilitating the understanding of relative relationships between entities. In *Brush Talks from Dream Brook*, orientational metaphors are frequently used in the sociology subsection, especially in anecdotes, primarily reflecting the hierarchy of official positions/status, i.e., HAVING CONTROL/POWER IS UP and BEING SUBJECT TO CONTROL OR FORCE IS DOWN. Orientational metaphors help us understand the differences between official ranks, reflecting the social hierarchy and bureaucratic system of the Northern Song Dynasty, where the height of one's position serves as a sign of their status in society. In a word, *Brush Talks from Dream Brook* tends to directly describe events or personal experiences, resulting in a lower frequency of structural metaphors. This paper further identifies, classifies, and divides these three types of metaphors into subcategories. The top three subcategories of ontological metaphors by frequency are entity metaphors, personification metaphors, and container metaphors; orientational metaphors mainly include up-down and front-back metaphors; structural metaphors mainly involve discussions of personnel and skills and are not further classified due to their low frequency. Therefore, this article only analyzes examples of the top three subcategories of metaphors in these three categories.

4.2. Ontological Metaphors and Blending

Figure 3 shows the frequency and proportion of each subcategory of ontological metaphors, with the top three being entity metaphors, personification metaphors, and container metaphors, with frequencies of 114, 93, and 25, respectively. Table 1 provides specific examples of each subcategory. Relatively speaking, the most frequent subcategory is entity metaphors (41.6%), such as “Jue stands for the start of growth of everything while zhi stands for the boom and yu stands for finish and storage”, which describes the order of musical rhythms as the order of human joy and the cosmos. Next are personification metaphors (33.9%), exemplified by MECHANISMS ARE PEOPLE, BOOKS ARE PEOPLE, and PAINTINGS ARE PEOPLE; container metaphors (9.1%) conceptualize boundaries for abstract concepts, such as family relations, the body, and the court to discuss the capacity, stability, or inclusiveness of various abstract concepts.

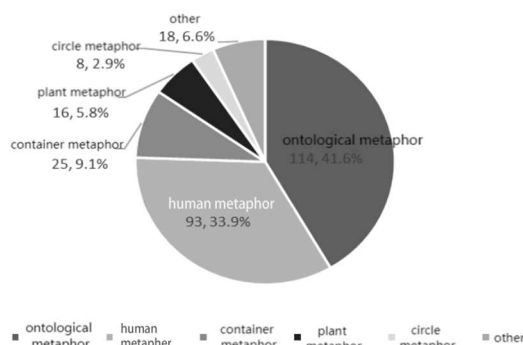


Figure 3. Frequency and proportion of subcategories

Table 1. examples of subcategories (with reference to Lakoff, G. & Johnson 1980)

| sequence | category | source domain | target domain |
|----------|--------------------|----------------|---------------------|
| 1 | entity metaphor | size | significance |
| 2 | human metaphor | human | institution |
| 3 | container metaphor | container | body |
| 4 | plant metaphor | grow up | progress |
| 5 | circle metaphor | revolve around | family relationship |
| 6 | other metaphor | process | create |

4.2.1. Entity Metaphor

Entity metaphors have to do with abstract notions, thereby understanding and describing abstract target domains through the attributes or behaviors of these entities.

Example one:
全藉倚楼角以发矢石，以覆护城脚，但使敌人备处多，则自不可存立。

The metaphorical foundation in example one is the conceptualization of specific experiences formed by people regarding the functions of various body parts, metaphorically representing the base of a city wall as the “foot” of a person. This metaphor could explain that the city wall is akin to the skeletal structure of the human body, supporting the city while also protecting its “internal organs” from invaders, emphasizing the importance and vulnerability of the city wall, as well as the necessity to protect it. Input space I contains the semantic structure related to “body structure”; input space II pertains to the architectural structure and category of the city wall, including elements such as the wall surface, base, and corners. Both input spaces selectively map or match based on the similarity of certain elements (as shown in Figure 4).

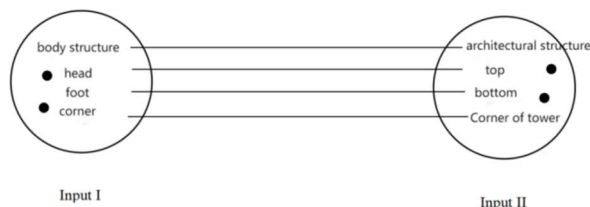


Figure 4. (with reference to Fauconnier 1997:150)

As depicted in Figure 5, the perception and conceptualization of the human body structure provide a basis for analogical mapping and projection of shared abstract attributes such as up-down, in-out, and center-peripheral spatial orientations. The generic space conceptualizes the shared abstract relationships and structures to determine the core content of cross-space mapping.

