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| **VIETNAM NATIONAL UNIVERSITY, HANOI  UNIVERSITY OF LANGUAGES AND INTERNATIONAL STUDIES**  **\*\*\*\*\***  **ĐỖ TUẤN LONG**  **THE TRANSFERENCE FROM SPATIAL TO NON-SPATIAL MEANINGS OF “OVER, ABOVE, UNDER, BELOW”**  (Chuyển di nghĩa không gian sang nghĩa phi không gian của  “Over, Under, Above, Below”)  Major: English Linguistics  Code: 9220201.01  Supervisor: Assoc. Prof. Dr. Lâm Quang Đông  **SUMMARY OF DOCTORAL THESIS**  **Hanoi - 2021** |

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# CHAPTER 1: INTRODUCTION

### 1.1. Research objective and questions

This study is conducted in reference to the assumption of cognitive linguistics (CL) that non-spatial meanings are grounded spatially (Lakoff & Johnson, 1980; Lakoff, 1987; Boers, 1996; Tyler & Evans; 2001, 2003). As the title of the study denotes, the ultimate goal of the dissertation is to explain the processes of transference from spatial to non-spatial meanings of the four words within a given corpus. In order to realize the above objective, the research has to answer the following two questions:

1. What are spatial and non-spatial meanings of *over, above, under, below* in their contexts of use?
2. How do the meanings of *over, above, under, below* transfer from the spatial to non-spatial ones in their contexts of use?

As can be seen, our first task is to present spatial and non-spatial meanings of the four words and then we find out how the construal of spatial meanings help to interpret the non-spatial meanings of *over, above, under, below* in their contexts of use, or in other words, the above work would help us explore the meaning transference of *over, above, under, below*.

### 1.2. Scope of the study

Meaning transference is a notion/phenomenon of great complexity as it is related to not only linguistics but also other cognitive sciences such as neurology and psychology. In order to account for the meaning transference of *over, above, under, below*, we mainly focus our discussion on cognitive semantics, but the knowledge in neurology, psychology and mathematics has also been exploited. It is our thought that an interdisciplinary approach would be overclaimed, but we still make some references to other sciences besides CL. Turning to the part of speech of *over, above, under, below*, we will treat them as *prepositions, particles*, and *adverbs* while ignoring them as prefixes. When the four words denote spatial configurations, we sometimes address them “spatial markers”. However, if their meanings are not purely spatial in nature, they are sometime addressed “non-spatial markers”. In this research, we only deal with the meaning transference of *over, above, under, below* while accepting the previous research results of other scholars. An account for the non-spatial usages of *over, above, under, below* in idiomatic expressions would be far afield to the original objective of the research.

### 1.3. Assumptions

Basing on the advances in the field of cognitive sciences, especially CL in the last three decades, the following assumptions to treat the meaning transference of *over, above, under, below* are significant in our discussion (adapted from Navarro, 1998 and Evans; 2009; 2015)

1. A word is always meaningful, and always contributes to meaning construction no matter in what syntactic construction it occurs.
2. The meanings of all the uses of a word should be explained by virtue of a single coherent semantic structure.
3. The semantic structure should represent the polysemy of a word with a prototypical meaning and extended meanings.
4. All the meanings of the semantic structure should be linked with no gap in the chain.
5. Metaphorical and abstract uses should be derivable from meanings based on bodily experience.
6. The semantic structure should make apparent the mechanisms and patterns of meaning elaboration and extension. These mechanisms and patterns should explain how the semantic category extends and how it could possibly extend in the future, but they do not predict the exact way in which this will happen, or if it will happen at all.
7. The interface between language, communication, and cognition makes the process of meaning construction which is influenced by usage.
8. Non-spatial meanings are grounded spatially and extended meanings of words are derived from the prototypical meaning.

# CHAPTER 2: LITERATURE REVIEW

### 2.1. Introduction

There are two approaches to account for the transference meanings of *over, above, under, below*: monosemic approach and polysemic approach. Take *over* as an example, we see that Gilles & Thierry (2014) provide an instruction-based analysis of *over* within the corpus of British National Corpus, which was built upon the monosemic approach set by Van Der Gucht *et al* (2007) with three significant remarks opposing 2003 Tyler & Evans’s view (Gilles & Thierry; 2014:14):

1. ‘the meaning of *over* is an instrumental meaning which can only be instantiated in combination with lexical meanings’;
2. ‘the meaning of the linguistic context should not be projected into the meaning of the preposition’
3. ‘the meaning of *over* should be conceived of as a ‘general’ non-lexical meaning which only specifies a relation between slots that have to be filled by autosemantic items, e.g., Noun *over* Noun, Noun BE *over*, Verb *over* Noun, *etc*.’ (Van Der Gucht *et al*; 2007: 748)

In generally, Gilles & Thierry (2014) emphasize the role of context to give a definition of *over* and advocate a compositional gestalt framework to provide a revised range of meanings denoted by *over.* In the study of Gilles & Thierry (2014), *over* is analysed as a preposition, an adverb, and a particle. All fifteen meanings of *over*, introduced by Tyler & Evans (2003), were reanalysed and their nominal terms had been revised, for example, “Temporal”, “Focus-of-attention” turned to be “Scanning of an Interval” and “Topic” respectively. The links between the meanings are the *schematic meanings* of *over*.The monosemic approach to the semantics of English prepositions is criticized by Tyler & Evans (2003: 37-61). Within the scope of our goal set in the first part, we suppose that there exists fatal issue with this approach. To begin with, although the two authors mention the schematic meanings of *over* to account for its meaning transference, metaphors and metonymies have been ignored when they present its non-spatial meanings. Additionally, Gilles & Thierry show *“****over*** *convokes a bounded domain and evokes a movement of covering of the domain, its bounds included”* (Gilles & Thierry, 2014:26), they have ignored the internal TR-LM configurations/ structures and image-schemas denoted by *over* as a non-spatial maker and fail to show how those image-schemas transform with other meanings.

Back to the polysemic approach to account for the meaning transference of *over, above, under, below*, we synthesize those three approaches are: (i) an image-schema transformational approach (Lakoff, 1987; Boers, 1996; Deane, 2005); (ii) multiple levels of schematization (Kreitzer, 1997); and (iii) metaphorical development due to inference based on usage (Tyler & Evans, 2003).

### 2.2. Image-schema transformational approach

**Lakoff’s full-specification approach**

Lakoff took *over* as a case study in English prepositions and his analysis is sometimes described as the *full-specification approach* to lexical semantics in later literature review (Tyler & Evans, 2003; Deane, 2005). The core point in the theory is that the meanings associated with prepositions like *over*, which are grounded in spatial experience, are structured in terms of *image-schemas*. Lakoff supposes that an image - schema combining elements of both ABOVE and ACROSS is the prototypical meaning of *over*. The distinct meanings associated with *over* are structured with respect to this image-schema which provides the category with its prototype structure.

