# Understanding English Prepositions through Cognitive Semantics

Submitted By
**Heba Muhammad Abdul-Jawad Fadel**

Supervised by

**Prof. Faisal Hussein Abdallah**
**Associate Professor of Linguistics**
**Faculty of Education**
**Ain Shams University**

**Dr. Amel Salah Elden**
**Lecturer in Linguistics**
**Faculty of Education**
**Ain Shams University**

## Abstract

This research aims at investigating how English prepositions are understood through the cognitive-semantic approach. It focuses on the three key concepts: prototype theory, conceptual metaphors, and image schemas. The prototype theory suggests that several meanings can be extended from the prototypical or primary meaning of a preposition. These different meanings are seen systematically interconnected, and they form semantic networks. Through conceptual metaphor, the meanings expressed by prepositions can be extended to express abstract concepts and meanings based on our embodied experiences. The concept of image schema develops from our physical interaction with the world so that we are able to shape our physical experiences into mental concepts or images. The cognitive-semantic approach shows that English prepositions are not just simple functional words. Instead, they are deeply connected to our mental processes and the way in which we perceive and understand the world.

**Keywords:** prepositions, Cognitive-semantic approach, prototypical meaning, conceptual metaphor, image schema.

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## 1.    Introduction

In the traditional view of English prepositions, they are merely syntactic tools for indicating spatial and temporal relationships. However, with the emerging of the school of cognitive linguistics, our perception of prepositions has been expanded to understand the meanings expressed by prepositions. Cognitive semantics emphasises the cognitive processes that shape our understanding of the meanings, abstract concepts, and metaphorical uses of prepositions. Accordingly, this paper investigates the meanings of English prepositions through the lens of the cognitive-semantic approach, highlighting the main concepts through which we get a deeper understanding of the meanings of English prepositions.

## 2.    Objectives of the study

The study aims at understanding the meanings of English prepositions from a cognitive-semantic perspective and how these meanings are interconnected through the concepts of prototype, conceptual metaphor, and image schema.

## 3.    Research questions

1.    How does the concept of prototype play a role in our understanding of the meanings and uses of prepositions?
2.    How does conceptual metaphor help us understand the abstract concepts and metaphorical uses of prepositions?
3.    How does the concept of image schema reflect our interaction with the surrounding environment?

## 4.    Review of Related Literature

There are many studies that are related to the topic of this study. Some of them include the following:

Sultan (2014) focused on investigating the metaphorical meanings expressed by various English prepositions and determining how well EFL students understand metaphors in prepositions. The sample of the study is the fourth-year students at Tikrit University/College of Education/English Department. It has been concluded that the students were unable to understand the metaphorical meanings of prepositions because, in learning prepositions, the focus is on the literal meaning of prepositions without referring to their metaphorical meanings.

Nasser (2020) studied the difficulties that face Iraqi first-year students at the University of Baghdad when using English prepositions in general and the preposition 'on' in particular because of their multi-uses and meanings. The researcher used pre- and post-tests to assess the students results adopting the cognitive-linguistic approach in explaining the meanings of the English preposition 'on'. The results showed that the cognitive-linguistic approach improved the students' grasp of English prepositions more than the traditional methods followed because the cognitive-linguistic approach helps strengthen the students' conceptual thinking.

Wang (2020) investigated the English spatial prepositions in, on, and at from a cognitive perspective, including the theory of conceptual metaphor (Lakoff & Johnson, 1980) and cognitive grammar (Langacker, 2008). The findings showed that the English prepositions 'in', 'on', and 'at' have a number of implicit meanings extended from their prototypical meanings through conceptual metaphor.

Aajami (2019) explored the polysemy of the preposition 'in' from a cognitive linguistic perspective using Evans' and Tyler's approach (2003). The difficulties that faced university students when using this preposition due to its multi-usages motivated the researcher to conduct this study. The researcher did an experiment on seventy-six second-year students who were introduced to a detailed introduction

to the cognitive-linguistic approach. It was found that the students' attitude towards the cognitive-linguistic approach has clearly improved. In addition, the cognitive-linguistic approach was regarded as an effective approach for understanding the meanings of the English preposition 'in'.

Finally, Yue et al. (2022) examined the meanings of the preposition 'through' based on the cognitive theories, including prototype theory, image schema theory, and conceptual metaphor. It was found that all the non-prototypical meanings of a preposition are extended from its prototypical meaning.

