

北京交通大学

硕士学位论文

中美英语学习者硕士学位论文摘要中“of”的语义网络对比研究

A Contrastive Study on the Semantic Network of Preposition
“of” in the Master Theses Abstracts of American and Chinese English
Learners

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北京交通大学

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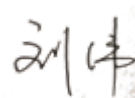
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摘要

摘要：从认知语言学角度看，英语介词除了连接作用，还能够表示空间意义，并且在空间中呈现出多义性特征，这源于语言使用者本身对空间位置的感知。介词往往具有一个具有空间概念的中心意义，通过体验意义（embodied meaning）衍生出一些空间用法，构成一个网络结构系统。介词“of”是使用较多的介词，但是在学术写作中关于“of”的语义研究十分有限。本文在认知语言学的理论框架下，以原则性多义网络模型为基础，以两个自建语料库（美国学习者摘要语料库，CALA；中国学习者摘要语料库，CCLA）中的“NP1+of+NP2”模式为研究对象，根据卡方检验结果，比较两个语料库中“of”的义项群和义项的分布情况。

结果发现：在 CALA 和 CCLA 义项群上，使用频率最高的都为 on 义项群，最低的均为 for 义项群；在义项使用上，迂回义项使用频率均为最高，在位置来源和原场景使用较少。通过卡方检验对两个语料库中统计的数据进行差异性考察，发现二者在边界、原因、目的义项上未显示出差异性，而在迂回、关于、包含、来自、属于、补充、聚焦义项上显示出差异性。原因分析显示：相同点主要体现为记忆储存相似和突显需求相似，不同点则源于多方面原因，包括中英认知模式不同、介词多义现象难以掌控、语言借用现象和隐喻意义使用差异。这种差异性研究可以为英语介词教学提供新的途径，对于要进行学术写作的学习者来说，可以更好地完善介词对比教学法，适当融入文化因素，还可将介词的意象图式应用到教学中。本研究不仅丰富了原则化模式下的介词“of”理论成果，还对英语介词教学具有启示意义，但是研究仍然存在一些局限性，如缺少历时研究对研究结果进行佐证、语料库容量小等。

关键词：原则性多义网络模型；“of”的语义网络；语料库；意义；义项

ABSTRACT

ABSTRACT: From the perspective of cognitive linguistics, English prepositions are capable of expressing many spatial meanings in addition to the role of linking. They are polysemous, which stems from the language users' own perception of spatial location. Prepositions often have a central meaning with a spatial conception, and through the embodied meaning, a number of spatial uses are derived, forming a system of network structures. The preposition 'of' is one of the most frequently used prepositions, but its semantics has not attracted much attention from scholars in the field of academic writing. Through referring to some dictionaries, this thesis, on the primary basis of the Principled Polysemy Network Model, takes the pattern "NP1+of+NP2" in two self-built corpora as the research subject, and compares the distribution of "of" senses and clusters in two corpora (Corpus of American Learners' Abstract, CALA; Corpus of Chinese Learners' Abstract, CCLA) based on the result from chi-square test.

The results are as follows: in terms of "of" cluster in CALA and CCLA, *on cluster* makes up the highest proportion, and *for cluster* accounts for the least occupant; as for the senses, the *of-periphrasis* sense takes the greatest proportion, the *proto-scene* and *location source* take up the least proportion. Through the chi-square test, there is no difference in the senses of *boundary*, *caused-by* and *purpose*, but there are differences shown in the senses of *of-periphrasis*, *concern*, *containing*, *from*, *belong-to*, *completed-by* and *focus*. After analyzing the underlying cause of the result, we find that the similarities lie in two respects: the same storage memory and the same profile, and the differences reside in multiple aspects, including the different cognitive model in Chinese and English, the polysemy of preposition, the language borrowing and the application of metaphorical meaning. By means of the analysis on the similarities and differences, some suggestions on preposition teaching in English can be proposed effectively, including the improvement of preposition comparison, the integration with culture and history and the application of image schema. This thesis not only enriches the theoretical fruit of "of" under the Principled Polysemy Network Model, but embodies some implications for preposition teaching. However, there are still some limitations, including the lack of diachronic study, the small scale of the corpus, etc.

KEYWORDS : Principled Polysemy Network Model; Semantic Network for Preposition "of"; corpus; meaning; sense

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1 Introduction

1.1 Background

English prepositions belong to “the closed words”, and remain a small group compared with other word categories. No matter how simple the preposition seems to be, their semantics is not clear-cut at all. In the academic writing, prepositions have always served as an integral part. Jackendoff (1973: 345) declares that “people seem never to have taken prepositions seriously” so that prepositions tend to be overlooked in writing. Prepositions may seem simple in composition, but they are complex in meaning expression. Furthermore, the use of prepositional collocation is also a challenge in English learning, and recent evidence suggests that “less than 10% of advanced EFL learners are able to accurately understanding and using prepositions” (Liu & Li, 2011: 62). This challenge is posed by the polysemy of prepositions which is a complicated factor. In recent years, many scholars in the field of cognitive linguistics have probed into the polysemy of prepositions (Lakoff & Johnson, 1980; Dewell, 1994; Lakoff & Turner, 1989; Tyler & Evans, 2003). An overview of recent years’ surveys has reported that there are two main categories in studying the polysemy of prepositions: image schema and semantic network. Image schema focuses on the core image schema of prepositions, which can extend to other image schemas. In the semantic network of prepositions, the multiple meanings of a single preposition are combined to form a network system, and most meanings derive from a prototype of the preposition (Tyler & Evans, 2001: 77). Preposition “over” was studied in the Principled Polysemy Network Model (Tyler & Evans, 2003) based on the image schema and the semantic network, with an aim to provide a model of detailed interpretation for prepositions’ polysemy. This model has been applied to prepositions such as “over, in” (Tyler & Evans, 2001; Zhang, 2010), but the semantic interpretation of the preposition “of” is still at an immature stage. In addition, in academic writing, the preposition “of” belongs to a class of high-frequency prepositions. Simple as their form is, the prepositional phrases embody many sophisticated meanings, especially in the collocation with nouns. How to use the “of” phrase correctly in the context is a question we should consider, and is also a way of making the academic writing of English Chinese learners more authentic to the language use of native speakers.

1.2 Content and Purpose

Tyler & Evans (2003) have applied the Principled Polysemy Network Model to the phrase of “over” by exploring its central meaning and other senses to provide a better understanding of the spatial meaning of prepositions. In English academic writing, the more frequently used preposition “of” can exhibit different meanings in different contexts, which can also be explained by applying the Principled Polysemy Network Model. The language in academic writing should be accurate and concise (Li, 2010), and what we focus about the preposition “of” is not only the function of linking, but the different semantics resulting from the collocation of nouns before and after. Moreover, the previous researches in the cognitive linguistics have not paid attention to every semantic use of “NP1+of+NP2”, even less to the use of “NP1+of+NP2” in academic writing. Therefore, this thesis, guided by the Principled Polysemy Network Model, centers on the usage of “of” in “NP1+of+NP2” in two self-built corpora, aiming to address the following research questions:

- 1) What is the distribution of the senses in the semantic network for “of” in constructing the pattern of “NP1+of+NP2” in Corpus of American Learners’ Abstract (CALA) ?
- 2) What is the distribution of the senses in the semantic network for “of” in constructing the pattern of “NP1+of+NP2” in Corpus of Chinese Learners’ Abstract (CCLA)?
- 3) What are the similarities and differences in the usage distribution of the senses in the semantic network for “of” in the pattern of “NP1+of+NP2” in CALA and CCLA?
- 4) What are the underlying causes for these similarities and differences in terms of English learners’ cognition?

The main purpose behind this study is to gain a better understanding of “of” senses in two corpora, CALA and CCLA, find out the differences and similarities in two corpora and explore their underlying causes with a part of purpose to make suggestions and directions for improvement for preposition teaching of Chinese English learners and effectively convey the correct meaning of prepositions in academic English writing.

1.3 Significance

As a significant part of vocabulary, prepositions are “difficult” in vocabulary learning (Lingstromberg, 2001). Many Chinese English learners have more or less problems when using prepositions. How to realize a proper application of prepositions is a question which deserves attention. Recent empirical research gives us the evidence that it is feasible to employ Conceptual Metaphor in the preposition teaching (Liu & Li, 2011). Furthermore, prepositions can be divided into three categories under Conceptual Metaphor, that is, the container schema, upper and lower schema and path schema (Liu 2009). The meanings of prepositions are related to each other, and in the spatial level, the meanings can be extended into the field of time, state, process, etc. Therefore, the cognitive analysis of prepositions is “of great help for learners to grasp the extended relation between the meanings of the target words systematically” (Deignan et al 1997). This thesis adopts the Principled Polysemy Network Model as its theoretical foundation to make an exploration on the semantic network of “of” in “NP1+of+NP2” in the native English speaker’s graduation thesis abstract, and compare the similarity and difference on using “of” between native English speakers and Chinese English learners. This thesis intends to provide suggestions and future directions in the application of prepositions for Chinese English learners in terms of academic writing. Meanwhile, it can put forward some directions for Chinese English learner’s academic writing and teaching in preposition teaching help them to realize the correct realization of “of”.

1.4 Structure

The overall structure of this research takes the form of seven chapters.

Chapter 1 is the introduction. It systematically introduces the background of the study generation, the content and purpose of the study, the significance of the study and the framework of the thesis.

Chapter 2 is concerned with the literature review. It first defines the polysemy and then summarizes the research on preposition in the perspectives and applications of cognitive linguistic on preposition polysemy by reviewing the relevant studies in 40 years. The research perspectives of preposition polysemy under cognitive linguistics are mainly image schema, categorization, spatial configuration interpretation and principled network, and the applications of preposition polysemy are mainly: combining with second language acquisition, targeting the phenomenon of preposition polysemy, exploring cross-language comparison, comparing different prepositions, studying the

logical diachrony and applying computer technology. Finally, some limitations of previous studies are pointed out.

Chapter 3 is about the Principled Polysemy Network Model. It introduces the theoretical basis of this study, focuses on the central meaning (proto-scene) and distinct senses of prepositions, analyzes the criteria for determining central meaning, and describes the relationship between central meaning and senses.

Chapter 4 displays the research design. It describes the research question, data collection, research instruments, and specific research procedures.

Chapter 5 analyzes the semantic network for “of”. It first identifies the central meaning of “of” in the corpus of native English learners, explores the online construction of the central meaning, and then classifies the corpus into four clusters of 11 senses, and spatially interprets each sense by examples and figures.

Chapter 6 shows the results and the analysis. It explores the distribution of “of” senses in CALA and CCLA, conducts a causal analysis based on the results obtained, and provides suggestions for teaching prepositions.

Chapter 7 is the conclusion. It summarizes the main findings of this study, discusses the theoretical and practical implications of the results, and reveals the limitations of the study.

2 Literature Review

The cognitive linguistic description of prepositions originated in Figure and Ground in Gestalt psychology: A Figure is a moving or conceptually movable object, and its position, path or direction can be considered as a variable that special value is highlighted. Ground is a reference body, in which itself is fixed in the reference frame and the location, path or direction of the graphic is specifically described (Talmy, 1983: 232). This opinion has been advocated by many cognitive linguists, such as Fillmore (1985), Ungerer & Schmid (2011). And later Langacker (1987) re-named them as Trajector (TR) and Landmark (LM), corresponding to Figure and Ground (Liu, 2019: 90). Brugman (1981) was the first to propose to study the preposition in English within the framework of cognitive linguistics, and Lakoff (1987) also conducted targeted research on some prepositions like “over”. This chapter defines the concept of polysemy first, and then has a review on nearly four decades of cognitive linguistic research on prepositions, focusing on cognitive linguistic perspectives and patterns on preposition polysemy.

2.1 The Definition of Polysemy

Polysemy is usually defined as “a variety of lexical ambiguity in which the distinct senses associated with a single lexical form are semantically related” (Brugman, 1997, 4). From the point view of the historical development, polysemy is the product of language change which represents the human cognition. Lakoff (1987) thought of polysemy as the connection among different meanings of one word, and these different meanings derived from a central meaning of one word. These meanings share the similarities with each other at some certain levels. People tend to activate the polysemy all the time, and Nerlich and Clarke (2003) even defined it as the by-product of dynamism in the conceptual integration. Sweetser (1990) claimed that the existence of polysemy was a cognitive phenomenon. Other scholars attributed the polysemy to the context the word has existed, such as Langacker (1987) and Dewell (2007). In general, the polysemy involves the mental activity of human, especially the polysemy of preposition touches the spatial relations generated by people themselves. The polysemy of preposition is used to describe the position of an object, no matter what kind of object it is, virtual or real. The polysemy of prepositions also penetrates human spatial

cognition of the location.

2.2 Perspectives of Cognitive Linguistics on Preposition Polysemy

2.2.1 Image Schema

Lakoff (1987) and Johnson (1987) first introduced the concept of ideograms which has something to do with the image. It is the embryonic form of image schema. Johnson (1987) argued that an image schema was a repeating dynamic pattern that encompassed our cognitive interactions and motor process, thus giving coherence and structure (xiv) to our experience. Subsequently Lakoff (1987: 272) proposed the container image schema, which provided a direction for the cognitive interpretation of prepositions. Surveys conducted by Lakoff (1987: 416-461) showed a basic image schema for “over” could generate other 24 image schemas. Dewell (1994) emphasized that the relation between image schemas could be found in the transitions between schemas; Kreitzer (1997) sought to determine that “over” had only a small number of image schemas. Gradually, scholars have infiltrated image schemas into bilingual teaching. For example, Wong et al (2018), conducted a study on 64 English language learners whose first language is Cantonese based on the English Preposition Tutor, giving them sentence map matching tasks, and found that incorporating image schema in the teaching could make bilingual preposition instruction more effective, and others scholars had done similar studies (Shintani et al, 2016; Hung et al, 2018; Liu & Li, 2011).

2.2.2 Categorization

Lakoff (1987) argued that categorization was completeness concepts established by virtue of typical characteristics. Brugman (1981) was the pioneer to quantitatively study the preposition “over” and deemed that the meaning of “over” belonged to a natural category, and he also proposed the radial category model: the meanings of the preposition radiate outward, but they are interrelated. Ijaz (1986), with the guidance of the prototype theory in categorization, found that advanced English learners still had deficiencies in preposition acquisition, and the spatial relation for “on” could be described by semantic features, like one of its features was [+contact; +verticality; -movement]. Yue and Xiang (2009) explored the spatial metaphorical cognition of “from” and found that its spatial domain could be extended to temporal, state, scope, cause, negation, and other domains. Applying the categorization theory to classify the

semantic members of the English prepositions “in, on and over”, Ma (2010) identified the core semantic members of the three prepositions and compared them between Chinese English students and native English speakers, revealing that prepositions had unique spatial semantic features that could affect English learners' understanding.

2.2.3 Spatial Configuration Interpretation

The spatial configurations embodied in English prepositions are also worthy of investigation. Hawkins (1993) found that English prepositions could exhibit four Landmark geometric configurations: MEDIUM, SURFACE, CHANNEL and NODE. Coventry, PratSala, and Richards (2001) concluded that, regardless of whether an object typically uses its function or not, its function and geometric configuration existed. For example, an umbrella has the function of sheltering rain. When it implements this function, the spatial relation between the umbrella and the landmark (the person holding the umbrella) can be expressed by “over”, but when a person uses a suitcase to cover the rain, although the suitcase no longer performs its normal function, it can still be expressed by “over”. Zhang and Qi (2009) divided the spatial meaning of prepositions into geometric configuration and functional components, and believed that geometric configuration was related to topological features. Wei et al. (2007) analyzed the concept of preposition space through the speech functions of preposition, and the cognitive basis of the mental mapping was the projection of the space domain to the time domain. Coventry & Garrod (2004) proposed Functional Geometric Framework based on the spatial geometric configuration and extra-geometric constraints. Garrod et al (1999) found a hybrid model of the meaning of prepositions: the meaning expressed by prepositions includes both geometric configuration and functional relationship, but their respective proportions are different, for the things highlighted are different. Therefore, the spatial relationship and function shown by prepositions are closely related (Tversky, 2005; Carlson & Covell, 2005). Ma (2005) divided prepositions into two spatial types: uni-constrained types and dual-constrained types. The former was restricted by topological structure, and the latter by both topological structure and function. Gardenfors (2015) explored the conceptual spatial meaning of preposition which contained the meaning of position and direction from a geometric perspective, and prepositions represent a convex set point or a convex set path in a single domain.