There are three problems with Lakoffian approach. The first issue is the incorrect prototypical meaning of *over*: a combination of ABOVE and ACROSS schema. To begin with, we see that when *over* means *across*, it is collocated with *motion verbs*, making it function as a particle or an adverb rather than a preposition. This is opposite to the first usage of *over* suggested by Etymology dictionary[[1]](#footnote-1) or other dictionaries (cf. Tyler & Evans, 2003:48). An incorrect choice of the prototypical meaning would entail a vagueness in explaining how a new meaning emerges. This is an example:

(*1) a. The bird flew over the wall.*

*b. Sam climbed over the wall.*

Recall the Lakoffian principle, the meanings of *over* in 1(a) and (b) are distinct due to the interpretation that *over* in 1(a) is involved with contact while *over* in 1(b) is not. We could see that the syntax of the two instances is the same while the difference lies in two motion verbs “fly” and “climb”. Apparently, our knowledge about birds (they can fly) and people (they cannot), provides us with the inference that birds do not come into contact with walls when crossing over them while people do. In other words, the linguistic context together with encyclopedic knowledge provides the details relating to the presence or absence of contact. In this case, *over* only denotes *schematic meaning*, not lexical meaning. Therefore, a deduction that *over* carries a new meaning is inappropriate. It is this failure, i.e., distinction between polysemy and vagueness, that does not provide the accurate functional information of spatial *over*. We suppose that the meanings of *over* in both instances are variants of the prototypical meaning[[2]](#footnote-2). The second issue is a lack of methodological constraints. In other words, Lakoff provides no principled criteria for determining what counts as a distinct meaning. This means that the polysemy account presented for *over* (or whatever lexical item we might apply the approach to) results purely from the intuitions (and perhaps also the imagination) of the analyst rather than actually representing the way a particular category is represented in the mind of the language users (Tyler & Evans, 2003). The analysis is rather simple or there is no advance over the purely descriptive account (Deane, 2005). Therefore, we suppose that it is necessary to find both the *visual* and *functional information* of the spatial markers first before we can explore how their meanings transfer. The last issue involves a lack of methodologies for a space of thought. An image is different if being looked from different vantage points, and Deane (2005) then proves that the *Covering meaning* of *over* is in fact a variant of the prototypical meaning. In general, in respect to the objective of our study, Lakoffian approach does not provide the constraints to account for distinct spatial meanings of *over* and the strong links between them, serving as a solid foundation to discuss how non-spatial meanings of *over* are transferred.

**Boers’ image-schema transformational approach**

It is restated that when treating the four words as prepositional markers, Boers makes use of Lakoffian full- specification approach; therefore, his analysis fails to set up a constrained methodology and the relationships between spatial meanings are arbitrarily presented. Additionally, certain meanings of *over* are neglected. For example, when *over* denotes “On-the-other-side-of” meaning, termed by Tyler & Evans (2003), there is no analysis of such schema.

Conceptual Metaphor Theory (CMT) used by Boers, the *standard version* in later literature, to treat the meaning transference of the four words bear two criticisms: (i) the issue of methodology and (ii) the issue of the direction of analysis (Kövecses, 2017).

In the first place, the methodology of CMT focuses on the basis of intuitive and unsystematically found linguistic metaphor (Pragglejaz Group, 2007). Boers show that the metaphor of “HAVING FORCE OR CONTROL IS UP; BEING SUBJECT TO FORCE OR CONTROL IS DOWN” is derived from both *Covering* meaning and *Above* meaning of *over*, then what is the difference between the two kinds of metaphor derived from the two aforementioned meanings? What are the salient remaining aspects of the source domain in the target domain through the mappings? How could the conceptual metaphors emerge? Those questions do not seem to have any answers yet.

Additionally, the second issue concerns the direction of analysis, whether it is top-down or bottom-up (Dobrovolskij & Piirainen, 2005; Stefanowitch, 2007). Though Boers analyzed instances of use of the four words in a corpus, he still follows the top-down direction instead of showing that a given conceptual metaphor of *over, above, under, below* is a result of a multi-stage procedure (Pragglejaz Group, 2007). Particularly, in his analysis, Boers does not present how conceptual metaphors associated with the four words emerge in respect to mental spaces, frames/ domains, and image-schemas. Therefore, a reanalysis from the bottom-up direction would be a bridge to the gap with the framework termed *Extended Conceptual Metaphor Theory*[[3]](#footnote-3) (Kövecses, 2017).

**Deane’s Multimodal Image Theory**

After giving comments on works presented by Lakoff (1987), Jackendoff (1983), and Wege (1991), especially the critique of Vandeloise (1991), Deane (2005:18) proposes three important consequences following the implication that prepositions’ meanings will be categorized in a compatible way with the neuropsychological representation of space:

(i) the multiple images in the lexical network may not represent distinct meanings, but one meaning being treated from different perspectives;

(ii) the semantic variability of prepositions might directly reflect the brain’s redundant use of multiple cues;

(iii) the combination between visual and functional information might reflect the neurological interleaving of sensory and motor coordinates.

Then, Deane proposes a framework termed “Multimodal Image Theory” (MIT) to analyze *over, above* within three types of spatial images, each of which constitutes a single modality of spatial thought:

(i) *Visual space* images treat spatial relationships in reference to occlusion, visual separation, angle of gaze. In fact, the space presupposes a visual frame of reference that calculates the position to the line of gaze.

In the *Visual space*, construers would follow three rules to judge a spatial scene: Preference Rule Principle, Stereoscopic Principle and Distinctiveness Principle.

(ii) *Maneuver space* images presuppose an object-centered frame of reference involving the movement of TR and LM such as the clearance between them, the effects of moving or rotating the TR and LM towards each other.

(iii) *Kinetic space* images calculate the force-dynamic interaction (Talmy, 2000) such as the conceptual paths which define direction (and potential) for movement, agonist and antagonist force. Kinetic space images presuppose a dynamic frame of reference treating the spatial scenes from different dimensions, taking into account the orientation and potential movement of the speaker or a viewpoint character (Deane, 2005). Three spaces share what is termed “Cross modal Correspondences” and the analysis must follow two principles “Egocentric Alignment Principle” and “Cross-modal Equivalence Principle”.