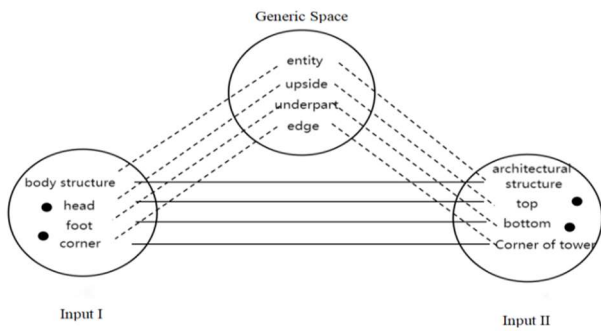


Figure 5. (with reference to Fauconnier 1997:150)

Conceptual properties from input space I are selectively projected onto input space II, activating the corresponding background knowledge, cognitive experience, and cultural knowledge to form a semantic association between the two. The abstract relation “foot is the supporting structure of the body” provided in input space I matches with the abstract relation “the base of the city wall is supporting the wall” in input space II; The generic space reflects structures and schemas common to input space I and input space II, forming abstract relation like “some structure can support something” and highlighting the semantic structure related to the shared attributes of both the city wall and human feet, which is then mapped onto the blended space. The blended space integrates the mapping relationships from both input spaces and the generic space, making it easier for people to discuss the concept of “city feet” (as illustrated in Figure 6).

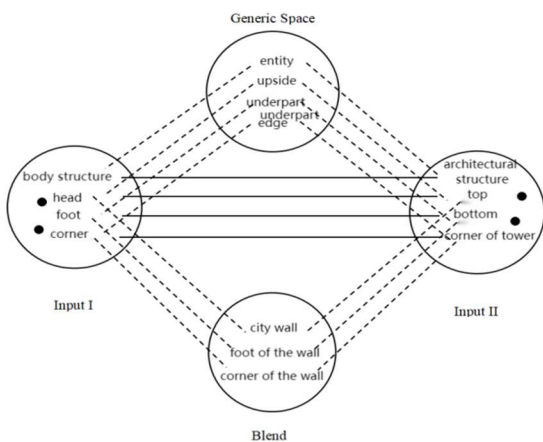


Figure 6. (with reference to Fauconnier 1997:150)

4.2.2. Human Metaphor

Personification metaphor allows us to comprehend experiences with nonhuman entities and endows human traits to non-human entities or objects.

Example two: 银台司兼门下封驳，乃给事中之职，当隶门下省，故事乃隶枢密院。

In example two, the Department of Yintai is metaphorically represented as an “officer” capable of overseeing the sealing and approval of documents. There is a certain amount of structured and abstract information that is projected from input spaces to a generic space and then from a generic space to a blended space. That is to say, input space I project information to input space II based on similarities with the help of background information, ultimately integrating concepts in the blended space. Although the frames of both

input spaces are roughly similar, their information differs: input space I pertains to specific conceptual domains, including identity, abilities, relationships, emotions, and behaviors; input space II involves such names, functions, and positions as information. The generic space reflects the interrelation and similarity between the two input spaces, functioning as a collection of members with specific roles, allowing for the representation of shared relationships from input space I. The abstract relationships integrated and projected in the generic space combine specific information borrowed from both input spaces, ultimately forming a new conceptual structure in the layered creation process—namely, “institutions could conduct oversight, collaborate, and supervise.” Other information from both input spaces can generate new implicit meanings and inferential implications. For instance, projecting human behaviors and actions onto institutional activities and expressions results in communication, coordination, and conflict among institutions.

4.2.3. Container Metaphor

Container metaphors identify experiences or abstract concepts as containers or substances with boundaries so that we can quantify them and thereby make them comprehensible in terms of other abstract concepts or relationships.