2.2.4 The Principled Perspective

Tyler and Evans (2003) proposed the Principled Polysemy Network Model to

understand the polysemy of prepositions whose senses came from the central meaning of the preposition itself. This model was applied in exploring the semantic network for the preposition “over”. Evans (2005) elucidated the model with a temporal perspective on polysemy, preposition and the concept framework and proposed three criteria for the meaning, conceptual refinement and grammar. Kang (2012) built this model for a number of spatial words containing the signs -ey, -eyse and -ulo, and found that they exhibited a polysemic network which was accompanied by a number of extended meanings. Li and Cai (2008) focused on four prepositions “above, over, under and below” and studied Chinese English learners' acquisition on these four prepositions. The results revealed that Chinese learners' mental perceptions of prepositional meanings were different from the native speakers, they presented a better master of the core sense than marginal sense, and the negative transfer of mother tongues was caused by the differences between English conceptual system and Chinese conceptual system. Zhang (2010) used this model to analyze the meaning of the preposition “in” and revealed the spatial relationship between trajector and landmark. Xu and Cheng (2011) conducted a semantic study on the use of “in” in the composition of non-English majors and found differences in the use of the preposition “in” between Chinese non-English majors and English native speakers.

2.3 Applications of Cognitive Linguistics on Preposition Polysemy

2.3.1 Integration with Second Language Acquisition

Many scholars have combined conceptual metaphor with second language teaching and have found that conceptual metaphor has a positive effect on the teaching of second language prepositions (Liu & Li, 2011). But in the process of learning English, learners also have the phenomenon of concept transfer, which has also been verified by Jarvis and Pavlenko (2008), that is, the way of thinking in the mother tongue and the way of thinking in the second language influence each other. Jarvis & Odlin (2000) studied 210 English learners (70 Swedish and 140 Finns) and found that the spatial system prepositional morphology of Swedish and Finnish restricts English learning and causes positive and negative transfer. Correa-Benningfield (1990) examined English learners whose mother tongue is Spanish, tested their acquisition of English prepositions, and observed that the phenomenon of mother tongue transfer occurred when the native

language and the target language had the same spatial typical concepts. Zhang and Liu (2013), guided by the theory of linguistic relativity and based on the Austrian English corpus, analyzed the conceptual transfer of Chinese English beginners on metaphorical prepositions, and explored the metaphorical concept transfer characteristics of the three prepositions “after, in, and on” and their correspondence words in Chinese. The results revealed that Chinese beginners embodied obvious Chinese grammatical characteristics in the learning process of prepositions. There are also some scholars who conduct empirical research to collect corpus and conduct research on learners of different English proficiency, and the tools used mainly include questionnaire surveys, classroom tests, writing tasks, etc. (Ma, 2007, 2010; Gong & Yu, 2014; Chen & Xu, 2009; Shintani et al, 2016; Hung et al, 2018; Evans & Tyler, 2005; Tyler, Mueller & Ho, 2011; Song, Schnotz & Juchem-Grundman, 2015; Hung, 2017). And some scholars have researched on the teaching method of preposition. Fujii's (2016) research subject was Japanese English learners. By comparing two teaching methods, the top-down teaching method based on core image schema and the teaching method based on translation, he examined the efficiency of Japanese students' acquisition of prepositions respectively. Chen and Xu (2009) studied on the acquisition of three polysemy prepositions “on, over and above” by comparing the image schema-based instruction (ISBI) and the translation-based instruction (TBI).

2.3.2 Exploration of Polysemous Nature of Preposition

Some scholars use existing corpora. For example, Liu (2009, 2019) and Ming (2016) adopted the linguistic data in British National Corpus to study the semantics of the preposition “over”; Liu (2012) employed 28 prepositions in New Age English-Chinese Dictionary to discuss the cross-category phenomenon; Wang (2009) focused on “over” in the text of *Gone with The Wind*, etc. Evans & Tyler (2001) spatially linked the meanings of the preposition “over”, and mapped its semantic network. Similarly, this semantic network was also used in the semantic description of prepositions such as “in, to, and from” (Xu & Cheng 2011; Daria 2009).

2.3.3 Cross-Language Comparison

Al-Marrani(2009) conducted a contrastive study on the use, function and meaning of English and Arabic prepositions to find their similarities and differences. Vandeloise (2008) attempted to find the correspondence between English and French prepositions from the perspective of logical diachrony. Taylor (2003) compared English “over” and

Italian “sopra” and found that both can reflect the same spatial relationship, that is, “the projectile affects the landmark, the projectile covers the landmark, and the projectile is perpendicular to the landmark” (322). Ma (2008), Zhang and Sun (2017) have both analyzed the semantics of “on” and “在.....”. The comparison study covers English and Perisan, Irish and Italian, English and Karo, etc (Mahmoodzadeh, 2012; Frenda, 2005; Tarigan, 2016). Tyler and Evans (2003) have drawn the proto-scene of “of” through the origin of “of”, and found the senses of “of” include *Location Source* and *Material Source*.

2.3.4 Comparison on Prepositions

This comparison involves the comparison of English prepositions’ meaning. Coventry, Carmichael, and Garrod (1994) found that the difference between “in” and “on” resided in the reflection of objects they had described by comparing the use of two words in the corpus. When the object was a plate, “on” was used more frequently; when the object was a dish, “in” was used often. Daria (2010) analyzed the meanings of the prepositions “to” and “from” in English and made a comparison between them. Ming (2016) compared the overlapping meanings of “over” and “above” to find out the semantic relevance of positional prepositions.

2.3.5 Computer Technology Applications

Many scholars have applied computer technology to the analysis of prepositions, like Busa & Johnston (1996), Johnston & Busa (1996), Kordoni (2005), etc. Kelleher and Costello (2009) applied the prepositional space model to the Visually Situated Dialog, pursuing the relationship between the prepositional space cognitive module and other components. For many scholars (Moldovan & Badulescu, 2005; Lapata & Keller, 2005), building model pairs is an important way to study the semantics of prepositional space.

2.4 Summary

Cognitive linguistics research on prepositions is mainly carried out from a spatial perspective, opening up a new way to interpret the semantics of prepositions. Moreover, learning and mastering spatial prepositions is a complex and dynamic process, but the learners’ backgrounds are different, the psychological cognition of the same concept will be different from the perspective of the mother tongue, and some common

prepositions are not in the scope of research, in particular, there is a lack of research on the commonly used preposition “of”. The polysemy of “of” remains a somehow muddy area in the linguistic filed. Therefore, this research takes the “of” in “NP1+of+NP2” as an example in two self-built corpora, explores the semantic network for “of” from the perspective of Principle Polysemy Network Model and analyzes the causes of the similarities and differences between the two corpora, in order to provide effective suggestions for preposition teaching.

3 Principled Polysemy Network Model

In the theoretical framework of conceptual metaphors (Lakoff & Johnson, 1980), metaphor involves two conceptual domains: the source domain and the target domain. The source domain is a coherent collection of human experiences. It is, in fact, a huge knowledge structure. For example, the source domain of “travel” includes “traveler, road, starting point and destination”; therefore, it can be seen as the basic unit of metaphor understanding and production. Conceptual metaphor is also regarded as a mapping process, from a familiar source domain to an unfamiliar and incomprehensible target domain. Thereinto the image schema takes the human body as an objective object, and maps the human “body” experience onto the abstract cognitive domain through imagination and association. In addition to the mechanism, the cognitive process accessible to these metaphors is supposed to go through some cognitive structures, “path, force, containment, up-down, front-back, partial-total, center-edge” included (Saeed, 2000: 43). Having summarized the previous research, Tyler & Evans (2003) proposed a theoretical model of the Principled Polysemy Network. The definition of prepositions is based on the spatial scene and re-examines the interpretation for prepositions in space. They put forward three theoretical hypotheses: 1) language and words should be a stimuli to construct the meaning; 2) the expression of meaning is fundamentally conceptual; 3) the conceptual system is the result of human beings through their constant exchanges and active interactions with the outside world (Li & Cai, 2008: 186), and they explore the process of meaning construction which provide a spatial analysis mode on prepositions in the book *The Semantics of English Prepositions Spatial Scenes, Embodied Meaning and Cognition* published in 2003.

3.1 Central Meaning (Proto-scene) and Distinct Sense (Sense)

The Principled Polysemy Network Model distinguishes meaning and distinct sense (also called sense). Meaning refers to the online meaning produced in various specific contexts; and sense attaches importance to the independent understanding stored in human’s long-term memory. The semantic network analysis on preposition targets to the independent understanding rather than online meaning (Zhang, 2010: 23-24). At the

same time, this model proposes a “proto-scene” that can make a difference between the prototype meaning and the independent sense. The central topics in the study of the Principled Polysemy Network Model are: 1) rational and effective understanding of the primary sense; 2) the relation between elements in the semantic network. In the senses, the primary sense differs from the distinct sense. The primary sense can create a spatial configuration between TR and LM. For example, the primary sense of “over” is “above and across”, so that the configuration of TR should be higher than that of LM. The distinct sense contains other senses except for the primary sense, like the sense of *on-the-other-side* and *repetition* which derive from the context but are constrained by the scope of the proto-scene (central meaning). On the one hand, it is usually inseparable from the spatial location, and subjected to inference to achieve additional or online understanding. On the other hand, the distinct sense must adhere to the independent background, without which the sense cannot be inferred.

3.2 Criteria for Determining Central Meaning and Distinct Senses

Tyler and Evans (2003: 47-50) proposed that the judgment of the central meaning (proto-scene) of prepositions mainly consisted of five criteria: the early meaning, predominance in the semantic network, the compound form, the compositional sets and grammatical prediction.

The early meaning is a primary meaning to construct the spatial relationship between TR and the LM, which is very active in the semantic network. Obviously, the early meanings of English prepositions do not overlap, thus the early meanings of all prepositions can be clearly distinguished. Furthermore, the process of many spatial particles entering the language is selective, therefore, competing for the central meaning of prepositions would give rise to the differences of the early meaning among prepositions, such as on, over, above, etc.

According to the explanation of Tyler and Evans (2003: 48), the dominance in the semantic network is a unique spatial configuration from which most of the distinct senses can be found. For example, “over” presents 15 different senses, and the basis for the existence of the eight types of meanings covers the central meaning, that is, “TR is above LM, and TR is higher than LM” (see Figure 3.1).

The compound form of preposition mainly exists in two types: compound

preposition (overcoat) and verbal phrase (take over). “Overcoat” can be understood as “a coat over the clothes/on the other side”, and “take over” can be understood as “take something on the other side”. It is obvious here that the meaning of “over” is also based on the characteristics that “TR is higher than LM”.

The compositional sets can be radiated by the central meaning, which is embodied in both combination and contrast. Space particles in the vertical direction can have combinations of prepositions such as “over, above, up, under”. In the contrast group, “up and down, before and after” are the antonyms in space. The language coding distinction between space and spatial relationship is essentially relative, mainly relying on the interpretation of specific spatial scenes. Therefore, the pair of prepositions in combination and contrast is an exposition of its primary meaning.

Grammar prediction is the last criterion for identifying the central meaning. In different contexts, sometimes the meaning embodied by prepositions is different from the central meaning, and some distinct senses are derived from the central meaning. These meanings are independent of other senses, but are closely related to the central meaning.

The emergence of distinct senses is primarily to make up for the vacancy of individual meanings of prepositions, and can highlight their meanings even without context (Bebeniec, 2010: 26). However, the central meaning and the sense cannot be viewed separately. This is the main purpose of Principled Polysemy Network Model proposed by Tyler and Evans (2003). The central meaning remains unchanged, and other senses are slowly included in the development process.

3.3 The Relationship between Central Meaning and Distinct Senses

In this section, we intend to discuss the relationship between central meaning and sense, and describe the central meaning (proto-scene) and distinct senses of “over” in light of Principled Polysemy Network Model constructed by Tyler and Evans (2001; 2003) for the preposition “over”.

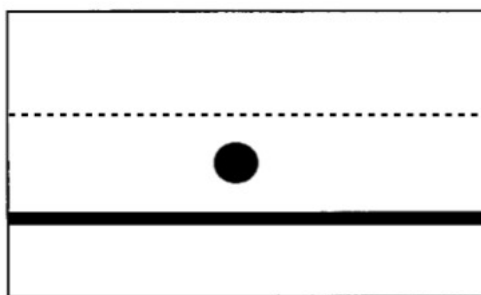


Figure 3.1 The proto-scene for over (Tyler & Evans, 2003: 66)

Figure 3.1 is the proto-scene of “over”. The black sphere is TR, and the thick line is LM. TR is above LM, but not higher than the dotted line, in other words, “over” means that the range of movement of TR is between the thick line and the dotted lines. The central meaning can produce complex concepts and multiple meanings. The similar concepts are gathered together to form a cluster of senses. In Figure 3.2, the white sphere represents a cluster of a preposition, the bigger black sphere represents the proto-scene (central meaning) and the smaller black sphere represents the sense.

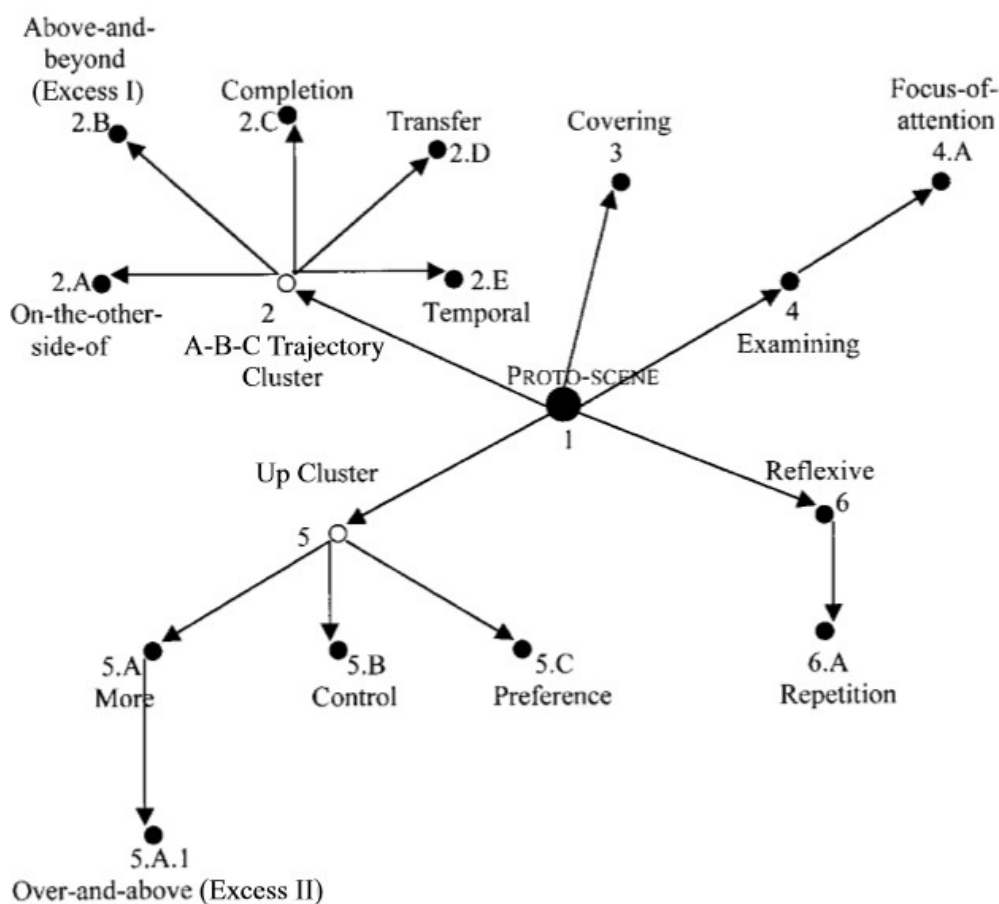


Figure 3.2 The semantic network for over (Tyler & Evan, 2003: 80)

A glance at Figure 3.2 tells us that the preposition “over” has a total of 11 distinct senses, and each one is mapped from its proto-scene. That’s why the proto-scene occupies a large black sphere. It is clear to gain its distinct senses: the semantic cluster of “up”, the reflexivity, examining sense, covering sense and A-B-C Trajectory Cluster. A-B-C Trajectory Cluster can be explained by “the cat jumped over the wall” (see Figure 3.3). Point A refers to the TR “the cat”, and Point B and Point C cannot exist at the same time. “The cat” cannot occupy two positions at the same while, and three points (A, B, C) form a spatial position, among of which the existence of Point B can lead to the occurrence of Point C. Therefore, this cluster develops its derivation, on-the-other-side, above and beyond, completion, transfer, temporal, etc. included. The “up” cluster can be mapped by “over” and result in “above, control, and preference” sense. Then there are the focus and repetition meanings that are derived from the reflexivity and the examining.