Due to the length limitation, we only present the analytical results of *over* in the framework and give our comments. The following table summarizes the complex images associated with *over*:

TABLE 1: *Over* as a spatial marker

|  |  |
| --- | --- |
|  | Explanations |
| The prototypical meaning | The prototypical meaning of *over* is defined by a pair of images.  a. From the side at high resolution: the TR is separated from the LM by a vertical gap.  b. From the side at low resolution: the TR is separated from the LM by a vertical gap.  The gap between TR and LM is not significant from the side at low resolution. |
| The Visual space | The images represented in this space are locative and stationary, besides the prototypical meaning of *over,* there are two other pairs of images.  **Pair 1:**  a. From the side at high resolution: there is a gap between the LM and TR.  b. From the side at low resolution: the gap between the LM and TR is unclear.  c. From the top of the scene: the TR occludes the LM  **Pair 2:**  a. From the side at high resolution: the TR is near the LM  b. From the side at low resolution: the TR is higher than the LM in reference to the natural barriers. |
| The Maneuver space | a. Initial position: there is a potential clearance between the TR and the LM, with the TR oriented parallel to or contact the ground.  b. Image after rotation: the clearance is not significant. |
| The Kinetic space | First Kinetic Image Sequence:  a. The LM forms part of the base on the locomotor surface; the TR is in open space, has force-dynamic impetus parallel to the base.  b. Resultant state: the TR is on the side of the LM from its initial position.  Second Kinetic Image Sequence:  a. The LM forms part of the base on the locomotor surface; the TR is in either open or close space, and it is on one side of the LM.  b. Resultant state: the TR surpasses the LM.  Third Kinetic Image Consequence:  a. The LM forms part of the base on the locomotor surface; the TR is in either open or close space, and it is higher than the LM.  b. Resultant state: the TR contacts the LM due to force. |

As can be seen, Deane’s approach also exploits the notion of *image-schema* to treat the meaning transference of *over* from the prototypical one which is encoded by a pair of images. In comparison to Lakoffian work, we realize that Deane’s analysis minimally decreases the distinct meanings of *over*, showing that the meanings of the word are more closely related than what has been suggested earlier. To be more precise, Deane argues that *the multiplicity of meanings turns out to reflect the internal-concept structure*.

In fact, the model advocated by Deane has successfully bridged the gaps that the previous approach left. Firstly, it presents the meaning development of spatial *over* as a system from the prototypical meaning to extended ones through three aforementioned principles, showing that the interpretation of *over* is a multi-stage cognitive process. Distinct meanings; i.e. On-the-other-side-of or Covering meaning presented by Tyler & Evans in later review, are variants of the prototypical meaning. Secondly, the framework has rigorous constraints on three modalities of thought separating human categorization processes and hence solving the issue of meaning redundancy. However, the non-spatial meanings of *over* are not treated in the light of MIT. Therefore, in order to explain how non-spatial meanings of *over* develop from spatial ones, there is a need of a combination between space and non-space frames of analysis.

### 2.3. The multiple levels of schematization (Kreitzer, 1997)

Kreitzer (1997) made use of the works by Lakoff (1987) and Talmy (1983) to modify Lakoffian framework to semantically analyze *over*. Kreitzer posits that there are three distinct levels of schematization inherent in the conceptualization of a spatial scene: *the component level, the relational level*, and *the integrative level*. The first level includes conceptual primitives namely TR, LM[[4]](#footnote-4), path, contact, etc., all of which bear certain relations with each other to constitute the relational level. The basic spirit of Kreitzer is that image-schema transformations simply serve to widen the applicability of a particular meaning, and when the basic spatial relations associated with *over* change, a new meaning emerges. According to Kreitzer, the primary meanings of *over* are termed “over 1: static”, “over 2: dynamic”, and “over 3: occluding meaning”. However, he fails to decide which meaning is the primary meaning of *over* (Tyler & Evans, 2001) and neglects meanings presented by Lakoff. Additionally, we do not see how the three meanings of *over* are related.

### 2.4. Metaphorical development due to inference based on usage

Tyler & Evans (2003) modify works by Brugman & Lakoff (1988) to create a more moderate framework termed *Principled Polysemy* to analyse the meanings of certain English prepositions and present them in semantic networks. Their framework is based on the following premises or assumptions (cited in Evans & Green, 2006):

(i) Words and their meanings represent conceptual categories, which have much in common with non-linguistic conceptual categories. It follows the idea that linguistic categories have prototype structure.

(ii) Word meanings are typically polysemous, being structured with respect to a central prototype (or prototypes). Lexical categories therefore form radial categories which can be modelled as a radiating lattice structure.

(iii) Radial categories, particularly meaning extensions from the prototype, are motivated by general cognitive mechanisms including metaphor and image - schema transformation.

(iv) The meanings that constitute radial categories are stored rather than generated.

On the one hand, Principled Polysemy could successfully explain “how new meanings develop from established ones on the basis of experiential correlations” (Thora, 2004). On the other hand, to the best of our knowledge, Tyler & Evans assumes the semantic network for *over, above, under, below* to be too simple. The analysis mostly based on their intuition with invented corpus (Thora, ibid), which may result in the vast proliferation of hypotheses. Additionally, *Principled Polysemy* seems to be rather simplistic as the framework assumes the meaning relations as a shift, admitted by Evans (2015).

### 2.5. Recapitulation

We have so far analyzed three approaches to the meaning transference of English prepositions in which *over* is treated as a focus. Concerning the issue raised in this dissertation, we have commented on works by Lakoff (1987), Boers (1996), Kreitzer (1997), Tyler & Evans (2003), and Deane (2005). It is shown that *a multimodal approach* to the meaning transference of the four words *“over, above, under, below”* is appropriate in reference to linguistics and neuroscience. Particularly, Deane’s MIT proves to be effective to solve the issue. Firstly, the framework provides a rigorous theory to treat the meaning transference of spatial *over* from the prototypical meaning to other extended ones. Additionally, it minimally reduces the meaning redundancy, or polysemy fallacy, showing that human construal associated with English prepositions is based upon *image complexes* including three modalities of thought. Last but not least, the framework also facilitates the mappings from spatial to non-spatial meanings though it needs further justifications as suggested when we give comments on Boers’ work. Therefore, we need a hybrid framework between MIT and ECMT to account for the meaning transference of the four words.

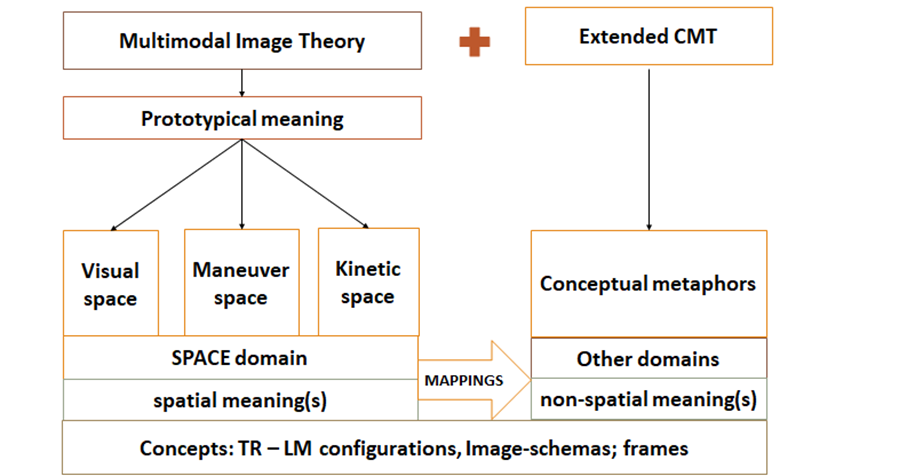
# CHAPTER 3: METHODOLOGY

### 3.1. A multimodal approach to the meaning transference of *over, above, under, below*

Our previous literature review suggests that the meanings of *over, above, under, below* are found in four spaces of thought, beside the prototypical meaning: Visual space, Maneuver space, Kinetic space, and Mental space. Three first spaces were introduced by Deane (2005) and in this study, our analysis of the four words as spatial markers serves as a basis for the further discussion in the Mental space.