Example three: 令空腹饮之，可以和气血，辟外邪。

The metaphor THE BODY IS A CONTAINER in example three provides us a dynamic way of understanding human life phenomena, that is, giving us the conception of human body as having a bounding surface, an in-out state, contents. First of all, container metaphor allows us to talk about container attributes such as interior and exterior, contents, and states of emptiness or fullness; on the other hand, the concept body focuses on the inner cavities, the contents of the body, and the body’s functions. There are related such concepts as essence, qi, and yin-yang in traditional Chinese medicine theory, including *The Medical Classic of the Yellow Emperor*, and these concepts dynamically operate throughout the entire body and its organs. The body’s organs not only store and generate essence and qi but also promote their transformation. The concepts of “body” and “container” focus on commonality based on their respective attributes and common-sense cognition: that is, identifying the generalized conceptual features of various forms of containers, which correspond to the body’s structure and its physiological and pathological states. In the generic space, the shared attributes, abstract information, or structures of both become prominent, such as limited space, variable states, and the bounding surface, which are the results of conceptualization of experiences like space, state, and object. A series of attributes are formed, such as the ascent/descent or ingress/egress of qi/blood within the body, which are combination of schemata like container schema and path schema. A framework structure in the blending space could be formed ultimately through mappings and projections by virtue of analogy and similarity of two concepts, such as drinking the medicinal liquor on an empty stomach can modulate the patient’s blood circulation and nurse his health.

4.3. Orientational Metaphors and Blending

Orientational metaphors, also known as spatial metaphors, are one of the basic cognitive mechanisms for humans to perceive and understand the world. Its subcategories mainly include up-down metaphors and front-back metaphors in this text, with the frequency and proportion of the former being 88,57.9% and the latter 64,42.1% (Figure 7). In the text, up-

down metaphors are mostly associated with power and status, for example, when describing the difference in etiquette due to the level of official position, an official whose rank is under the fourth rank has to “quickly enter the hall upon hearing the staff of Zhongshu calling in a loud voice ‘*qu*’”, whereas an official whose rank is above the fourth level is not supposed to “enter the hall unless the clerks of Zhongshu call in a loud voice: ‘Officials so-and-so, please come in’. The front-back metaphor is often used to describe the sequence of things, the degree of importance or temporal relationship, and is mainly used in texts to metaphorically describe the sequence of time, i.e., “front” denotes the importance, priority, or temporal first occurrence, and “back” is the opposite (Table 2).

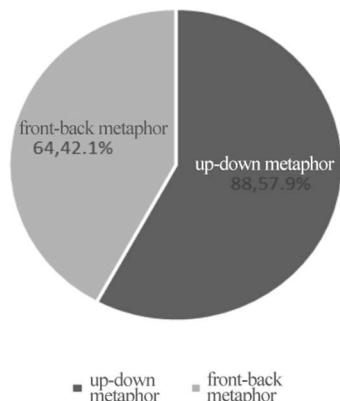


Figure 7. frequency and proportion of subcategories

Table 2. examples of subcategories (with reference to Lakoff, G. & Johnson 1980)

| sequence | category | source domain | target domain |
|----------|---------------------|---------------|---------------|
| 1 | up-down metaphor | up/down | rank; status |
| 2 | front-back metaphor | front/back | time |

4.3.1. Up-down Metaphor

Up-down metaphors are based on the spatial concepts of “up” and “down” and are used to understand abstract concepts such as status, rank, and quantity.

Example

four:……郭英又书云：“宰相、御史大夫、两省五品以上供奉官自为一行，十二卫大将军次之。”

This up-down metaphor HAVING POWER IS SUPERIOR in example four projects spatial orientation to rank and is used to understand the high or low rank or status of ancient officials. Those with power or strength occupy the position above in space, while the opposite is true for those without power. Therefore, the upper position is usually considered superior and powerful, while the lower position is inferior and powerless. Input space I contains the spatial concepts of “up” and “down”; while input space II contains the categories of “prime minister”, “chief discipline inspector”, “gongfeng” and “Twelve Grand Generals”, etc. The two input spaces establish mapping relations through projection, and project their common structures, that is, “up” for those who have power and “down” for those who don’t, into the generic space. The blended space integrates the spatial concepts with the hierarchical categories to form an emergent structure, i.e., the prime ministers and the chief discipline inspector are the highest-ranking officials, who occupy the top position in the space, the group of gongfeng from Zhongshu are the next-

ranking officials who occupy the second-highest position in the space, and the Twelve Grand Generals are the lowest-ranking officials, who occupy the lowest position in the space (Figure 8).