These studies illustrate the effectiveness of adopting the cognitive linguistic approach in the study of the meanings of prepositions, as it offers a comprehensive understanding of prepositions and emphasises that prepositions are not merely grammatical tools, but they are deeply connected to human cognition.

## 5. Theoretical framework

**The Cognitive- Semantic Approach**

Cognitive semantics (CS) is considered a subfield of cognitive linguistics that emerged in the 1980s. Evans and Green (2006) define cognitive semantics as "the study of the relationship between experience, embodied cognition, and language" (p.50). It also emphasises the role of the mental abilities and processes in shaping the meaning of language.

In the context of prepositions, the cognitive semantic approach focuses on studying the meanings of prepositions in relation to our mind. It regards prepositions as lexical items that can express a range of different meanings, such as place, time, direction, cause, purpose, etc. However, it can be said that the cognitive semantic approach pays much attention to the study of the meanings of spatial prepositions from a cognitive semantic perspective due to their close relationship with space and embodiment. In cognitive semantics, prepositions are not viewed as arbitrary symbols. Instead, they are based on our conceptual understanding of the world and the cognitive processes in our minds.

In fact, there are a number of key concepts in cognitive semantics that have to do with our mental abilities and help us understand the meanings of prepositions. The concepts that will be tackled in this paper include the following:

- **Prototype Theory**

The concept of prototype plays a role in our understanding of the meanings and uses of prepositions in language. It suggests that there is a mental representation in our minds of a prototypical meaning of a preposition, that is considered to be the primary meaning, from which other meanings and usages of prepositions are understood in relation to this prototypical meaning of a preposition (Evans and Tyler, 2004, p. 46).

Evans and Tyler (2004) state that a preposition creates a relation between two entities: the "Trajector (TR)", which refers to the entity that is moving or being located in relation to something else, and the "Landmark (LM)", which refers to the reference point or the entity to which the trajectory is related.

For example, Evans and Tyler (2004) state that the prototypical meaning of the preposition 'in' indicates a relationship in which the (TR) is located within an enclosed area or space, represented by the (LM), as in 'The man is **in** the room.'. So, the preposition '*in*' creates a spatial relationship between the (TR), 'The man' and the (LM), 'the room' in which the preposition '*in*' expresses the sense of containment ('The man' is contained within a container, that is, 'the room').

This prototypical meaning of the preposition 'in*'* gives rise to other meanings to be derived from the prototypical meaning of this preposition. For example, in a sentence like "He is in trouble", the abstract concept of "trouble" is being viewed as a container within which an entity is contained. Thus, the abstract meaning of this sentence is derived from the prototypical meaning of the preposition '*in'*.

A variety of senses are associated with this preposition due to its polysemous nature. Some of such senses, introduced by Tyler and Evans (2003), include the following:

1) The situ sense in which a TR is placed in a particular location.

e.g., "a. *What are you in for? [asked in a hospital = 'What's wrong with you?'*" (ibid.:187)

2) The state sense in which a TR is experiencing a particular feeling or situation.

e.g., a. "*She is **in** prison.*"

b. "*She is a prisoner.*"

Tyler and Evans (2003) comment on these two sentences by stating that there is a correlation between the location and the emotional or physical state. So, the state of being a prisoner, as described in (b), correlates with being located within a bounded LM, as described in (a). (ibid.:188)

3) The in-favour sense (the state of being privileged or valued)

e.g., "*He managed to get **in** the stadium, even though places were limited*" (ibid.: 193)

In this example, Tyler and Evans (2003) state that being able to get in "*the stadium*", the bounded LM, gives rise to the sense of being privileged.

4) The shape as boundary sense in which a TR is placed in a certain shape

e.g., "*Ok, class, put your chairs in a circle*" (ibid.:196)

In this example, the chairs, the TR, are arranged to form a circle shape, the bounded LM.

It seems that all these senses expressed by the preposition '*in*' are derived from the spatial relation between a TR and a LM in which a TR is placed within a bounded LM.