3.4 Embodied Experience, Spatial Scene and Human Cognition

Evans and Tyler (2003) argue that the embodied experience consists of specific experience which comes from human experience in the world, and this experience is rooted in human perceptive feeling towards the world, therefore imposing the influence of the conceptual structure. The spatial scenes set a solid foundation for human embodied experience and meaning extension, explaining the conceptualization from the space to the abstraction. Furthermore, it takes root in the spatial interactive relations and experience by involving the individual's performance in a particular spatial configuration. In a specific sense, the spatial scene can make a response to the container schema, the top and bottom schema, and the path schema, all of which can highlight its own “the functional nature of spatial scenes gives rise to correlated non-spatial consequences and inferences” (Tyler & Evans, 2003: 27). The spatial scene, as a matter of fact, exposes the individual's feelings about the world. It is independent and can be perceived by human beings. The interpretation is conducted by human brains, and acts as the interaction mode with the outside world. “The cup is on the table”, for example, it can be understood that the cup and the table share a specific spatial relation, namely the direct contact between the cup and the table. Hence, when the table is functionally supporting the cup, from the spatial side, it can be interpreted as “the cup on the table”

(27). The concept of language expression is from human perception of space-physical experience as well. The construction of the spatial scene is determined by the spatial relation that can accurately define the spatial configuration between TR and LM.

The Embodied experience produces the conceptual structure, and this concept should stem from human perception of spatial experience. Tyler and Evans (2003:16) pointed out, to understand the information about TR, human should acquire the information derived from their cognitive process, conceptual structure and background knowledge. For instance, “The cat jumped over the wall” (Tyler & Evans, 2003: 15), “over” is coded as part of the distinct meaning in semantic memory, in other words, human previous perception gives us the information that the cat only has one way to cross the wall by jumping up, as the information is shown in Figure 3.3, it is an experiential perception. Experiential perception can be dated back to the similarity of features shared by two objects, namely, perceptual resemblance. Different from empirical correlation, it is not due to the similarity between two objects caused by experience, but by the similar association of human beings towards the common characteristics.

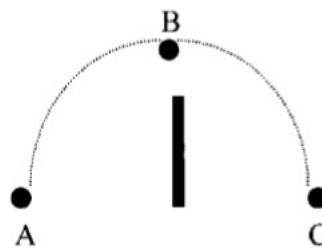


Figure 3.3 Schematization of “The cat jumped over the wall” (Tyler & Evans, 2003: 71)

3.5 Summary

The theoretical basis provided in this chapter comes from a book co-worked by Tyler and Evans (2003). In the book, a model for the spatial meaning of prepositions is constructed, namely, the Principled Polysemy Network Model. Under the guidance of this model, Tyler and Evans (2003) discussed the proto-scene of prepositions “out, in, over, behind, below, under, in front of, etc.” In particular, they conducted the further study on “over” and “in”, giving us the semantic network for “over”. Most importantly,

the proto-scene of “of” was introduced (as is shown in Figure 3.3), and Tyler and Evans (2003: 209) elaborated on the meanings of “of” by concluding from many dictionaries, and gave the proto-scene of “of”. This thesis attempts to apply Principled Polynomial Network Model in the interpretation of “of” by combining the exploration of “of” from Tyler and Evans (2003), and then compare the distribution of “of” sense in CALA and CCLA.

4 Research Design

This thesis follows a corpus research approach, which has become more popular in some areas, especially in the area of English prepositions (Girju et al, 2008; Liu, 2019; Ming, 2015). This chapter focuses on four main aspects of the research design, including articulating the research questions, explaining the corpus sources, describing the corpus statistical tools and elucidating the research procedures.

4.1 Research Questions

This study collected 50 master's theses from Chinese English language learners and 50 master's theses from American English language learners, and all authors major in English linguistics and applied linguistics, removing the cover, acknowledgements, tables, contents, text, and graphs and only retaining the abstract and establishing the Two corpora, Corpus of American Learners' Abstract (CALA) and Corpus of Chinese Learners' Abstract (CCLA), and three questions were formulated as follows:

- (1) What is the distribution of the senses in the semantic network for “of” in constructing the pattern of “NP1+of+NP2” in CALA?
- (2) What is the distribution of the senses in the semantic network for “of” in constructing the pattern of “NP1+of+NP2” in CCLA?
- (3) What are the similarities and differences in the usage distribution of the senses in the semantic network for “of” in the pattern of “NP1+of+NP2” in CALA and CCLA?
- (4) What are the underlying causes for these similarities and differences in terms of English learners' cognition?

The above four questions can help us explore the use of “of” in “NP1+of+NP2” in two corpora, describe the semantic network of “of”, and find similarities and differences in two corpora. Through the similarities and differences, we can analyze the underlying causes and propose some suggestions and improvement directions for the academic writing and preposition teaching of the Chinese English learners.

4.2 Corpus collection

The linguistic material from this thesis comes from CALA and CCLA. According to the criteria of building a corpus, the two corpora keep the same scale in the discipline, genre and language structure (Zhou & Liu, 2015). The linguistic data in CALA are downloaded from the Pro-Quest Dissertations and Theses (PQDT), Queen's Graduate Theses and Dissertations and Open Access Theses and Dissertations, with a time span of 2016-2018, and it contains 33 universities with a master's degree in language across the U.S. The confirmation of the author composes a two-step process: the author's names had been checked on four name recognition websites (www.surnamedb.com, www.houseofnames.com, forebears.io, www.ancientfaces.com) to make sure whether they are native English speakers, then searching personal information through the social platform and public platform, including Twitter, Facebook and Linked-in to verify their nationality. After Two rounds of confirmation, a total of 50 master's theses in linguistics from 2016-2018 in 33 American universities had been collected. The linguistic material in CCLA comes from China National Knowledge Infrastructure (CNKI) which has recorded the theses from 170 Chinese universities across China. CCLA collected theses in 4-6 universities in eastern, northern, southeastern, northwestern, central, southern and southwestern China. As a result, 50 master's theses had been collected with a time span of 2016-2018. Every part of China should contain at least one university of foreign study, one comprehensive university, one university of engineering and science and one normal university (there was no university of foreign study in central China, here we picked one comprehensive university who has a high reputation on language teaching instead). Next, we removed the full text, tables, contents, appendices, acknowledgements, and reference, and only retained the English abstracts of the theses. After integration, two small corpora were created, and the preliminary statistics of the two corpora could be obtained by AntConc:

Table 4.1 The parameters in CALA and CCLA

Parameter	CALA	CCLA
Universities	33	37
Theses	50	50
Average Passage	206	506
Average sentence	27	28
Type	2407	3430
Token	10299	25289
Type/Token %	23.37%	13.56%

From Table 4.1, we can see that the length of CCLA is significantly longer than that of CALA, and its type is higher than that of CALA, but the vocabulary richness (Type/Token) is significantly lower than that of CALA, which indicates that the frequency of “NP1+of+NP2” in CCLA is obviously higher than that of CALA.

4.3 Tools for Data Search and Data Analysis

This study primarily employs AntConc 3.2.4, an indexing software freely available and the download address is: <http://www.antlab.sci.waseda.ac.jp/software.html>. AntConc is a corpus search software, and it has multiple functions, including indexing, vocabulary generation, topic word calculation, collocation and word family extraction (from <http://www.downza.cn/soft/272824.html>). AntConc helps us process data accurately and quickly, and enhances the scientificity and reliability of research (Zhong & Chen, 2015).

The data analysis is realized by the R Programming Language in this study. R is a language and operating environment for statistical analysis and plotting. R belongs to GUN system, and it is a free, freeware, open source software for statistical computing and statistical mapping.

4.4 Research Procedures

In this study, we adopted AntConc to count the “of” in two corpora. The preposition “of” was found 392 times in CALA and 1049 times in CCLA by excluding “of + subordinate clauses” and retaining only “noun+of + noun” or “noun+of+gerund”. Next, phrases concerning the mode “NP1+of+NP2” were exported to an Excel table to be classified. The central meaning and senses of “of” in “NP1+of+NP2” in CALA were classified to construct the semantic network for “of”, and we found that there were four clusters of “of”, including 11 senses. The same classification was employed in CCLA, and the data in two corpora were processed by R for chi-square test to obtain the cardinality and p-value to find similarities and differences in two corpus “of” in the sentence pattern of “NP1+of+NP2”.

5 Semantic Network for “of”

The semantic network for “of” is not only to describe the semantic meaning of “of” senses in the model, but also to elucidate its formation mechanism. This chapter has its intention to explore the central meaning of “of”, the determination of the central meaning of “of”, the online construction of the central meaning of “of” in its proto-scene and other senses of “of”.

5.1 Central Meaning of “of”

According to the interpretation of “of” from Tyler and Evans (2003: 209), “of” embodies a spatial relationship. As shown in the Figure 5.1, it can be understood as a part in a specific space.

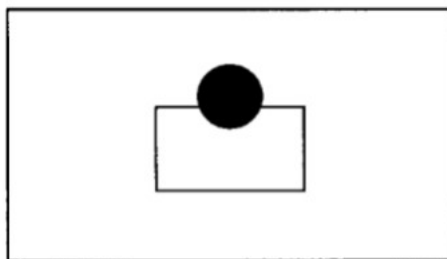


Figure 5.1 *Proto-scene* for of (Tyler & Evans, 2003: 210)

“TR designates a particular spatial region within a larger spatio-physical region” (Tyler & Evans, 2003: 210). The “of” refers to a class of spatial relations that includes “a part-whole designation” that “TR is a specified part of LM”. The part-whole relation of “of” is achieved by the production of TR in LM, like “the top of the mountain, the side of the road” (Tyler & Evans, 2003: 210).

5.2 Determination of the Central Meaning of “of”

We will probe into the central meaning of “of” from the standards mentioned in Chapter 3. At first, the early meaning of “of” can be traced back to its historical origin. Langacker (1999: 73) once believed that the English preposition “of” and the French preposition “de” had shared similarities with each other. The change process of “de” is

shown as follows:

la porte qui est à la cathédrale (the door which is in the cathedral)

→ la porte à la cathédrale (the door in the cathedral)

→ la porte de la cathédrale (the door of the cathedral)

In this example, it is clear that the French preposition “de” and the English preposition “of” play the same role in the sentence. The role of the “of” is an early meaning reflected in the phrase: TR is part of LM and on the edge of LM, as is shown in Figure 4. As for the dominance in the semantic network, it can be found that the various senses of “of” are based on its proto-scene that TR and LM are related to each other in some basic positions and TR and LM share the part-whole relation. In addition, Girju et al (2008: 202) found that the spatial relation represented by “of” was somewhat similar with “for, in, on” in some respects, and could be combined into a composition set. The central meaning of “of” can produce 11 derived senses in CALA. Through the analysis of the central meaning and senses, it can also be found that the relation between TR and LM is fundamental.

5.3 Online Construction of the Central Meaning in its Proto-scene

The proto-scene for “of” is capable of representing its initial spatial relations: part-whole relation. The following phrase concerns the proto-scene of “of”:

(1) The basis of this intuition

In (1), “basis” is TR and “intuition” is LM. In Figure 5.2, TR has contact with LM, but they are independent of each other, and this contact is generated by “of”. In other words, “of” can be seen as the characteristic of contact, then “intuition” is based on the “basic”. Therefore, in order to describe the phrase (1), we can reverse the proto-scene of “of”, as is displayed in Figure 5.2.

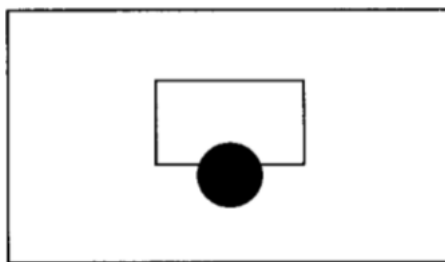


Figure 5.2 “the basis of this intuition

In this sentence, “of” involves in the conceptualization of the phrase, and it can serve as a connecting point between TR and LM in the semantic sense, so that the meaning of TR and LM can be restructured as: “intuition” cannot be without “basis”, but a part of “basis” does not belong to “intuition”.

5.4 Beyond the Original Scenario: Other Meanings in the Semantic Network

In combination with the *Oxford Dictionary* (2013: 1054), *Longman's Dictionary* (2014: 1740-1741) and the interpretation from Tyler and Evans (2003: 209), the meaning of “of” is extended to “removal, separation, privation, derivation, origin or source, starting point, spring of action, cause, agent, material, and other senses which involve the notion of taking, coming, arising or resulting from, etc.” The Table 5.1 shows the proto-scene and senses of “of” in CALA:

Table 5.1 The proto-scene and senses of “of” in CALA

No	Cluster	Sense		Definiti on	Examples
1		proto-scene		The primary sense of “of”	the basis of this intuition
2.A.1	on Cluster	bull’s eye	of-periphrasis	TR has a verb form, and the verb expression carries the same function as the noun expression.	the discussion of the first, our understanding of the implications
2.A.2			focus	TR acts on LM by focusing on	in light of these observations,

				a part of LM, or LM is the embodiment of the behavior of TR.	the topic of ESL student identities
2.B		concern		TR and LM are two independent elements, combined to become a new concept.	a clear picture of the linguistic relation, the field of Lavender Linguistics
3.A	Segmentation Cluster	completed-by		LM supplements information for TR so that the meaning of TR becomes completed.	the tutoring skills of the international writing tutors agreement, native speakers of English
3.B		boundary		TR provides a scope for LM.	a wide range of identities, four groups of learners
3.C		containing		TR contains LM, or LM is a part of TR.	in terms of L1 transfer, glass of water
4.A	Source Cluster	from		TR is a part of LM.	over 35% of idioms, many of the writing centers
4.B		belong-to		TR belongs	the

			to LM, and TR can express the inherent characteristics and status of LM, or TR is the possession of LM.	effectiveness of corrective feedback, the work of Hofstede
4.C		location source	TR is the specific location of LM.	the border city of of El Paso, Texas, the University of Toledo
5.A	for Cluster	caused-by	LM is the reason for the existence of TR.	the victims of harmful practice, the influx of international students
5.B		purpose	LM is the purpose the existence of TR.	the purpose of the study, the goal of writing center

Then we can draw a model of the semantic network for “of” in line with its proto-scene and senses.