The first space, *Visual space* images, treats spatial relationships in reference to occlusion, visual separation, angle of gaze. In fact, the space presupposes a visual frame of reference that calculates the position to the line of gaze. In the *Visual space*, construers would follow three rules to judge a spatial scene: *Preference Rule Principle, Stereoscopic Principle* and *Distinctiveness Principle*. Although we have searched for principle(s) for deciding what makes a prototype in the modality, we have found no answer. Therefore, we suppose that the prototypical complex of images must denote the prototypical meaning. It is of great significance to identify the characteristics of the prototypical meaning. Tyler & Evans (2003) suppose that the prototypical meaning has four characteristics: (i) earliest attested meaning; (ii) predominance in the semantic network; (iii) relations to other prepositions; and (iv) ease of predicting meaning extensions. To the best of our knowledge, a prototypical complex of images should: (i) denote the earliest attested meaning; and (ii) have relations to other image complexes which facilitate a different meaning. Additionally, we suppose that it is important to nominally terms the spatial meanings of *over*. This sounds like a functional approach; however, this is a kind of reaffirmation that the meanings of *the four words* is spatially grounded, the proposed terms in this study are borrowed from Tyler & Evans (2003) and Gilles & Thierry (2014). We reaffirm our stand that the terms should be derived from the visual and functional information of the four words (Deane, 2005:18).

The fourth space in this hybrid framework is the *Mental space* which contains non-spatial meanings of *over, above, under, below*. As mentioned earlier, non-spatial meanings are associated with metaphors; therefore, we have to explain the activation of all metaphors associated with each non-spatial meaning of the four words in its contexts of use. It is important to bear in mind that there is no single metaphor or metonymy associated with all the non-spatial meanings of the four words; hence, there is no single image-schema associated with all those meanings. Additionally, one non-spatial meaning is possibly associated with a number of metaphors in other domains rather than the SPACE domain. Recall the comments and analyses of the previous approaches to the meaning transference of *over, above, under, below*, we came to the conclusion that the model advocated by Kövecses (2017) would be exploited as the conceptual framework to treat each metaphor associated with non-spatial meanings of the four words in this research study. The link is a continuum from mental spaces to frames, domains and finally the image-schemas. This signifies that the use of *over, above, under, below* within the chosen corpus would be analyzed in this way. A metaphor that is used in a specific communicative situation as part of a mental space, or scene, will activate the frame structure to which it is linked, which will, in turn, activate the domain of which the frame is a part, and the activation will reach the image - schema that conceptually supports the frame. This proposal is consonant with a number of others in the cognitive linguistic study of metaphor, such as Lakoff’s “invariance principle” (1991) Ruiz de Mendoza’s “extended invariance principle” (1998). The framework is presented as follows:



**FIGURE 1: The hybrid framework to account for meaning transference**

### 3.2. Data collection

There are seventeen text corpora in which British National Corpus, Brown Corpus, Contemporary American English Corpus, and Oxford English Corpus are the most widely used. There are three main reasons why COCA is chosen to be the data in this paper. Firstly, COCA is currently the largest corpora in linguistics with more than 560 million words of text in five genres: spoken, fiction, popular magazines, newspapers and academic texts. Only in the year of 2017, more than 20 million words had been added. Hence, in reference to the thesis of usage-based model, COCA is appropriate. More importantly, the corpus shows its unique features with chart listings and collocates searching of up to ten words right or left the node word; re-sortable concordances and comparisons between genres and time periods (Davies, 2010). This makes it easier for linguists to categorize the collocates and structures associated with each word. Last but not least, COCA has never been exploited to treat the four prepositions so far. In order to extract the needed data, we made use of the software AntConc (64-bit, version 3.5.7) and then found the concordance of each preposition in the corpus. As the goal of the paper was to investigate the meaning transference, the genre of fiction was chosen. We had the total instances of the four words as follows: *over:* 1350 instances of use; *above*: 336 instances of use; *under*: 987 instances of use; and *below*: 170 instances of use.

### 3.3. Data analysis

The data were processed under the following procedure:

**Stage 1:** Identifyinga metaphorical and non-metaphorical usage

This stage concerns the classification of instances in which *over, above, under, below* are metaphorically used. The identification process is termed “Metaphorical Identification Procedure[[5]](#footnote-5)” introduced by Pragglejaz Group (2007). Additionally, we also labelled the instances when the scene is spatial or non-spatial. Finally, all instances are classified into three groups: (i) *spatial and non-metaphorical*, (ii) *spatial and metaphorical*; (iii) *non-spatial and metaphorical.*  We applied MIP as follows (adapted from Pragglejaz Group, 2007:3)

TABLE 2: Metaphorical Identification Procedure (adapted from Pragglejaz Group, 2007)

|  |  |
| --- | --- |
| Step 1. | Read the entire text–discourse to establish a general understanding of the  meaning. Separating the TR and LM in the sentence. |
| Step 2. | Determine the lexical units in the text–discourse |
| Step 3. | (a) For each lexical unit in the text, establish its meaning in context, that is, how it applies to an entity, relation, or attribute in the situation evoked by the text (contextual meaning). Take into account what comes before and after the lexical unit.  (b) For each lexical unit, determine if it has a more basic contemporary meaning in other contexts than the one in the given context. For our purposes, basic meanings tend to be:   * More concrete; what they evoke is easier to imagine, see, hear, feel, smell, and taste. * Related to bodily action. * More precise (as opposed to vague) * Historically older.   Basic meanings are not necessarily the most frequent meanings of the lexical unit.  (c) If the lexical unit has a more basic current–contemporary meaning in other contexts than the given context, decide whether the contextual meaning contrasts with the basic meaning but can be understood in comparison with it. |
| Step 4. | If yes, mark the lexical unit as metaphorical. If no, mark the lexical unit as non-metaphorical. |

**Stage 2:** All spatial usages of *over, above, under, below* were analyzed in the light of *MIT* and metaphorical usages of the four words were analyzed in respect to *ECMT*. We put each of them into one of the following groups: spatial configurations (static or dynamic) and non-spatial configurations. The visual and functional information of *over, above, under, below* in such group are categorized, basing on which we nominally termed the meanings.