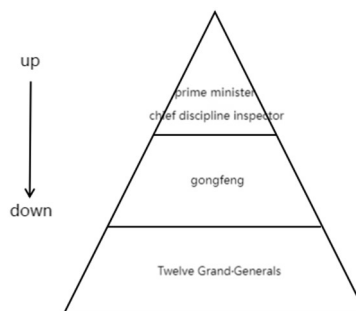


Figure 8. ranking scheme

4.3.2. Front-back Metaphor

Front-back metaphor gives experiences or abstract concepts a front or back orientation, which correlates with significance or time.

Example

five:国朝未改官制以前，异姓未有兼中书令者。

It is common across cultures that we talk about time using a spatial vocabulary, i.e., a time word can be used to denote a point in time or an interval of time that is less than, equal to, or greater than the time when the event actually occurred. In example (5) space is mapped to time. That is, spatial positions are used to reflect the speed of time. Input space I includes spatial structural elements such as direction, position, and distance; input space II includes temporal elements such as history, sequence, and future; this ephemeral metaphor is culturally independent, psychologically authentic and productive, and ideologically and linguistically entrenched. Finally mapping relationships are constructed and matched based on the similarity of both input spaces being sequential and historical. This is based on the fact that the integration of different cognitive domains, frames and imagery schemata in mental space makes it possible to generate layer-created structures from a systematic and fine-grained synthetic network involving multiple input spaces, hybrid spaces, and cognitive operations (Figure 9).

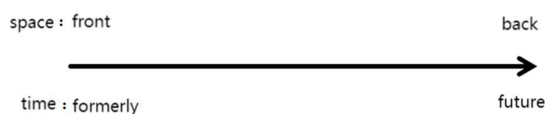


Figure 9. mapping relation of front-back metaphor

4.4. Structural Metaphors and Blending

Structural metaphors allow us to comprehend one concept in terms of another abstract concept.

Example

six: 庄子言：“野马也，尘埃也”，乃是两物。古人即谓野马为尘埃，如吴融云“动梁间之野马”，又韩偓云“窗外日光飞野马”……

The metaphor “Horses are dust” used in example six constructs two input spaces with very different frames: the first is the animal domain horses with various characteristics, where wild horses can run freely; the second is the natural domain dust, where it is carried by the wind and is amorphous. This metaphor views the wild horse as dust, which can be

“between the moving beams” or “in the daylight” The generic space borrows such information as the speed, power and freedom of the wild horse with the movement, change and formlessness of the dust to form an abstract structural relationship - a moving object that can move in space with a certain direction and speed, i.e., “the wild horse between the moving beams” is like “dust is moving between the beams”, and “horses running in the daylight outside the window” is like “dust changing in the daylight”. This metaphor not only borrows the characteristics from both source and target domains but contains information that is not included in either of them. The characteristics of the source domain are mapped onto the movement and amorphous form of dust, which constitutes an ethereal and elusive imagery that demonstrates the change of all things in heaven and earth. It features Zhuangzi’s philosophical view that one should be like a wild horse, transcending the constraints of the world and traveling freely between heaven and earth with the breath of dust.

5. Conclusion

This article examines the underlying deeper meanings and conceptual integration processes behind the conceptual metaphors in the humanistic section of *Brush Talks from Dream Brook*. The results indicate that ontological metaphors are most frequent, followed by orientational metaphors, with ontological metaphors being the least. Metaphors, as a kind of cultural symbol, not only enrich language expression but also deepen our understanding of the cultural connotations within the text. Ontological Metaphors view abstract concepts such as yin-yang and the five elements as bounded physical space. Orientational metaphors concern a spatial orientation, reflecting the hierarchical system and bureaucratic structure of Song Dynasty society, associating spatial orientations with social status and power. Although less frequent, structural metaphors play a crucial role in structuring and understanding experiences or concepts in terms of another concept. The meaning construction of these conceptual metaphors is further explored with the help of the conceptual integration network, which reveals the integration of how abstract concepts can be understood and constructed through metaphors, in order to explore how metaphors operate in the text for a deeper understanding of the textual themes. Conceptual Blending Theory considers mental space as the basic unit to reveal the mental processing, information integration, and meaning construction behind the construction of metaphors, which provides a brand new perspective for explaining the dynamics, creativity, and cultural and context-dependence of metaphors, and highlights the theory’s accessibility and strong interpretive power. Conceptual Metaphor Theory and Conceptual Blending Theory complement each other in the interpretation of linguistic expressions, and the latter inspires people to take “concepts”

as the starting point to explore more abstract structural correspondences along with the generation of semantic structures, so as to more comprehensively interpret the construction of meaning in metaphors.

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