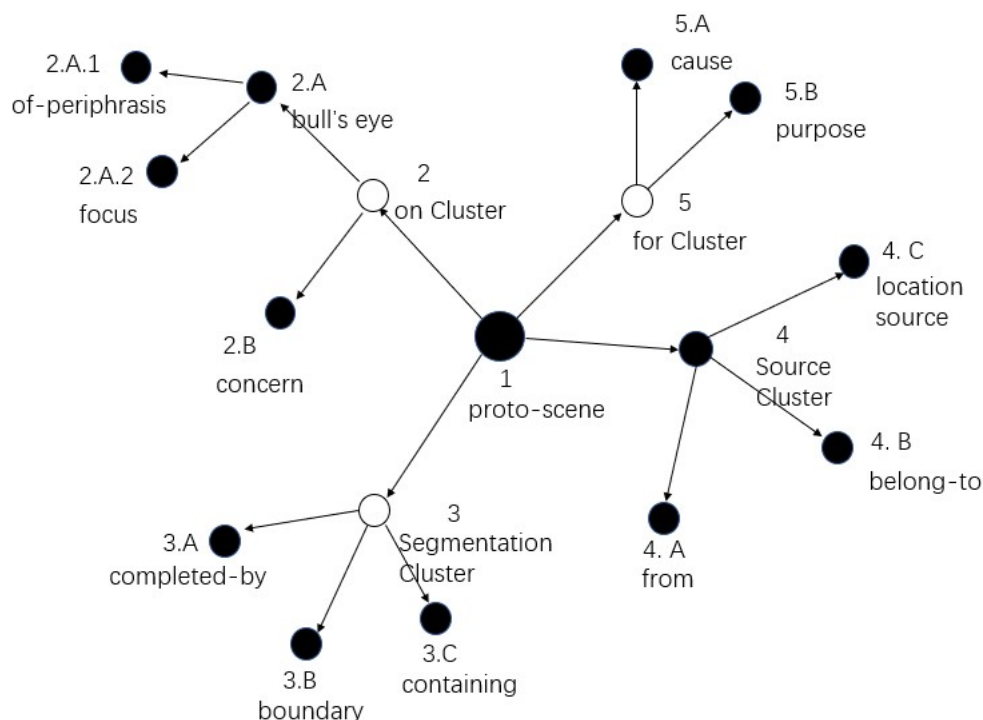


Figure 5.3 Semantic network for of

Figure 5.3 shows the 11 senses of “of”, and the proto-scene is in the absolute center and is its central meaning. The black sphere represents a sense and the white sphere represents a cluster. Some of these senses are conceptualized by some social rules, rather than by the original scenarios. The meaning of “of” can be expressed as the indication of the source, including the location source and element source. *Source* cluster can explain where TR comes from (LM). *On* cluster mainly refers to the focus of the TR on the topic of LM. *Segmentation* Cluster limits a scope of TR which can only functions in the area of LM. *For* cluster is used to get the reason or pursue the cause. Every cluster is different, but interconnected with each other. Each of these senses is explained below.

5.4.1 On Cluster

According to the definitions of “on” and “of” in *Longman's Dictionary* (2014), we find that “on” contains the interpretations of “about” and “focus on” (1755-1756, 1740). As for the preposition “of” itself, “of” can act as the link between TR and LM. Therefore, the performance of “of” senses can be reflected by the cluster of “of”, mainly including the three senses: *of-periphrasis*, *focus* and *concern*. *Of-periphrasis* and *focus*

comes from the same source, the bull’s eye which presents the position of LM and TR. They are different in the description of the approaches from TR to LM.

Bull's eye

The *bull's-eye* originally refers to the target or direction of the attack. Here, it can be extended to the radiation relation from TR to LM, and TR “targets” on a small part of LM. There are two types of senses that can represent this relationship: focus sense and of-periphrasis sense.

Of-periphrasis

Of-periphrasis sense is derived from the nominalization strategy of the verb, and the preposition “of” serves as an important connection to achieve the purpose of periphrasis. Langacker (1987: 76) explored the periphrasis of “of” before. The most obvious feature of *of-periphrasis* sense is that it acts not in a direct manner, but in an indirect manner, as shown in Figure 5.4. However, the objects of verb nominalization are LM, which is similar to *focus* sense. And it is supposed to be distinguished from *focus* sense: there is an agentive relation between TR and LM. As is shown in the Figure 5.4, the black sphere represents TR, and the white rectangle below is LM. TR acts on a small part of LM, that is, the small black sphere. The black sphere targets the black block which belongs to the white rectangle by means of “twists and turns”.

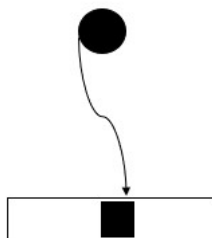


Figure 5.4 *Of-periphrasis* sense

(2) The overlapping categorizations of the branched hierarchical classification system

(3) A violation of the Morphological Uniformity Hypothesis

In (2) (3), “categorizations, violation” are the class of nouns which has verb forms, and “of” can be abandoned by using the verb form of nouns: “categorize the branched hierarchical classification system” and “violate the Morphological Uniformity Hypothesis”. But the periphrasis in the example sentence is to change the verb form into

a noun, and thus to incorporate LM in the manner of a noun (TR). The influence from the dynamic meaning of LM is reduced and the position of the static expression is strengthened, and the weak dynamic meaning is naturally integrated into LM.

Focus

Focus sense, an abstract concept which acts on a part of another abstract concept to form a focus, highlighting the position of LM. Different from *of-periphrasis*, the action in *focus* sense is more direct.

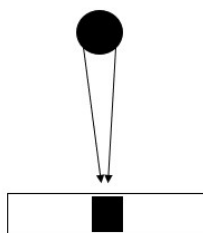


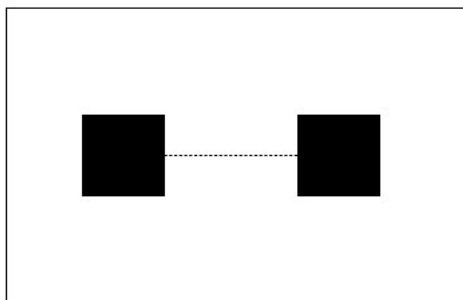
Figure 5.5 *Focus* sense

- (4) The topic of ESL student identities
- (5) In light of this complexity

In the example sentence (4), it can be found that TR “topic” can be used to focus on a certain part of another, and “topic” is mainly for exploring “ESL student identities”. In (5), “light” is just like its original meaning: the electromagnetic radiation, which can directly enter another point from the source point. This is a kind of focus that makes the position of “complexity” stand out. Therefore, TR plays the role of launching, and the final foothold is on LM, in other words, LM is introduced through TR. TR and LM are glued together, which is similar to the sense of “focus-of-attention” (95) proposed by Tyler and Evans (2003). TR's attention to LM is a prerequisite for this sense.

Concern

O Dowd (1998: 55) suggested that the preposition “of” exposes a conjunctive function. The preposition “on” also shows the same function, which can be expressed as a sense of concern. *Concern* sense is to connect two disparate things (TR and LM) to form a new thing containing the features of both TR and LM. As is seen in Figure 5.6, the small black square representing TR and LM is connected by a dotted line “of”.

Figure 5.6 *Concern* sense

(6) The field of language education

(7) A clear picture of the linguistic relations

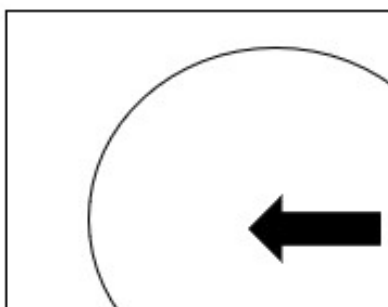
In (6) (7), “field, picture, language education, relations” are individuals that can exist individually. After the function of concern sense, the combined meaning comes into being: “the field which rests learning accented prompts” and “a clear picture which presents the linguistic relations”. TR was originally unrelated to LM, but has something to do with LM through the connection of “of”. This novelty absorbs the characteristics of TR and LM.

5.4.2 Segmentation Cluster

An important aspect of the bounded LM is the concept of boundary, which can effectively distinguish the inside from the outside (Tyler & Evans, 2003: 196). In this cluster, the concept of boundary is the focus. The prominent part of the spatial scene involves the bounded LM, and separate part of the environment from the others. Segmentation cluster can be divided into three aspects: *completed-by*, *boundary* and *containing*. Completed-by centres on TR, boundary focuses on LM, and containing emphasizes both of them.

Completed-by

TR originates from the outside world and attempts to enter into the range of LM with its own characteristics, that is, adding some LM elements on the basis of itself. Therefore, LM can essentially be regarded as a supplement to the central term TR (Langacker, 1987: 82). As is shown in the Figure 5.7, the small black sphere represents LM, and the big white sphere is TR. The formation of this subordinate term can be expressed as the movement process of LM entering TR.

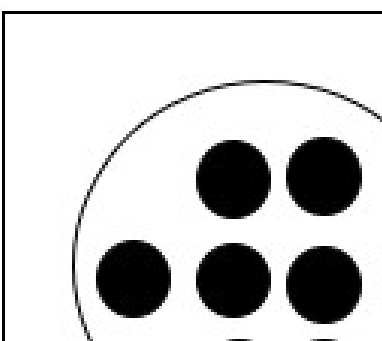
Figure 5.7 *Completed-by* sense

- (8) Native speakers of English
- (9) The letter level of visual processing

The process of LM entering the scope of TR can be understood as the process of further decreasing the scope. “Native speakers” are limited to “native English speakers”, and “letter level” to “visual processing's letter level”. This scope is gradually narrowed from the outside world to TR isolated from the outside world. The scope of TR is smaller, but more targeted.

Boundary

Located in a bounded LM, TR can be prevented from moving outside LM (Tyler & Evans, 2003:197). The small black sphere in the Figure 5.8 represents TR, while the big white sphere is LM. The small black spheres are in the big white sphere and have no contact with the outside world.

Figure 5.8 *Boundary* sense

- (10) A new set of cultural dimensions
- (11) Four groups of learners

This kind of blockade reflects a kind of restriction to limit TR within the scope of LM, and the range and path of TR movement must occur within LM, completely isolated from the outside world, as in (10) (11). “Cultural dimensions” must be in the scope of “a new set”, and “learner” must be in the scope of “four groups”.

Containing

In this sense, “of” can serve as the containing relation between TR and LM. This relation can be clearly understood in Figure 5.9: the big sphere is TR, the small black sphere is LM, and their related spatial experiences are connected together, among which there is conceptual inclusiveness, that is, the concept of containing. In this situation, it can be interpreted as the relation between containing and contained.

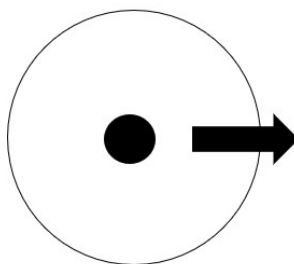


Figure 5.9 *Containing* sense

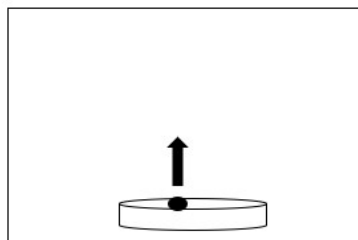
(12) The denotations of declaratives and interrogatives

(13) Glass of water

In (12), TR is “denotations” and contains two aspects, namely, “declaratives and interrogatives”. Hence, the range of TR is greater than that of LM. In (13), “water” is contained in “glass”. Combined with Figure 5.9, the two phrases indicate that TR is larger than LM, and LM is contained in the scope of TR. The spatial configuration between TR and LM has some similarities with the proto-scene of “of”.

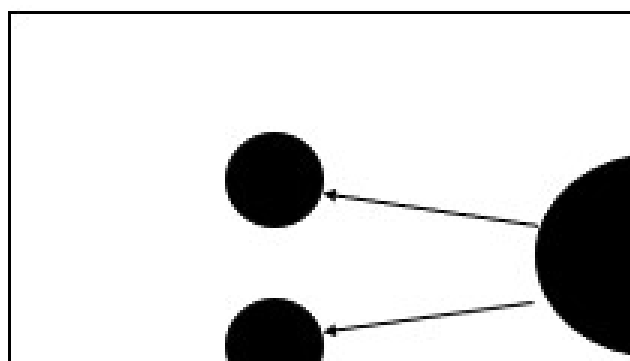
5.4.3 Source Cluster

In this cluster, TR is the regional source in LM, that is to say, TR is derived from LM, and the relation between them is mainly about the location. This can be represented by Figure 5.10. This cluster is divided into three main areas: from, belong-to and location source. From sense mainly lies on the entity from a bigger group, and belong-to sense refers to the property or feature of LM.

Figure 5.10 *Source Cluster*

From

From sense maps to the correspondence between TR and LM: TR comes from LM and TR represents a certain member of LM. In Figure 5.11, the small black sphere is TR and the large black sphere is LM.

Figure 5.11 *From* sense

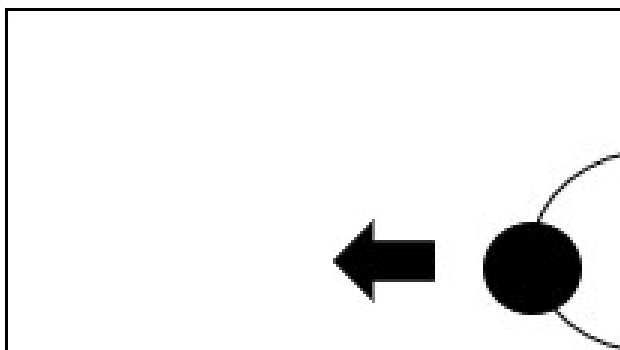
(14) Traveling instructors of English-speaking university classrooms

(15) The piece of literature

In (14) and (15), “instructor” is from “English-speaking university classrooms”, and “piece” is also from “literature”, and the emphasis is on TR, “instructor” and “piece”. Thereto the status of TR is highlighted, and LM explains the source of TR.

Belong-to

Belong-to sense means that TR belongs to LM, and TR is part of the place where LM should exist. However, due to contextual reasons, the focus of the sentence should still be on TR. The same black sphere is TR, and the white sphere is LM. TR is the characteristic of LM. In the cognitive semantic domain of *belong-to* sense, “a coherent knowledge structure possessing” from LM has been constructed and highlighted (Evans, 2007: 61).

Figure 5.12 *Belong-to* sense

(16) The comparative learnability of the four grammars

(17) The work of Hofstede

TR belongs to LM, and TR can reflect the internal or external characteristics of LM which is only a respect of LM. In (16)(17), it can be seen that “learnability” is a characteristic of “four grammar” and exposes the intelligibility of “four grammar”; “work” belongs to “Hofstede”, which can be understood as “Hofstede’s work”, and it is an achievement of the person. However, this part of the phrase should be separated from LM, and this can be seen from Figure 5.12.

Location source

Location source sense, also called the *in-situ* sense, refers to “the ability to determine the location. An experiential correlate of being located with surety is that TR crucially remains in a particular location” (Tyler & Evans, 2003: 186). According to the interpretation of space configuration in the traditional meaning, TR must exist simultaneously with the convex space designated by LM.

(18) The University of Toledo

In (18), TR is located in LM, that is, “for an extended period of time and for a particular purpose (Tyler & Evans, 2003: 187) “, the university is located in Toledo. LM is often a specific location and everyone can know it through LM. Then this sense can be interpreted as TR falling in a bounded LM, which is a result of production. The result occurs in a period of time, in a scene, or is caused by a certain event or behavior.

5.4.4 For Cluster

The linguistic behavior embodied by “for” describes the movement of a TR in the

direction of a LM (Tyler & Evans, 2003: 148).