Similarly, the prototypical or primary meaning of the preposition 'over' is 'being above or in a higher position than someone/something' (Oxford Learner's Dictionaries, 2024). For example, in the sentence 'The plane flew over the city', the

preposition "*over*" creates a spatial relationship between the (TR), 'The plane' and the (LM), 'the city' in which the preposition '*over*' expresses the sense of being above something ('The plane' is in a higher position than 'the city'). In a sentence like 'He's over the moon about his new job', the preposition 'over' does not denote a spatial sense, i.e., he is not actually over the moon. Instead, it is considered a metaphorical use of the preposition 'over' to convey the sense of being extremely excited or happy. Furthermore, in a sentence like 'She has a strange power over me' (Lakoff, 1987, p.435), the preposition 'over' here expresses the sense of having the upper hand or being in control of someone derived from its prototypical meaning.

Evans and Tyler (2004) argue that the meanings derived from the prototypical or the central meaning of a preposition are organised as a "semantic network" in which the several meanings of a preposition are systematically arranged around the primary meaning of it,

> Each proto-scene is understood to constitute the primary meaning representation associated with a particular preposition, from which additional meanings have been systematically derived. Thus, each preposition and the multiple uses associated with it are represented as an organized, connected network of related meanings, rather than arbitrary lists of distinct meanings that happen to share the same phonological form. (Evans and Tyler, 2004, p.10)

Therefore, Evans and Tyler believe in the polysemous nature of prepositions, as they consider a preposition a lexical item with several distinct meanings extended from its prototypical meaning. Cognitive linguists believe that the extended meanings of prepositions can be related to their primary or prototypical meaning through conceptual metaphor.

- **Conceptual Metaphor**

One of the mental processes by which we can interpret and understand abstract concepts and ideas is by means of what is called

'conceptual metaphor'. Conceptual metaphor is considered a key concept in the field of cognitive linguistics developed by George Lakoff and Mark Johnson.

According to Johnson and Lakoff (1980), "The essence of metaphor is understanding and experiencing one kind of thing in terms of another." (p.5). Cognitive linguists believe that our bodily experiences and perceptions of the world help us understand abstract concepts. For example, in the example introduced by Johnson and Lakoff (1980), "Argument is War", it is considered a commonly used metaphor in English in which 'argument' (an abstract concept) is depicted like a battle (a concrete concept). So, we understand that being involved in a verbal battle of arguing is like being physically in an actual battle or war.

Evans (2007) states that "Conceptual Metaphor Theory emphasises the experiential basis of many of the metaphors described" (p. 137). Thus, metaphor is mainly based on our interaction in everyday life. He adds that a conceptual metaphor consists of "A set of cross-domain mappings holding between two distinct conceptual domains" (Evans, 2007, p. 53).



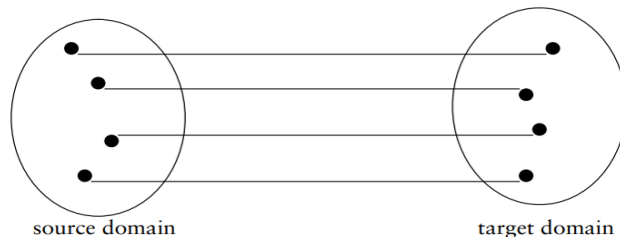source domain                    target domain

Figure 1: (Based on Evans,2007, p.53)

So, cross-domain mapping refers to the process of mapping or transferring concepts from one domain (the source domain, which is usually a physical and concrete domain) to another (the target domain, which is an abstract domain) so that we can understand or express abstract or complex concepts or ideas in terms of more concrete or familiar concepts.

For example, in the metaphor 'Time is money', the abstract concept of 'Time' is mapped into the more concrete and familiar concept of

'money'. The source domain "highlights certain aspects of the target domain" (Evans, 2007, p.99). Thus, we can conceptualise the concept of time as being valuable just like money is. By mapping abstract concepts into more concrete physical experiences, we are able to understand these abstract ideas and communicate them to others.

With respect to prepositions, we can understand abstract concepts expressed by prepositions by means of more concrete ones. Through conceptual metaphor, spatial prepositions can be extended to denote temporal or abstract meanings. For example, the preposition '*over*' in a sentence like 'The plane flew over the city' denotes the physical location of the plane as being above 'the city'. This primary meaning of the preposition '*over*' can be extended to express the figurative sense of having the upper hand or being in control of someone or something, as in a sentence like 'He has power over them'.

Thus, the different meanings of prepositions can be related to the primary meaning of a preposition by means of conceptual metaphor. Conceptual metaphor is considered a cognitive tool for extending the meanings of prepositions based on our embodied experiences. Examples of extended meanings of prepositions through conceptual metaphor include the following:

**The preposition 'through'**

**The primary meaning:** 'moving from one place to another'

e.g., He drove through the tunnel.