**Stage 3:** The image-schemas of *over, above, under, below* from MIT and ECMT were compared to show the metaphors emerged from each of the three spatial spaces of the four words, basing on which we found the mappings from domain SPACE to other domains.

Here is an example:

*(2) "No, I ... hang it, I'll come over myself.”*

**Stage 1:** Identifyinga metaphorical and non-metaphorical usage

|  |  |
| --- | --- |
| Step 1. | In the first clause, the speaker admitted hanging the notice board “Get Junior” on the door and the second one denotes a potential action of the speaker who decides to come and visit a particular place. The TR is “I” and the LM refers to a path configuration. |
| Step 2. | /No/ /I/ /hang/ /it/ /I’ll/ /come/ /over/ /myself/ |
| Step 3 & 4 | /No/  meaning in context: *used to deny the commitment of the other people.*  basic meaning[[6]](#footnote-6): used to give a negative reply or statement  meaning in context and basic meaning: *does not show any contrast.*  Metaphorical usage: *No*  /I/  meaning in context: *first person, the speaker*  basic meaning: used as the subject of a verb when the speaker or writer is referring to himself/herself  meaning in context and basic meaning: *does not show any contrast.*  Metaphorical usage: *No*  /hang/  meaning in context: *an action of putting a notice board “Get Junior” on the door*  basic meaning: *to attach something, or to be attached, at the top so that the lower part is free or loose*  meaning in context and basic meaning: *does not show any contrast.*  Metaphorical usage: *No*  /it/  meaning in context: *the* *notice board “Get Junior”*  basic meaning: *3rd person, the addressee*  meaning in context and basic meaning: *does not show any contrast.*  Metaphorical usage: *No*  /I’ll/ = /I will/  meaning in context: *to denote an action of the time speaking by the speaker*  basic meaning: *to denote an action of the time speaking*  meaning in context and basic meaning: *does not show any contrast.*  Metaphorical usage: No  /come/  meaning in context: *to move to the listener*  basic meaning: *to move to a person/ place*  meaning in context and basic meaning: *does not show any contrast.*  Metaphorical usage: No  /over/  meaning in context: *to complement the verb “come” to show the direction of the verb “come”*  basic meaning: *to show something is higher than something/ somebody*  meaning in context and basic meaning: *shows the transformation of the meaning*  Metaphorical usage: Yes  /myself/  meaning in context: *refer to the speaker*  basic meaning: *used when the speaker or writer is also the person affected by an action*  meaning in context and basic meaning: *does not show any contrast*.  Metaphorical usage: No |

All in all, it is possible to conclude that the sentence (2) is *spatial* and *metaphorical*.

**Stage 2**: MIT and ECMT to sentence (2)

The use of *over* in the verb phrase “come over” denotes a path LM configuration in which the TR moves along the path. *Over* in this case is dynamic and in respect to the ECMT, the phrase “come over” activates the metaphor “AN ACTIVITY IS A PATH”. The domain is SPACE while the frame can be deduced is “VISITING”.

**Stage 3**: Image-schema comparison

As the construal of *over* in sentence (2) is spatial and metaphorical, we see that the meaning of *over* is dynamic due to the emergence of the verb “come”. The domain is SPACE, and there are no changes in the domain. Therefore, there is no non-spatial understanding in the sentence, and apparently, *over* is *a variant* of the prototypical meaning in its Kinetic space.

# CHAPTER 4: FINDINGS AND DISCUSSION

### 4.1. The transference from spatial to non-spatial meanings of *under*

Our findings and discussion get started by the analysis of the word *under*. The reason for our selection is simple: the analysis of *under* is rather simple and short in comparison with that of *over*. The spatial images associated with *under* are presented in the table:

TABLE 2: The images of *under*

|  |  |
| --- | --- |
| The prototypical meaning | The prototypical meaning of *under* is defined by a pair of images:  a. From the side at high resolution: the TR is separated from the LM by a vertical gap.  b. From the side at low resolution: the TR is separated from the LM by a potential vertical gap.  The gap between TR and LM is not significant from the side at low resolution. |
| The Visual space | The images represented in this space are locative and stationary, besides the prototypical meaning of *under,* there are two other pairs of images:  Pair 1  a. From the side at high resolution: there is a potential gap between the LM and TR.  b. From the side at low resolution: the gap between the LM and TR is unclear.  c. From the top of the scene: the LM occludes the TR  Pair 2  a. From the side at high resolution: the TR is near from the LM  b. From the side at low resolution: the TR is lower than the LM in reference to the sea level. |
| Maneuver space images | a. Initial position: there is potential clearance between the TR and the LM, with the LM oriented parallel to the ground.  b. Image after rotation: the clearance may become zero. |
| Kinetic space images | First Kinetic Image Sequence:  a. The LM forms part of the base on the locomotor surface; the TR is in open space, has force-dynamic impetus parallel to the base.  b. Resultant state: the TR is on the far side of the LM from its initial position.  Second Kinetic Image Sequence:  a. The LM forms part of the base on the locomotor surface; the TR is in either open or close space, and it is on one side of the LM.  b. Resultant state: the TR is lower than the LM. |

Concerning the theoretical constraints about the visual and functional information of *under*, we suppose that as a spatial marker, *under* has one meaning, i.e., the prototypical meaning, other usages are its variants in the above spaces. Additionally, concerning the metaphorical usages of *under*, we see that it is associated with a range of conceptual metaphors. The following table represents the mappings of *under*:

TABLE 3: The mappings from spatial to non-spatial of *under*

|  |  |
| --- | --- |
| Mapping from spatial to non-spatial of *under* associated with “MORE IS UP, LESS IS DOWN.” | |
| SPACE domain | Other domains (TIME, NUMBER, AGE) |
| The TR is seen lowered than the LM in the direct, horizontal gaze viewpoint, regardless the high or low resolution. | The TR is conceptualized “lowered” than the TR in terms of numeric values.  The construal does not consider the gaze, resolution. |
| The TR and LM are concrete entities. | The TR and LM are abstract entities. |
| Mapping from spatial to non-spatial of *under* associated with  “HIGH STATUS IS UP; LOW STATUS IS DOWN.” | |
| SPACE domain | Abstract domain: POWER |
| The TR is seen lowered than the LM in the direct, horizontal gaze viewpoint, regardless the high or low resolution. | The TR is conceptualized “lowered” than the LM in terms of power/ force.  The construal does not consider the gaze, resolution. |
| The mapping of *under* when the LM exerts forces on the TR | |
| SPACE domain | PRESSURE domain |
| The TR is lowered than the LM.  The LM physically exerts forces on the TR. | The TR is lower than the LM, regardless the resolution, gaze when the TR is a concrete entity.  The LM is conceptualized as exerting virtual forces/ influences on the TR. |
| The mapping of *under* associated with “PROTECTION IS SHELTER” | |
| SPACE domain | Non-space domains |
| The TR is partially or totally occluded by the LM. | The TR is conceptualized as being covered/ protected by the LM.  NB:  1. If the LM refers to a concrete entity, the meaning of *under* is spatial and metaphorical  2. If the LM refers to an abstract concept, the meaning of *under* is non-spatial and metaphorical. |
| The mapping of *under* associated with “TRUTH IS A HIDDEN OBJECT” | |
| SPACE domain | Non-space domains |
| The TR is partially or totally occluded by the LM. | The LM is conceptualized as a hidden object/ state-of-affair.  The meaning of *under* is non-spatial and metaphorical. |
| The mapping of *under* associated with  “UNCONSCIOUS IS DOWN” (COGNITIVE DEFICIENCY IS DOWN) | |
| SPACE domain | Other domains |
| The TR is within the scope of the LM  The LM exerts forces on the TR due to the gravity of the Earth. | The LM is conceptualized as a force exerted on the TR, and the TR is influenced by such a force.  The LM denotes an abstract concept. |
| The mapping of *under* associated with “RESTRICTIONS ARE BOUNDARIES” | |
| SPACE domain | Other domains (Obligations) |
| The TR is within the scope of the LM  The LM exerts forces on the TR. | The LM designates the feasibility of the TR.  The LM is conceptualized as an object with a surface. |

Concerning the visual and functional information of *under*, we see that as a non-spatial marker, it denotes two meanings: *Less* and *Control*. Other non-spatial usages denote its schematic meaning found in one of three spatial modalities of thought. Our analysis has so far discussed the spatial and non-spatial usages of *under*. Here is the summary of results for the analysis of *under*:

(i) The spatial meanings of *under* are presented in three modalities: Visual, Kinetic and Maneuver space. Applying the rules advocated by Deane (2005), we find that beside the prototypical meaning coded by a pair of images, there are only variants of the prototypical meaning being looked from different perspectives presented by different image-schemas.

(ii) The non-spatial meanings of *under* are *Less* and *Control*, which are associated with two metaphors “MORE IS UP, LESS IS DOWN”, and “BEING SUBJECT TO FORCE/ POWER IS DOWN.” The *Less* meaning is attached to numeric values while *Control* meaning is attached to force or power.

The spatial meanings of *under* transfer to non-spatial ones while salient aspects of the DOWN image-schema and the force that the LM exerts the TR are retained.

### 4.2. The transference from spatial to non-spatial meanings of *below*

*Under* and *below* are two synonymous words which may cause problems for English learners to understand. Tyler & Evans (2003) distinguish the usage of two words in terms of *contact* between the TR and LM. This is true in terms of spatial configurations denoted by *below*; however, when *below* is used non-spatially, the difference lies in the way of how LM is construed.

TABLE 4: The images of *below*

|  |  |
| --- | --- |
|  | Explanations |
| The prototypical meaning | The prototypical meaning of *below* is defined by a pair of images:  a. From the side at high resolution: the TR is separated from the LM by a vertical gap.  b. From the side at low resolution: the TR is separated from the LM by a vertical gap.  The gap between TR and LM is significant from the side at low resolution. |
| Visual space images | The images represented in this space are locative and stationary, besides the prototypical meaning of *below,* there are two other pairs of images.  **Pair 1:**  a. From the side at high resolution: there is a gap between the LM and TR.  b. From the side at low resolution: the gap between the LM and TR is still clear.  c. From the top of the scene: the LM occludes the TR  **Pair 2:**  a. From the side at high resolution: the TR is unique to the LM  b. From the side at low resolution: the TR is lower than the LM in reference to the sea level. |
| Maneuver space images | a. Initial position: there is significant clearance between the TR and the LM, with the LM oriented parallel to the ground.  b. Image after rotation: the clearance remains significant. |
| Kinetic space images | Kinetic Image Sequence:  a. The LM forms part of the base on the locomotor surface; the TR is in open or close space, has force-dynamic impetus parallel to the base.  b. Resultant state: the TR is on the far side of the LM from its initial position. |

In the following table, we summarize the mapping of *below* associated with its metaphors.

TABLE 5: The mappings of *below*

|  |  |  |
| --- | --- | --- |
| The mapping of *below* associated with “MORE IS UP, LESS IS DOWN” | | |
| SPACE domain | Other domains  (NUMBER, FINANCE, SOUND) | |
| The TR is lower than and distinct from the LM. | The LM is conceptualized as a par for the TR to be compared with.  The TR is lower than the LM in terms of values. | |
| The mapping of below associated with “HIGH STATUS IS UP; LOW STATUS IS DOWN.” | | |
| SPACE domain | SOCIAL HIERARCHY | |
| The TR is lower than and distinct from the LM. | The TR is lower than the LM in terms of social positions/ power. | |
| The mapping of below associated with “TOWARDS THE BEGINNING OF WRITTEN DISCOURSE IS UP; TOWARDS THE END OF WRITTEN DISCOURSE IS DOWN”. | | |
| SPACE domain | | WRITTEN DISCOURSE |
| The TR is lower than and distinct from the LM. | | The TR appears later than the LM in the discourse. |

Here is our summary for the meaning transference from spatial to non-spatial ones of *below*:

(i) *Below*, as a spatial marker, has one prototypical meaning coded by a pair of image complex in which the TR is lower than the LM, and there is no contact between them. The first variant in the Visual space is when the LM is seen a surface which occludes the TR. The second variant refers to a topographical distance, which could be presented in a map. The Maneuver and Kinetic Space of *below* designate a clearance in the gap between the TR and LM; and the TR in its movement tends to be further from the LM.

(ii)As a non-spatial marker, *below* is associated with four conceptual metaphors: MORE IS UP, LESS IS DOWN; HIGH STATUS IS UP; LOW STATUS IS DOWN; TOWARDS THE BEGINNING OF WRITTEN DISCOURSE IS UP; TOWARDS THE END OF WRITTEN DISCOURSE IS DOWN.; and TRUTH IS A HIDDEN OBJECT. Of the four metaphors, the construal of the three first metaphors can be processed via the virtual image-schema without much complexity; however, the construal of the fourth metaphor requires the grounding experience and embodiment. First, the listener must understand denotational meaning of the noun in the prepositional phrase, and then adopt an image-schema based frame to construe the whole prepositional phrase. We see that the degree of abstractness increases from the first to the fourth metaphors. We once again confirm that the meanings of *below* like *under* can be categorized into three groups: spatial and non-metaphorical (*below* as spatial marker); spatial and metaphorical; non-spatial and metaphorical. Two non-spatial meanings of *below* are: *Less* and *Inferior*.

In comparison with the meanings of *under*, *below* possesses the following characteristics:

(i). As a spatial marker, *below* designates a separation between the TR and LM, and the TR is not necessarily within the scope of the LM. This salient aspect is always remained in the dynamic use of *below*.