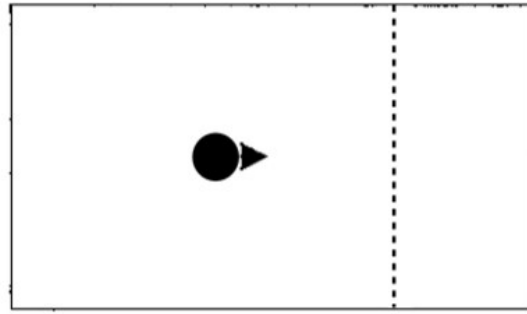


Figure 5.13 Proto-scene of for (Tyler & Evans, 2003: 148)

In Figure 5.13, TR is the black sphere, the arrow is the direction and LM is the dotted line. TR reaches LM, the cause and purpose in this process of movement can be considered. Thus two senses are derived: *purpose* sense and *caused-by* sense.

Purpose

In terms of the *purpose* sense, the purpose of TR is closely related to LM. It should be noted that the purpose sense represents “a change in construal from the proto-scene in which the LM is explicitly not in focus (Tyler & Evans, 2003: 153) “.

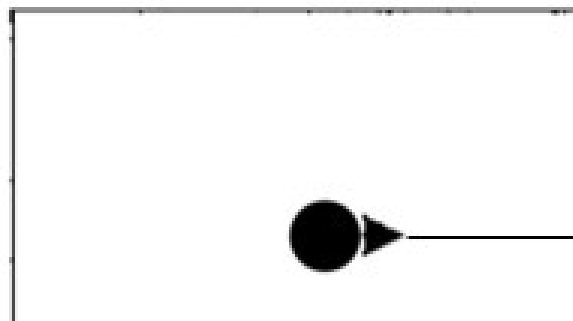


Figure 5.14 Purpose sense

- (19) The aim of this study
- (20) The task of multi-label document classification

In (19) (20), “aim” is an abstract concept, and “task” is a specific thing, which is prepared to serve LM behind “of”, with an intentionality. As is shown in Figure 17, the purpose sense is generated due to the movement of TR to a certain position, and is a manifestation of the purpose of promoting TR to achieve. “Once the implicature of purpose associated with motion has been strengthened, this meaning is free to be generalized to activities that have an ulterior purpose, irrespective of whether they involve motion (Tyler & Evans, 2003: 153)”, and at the same time, reaching the location of LM helps to achieve the original purpose of TR.

Caused-by

The caused-by sense is the root cause of an action, in which a TR produces a series of psychological results or actual physical objects because of the presence of a boundary marker.

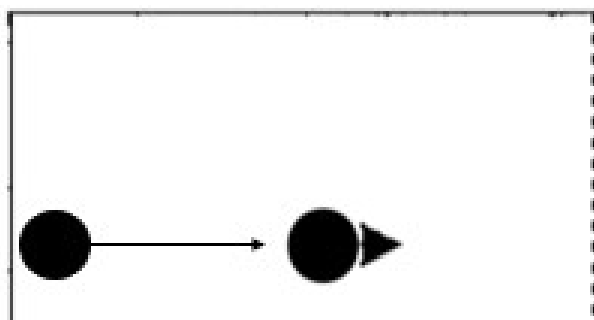


Figure 5.15 *Caused-by* sense

- (21) The result of a confound
- (22) The effect of previous exposure

In (21) (22), the unmoving sphere (LM) acts as a cause and a motive, and the existence of LM is what causes the movement of TR (the sphere with an arrow) to the target (the dotted line). Therefore, “result” is the product of “confound”, “effect” is the product of “previous exposure”. The existence of LM causes the presence of TR.

5.5 Summary

This chapter sorts out 1 proto-scene and 11 senses of “of” in “NP1+of+NP2” in CALA, draws the semantic network for “of” and the spatial relation diagram of each sense, and provides a theoretical foundation for calculating the frequency of “of” in “NP1+of+NP2” in CCLA and CALA in the following chapter, which can further find out the similarities and differences in cognition between two corpora based on statistical data, so as to provide suggestions for preposition teaching.

6 Results and Analysis

The classification of “of” in Chapter 5 has been adopted in CCLA as well. At first, the focus is on the frequency of “of” cluster and sense in CALA and CCLA respectively, and then on the similarities and differences between two corpora by applying the chi-square test.

6.1 General Description of Preposition “of” in CALA and CCLA

The distribution of “of” cluster in the two corpora is given below.

Table 6.1 The distribution of “of” cluster in “NP1+of+NP2” in CALA and CCLA

Cluster	CALA	Percentage	CCLA	Percentage
On cluster	148	37.76%	459	37.41%
Segmentation cluster	109	27.81%	231	27.40%
Source cluster	105	26.79%	305	29.61%
For cluster	29	7.40%	75	4.95%

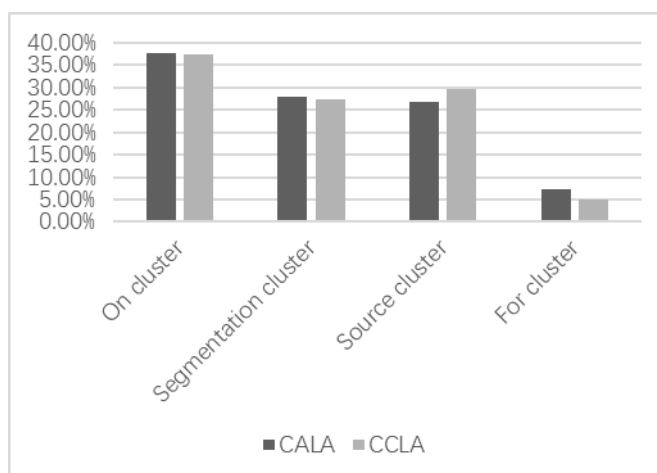


Figure 6.1 The percentage of “of” cluster in “NP1+of+NP2” in CALA and CCLA

It is found that the frequency of *On Cluster* was highest in CALA, up to 37.76%, *Segmentation Cluster* and *Source Cluster* display the similar percentages at 27.81% and 26.79% respectively. *For Cluster* took the smallest proportion at 7.40 %. In CCLA, *On Cluster* occupied the largest account at 37.41%, followed by *Segmentation Cluster* (29.61%), *Source Cluster* (27.40%) and *For Cluster* (4.95%).

Next, the distribution of “of” sense is follows in Table 4.

Table 6.2 The distribution of “of” cluster in “NP1+of+NP2” in CALA and CCLA

Sense	CALA	Percentage	CCLA	Percentage
Proto-scene	1	0.26%	6	0.57%

Of-periphrasis	85	21.68%	235	22.40%
Focus	15	3.83%	56	5.34%
Completed-by	50	12.76%	134	12.77%
Boundary	43	10.97%	69	6.58%
Concern	48	12.24%	164	15.63%
Containing	16	4.08%	57	5.43%
From	58	14.80%	201	19.16%
Belong-to	41	10.46%	77	7.34%
Location source	6	1.53%	3	0.29%
Purpose	13	3.32%	21	2.00%
Caused-by	16	4.08%	26	2.48%
Total	392	100.00%	1049	100.00%

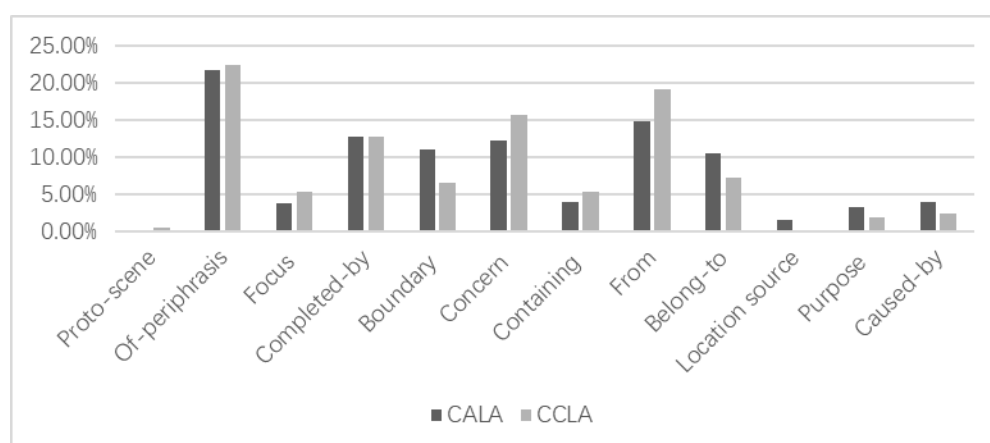


Figure 6.2 The percentage of “of” cluster in “NP1+of+NP2” in CALA and CCLA

From Table 6.2 and Figure 6.2, it is clear that only four senses in CALA were used more than 10%: *of-periphrasis* (21.68%), *from* (14.80%), *completed-by* (12.76%), *concern* (12.24%), *boundary* (10.97%), and *belong-to* (10.46%). All other senses accounted for less than 5% of the total, with the lowest percentage being *proto-scene* at only 0.26%. The *of-periphrasis* sense in the CCLA occupied the most portion of 22.40%, with the three senses of *from*, *concern*, and *completed-by* at 19.16%, 15.63% and 12.77% respectively. In addition, the senses of *belong-to*, *boundary*, *containing* and *focus* took the account between 5% and 10%, and the sense of *caused-by*, *purpose*, *location source* and *proto-scene* only occupied very little, below 5%. The percentage of *location source* sense was the lowest at 0.29%. Therefore, in terms of “of” sense, American students employed frequently the sense of *of-periphrasis*, *from* and *concern* in academic writing, while they adopted few in *proto-scene* and *location source* sense.

6.2 Description of Differences of Preposition “of” in CALA and

CCLA

Next, in order to examine similarities and differences between the “of” cluster and senses in “NP1+of+NP2” in CALA and CCLA, this thesis employs R to analyze the data in two corpora. Table 6.3 lists some parameters in two corpora, including the absolute frequency, and the relative frequency (occurrence per 10,000 words) of each cluster of “of” in two corpora and the chi-square value. The absolute frequency is the frequency drawing from the collected data, while the relative frequencies are mainly based on probabilities, and the data in the two corpora are folded into similar scales before being compared.

Table 6.3 Parameter of “of” cluster in CALA and CCLA

Cluster	CALA		CCLA		Chi-square value (χ^2)
	Absolute frequency	Relative frequency	Absolute frequency	Relative frequency	
<i>On Cluster</i>	169	143.70	459	140.38	85.19**
<i>Segmentation Cluster</i>	140	105.84	231	102.81	61.79 **
<i>Source Cluster</i>	137	101.95	305	111.12	80.25 **
<i>For Cluster</i>	39	28.16	75	18.59	4.26

** Correlation is significant at the 0.01 level (2-tailed).

Table 6.3 shows, in respects of *On Cluster* and *Segmentation Cluster*, the usage frequency of Chinese students was less than that of native English students, and there were significant differences between two corpora ($\chi^2 = 85.19$, $\chi^2 = 61.79$, $p < 0.01$). On the contrary, in light of *Source Cluster*, the usage frequency of Chinese students was more than that of native English students, and there was a significant difference between two corpora ($\chi^2 = 85.19$, $p < 0.01$). However, two corpora hadn't shown any significance in for cluster ($\chi^2 = 11.37$, $p > 0.01$).

Then R was then used to analyze each sense of “of” and Table 6.4 was obtained.

Table 6.4 Parameter of “of” sense in CALA and CCLA

Sense	CALA		CCLA		Chi-square value (χ^2)
	Absolute frequency	Relative frequency	Absolute frequency	Relative frequency	
<i>Of-periphrasis</i>	85	82.53	235	92.93	70.31**
<i>Focus</i>	15	14.56	56	22.14	23.68**
<i>Concern</i>	48	46.61	164	64.85	63.47**
<i>Completed-by</i>	50	48.55	134	52.99	38.35**
<i>Boundary</i>	43	41.75	69	27.28	6.04
<i>Containing</i>	16	15.54	57	22.54	23.03**
<i>From</i>	58	56.32	201	79.48	78.95**
<i>Belong-to</i>	41	39.81	77	30.45	10.98**

** Correlation is significant at the 0.01 level (2-tailed).

Table 6.4 lists the relative frequencies, the absolute frequencies and chi-square values in two corpora. Due to the insufficient sample size and low absolute frequencies of the *location source* sense and the *proto-scene*, we do not count those which can lead to variability in the results. From Table 6.4, it can be seen that American students applied the senses of *of-periphrasis*, *focus*, *concern*, *completed-by*, *containing* and *from* less frequently than Chinese students, but the differences were significant ($\chi^2 = 70.31$, $\chi^2 = 23.68$, $\chi^2 = 63.47$, $\chi^2 = 38.35$, $\chi^2 = 23.03$, $\chi^2 = 78.95$, $p < 0.01$). Chinese students prefer to employ a lot of *of-periphrasis* sense in the writing, which supports the findings of Liu and Chen (2019) on the nominalization used by Chinese and native English students. In terms of *belong-to* sense, American students employed it more frequently than Chinese students, and the difference was significant ($\chi^2 = 10.98$, $p < 0.01$). However, the *boundary* sense between Chinese and American students did not show any significant difference ($\chi^2 = 6.04$, $p > 0.01$).

6.3 Analysis of Differences and Similarities of Preposition “of” in CALA and CCLA

In the process of learning English, Chinese learners may be affected more or less by some factors like reality, cognition, language and culture. As for human’s cognition, the similarity of human experience or attitude towards the same object determines the similarity of language expression, while the different experience or attitude towards the same object leads to the diversity of language expression (Wu et al, 2019: 406). Therefore, this chapter will explore the reasons for the formation for similarities and differences of “of” sense in two corpora.

6.3.1 Causes of Similarities

According to the results above, there is no difference in the sense of boundary, purpose and caused-by between two corpora, which implies that American and Chinese students have the same perception towards these four senses. This perception includes two aspects: memory storage and the same profile.

Memory storage. Cognitive empirical theory believes that verbal cognition is empirical, which means that it originates from the interaction between the body and the world (Gao, 2009: 140). In the process of social development, there will be cross-cultural consistency between Chinese and English (Wu et al, 2019: 205): under two or more cultures, humans in their respective cultures have the same cognition of a certain thing to construct the same mental image schema. Downing & Locke (2006) points out that the spatial position and its change are the basic type of relation guided by prepositions. Next, we can observe the consistency of English and Chinese. Liu (2011) once interprets the metaphorical meaning of the Chinese “里、中、内” and finds that all three of them can represent “scope, field and category”, which is similar to the boundary sense of “of”.

- (1) 五个人里/城市中/房间内
- (2) A diverse social group of individuals/ the category boundary of the subsequent target VOT (From CALA)

It can be seen that the (1) and (2) express the boundary, and both “里、中、内” and “of” play the same role in two phrases. Therefore, Chinese English learners will take the initiative to apply the boundary sense based on the similar memories between Chinese and English.

The same profile. Langacker (1987) deems that certain parts of the spatial scene could be profiled. In the spatial scene, “of” is used to indicate the relation between NP1 and NP2, and there are needs to profile purpose and cause.

- (3) The aim of this study/The specific purpose of studying classroom culture (from CALA)
- (4) The communicative purposes of introduction and promotion/The goal of translation (from CCLA)
- (5) The influence of Cajun French/ the result of a confound (from CALA)
- (6) The effect of task complexity / the result of the final vote (from CCLA)

The *purpose* sense of “of” in (3) and (4) implies a thrust from TR to LM, and the words “aim, purpose, goal” take the words behind “of” as the destination. LM is specific to TR, and the existence of TR serves LM. Tyler and Evans (2003: 143) describe this act as an “oblique goal”. Although LM is not the focus of the sentence, it is the result of TR's tendency. Therefore, it can come to a conclusion that the cognition of Chinese and American students shows their consistent purpose, thus both of them adopt the purpose sense of “of”. Similarly, in (5) and (6), “influence, result, effect” are all the results of LM, so LM is the cause of TR, and this kind of “oblique goal” changes the position of TR and LM.