In this example, the preposition "*through*" expresses physical motion from one place to another.

**The extended meaning**: 'metaphorical meaning'

e.g., He went through many obstacles to achieve success.

Here, the metaphorical meaning expressed by the preposition '*through*' is linked to its primary meaning by means of conceptual metaphor. So, moving through obstacles in achieving success is metaphorically related to moving through physical space.

**The preposition 'in'**

**The primary meaning:** 'being enclosed in a physical space'

e.g., The watch is in the drawer.

In this example, the preposition "*in*" expresses the sense of 'containment'; 'The watch' is contained within 'the drawer' which represents a container.

**The extended meaning**: 'metaphorical meaning'

e.g., Are you in pain?

Here, the metaphorical meaning expressed by the preposition "*in*" is related to its primary sense of being contained or enclosed within a container; that is 'pain'.

**The preposition 'under'**

**The primary meaning**: 'being located beneath something'

e.g., The cup is under the table.

In this example, the preposition "*under*" expresses the sense of placing an entity beneath another one.

**The extended meaning**: 'metaphorical meaning'

e.g., He is under stress.

Here, the metaphorical meaning expressed by the preposition "*under*" is metaphorically linked to its primary sense, in which the abstract concept of 'stress' is conceptualised as a physical entity under which another entity is placed.

**The preposition 'among'**

**The primary meaning:** 'being surrounded or in the middle of someone/something'

e.g., He found a letter among the papers.

In this example, the preposition "*among*" denotes the sense that 'a letter' is surrounded by something, that is, 'the papers'.

**The extended meaning**: 'metaphorical meaning'

e.g., She's among the best in her field.

Here, the metaphorical meaning expressed by the preposition "*among*" is related to its primary sense. So, being part of a group is metaphorically extended from the sense of being surrounded by someone or something.

**The preposition 'over'**

**The primary meaning:** 'being above someone/something'

e.g., He put a blanket over the sleeping child.

**The extended meaning**: 'metaphorical meaning'

e.g., I'm over the moon.

Here, the preposition '*over*' is extended metaphorically to denote the sense of being extremely happy or pleased.

**The preposition 'towards'**

**The primary meaning:** 'going in the direction of someone/something'

e.g., He is walking towards me.

**The extended meaning**: 'metaphorical meaning'

e.g., Our company is going towards success.

Here, the preposition "*towards*" is extended metaphorically to denote an abstract sense in which the abstract concept 'success' is understood as being a destination or an endpoint to which an entity is moving.

These examples show how prepositions can be used to express different meanings beyond their literal meanings. To sum up, it can be noticed that the metaphorical meanings of prepositions are based on some sort of a similarity in meaning between the primary sense of a preposition and the extended meaning of that preposition. Our understanding of the spatial meanings expressed by prepositions helps us conceptualise the metaphorical meanings derived from these spatial meanings.

Another important concept in cognitive linguistics upon which we rely to make connections between concrete and abstract domains in our understanding of the metaphorical uses of prepositions is the concept of 'image schema'.

- **Image schema**

According to Evans and Green (2006), "image schemas are relatively abstract conceptual representations that arise directly from our everyday interaction with and observation of the world around us"(p. 176). For instance, Evans (2007) states that when we "look in one direction (downwards) for fallen objects, and in another (upwards) for rising objects", this "gives rise to the UP-DOWN schema" (Evans, 2007, p. 106). Johnson (1987) states that an image

schema is "a recurring, dynamic pattern of our perceptual interactions and motor programs that gives coherence and structure to our experience." (Johnson,1987, p.xiv).

So, based on these definitions of the concept of image schema, it can be said that image schema emerges from our physical interaction with the world so that we are able to structure our physical experiences in the form of mental concepts or images.