(ii). As a non-spatial marker, *below* is associated with other lexemes to denote abstract concepts. The difference between the two words (*under-below*) lies in the above separation. The LM of *below* serves as a standard for the TR to be compared with; *below* emerges in the domain of SOCIAL HIERARCHY to denote the gap while *under* tends to denote the potential power/ force that the LM exerts on the TR. Language construers may base on this distinction to understand the difference of *under* and *below* in the same syntactic structures. Last but not least, the construal of such non-spatial concepts requires an image-schema based frame for *below*. We find that spatial origin of the word is remained even when the complexity of abstractness increases.

### 4.3. The transference from spatial to non-spatial meanings of *over*

Regarding our constraints about the visual and functional information of *over* associated with those image-schemas, we suppose that *over* denotes the following spatial meanings:

(1) the prototypical meaning which designates that the TR is above the LM;

(2) the Boundary-traversal meaning with *end-point focus*; and

(3) the Reflexive meaning when the LM is parallel to the ground and the TR moves towards the ground.

Comparing with Tyler & Evans’s (2003) analysis, we see that the number of our ascribed meanings decreases. This is not because of the difference in the theory but because of the internal conceptual structure associated with the image-schema which represent the spatial meanings. Recall the theoretical constraints of what counts a meaning as distinct in the light of *Principled Polysemy*, Examining Meaning and Focus-of-attention Meaning associated with *over* may fall in the case of polysemy fallacy because the image-schemas of those meanings are not different from that of the prototypical meaning. Additionally, the two meanings are created thanks to the use of collocational structures with typical verbs like *look* or *watch*. Therefore, such meanings are motivated by formal structures rather than image-schema transformations or background knowledge.

TABLE 6: The mappings of *over*

|  |  |
| --- | --- |
| The mapping from spatial to non-spatial meanings of *over* associated with “MORE IS UP, LESS IS DOWN” | |
| SPACE domain | Non-spatial domains (FINANCE, NUMBERS, etc.) |
| The TR is physically higher than the LM.  The TR is within the scope of the LM. | The TR is conceptualized lower than the LM in terms of values. |
| The mapping from spatial to non-spatial meanings of *over* associated with a combination of  “HIGH STATUS IS UP + HAVING CONTROL OR FORCE IS UP” | |
| SPACE domain | SOCIAL HIERARCHIES | |
| The TR is higher than the LM.  The TR exerts forces on the LM (due to the gravity of the Earth, and the object’s gravity itself) | The TR has more power than the LM.  The TR ranks higher than the LM in the social ladder. | |
| The mapping of over associated with “COGNITION IS PERCEPTION” | | |
| SPACE domain | Non-spatial domains | |
| The TR is higher than the LM. | The TR is construed to be located higher than the LM.  The LM is examining the TR, which is the foci of the action denoting “vision”.  The TR is conceptualized as the topic of the action described. | |
| The mapping of *over* associated with the Conduit metaphor | | |
| SPACE domain | Non-spatial domains | |
| The TR moves along the LM. | The virtual path configuration is retained.  The meaning of *over* is guided by context. | |
| The mapping of *over* associated with metaphor “AN ACTIVITY IS A PATH” | | |
| SPACE domain | Other domains | |
| The TR moves along the LM configuration path. | The TR virtually moves along the LM configuration path.  The path can be reversed in the case of “over and over”.  The path implies a change in possession.  The path implies a completion. | |
| The mapping of over associated with “TIME IS A PATH AND ENTITIES MOVE ON IT” | | |
| SPACE domain | TIME domain | |
| The TR moves along the LM configuration. | The LM is a period of time.  The TR is conceptualized as moving over such period of time. | |
| The mapping of *over* associated with “TIME IS A MOVING OBJECT” | | |
| SPACE domain | TIME domain | |
| The TR moves along the LM configuration path. | The TR is a period of time.  The TR virtually moves along the LM configuration. | |

We have also analyzed that human construal of *over* is more complicated than it seems to be. To begin with, spatial *over*, whose salient aspect is the TR is higher and within the scope of the LM, can denote both static and dynamic meanings. Additionally, the TR and LM of *over* can either be in contact or not, which makes *over* denote more meanings than static *on* or *about*. The non-spatial meanings of *over* are: More, Control, Examining, Topic, Scanning of an interval, Transfer, Completion, and Repetition. Concerning the meaning transference from spatial to non-spatial of *over*, we reaffirm the following:

(i) Non-spatial meanings of *over* are spatially grounded.

(ii) The meaning construal processes are organized in the following order: (i) spatial and non-metaphorical meaning -> spatial and metaphorical meaning -> non-spatial and metaphorical meaning.

(iii) Image-schema based approach proves to be appropriate in explaining how non-spatial meanings of *over* emerge. However, the construal of *over* also requires a duplicate image-schema, i.e., in the case of Repetition meaning.

### 4.4. The transference from spatial to non-spatial meanings of *above*

The following table summarizes the image complexes of *above*:

TABLE 7: The images of *above*

|  |  |
| --- | --- |
|  | Explanation |
| The prototypical meaning of *above* | The prototypical meaning of *above* is defined by a pair of images.  a. From the side at high resolution: the TR is separated from the LM by a vertical gap.  b. From the side at low resolution: the TR is separated from the LM by a vertical gap.  The gap between TR and LM is significant from the side at low resolution. |
| Visual space images | The images represented in this space are locative and stationary, besides the prototypical meaning of *above,* there are two other pairs of images.  **Pair 1:**  a. From the side at high resolution: there is a significant gap between the LM and TR.  b. From the side at low resolution: the gap between the LM and TR is unclear.  c. From the top of the scene: the TR occludes the LM  **Pair 2:**  a. From the side at high resolution: the TR is far from the LM  b. From the side at low resolution: the TR is higher than the LM in reference to the sea level. |
| Maneuver space images | a. Initial position: there is significant clearance between the TR and the LM, with the TR oriented parallel to the ground.  b. Image after rotation: there is still significant clearance. |
| Kinetic space images | First Kinetic Image Sequence:  a. The LM forms part of the base on the locomotor surface; the TR is in open space, has force-dynamic impetus parallel to the base.  b. Resultant state: the TR is on the far side of the LM from its initial position.  Second Kinetic Image Sequence:  a. The LM forms part of the base on the locomotor surface; the TR is in either open or close space, and it is on one side of the LM.  b. Resultant state: the TR is higher than the LM. |

Concerning the visual and functional information of *above*, we see that as a spatial marker, *above* has one meaning: its prototypical one. Here is the table to summarize the mappings of *above* associated with its metaphors:

TABLE 8: The mappings of *above*

|  |  |
| --- | --- |
| The mapping from spatial to non-spatial meanings of above associated with  “MORE IS UP, LESS IS DOWN” | |
| SPACE domain | TEMPERATURE, FIGURES, FINANCE, TIME (AGE), SOUND domains |
| The TR is higher than the LM.  The TR and LM are unique entities. | The TR and LM refer to numeric values.  The TR is much more than the LM. |
| The mapping from spatial to non-spatial meaning of *above* associated with “HIGH STATUS IS UP; LOW STATUS IS DOWN.” | |
| SPACE domain | SOCIAL HIERARCHY |
| The TR is higher than and distinct from the LM. | The TR is higher than the LM in terms of social positions/ power. |
| The mapping from spatial to non-spatial meaning of *above* associated with “TOWARDS THE BEGINNING OF WRITTEN DISCOURSE IS UP; TOWARDS THE END OF WRITTEN DISCOURSE IS DOWN.” | |
| SPACE domain | WRITTEN DISCOURSE domain |
| The TR is higher than the LM. | The TR appears closer to the beginning of the discourse than the LM. |

Concerning the visual and functional information of non-spatial *above*, we see that *above* denotes two meanings: *More* and *Superior*. Here are the similarities and differences between the two words “over” and “above”:

(i). Spatially, the word “over” denotes a potential contact between the TR and LM while the word “above” does not. The number of meanings of *over* is much more than those of *above*, which is a result of the encyclopedic knowledge that humans construe proximal entities or surrounding state of affairs much easier than those far away from their perception.

(ii). Non-spatial meanings of *over* and *above* are associated with a range of orientational and structural metaphors, all of which are spatially motivated. Because of the salient aspect of *above* that the TR and LM are unique, *above* is used in the domain of written discourse and denotes the topographical distance between two places. The LM of *above* is conceptualized as a standard for the TR to be compared with.

# CHAPTER 5: CONCLUSION

### 5.1. Recapitulation of key findings

In this dissertation, we have presented and analyzed the meanings of four words “over, above, under, below” in the light of MIT and Extended CMT. The first theory is exploited to discuss the spatial uses of the four words while the latter one helps us show a number of metaphorical associated with “over, above, under, below”. Through our analysis, we have come to the following remarks:

(i). The proto-scenes of the four words “over, above, under, below” constitute the vertical axis which designates the relative contact between the TR and the LM. In the case of *above* and *below*, the TR is not necessarily within the scope of LM extension. What should be taken into account is the *uniqueness* and *absence of contact* between the two entities. In the case of *under* and *over*, the TR must be within the scope of the LM extension, and the TR and LM are in potential contact.

(ii). Three spatial modalities of thought of the four words are Visual space, Maneuver space, and Kinetic space. The spatial meanings of the four words are found in the three modalities, and it is proved that the polysemy of the four words is closely related and their transference can be traced back by adopting an image-schema based frame. This means that each instance of use of the four words could be explained if we adopt an image-based approach basing on the prototypical meaning coded by a pair of image complexes.

(iii). The non-spatial meanings of the four words are attached to a range of conceptual metaphors. We have explored a systematic change from purely spatial & non-metaphorical meanings to spatial & metaphorical meanings, and non-spatial & metaphorical meanings of the four words. The results of the analysis once again reaffirm the hypothesis that non-spatial meanings are spatially grounded on experiential basis.

(iv). The analysis of non-spatial meanings of the four words, in the four layered direction: mental space - domain/ frame and image - schema, shows that these metaphors relate abstract notions conceived as concrete entities, and map the structure of concrete experiences onto abstract experience. This is in agreement with the idea proposed by Lakoff (1987).

(v). The overall mechanism for meaning transference is image-schema transformations; however, in certain cases, the *purport* (Cruse, 2000) or *meaning potential* (Allwood, 2003) of the words account for their usages.

### 5.2. Image-schema transformation as a mechanism for meaning transference

The dissertation proves the importance of image-schema transformations in explaining how the meanings of the four words in their contexts of use transfer from spatial to non-spatial ones. Our analysis is different from previous studies in the aspect that we do not rely purely on a single image-schema of the four spatial markers, we focus the analysis on the pairs of image complexes in the prototypical meaning and then its variants that encode the meanings in human mind. Additionally, we present all the three spatial modalities of thought of a single preposition, and then explain how those modalities could be retained in the non-spatial meanings of the four words. To be specific, take *over* as an example. The meaning *More* in the metaphor “MORE IS UP, LESS IS DOWN” retains the *Visual space* with static meanings while the *Temporal* meaning in the metaphor “TIME IS A PATH AND ENTITIES MOVE ON IT” retains the *Kinetic space* with dynamic movements. The virtual Reflexive meaning is the result of virtual image-schema associated with the Maneuver space of the word. Last but not least, an image-schema transformation approach helps us explain how the four words best fit in certain cases of use. Another example with *over* is the case of the *Repetition* meaning*.* This is the result of two kinetic paths with the LM being conceptualized as a path. Our analysis reaffirms the visualizable feasibility of image-schema, and it could explain how functional information like “cover” of the word “under” or “over” emerges.

### 5.3. Shortcomings and further research

The present dissertation analyses the four words as prepositions and their verb particle structure while ignoring their roles as prefixes. This is one of our three shortcomings. The second shortcoming lies in the data of the research; i.e., we could not cover the whole corpus of COCA which may help to find new meanings of the four words in their contexts of use and validly verify the feasibility of image-schema transformational approach. Last but not least, we follow the qualitative approach because we do not present the percentage of each meaning of the words, which may make quantitative advocators confused. However, as we mentioned earlier, the aim of the study is to explain how non-spatial meanings are motivated, numeric values are not salient aspect.

We suppose that there are three directions to develop the ideas proposed in this dissertation. Firstly, we could apply these results to explain how the four words are used for English language learners systematically so that they could acquire the semantics of the English prepositions better. This idea is inspired by the discovery of Lam (2009) that correct use of prepositions or spatial language is one of the last obstacles for learners and many highly proficient learners cannot use spatial markers like native users. The second direction is to make a contrastive analysis of the four words with their equivalents in Vietnamese. This may also explore how the two languages differ culturally, especially when dealing with non-spatial uses of the four words. Last but not least, the meaning transference of the four words in idiomatic expression should be investigated. We suppose that the basis of this study can help build a foundation for such an analysis because Jamrozik & Gentner (2011) prove that prepositions retain spatial meanings in their abstract contexts of use.

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1. https://www.etymonline.com/search?q=over [↑](#footnote-ref-1)
2. We follow Deane’s idea about the prototypical meaning of *over,* presented in the next section. [↑](#footnote-ref-2)
3. Hereafter ECMT. [↑](#footnote-ref-3)
4. TR and LM stand for Trajector and Landmark respectively. [↑](#footnote-ref-4)
5. Hereafter MIP. [↑](#footnote-ref-5)
6. The meanings are extracted from Oxford Dictionary Online [↑](#footnote-ref-6)