6.3.2 Causes of Differences

English spatial relations are generally expressed by prepositions, but Chinese spatial relations are expressed by noun of locality which is a kind of “geometric language” (Liu, 1994: 178). However, prepositions in Chinese are quite different from English prepositions in terms of form and meaning. These characteristics from English exert some difficulties for Chinese learners in English learning. Next, we can explore the cause of differences in the cognitive model, the preposition substitution, the language borrowing and the use of metaphorical meaning.

The cognitive models are difficult to switch. Becker & Carroll (1997) believe that the acquisition of the meaning of spatial prepositions by foreign language learners is to a large extent the result of the reconstruction of the spatial concept system of their native language. Chinese students themselves have an inherent cognitive model of spatial relations in their own language, but Chinese prepositions have no specific meaning, and only function as empty words (Lu, 2016: 85). In English, prepositions are maximized, and their spatial relations can be illustrated graphically. In other words, rich prepositions encourage English learners to tend to express the schematized spatial relations, giving the objective space a more vivid expression in a subjective way; while Chinese adopt “preposition + noun of locality” or “noun of locality” to describe most of the spatial relations (Fan, 2016: 167). According to statistics from the book *Examples of function words in modern Chinese*, there are 93 Chinese prepositions and only 20 are commonly used prepositions; Curme (1937: 562-566) researched that there are about 285 English prepositions (Sun, 2006: 70, 72). Hence, when it comes to the expression of

spatial relation, Chinese and English cannot reach an agreement. For example, the *containing* sense and the *boundary* sense cannot be found in Chinese prepositions. Chinese learners apply English prepositions through Chinese thinking habits, which is inevitable to cause pan-categorization in the cognitive process (Allport, 1954). It leads to the phenomenon that there is a frequency difference between Chinese students and native students in the *belong-to* sense and the *containing* sense. In addition, we can clearly see the difference in the *completed-by* sense through some examples.

(7) Learners of English/The letter level of visual processing (CALA&CCLA)

(8) 生于名门/始于二十世纪

In (7), LM is a complement to TR: “English” is the complement of using skills to the noun “learner”, and “visual processing” is a complement of the source to the noun “letter level”. In (8), “名门” is a complement of environment to the verb “生”, and “二十世纪” is a complement to the time to the verb “始”. The supplementary objects are different, but the learning memory of English learners will be affected. In the process of learning English, Chinese learners will produce explicit memory for the knowledge they have learned, which is a branch of long-term memory (Gui, 2000: 108). This kind of memory recalls stored knowledge or content and can be used consciously. Besides, the language structure of complement exists in both English and Chinese. From a functional perspective, both Chinese and English complements play the role of supplementary explanation (Xue, 2010: 263). In the structure of “NP1+of+NP2”, NP2 is a restriction supplement to NP1 and can designate a range. However, the “language expression and syntactic structure of Chinese complements are more complicated, while the expression of English complements is not complicated (Wang & Peng, 2018: 89)”, which may lead to the misuse of the *completed-by* sense.

The phenomenon of preposition substitution is common. In cognitive linguistics, the spatial structure of English prepositions is generally represented by the image scheme. This cognitive embodiment of the cognitive system of spatial relations generates the overlapping between prepositions. That is to say, the spatial relation mapping process inevitably projects the function of prepositions into the space (Zhang & Sun, 2017: 47). Bowerman and Pederson (1992) have drawn a conclusion from a cross-language comparison that English concludes “support” and “attachment” as a category, and “contains” is another category, but Spanish regards them as the same category that can be expressed by the preposition “en” (corresponding to the English preposition “in” or “on”). It can be drawn that the most basic image schema in these

categories of “on” is “contact”. Derived from this underlying image schema, it can be derived from the cognitive domain to the spatial domain, the meaning of “concern” is produced. Meanwhile, Girju (2008: 202) proposes that “of” and “on” share the same function in topic expression, such as “policy on asylum, story of love”. Their underlying image schemas have common characteristics, and in the cognitive process, their respective image schemas of the source domain project the same spatial domain, thus resulting in the shared semantics between them.

The phenomenon of language borrowing exists for a long time. As early as the 8th century, the possession case and its alternative word “of” in Old English were full of change, and in some documents (Adam, 1829: 200), it was implied that “of” could replace the Latin “ab, de and ex”; in the Middle Ages, under the dual influence of Latin and French, “of” slowly merged into the usage of the French preposition “de”, “further cementing the displacement of the native genitive case marker (Tyler & Evans, 2003: 209)”. The diachronic nature of the preposition “of” makes it contain the meaning of the borrowed word “de”. Through research (Girju, 2008: 202), it can be found that compared with other prepositions, the most special meaning of “of” is the meaning of possession, that is, the whole-part relationship: “functional element of intrinsic relationship (Tyler & Evans, 2003: 211)”, corresponding to the *from* sense. According to 6.2, the *from* sense was applied frequently, and shows that “it is stored on the surface in the memory of language users and the activation level is the highest (Zhang & Sun, 2017: 47)”. Therefore, in the process of English writing, Chinese students tend to choose familiar meanings based on this memory, leading to the phenomenon of overuse.

The metaphorical meaning has been used often. The English people pay more attention to the separation of the concept of space from themselves by using a large number of prepositions with various meanings to express various spatial relations, and further undergoes the configuration of metaphoricalization, thus bringing the polysemy of prepositions (Xie, 2007: 168). There are cases of metaphors in “NP1+of+NP2”, which can be obtained from a few collocations and fixed phrases.

(9) In terms of argument ellipsis/就论证省略而言 (from CALA)

(10) in light of this complexity/鉴于这种复杂性 (from CALA)

“Term” originally means “terms, words, relations, etc. (Longman Dictionary, 2014: 2623)”. The phrase “in terms of” means “interpretation according to something”. In (9), here the “terms” contains all elements of “argument ellipsis”. In (10), “light” itself is about “light/ light source”, and the light source/light can cover a wide range where the

feature of “complexity” rests. Therefore, “terms” and “light” are the target domains of the mapping, and the source domains are “language” and “characteristics” respectively. Here, a metaphorical expression of a single focus is adopted. In general, the situations and information expressed by English prepositions are much richer, while the metaphorical usage of Chinese prepositions is very limited (Xu & Cheng, 2011: 45). In addition, in terms of the *of-periphrasis* sense, English nominalization is a unique linguistic phenomenon, which converts verbs into nouns. This is ideational grammatical metaphor (Halliday, 1994), which not only reflects substantive meaning but also reflects process meaning (Liu & Chen, 2019: 18). However, the use of too much *of-periphrasis* sense will make the article more complicated, not in line with the writing habits of English native speakers, and even being the characteristics of Chinglish (Pinkham, 2000: 170; Lian, 1993: 134).

6.4 Teaching Suggestions

6.4.1 Improvement of the Preposition Contrast Teaching Method

Chinese and English prepositions are different, but they also have similarities. Both English and Chinese prepositions can be used as connectives, and both contain verb attributes (Sun, 2016: 72), but English prepositions can not only express position and location, but also serve as verbs, adverbs, etc., so that some preposition phrases, noun phrases and verb phrases are produced. And there is a lack in Chinese preposition compared with English preposition. Therefore, to learn English prepositions, we must clarify the similarities and differences between English and Chinese prepositions well. The senses of preposition in daily life differ from those in academic writing. For instance, the “of” senses of location source and material source can be found few in academic writing. Besides, the comparison between groups deserves further exploring, for example, “of”, “on” and “about” all indicate the meaning of “concern”.

6.4.2 The Integration of Cultural and Historical Factors

The learning process is a process from simplicity to difficulty, to acquire knowledge from concrete to abstract. For the cross-language comparison of prepositions,

teachers can focus on the history of prepositions in English and Chinese, and learners can understand the origin of prepositions and focus on their usage. The cultural factors carried by the prepositions themselves cannot be ignored, and the cultures embodied by the prepositions of the two languages are extremely different, which cannot be separated from certain historical aggressions and historical conquests. Preposition teaching not only allows learners to understand the use of prepositions, but also realizes the docking and integration of foreign culture and native culture, and at the same time the preposition teaching can be interesting for learners. Learners can search for more prepositions, revealing the historical background of prepositions in academic writing.

6.4.3 Combination with Imagery Patterns in Preposition Teaching

In the process of language learning, it is necessary for learners to grasp the proto-scene of the preposition, but also attach importance to other extensions. If we can apply the image schema to the situational teaching, we can “suit the remedy to the case” for the preposition. According to the image schema, a hierarchical teaching method can also be used. The proto-scene and the senses proximity to the proto-scene can be emphasized through the comparison to find similarities and differences, and then the attention should be paid to more difficult senses or clusters by using the same method. This image schema can help learners distinguish the senses and bring out its effect.

6.5 Summary

This chapter discusses the usage of the preposition “of” in “NP1+of+NP2” in CALA and CCLA, and obtains the result that *On Cluster* in two corpora are used the most frequently and *For Cluster* are the least frequently used. In terms of senses, the most frequently sense is *of-periphrasis*. Through the chi-square test, the distribution of “of” sense and cluster in two corpora also show similarities and differences, which are inseparable from the reality, culture, and cognition behind Chinese and English. At the same time, some feasible suggestions can be made for English preposition teaching based on the similarities and differences.

7 Conclusions and Implications

7.1 Research Findings

There are three major findings in this thesis: first, based on the Principled Polysemy Network Model, this thesis finds four clusters of “of” in CALA, namely, *On Cluster*, *Segmentation Cluster*, *Source Cluster* and *For Cluster*, containing 11 senses: *of-periphrasis*, *focus*, *concern*, *completed-by*, *boundary*, *containing*, *from*, *belong-to*, *location source*, *caused-by* and *purpose*. Second, in terms of “of” cluster in CALA, the frequency in a descending order is as follows: *On Cluster*, *Segmentation Cluster*, *Source Cluster* and *For Cluster*; the *of-periphrasis* sense occupies the most account, followed by the senses of *from*, *completed-by*, *concern*, *boundary* and *belong-to*, and the proportion of *proto-scene*, the *caused-by* sense, the *purpose* sense, the *containing* sense and the *location source* sense is less than other sense, among which the *proto-scene* accounts for the least. In terms of “of” cluster in CCLA, the frequency in a descending order is as follows: *On Cluster*, *Source Cluster*, *Segmentation Cluster* and *For Cluster*; the *of-periphrasis* sense also takes up the most, the *from* sense comes the second, followed by the senses of *concern* and *completed-by*. The *proto-scene* and the senses of *location source*, *caused-by* and *purpose* occupy the less proportion, among which the *location source* sense takes up the least part. Last, through the chi-square test, there is no difference in the senses of *boundary*, *caused-by* and *purpose*, but there are differences in the senses of *of-periphrasis*, *concern*, *containing*, *from*, *belong-to*, *completed-by* and *focus*. After analyzing the underlying cause of the result, we find that the similarities lie in two respects: the same storage memory and the same profile, and the differences reside in multiple aspects, including the different cognitive model in Chinese and English, the polysemy of preposition, the language borrowing and the application of metaphorical meaning. By means of the analysis on the similarities and differences, some suggestions on preposition teaching in English can be proposed effectively, including the improvement of preposition comparison, the integration with culture and history and the application of image schema.

7.2 Research Implications

7.2.1 Theoretical Insights

First, from the perspective of cognitive linguistics, this research puts the English preposition “of” in “NP1+of+NP2” in CALA into the Principled Polysemy Network Model, and explores the “of” clusters and senses on the foundation of the proto-scene of “of”. For example, the preposition “of” in the expression of nominalization does not only play a connecting role, but also function as a way of periphrasis; when the preposition “of” lies describes two independent words, it reflects the meaning of concern. The semantic network for “of” tells that the spatial relation of preposition can be presented by the image schema.

Second, the results of this research have enlightening significance for the teaching of prepositions. Recent year has witnessed the development of preposition teaching from conceptual metaphor to categorization, from spatial interpretation to the semantic network (Jarvis & Odlin, 2000; Wu, 2013; Hu, 2011). Some research probe into the semantics of prepositions “over, in, to, from” from the Principled Polysemy Network Model (Tyler & Evans, 2003; Zhang, 2010; Bebeniec, 2010), but there are few cognitive studies focusing on the preposition “of”. The Principled Polysemy Network Model provides a new way of preposition cognition and rethinking for learners (Robinson & Ellis, 2008: 521).

7.2.2 Practical Value

Firstly, this thesis attempts to improve learners' understanding of preposition polysemy. According to the results of this research, the semantic network can be inserted into the teaching of prepositions to clearly show the English learners every semantic sense, as well as the problem of misuse or underuse of these senses, and stimulate learners to think about the relationship between NP1 and NP2 actively when writing.

Secondly, it reveals the functions of culture and metaphorical meaning. The similarities and differences tell us that the cultural factor is an important manifestation of the differences between English and Chinese prepositions. Then, understanding the necessary cultural knowledge can not only broaden the horizon of learners, but also correct some errors in applying these senses. Furthermore, the metaphorical meaning

should also be the focus in the preposition teaching.

7.3 Research Limitations

This thesis adopts two self-built corpora, and the research subjects are native English learners and advanced Chinese English learners. The readers are supposed to bear in mind that this research is based on a small sample. The sample data collected in this study is not large enough to cover all the senses. In addition, this study is only a synchronic study, lacking diachronic and qualitative experiments to demonstrate the results of this article. Last, the corpora in this study are in a small scale, not including all the universities, and the universities listed in the appendix are not classified as well.

References

- [1] Adam, A. (1829). *Adam's Latin Grammar: With Some Improvements and the Following Additions*. New York: Harvard College Library.
- [2] Al-Marrani, A. M. Y. (2009). A comparative and contrastive study of preposition in Arabic and English. *Language in India*, 9(7), 47-68.
- [3] Allport, G. W. (1954). *The Nature of Prejudice*. Cambridge, MA: Addison-Wesley.
- [4] Andrzej P. (2009). *Prepositional Network Models: A Hermeneutical Case Study*. Poland: Jagiellonian University Press.
- [5] Bebeniec, D. (2010). *Directional Prepositions in Polish and English. Towards A Cognitive Account*. Doctoral Dissertation. Maria Curie-Skłodowska University.
- [6] Becker, A., Carroll, M. (1997). *The Acquisition of Spatial Relations in a Second Language*. Amsterdam: John Benjamins.
- [7] Bowerman, M. and E. Pederson. (1992). Cross-linguistic perspectives on topological spatial relations. Paper presented at the annual meeting of the American Anthropological Association, San Francisco, December.
- [8] Brugman, C. (1981). *The Story of Over*. M. A. Thesis. Linguistics Dept, University of California, Berkeley.
- [9] Busa, F., Johnston, M. (1996). Cross-linguistic semantics for complex nominals in the generative lexicon. In AISB Workshop on Multilinguality in the Lexicon, Sussex.
- [10] Carlson, L., Covell, E. (2005). Defining Functional Features for Spatial Language. In Laura Carlson and Emile van der Zee (eds.). *Functional Features in Language and Space: Insights from Perception, Categorization, and Development*. Oxford: OUP.
- [11] Correa-Benningfield, M. R. (1990). Prototype and Second Language Acquisition. *Revue de Phonétique Appliquée*, (95-97), 131-135.
- [12] Coventry, K. R., Garrod, S. C. (2004). *Saying, Seeing, and Acting: The Psychological Semantics of Spatial Prepositions*. Hove and New York: Psychology Press.
- [13] Coventry, K. R., Prat-Sala, M., Richards, L. (2001). The interplay between geometry and function in the comprehension of 'over,' 'under,' 'above' and 'below'. *Journal of Memory and Language*, (44), 376-398.
- [14] Coventry, K.R., Carmichael, R., Garrod, S.C. (1994). Spatial prepositions, object-specific function and task requirements. *Journal of Semantics*, (11), 289-309.
- [15] Curme, O., G. (1937). *Syntax*. Boston & Tokyo: D. C. Heath and Company & Maruzen Company Limited.
- [16] Daria B. (2010). *Directional Prepositions in Polish and English: Toward a Cognitive Account*. Ph.D. Dissertation. Województwo lubelskie: Maria Curie-Skłodowska University.
- [17] Dewell R B. Over again: Image-schema transformations in semantic analysis. *Cognitive Linguistics*, 1994, 5(4):351-380.
- [18] Downing, A., Locke, P. (2006). *English Grammar: A University Course (Second Edition)*. London & New York: Routledge.
- [19] Downing, A., Philip, L. (2006). *English Grammar: A University Course (Second Edition)*. London & New York: Routledge.