In relation to prepositions, image schemas are closely related to the meanings of prepositions. For example, a concept like 'containment' is understood from our experience of holding objects in containers like a cup which holds or contains liquids like tea or coffee. So, when we say a sentence like 'The man is in the room', the preposition "*in*" expresses the concept of containment by conceptualising 'The man' as being contained within a container, that is, 'the room'. Similarly, the metaphorical meaning expressed by the preposition '*in*' in a sentence like 'He is in danger' gives rise to the image schema of containment in which the abstract concept of "danger" is thought of as a container in which someone is contained. This is what Johnson (2005) meant by stating the following:

> humans will share certain general understandings of what it means for something to be located within a container, and will understand at least part of this without having to reflect upon it or think about. Seeing a container, or hearing or reading the word in will activate a CONTAINER image schema as crucial to our understanding of a particular scene (Johnson,2005, p.22)

Thus, cognitive semanticists believe that every time one thinks about a preposition, there is a conceptualised image that comes to their mind.

## Image schemas represented by prepositions

Evans and Green (2006) introduce a number of image schemas that have to do with the meanings expressed by prepositions. Such image schemas include the following:

**Containment Schema**

The image schema of containment is associated with the prepositions 'in', 'inside', and 'within', which express the sense of being enclosed within a bounded area or space.

Examples:

1. The man is **in** the room.
2. The library is **within** the campus limits.
3. It was raining. So, we went **inside** the house.

In the above examples, the TRs '*The man*', '*The library*', and '*we*' are conceptualised as being enclosed and contained within a container, that are the LMs '*the room*', '*the campus*', and '*the house*'.

**Contact Schema**

The image schema of contact can be represented by the prepositions 'on' and 'against' which express the sense of two entities that are in direct physical contact or touching each other.

Examples:

1. The pen is **on** the desk.
2. She leaned **against** the wall.

In these examples, there is a physical contact between the TRs, 'The pen' and 'She', and the LMs, the desk' and 'the wall'.

**Source-Path-Goal Schema**

According to Evans and Green (2006), Source-Path-Goal image schema consists of "a starting point or SOURCE, a destination or GOAL and a series of contiguous locations in between which relate the source and goal." (Evans and Green, 2006, p. 185). This image schema is associated with the prepositions 'from', 'through', and 'to', which are used to express the sense of moving from a starting point (source) along a path to reach an end point or a destination (goal).

e.g., John travelled [**from** England] [ **through** the Chunnel] [**to** France].

(Evans and Green, 2006, p. 185)

In this example, 'England' is considered to be the SOURCE, 'the Chunnel' is the PATH, and 'France' is the Goal.

## Part-Whole Schema

Evans and Tyler (2003) state that the part-whole image schema denotes the sense that the TR is considered a specified part of the LM. This image schema is represented by the preposition 'of' which establishes a link between a large entity and smaller entities that form the whole entity. For example, 'The employees **of** our company need to be trained'. Here, 'The employees' are considered to be a part of the whole, that is, 'The company'.

## Up-Down Schema

Evans (2007) states that when we "look in one direction (downwards) for fallen objects, and in another (upwards) for rising objects", this "gives rise to the UP-DOWN schema" (Evans, 2007, p. 106). So, the image schema of UP-Down is based on our interaction with the environment around us. It is represented by the prepositions 'up', 'down', and 'above'.

Example:
1. The elevator carried me **up** to the 5<sup>th</sup> floor.
2. He walked **down** the stairs.
3. The bird flew **above** the tree.

## Front-Back Schema

The Front-Back schema involves the notions of front, which refers to an entity facing forward or towards another entity, and back, which refers to an entity facing away or in an opposite direction to another entity. This image schema can be represented through the following prepositions:

'in front of'    e.g., He parked his car **in front of** our building.

Here, in this example, the TR, 'his car', is positioned facing toward the LM, 'our building'.

'ahead of'    e.g., Two men are **ahead of** us.

Here, in this example, the TR 'Two men' is placed in advance of the LM, 'us'.

'behind'    e.g., Who's that guy standing **behind** Tom?

Here, in this example, the TR 'that guy' is positioned at the back of the LM, 'Tom'.

## 6. Conclusion

In conclusion, a cognitive-semantic study of the meanings of English prepositions reveals how language is rooted in human cognition. By applying concepts like prototype theory, we can see how a preposition has a central or prototypical meaning from which other meanings can be derived. The study of the idea of conceptual metaphor illustrates how the abstract concepts and metaphorical uses of prepositions can be understood by relating them to more concrete concepts. Furthermore, the concept of image schema illustrates how the meaning expressed by a preposition reflects a conceptualised image in our minds associated with that preposition. So, these concepts emphasise the importance of viewing prepositions not just as grammatical tools but as essential components of human cognition.

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