- [20] Evans, V. (1995). The Meaning of Time: Polysemy, the Lexicon and Conceptual Structure. *Journal of Linguistics*, (41), 33-75.
- [21] Evans, V., Tyler, A. (2005). Applying cognitive linguistics to pedagogical grammar: the English prepositions of verticality. *Revista Brasileira de Linguística Aplicada*, 5(2), 11-42.
- [22] Fillmore, C. (1985). Frames and the semantics of understanding. *Quaderni di Semantica*, 6 (2), 222-254.
- [23] Frenda, Alessio S. (2005). Cross-linguistic comparisons: a case study involving Irish and Italian Prepositions. *The ITB Journal*, 6(2), 23-29.
- [24] Fujii, K. (2016). Effects of Learners' English Proficiency Level in Learning English Prepositions through the Schema-Based Instruction. *English Language Learning*, 9(10), 121-132.
- [25] Gärdenfors, P. (2015). The Geometry Of Preposition Meanings. *Baltic International Yearbook of Cognition, Logic and Communication*, (10), 2-33.
- [26] Garrod, S., Ferrier, G., Campbell, S. (1999). In and On: Investigating the functional geometry of spatial and semantic co-ordination. *Cognition*, (27), 181-218.
- [27] Girju, Roxana. 2009. The syntax and semantics of prepositions in the task of automatic interpretation of nominal phrases and compounds: A cross-linguistic study. *Computational Linguistics*, 35(2):185-228.
- [28] Halliday, M. A. K. (1994). *An Introduction to Functional Grammar* (2nd edn.). London: Edward Arnold.
- [29] Hawkins, B. W. (1993). On Universality and variability of spatial adpositions. In Zelinsky-Wibbet, C. (eds). *The Semantics of Prepositions. From Mental Processing to Natural Language Preprocessing*. Berlin and New York: Mouton de Gruyter.
- [30] Hung, B. P. (2017). Vietnamese students learning the semantics of English prepositions. *GEMA Online Journal of Language Studies*, 17(4), 14-27.
- [31] Hung, B. P., Vien, T., Vu, N. N. (2018). Applying Cognitive Linguistics to Teaching English Prepositions: A Quasi-Experimental Study. *International Journal of Instruction*, 11(3), 327- 346.
- [32] Ijaz, H. (1986). Linguistic and Cognitive Determinants of Lexical Acquisition in a Second Language. *Language Learning*, 36(4), 401-451.
- [33] Jarvis, S., & Odlin, T. (2000). Morphological Type, Spatial Reference, and Language Transfer. *Studies in Second Language Acquisition*, 22, 535-555.
- [34] Jarvis, S., Pavlenko, A. (2008). *Crosslinguistic Influence in Language and Cognition*. New York: Routledge.
- [35] Johnson, M. (1987). *The Body in the Mind: The Bodily Basis of Meaning, Imagination and Reason*. Chicago: University of Chicago Press.
- [36] Johnston, M., Busa, F. (1996). Qualia structure and the compositional interpretation of compounds. In Evelyne Viegas, editor, *Breadth and Depth of Semantics Lexicon*, Kluwer Academic, Dordrecht, 77-88.
- [37] Karvovskaya, Lena. (2018). *The typology and formal semantics of adnominal possession*. Doctoral dissertation, Leiden University.
- [38] Kang, Y. (2012). *Cognitive Linguistics Approach to Semantics of Spatial Relations In Korean*. Ph.D. Dissertation. Georgetown: Georgetown University.

- [39] Kelleher, J D., Costello, J. F. (2009). Applying Computational Models of Spatial Prepositions to Visually Situated Dialog. *Computational Linguistics*, 35(2), 271–306.
- [40] Kordoni, V. (2005). Prepositional arguments in a multilingual context. In Patrick Saint-Dizier, editor, *Syntax and Semantics of Prepositions*, volume 29 of *Text, Speech and Language Technology*. Springer, Dordrecht, 307–330.
- [41] Kreitzer, A. (1997). Multiple Levels of Schematization: A Study in the Conceptualization of Space. *Cognitive Linguistics*, 8(4), 291-325.
- [42] Kordoni, V. (2005). Prepositional arguments in a multilingual context. In Patrick Saint-Dizier, editor, *Syntax and Semantics of Prepositions*, volume 29 of *Text, Speech and Language Technology*. Springer, Dordrecht, 307–330.
- [43] Lakoff, G. (1987). *Women, Fire, and Dangerous Things-What Categories Reveal about the Mind*. Chicago: The University of Chicago Press.
- [44] Lakoff, G. M Turner. *More than Cool Reason: A Field of Guide to Poetic Metaphor*. Chicago and London: The University of Chicago Press, 1989.
- [45] Lakoff, G., Johnson, M. (1980). *Metaphors We Live By*. Chicago: The University of Chicago Press.
- [46] Langacker, R. (1987). *Foundations of Cognitive Grammar. Vol. 1: Theoretical Prerequisites*. Stanford: Stanford University Press, 315-320.
- [47] Langacker, R.W. (1999). *Grammar and conceptualization*. Berlin: Mouton de Gruyter.
- [48] Lapata, M., Keller, F. (2005). Web-based models for natural language processing. *ACM Transactions on Speech and Language Processing*, (2), 1–31.
- [49] Ma S. (2005). *Spatial Categorization Constraints on English Prepositional Semantics Acquisition by Chinese EFL Learners*. Ph.D. Dissertation, Guangdong University of Foreign Studies.
- [50] Mahmoodzadeh, M. (2012). A Cross-linguistic Study of Prepositions in Persian and English: The Effect of Transfer. *Theory and Practice in Language Studies*, 2(4), 734-740.
- [51] Moldovan, D., Badulescu, A. (2005). A semantic scattering model for the automatic interpretation of genitives. In *Proceedings of Human Language Technology Conference and Conference on Empirical Methods in Natural Language Processing*, Vancouver, 891–898.
- [52] Nerlich, B., & Clarke, D. (2003). Polysemy and flexibility: Introduction and overview. In B. Nerlich, Z. Todd, V. Herman & D. Clarke (Eds.), *Polysemy: Multiple patterns of meaning in mind and language* (pp. 3-30). Berlin: Mouton de Gruyer.
- [53] O'Dowd, E.M. (1998). *Prepositions and Particles, a Discourse-functional Account*. New York: Oxford University Press.
- [54] Pinkham, J. (2000). *The Translator's Guide to Chinglish*. Beijing: Foreign Languages Teaching and Research Press.
- [55] Robinson, P., Ellis, N. C. (2008). Conclusion: Cognitive Linguistics, Second Language Acquisition and L2 Instruction—Issues for Research. In P. Robinson & N.C. Ellis (eds.), *Handbook of Cognitive Linguistics and Second Language Acquisition*, 489-545.
- [56] Saeed, J. I. (2000). *Semantics*. Beijing: Foreign Language Teaching and Research Press.
- [57] Shintani, M., Mori, K., Ohmori, T. (2016). Image schema-based instruction in English grammar. In P. Clements, A. Krause, & H. Brown (Eds.), *Focus on the learner*. Tokyo: JALT, 285-296.

- [59] Song, X., Schnotz, W., Juchem-Grundmann, C. (2015). A cognitive linguistic approach to teaching English prepositions. In Schnotz W., Kauertz A., Ludwig H., Müller A., Pretsch J. (eds) *Multidisciplinary Research on Teaching and Learning*. Palgrave Macmillan, London, 109-128.
- [60] Sweetser, E. E. (1990). *From etymology to pragmatics: metaphorical and cultural aspects of semantic structure*. Cambridge: Cambridge University Press.
- [61] Talmy, L. (1983). *How language structures space*// Pink, H., Acredolo, L. *Spatial Orientation: Theory, Research, and Application*. New York: Plenum Press.
- [62] Taylor, J. R. (2003). *Linguistic Categorization: Prototypes in Linguistic Theory*. New York: Oxford University Press.
- [63] Tarigan, K. E. (2016). A Comparative Study between English and Karo Language of Prepositional Phrases. *Metholangue* 1(1), 1-8.
- [64] Tversky, B. (2005). Form and function. In Carlson, I, & Zee, E. V. D. (eds). *Functional Features in Language and Space: Insights from Perception, Categorization and Development*. New York: Oxford University Press.
- [65] Tyler, A., Evans, V. (2001). Reconsidering Prepositional Polysemy Networks: The Case of Over. *Language*, 77.
- [66] Tyler, A., Evans, V. (2003). *The Semantics of English Prepositions: Spatial Scenes, Embodied Meaning and Cognition*. Edinburgh: Cambridge University Press.
- [67] Tyler, A., Mueller, C., Ho, V. (2011). Applying Cognitive Linguistics to Learning the Semantics of English to, for and at: An Experimental Investigation. *Vigo International Journal of Applied Linguistics*, 8, 181-205.
- [68] Ungerer, F., H. J. Schmid. (2001). *An Introduction to Cognitive Linguistics*. Beijing: Foreign Language Teaching and Research Press.
- [69] Vandeloise, C. (2008). Three basic prepositions in French and in English: a comparison. *Carnets de Grammaire*, 19. Toulouse: CLLE-ERSS report.
- [70] 蔡建峰等. (2014). *朗文当代高级词典(第五版缩印版)*. 北京: 外语教学与研究出版社.
- [71] 蔡建平. (1999). 介词的认知语义研究. *外语与外语教学*, (08), 11-13+57.
- [72] 陈晓湘, 许银. (2009). 意象图式理论对多义介词 On、Over、Above 习得作用的实证研究. *外语与外语教学*, (09), 18-23.
- [73] 范彩霞. (2016). 汉英空间方位表达的认知对比研究. *黑龙江高教研究*, (02), 165-167.
- [74] 高治东. (2009). 空间介词多义性的哲学认知研究——以英语介词 over 为例. *西北大学学报(哲学社会科学版)*, 39(01), 138-142.
- [75] 龚波, 余云峰. (2014). 基于英汉空间语义对比分析的英语空间介词习得实证研究. *湖北民族学院学报(哲学社会科学版)*, 32(02), 128-132.
- [76] 桂诗春. (2000). *新编心理语言学*. 上海: 上海外语教育出版社.
- [77] 胡丹. (2011). “原型范畴理论”对英语介词教学的指导意义——以介词 “in” 的多义性为例. *教学与管理*, (18), 101-102.
- [78] 黄月华, 白解红. (2006). 英语介词多义研究之我见——over 例析. *外语与外语教学*, (11), 4-7.
- [79] 霍恩比著, 李北达译. (2002). *牛津高阶英汉双解词典(第四版增补本)*. 北京: 商务印书馆.
- [80] 李佳, 蔡金亭. (2008). 认知语言学角度的英语空间介词习得研究. *现代外语*, (02), 185-193+220.

- [81] 连淑能. (1993). 英汉对比研究. 北京: 高等教育出版社.
- [82] 刘宁生. (1994). 汉语怎样表达物体的空间关系. 中国语文, (03), 169-179.
- [83] 刘平. (2012). 论英语介词的词类兼跨现象——认知语法视角. 扬州大学学报(人文社会科学版), 16(02), 117-122.
- [84] 刘平. (2009). 英语介词界标的隐显机制研究(一). 外国语文, 25(03), 71-78.
- [85] 刘平. (2019). 英语介词习语的语义构建及翻译——以 BNC 语料库中 “out of sight, out of mind” 构式为例. 外语研究, 36(01), 89-94+111.
- [86] 刘艳, 李金屏. (2011). 在介词教学中运用概念隐喻的可行性研究——以 in 为例. 解放军外国语学院学报, 34(02), 61-64+119+128.
- [87] 刘永芳, 陈宗利. (2019). 中外硕士学位论文英文标题的名词化特征实证性研究. 外语教学, 40(05), 18-23.
- [88] 陆淼焱. (2016). 介词在汉语语法体系中的定位及语义衍生模式. 语文建设, (02), 85-86.
- [89] 马书红. (2008). 英汉空间范畴化对比分析——以 in、on 和(在)……上、(在)……里为例. 贵州师范大学学报(社会科学版), (01), 132-136.
- [90] 马书红. (2010). 英语空间介词语义成员的分类与习得——基于范畴化理论的实证研究. 解放军外国语学院学报, 33(04), 64-69+127.
- [91] 马书红. (2007). 中国学生对英语空间介词语义的习得研究. 现代外语, (02), 173-183+219-220.
- [92] 明宏. (2016). 英语空间方位介词的语义关联性研究——以 over 和 above 的比较为例. 上海师范大学学报(哲学社会科学版), 45(03), 127-133.
- [93] 孙一. (2006). 从英汉介词的特性对比英汉介词用法. 华中师范大学学报(哲学社会科学版), (1), 70-73.
- [94] 陶文好. (1998a). LM(界标)的种类以及它和 TR(射体)的关系. 四川外语学院学报, (03), 85-88.
- [95] 陶文好. (1998b). 几个方位介词对 TR 和 LM 空间意义的影响. 外语与外语教学, (09), 18-20.
- [96] 王红莉. (2009). 从介词 over 的翻译看其意象图式的跨语言映射——基于语料库的个案分析. 外语电化教学, (04), 12-16.
- [97] 王嘉天, 彭爽. (2018). 美国学生习得汉语动量补语的认知过程. 汉语学习, (06), 83-92.
- [98] 魏本力, 殷耀, 陆蓉. (2007). 处所介词短语的时空认知对应. 外语教学, (03), 16-19.
- [99] 吴白音那. (2013). 基于概念隐喻理论的介词教学研究——以介词 “within” 教学为例. 内蒙古师范大学学报(教育科学版), 26(01), 116-118.
- [100] 吴思娜, 刘梦晨, 李莹丽. (2019). 具身认知视角下汉语二语情感词的空间隐喻. 世界汉语教学, 33(03), 405-416.
- [101] 谢之军. (2007). 隐喻认知功能探索. 上海: 复旦大学出版社.
- [102] 徐丹, 李瑛. (2008). OUT 的意象图式及其认知域投射. 西南民族大学学报(人文社科版), 29(S1), 129-132+2.
- [103] 徐庆利, 刘振前, 蔡金亭. (2014). 参照物范畴化对中国学习者英语空间介词 in 使用的影响. 外语教学与研究, 46(05), 723-734+800-801.
- [104] 许梦卿, 程晓堂. (2011). 非英语专业大学生英语作文中介词 IN 的语义使用情况——一项基于语料库的研究. 外语与外语教学, (05), 43-46.
- [105] 薛妍妍. (2010). 汉英补语对比研究. 中国科技信息, (16), 262-263.

- [106] 岳好平, 向友青. (2009). 原型范畴化理论视域下“from”的空间隐喻拓展. 湖南大学学报(社会科学版), 23(04), 94-98.
- [107] 张会平, 刘永兵. (2013). 语言相对论视域下的英语隐喻性介词学习与概念迁移. 外语教学, 34(05), 51-55.
- [108] 张金生, 齐振海. (2009). 介词意义中的功能成分. 外语教学, 30(03), 7-12.
- [109] 张金生, 孙冬阳. (2017). 汉英空间介词“上”和“on”的认知语义对比——一项基于语料库的研究. 解放军外国语学院学报, 40(03), 45-53.
- [110] 张金生. (2008). 空间介词意义的网络结构模式. 北京第二外国语学院学报, (04), 40-46.
- [111] 张琳. (2010). 原则性多义模式视域下的空间介词语义结构研究——以介词 In 为例. 西安外国语大学学报, 18(04), 23-26.
- [112] 钟兰凤, 陈希卉. (2015). 学术英语隐喻产出能力研究. 现代外语, 38(03):386-395.

Appendix A

Theses from native English learners

No.	Author	The name of thesis	University	Graduation year
1	Hannah Bingham Brunner	The Giver as content-based reading instruction: Student beliefs about using literature for ESL.	Iowa State University	2016
2	Vartan Haghverdi	Armenian schwa: a phonetic and phonological analysis.	Rutgers University	2016
3	Isaac W. Fisher	Transfer of stylistic phonetic variables indexing sexuality in second language contexts	Kansas State University	2016
4	Jean Baptiste Nzanana	Language learning motivation and oral proficiency in learners of English as a foreign language : the case of university students in Rwanda.	Michigan State University	2016
5	Adam Liter	The acquisition and syntax of the passive in English.	Michigan State University	2016
6	Alexandra Barrett Berrie	Men Are from Mars, Women Are from Mauritius: International Students' Perceptions of Gender in an IEP Classroom	California State University, Los Angeles	2018
7	Peter W. Carrillo	Language in the U.S. and the Law: A Corpus Analysis of the Language of Language Policy	University of Kansas	2017
8	Tyler Theyerl	Multi-Word Verbs in Prerecorded Instructor Speech: A Corpus-Informed Study.	University of Wisconsin	2018
9	Braden Paul Chase	An Acoustical Analysis of the American English /l, r/ Contrast as Produced by Adult Japanese Learners of English Incorporating Word Position and Task Type.	Brigham Young University - Provo	2017
10	Caitlyn M Slawny	Morphological Development and Cross-linguistic Transfer in Typically Developing Spanish-English Bilingual	Rush University	2017

		Preschool Children		
11	Marial Schroeder	Investigating the Learnability of a Rogue Grammar: Null Subject Parameter Resetting in Second Language Acquisition	Southern Illinois University at Edwardsville	2017
12	Erin Padgett Padgett	Tools for Assessing Relatedness in Understudied Language Varieties: A Survey of Mixtec Varieties in Western Oaxaca, Mexico	University of North Dakota	2017
13	Emily Ganser	Stop consonant voicing in young children's speech: Evidence from a cross-sectional study	University of Minnesota	2016
14	Matt Destruel	Reality in Fantasy: linguistic analysis of fictional languages	Boston University	2016
15	Nicholas George Winter	The syntax of coordinate structure complexes.	Rutgers University	2017
16	Romaisha Rahman	How Trustworthy is She? : Perception of International Students Toward International Peer Tutors in Writing Centers.	University of Dayton	2018
17	Jessica Baker	Perceptions of World Englishes.	University of Toledo	2017
18	Makayla Adrienne Lockett	Circulation of the Native Language in ESL Environments: Correlations Between L1 Perceptions and L1 Use in the English Classroom	University of Toledo	2016
19	Julia M Barrow	Syntactic Priming in Foreign Accented Speech.	University of Florida	2017
20	Samuel J. Londrico	Investigations in UT ESL Student Identities.	University of Toledo	2018
21	Matthew C Hannum	Fault in our Feedback: Students' Experiences and Preferences Regarding Corrective Feedback.	University of Toledo	2016
22	Judith Tabron	Creating urgency in tech support scam telephone conversations	Hofstra University	2016
23	John William Hall	Examination of machine learning methods for multi-label classification of intellectual property documents.	University of Illinois – Urbana-Champaign	2017
24	Kristen E. Schlapp	Languaging at Work: The Language Socialization of Support Staff in the Healthcare Workforce	University of Massachusetts Boston	2017

25	Frances Grosvenor Cooley	Investigating the role of phonological awareness on phonological recoding during reading in deaf children.	University of Texas – Austin	2018
26	Frederic Jason Freyer	Emulating Language Acquisition with Stochastic Gradient Descent: A New Approach to Modeling Phonotactics	Brandeis University	2017
27	Jacob Garlin Barrows	The Effect of Prompt Accent on Elicited Imitation Assessments in English as a Second Language	Brigham Young University - Provo	2016
28	Ethan Michael Lynn	Getting All the Ducks in a Row: Towards a Method for the Consolidation of English Idioms	Brigham Young University - Provo	2016
29	Alhyaba Encinas Moore	Expecting Excellence: Student and Teacher Attitudes Towards Choosing to Speak English in an IEP	Brigham Young University	2016
30	Allen Travis Moore	Applying the Developmental Path of English Negation to the Automated Scoring of Learner Essays	Brigham Young University	2018
31	Anna Yarbrough	Visual Letter Recognition with Cross Script Bilinguals: The Case of Russian.	Florida State University	2018
32	Dhyana M. Buckley	The Persuasive Effects of Stylistic Variation in the Restaurant Review Domain.	University of California	2018
33	Thomas de Haven Roberts	The semantics of responsive predicates and their complements in Estonian.	University of California santa cruz	2017
34	Lauren Elizabeth McGarry	Pragmatic conditions on non-polar responses.	University of California santa cruz	2017
35	Christopher Lee Borntrager	Mechanisms and Implications of Identity Hybridization in Online Advertorials	University of Arkansas, Fayetteville	2017
36	Jacqueline E Hebert	What Students Know about In and On : Understanding Semantic Complexity of Spatial Terms in L2 English Speakers	University of Louisiana at Lafayette	2018
37	Dylan T	Why Dey Talk Like Dat?: A Study	University of	2017

	Charpentier	of the Status of Cajun English as a Dialect or an Accent	Louisiana at Lafayette	
38	John Matthew Whalen	Hofstede model and national cultures of learning : a comparison of undergraduate survey data	Colorado State University	2016
39	Adam Joseph Royer	Individual Differences in the Production and Processing of Focus Intonation.	University of California Los Angeles	2016
40	Jeremy Steffman	Intonation mediates speech rate normalization in the perception of segmental categories.	University of California Los Angeles	2018
41	Michelle Aguilar	Language Attitudes Toward Mexican Spanish-accented and Standard Varieties of English	University of Texas at El Paso	2018
42	Elizabeth M. Wright,	Pragmatic Functionality of Punctuation on Twitter	University of KentuckyFollow	2018
43	Diana Manuel	The benefits of dual-language instruction on the narrative development of bilingual English/Spanish speakers with specific language impairment	California State University, Long Beach	2016
44	Elizabeth Marie Blowers	Towards a Multilingual and Cross-Cultured Officer Corps: A Study of Language and Culture Training Programs for Army ROTC Cadets	Syracuse University	2017
45	Emily C Dick	Social Perceptions of Word-Final Alveolar Stop Deletion: Examining the Meaning of a Sociophonetic Variable	Purdue University	2017
46	Kelly E. Wright	The Reflection and Reification of Racialized Language in Popular Media	University of Kentucky	2017
47	Ajda Zeynep Gokcen	A Matter of Debate: Using Dialogue Relation Labels to Augment (Dis)agreement Analysis of Debate Data.	The Ohio State University	2016
48	Nicole Elizabeth Dreier	Gender in Proto-Indo-European and the feminine morphemes.	University of Georgia	2018
49	Eric P Snyder	Generalizing Individuating/Measure-Ambiguities.	The Ohio State University	2016

50	Mariah Lillian Copeland Parker	Flippin' the script, joustin' from the mouth: a systemic functional linguistic approach to hip hop discourse.	University of Georgia	2017
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Appendix B

Theses from Chinese English learners

No.	Author	The name of thesis	University	Graduation year
1	Zhang Jie	Learning Effects of Rote Memorization and Contextual Word Learning: A Semantic Priming Study	Harbin Institute of Technology	2018
2	Zong Jiaju	An Experimental Research on Applying Argument Diagramming to Argumentative Writing in College English Teaching	Northeast Normal University	2018
3	Liu Ri	Research on the Correlation between MA English Majors' Critical Thinking Dispositions and Academic English Writing —— A Case Study of a University in Northeast China	Jilin University	2018
4	Song Panpan	A Study On Commonality of Modality Between English “Can” and Chinese “Neng” from the Perspective of Semantic Map	Dalian University of Foreign Languages	2019
5	Shen Yuying	A Study of English as a Lingua Franca in Asia from the Perspective of Alignment Theory	Jilin University	2018
6	Jiang Shan	A Contrastive Study of Appraisal Resources in Chinese and English Political Speeches in Light of Appraisal Theory	Northeast Normal University	2018
7	Wang Yuying	An Empirical Study of the Washback Effect of Graduate Comprehensive English Proficiency Test on Test-Takers	Dalian University of Foreign Languages	2019
8	Zhang Lulu	The Effect of Production-oriented Approach on Non-English Majors' English Writing	Shanxi Normal University	2018
9	Zhang Xueli	Research on the Application of New Words in News Headlines	Hebei University	2017
10	Zhao Juan	The Syntax of English and Chinese Existential Constructions	Beijing Institute of Technology	2016
11	Yu Qian	A Study of L2 Motivation of Chinese College Students from the Perspective	Beijing Foreign Studies	2018

		of Complex Dynamic Systems Theory	University	
12	Li Xiangyun	Group Dynamic Assessment of Grammar Development of Chinese Middle-school EFL Learners	Beijing Foreign Studies University	2018
13	Huang Rui	A Thought Experiment on: Does an Ungrammatical Wh-question Make Any Sense?	Tianjin Normal University	2018
14	Wang Suping	The Survey on the English Learning Demotivation and Remotivation of Chinese High School Students	Hebei Normal University	2018
15	Chen Wen	A BNC-based Study of Existential-There Construction	Donghua University	2016
16	Li Fang	A Study on Donald Trump's Twitter Discourse on China from the Perspective of Appraisal Theory	Shanghai International Studies University	2018
17	Zhao Hongyan	Analyzing the Evaluative Meaning of Genitive Constructions in Academic Discourses	Hangzhou Normal University	2018
18	Wang Xinyi	A Corpus-Based Study on the Use of Shell Nouns in English Abstracts of Masters' Theses by Science and Engineering Majors	University of Shanghai for Science and Technology	2016
19	Qin Ziyan	A Cross-linguistic Study on The Morphology of Comparatives and Superlatives	Shanghai International Studies University	2018
20	Xu Yaojun	An Proximation Study of Critical Discourse Analysis—on the Commentary on American's Presidential Election's TV Debates	Hangzhou Normal University	2017
21	Zhang Wensai	A Dramatistic Rhetorical Critique of CNN's Reports on Violent Terrorist Incidents	Shanghai University	2016
22	He Xingrui	What National Images of China Are Constructed in News Discourse on The Belt and Road Initiative: A Comparative Analysis Based on Appraisal Theory	Guangdong University of Foreign Studies	2016
23	Zhong Cuixia	Metadiscourse as Promotion of Knowledge Claims in Research Articles	South China University of Technology	2018

24	Qiu Jianghong	A Cohesive Analysis of TED Education Speeches	Yunnan Normal University	2016
25	Peng Hongying	The Effect of Comprehension-Production Coupling on L2 Writing Coherence	Guangdong University of Foreign Studies	2017
26	Chen Congying	Investigating Interdiscursive Performance in Tourism Discourse from the perspective of CGA: A Case Study on the Product Introduction of Tourism Plate in Ctrip APP	South China University of Technology	2018
27	Wan Yangming	An Investigation of the Intercultural Communication Competence of Business English Undergraduates: A Case Study of Hainan University	Hainan University	2017
28	Huo Duo	A Study on C-E Translation of Tourism Publicity Texts---From the Perspective of Cross-culture Pragmatic Failure	Hainan University	2017
29	Lin Jinrong	Interdiscursivity as a Discursive Strategy in the Publicity of China Dream	South China University of Technology	2016
30	Ma Tiantian	An Analysis of Language Transfer in English Euphemism Learning	Wuhan University Of Technology	2017
31	Zhang Ziyang	The Study of Syntactic and Semantic Features of English and Chinese Generic Sentences	Hunan University	2017
32	Hu Renying	A Discourse Analysis on Ecocity Projects - From the Perspective of Eco-linguistics	Central China Normal University	2017
33	Liu Yu'an	A Corpus-based Contrastive Study of Stance Markers in L1 and L2 Research Articles	Huazhong University of Science and Technology	2018
34	Wang Wenqi	An Ecological Analysis of The Old Man and the Sea from a Systemic Functional Perspective	Central China Normal University	2018
35	Dong Tongtong	A Case Study of L2 Motivational Development among First-year Non-English Majors	Wuhan University	2018
36	Lu Xiaoyan	A Contrastive Analysis of Chinese and English Political Speeches in	Henan Normal University	2015

		Perspective of Ideational Function -- Taking Speeches of President Xi Jinping and President Trump as a case		
37	Li Hongxia	A study on the effects of sustained silent reading on senior school students' English reading comprehension	Northwest Normal University	2018
38	Lin Xin	A Comparative Study on Chinese and American Online Dating Advertisements--Based on Hofstede's Cultural Dimensions Framework	Northwest University	2018
39	Cao Yajun	A Research on English Course in Vocabulary Colleges Based on Professional Ability	Northwest A&F University	2018
40	Zhang Rongrong	A Comparative Study of Reporting Verna in M.A. Theses by Chinese English Majors and in academic Journal Articles by International Scholars	Xi'an International Studies University	2018
41	Li Yujie	The Effects of Task Complexity and Working Memory on EFL Learners' Argumentative Writing	Northwest Normal University	2018
42	Tai Yuping	An Empirical Study on Multimodal Teaching Model in College English Visual-audio-oral Course Teaching	Shaanxi Normal University	2018
43	Huang Lingshan	The Effects of Working Memory on Second Language Reading Comprehension	Lanzhou University	2018
44	Li Chunyan	An E-Prime Study on the Semantic Embodiment in Chinese-English Bilinguals' Processing of Fictive Motion Sentences	Sichuan International Studies University	2018
45	Yue Miaomiao	Critical Discourse Analysis of The News Reports on Kunming Terrorist Attack in New York Times	Southwest Jiaotong University	2016
46	Gou Ting	Language-dependent Emotional Responses to Praise and Criticism: Evidence from Chinese-English Bilinguals	University of Electronic Science and Technology of China	2018
47	Chen	A Construction Grammar-based Study	Sichuan	2018

	Rujia	of the Construction of “I may X1 jia (fake) X2”	Normal University	
48	Li Wenqian	A Study of English Prefabricated Chunks from the Memetic Perspective	Sichuan Normal University	2018
49	Wang Qiurong	A Contrastive Study of Semantic Preference and Semantic Prosody of Business English and Chinese Corresponding Units of Meaning: Taking TRADE-group Words as an Example	Sichuan International Studies University	2018
50	Ma Li	A Corpus-based Study of Vocabulary in New Standard English for Senior High School by Foreign Language Teaching and Research Press	Southwest University	2018

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论文“A Study on the Semantic Network of Preposition ‘of’ in the English Learners’ Graduation Theses Abstracts under The Principled Polysemy Network Model -----Taking ‘NP1+of+NP2’ in CCLA and CALA as examples”参加**第四届国际认知符号学会议（Germany, Achen）**

论文“原则性多义网络模型下英语学位论文摘要中“of”的语义网络研究”获**2020“全球观 家国情”粤港澳外语与翻译研究生论文评选大赛二等奖**

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学位论文作者签名：黄晓云 签字日期：2021 年 6 月 7 日

学位论文数据集

表 1.1: 数据集页

关键词*	密级*	中图分类号*	UDC	论文资助
原则性多义网络模型; “of” 的语义网络; 语料库; 意义; 义项	公开	H319	821	无
学位授予单位名称*		学位授予单位代码*	学位类别*	学位级别*
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