

A Cognitive Semantic Analysis of Meaning Interrelationship

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Abstract

Expanding the English vocabulary for Iraqi second language (L2) learners is a challenging task. In the present work, Langacker's cognitive linguistic theory of domains (1987) is adopted to provide a new sight into vocabulary learning, and to expand the vocabulary repertoire of Iraqi students. This paper aims at testing the validity of expanding the English vocabulary of L2 Iraqi learners throughout the theory of domains. It also tries to find how can domains theory increase the package of vocabulary for L2 learners. Accordingly, an experimental study is to be conducted on forty-six college students of second-year level from, University of Baghdad, Iraq. The data of the pre-test and post-test were analyzed using the Statistical Package for Social Sciences (SPSS) 1 editor. Results have shown the following: First, the progress of more than $(0.05 \leq)$ has been detected as far as students' understanding of the semantic domains of the lexical concepts. Second, the main source of difficulty regarding vocabulary acquisition has been treated throughout Langacker's theory. Third, the domains theory has proven its effectiveness in accurately comprehending the semantic domains of the English lexical concepts.

Keywords: Cognitive semantics, domains, Iraqi Learners, lexical concept

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1. Introduction

Using the second language needs more and more knowledge about vocabulary, grammar, and culture of the target language. Scholars and researchers set a massive amount of research to acquire the semantics of second language words. In the 1930s, a German scholar J. Trier sets the Semantic Field theory. This theory is considered a new phase in the history of semantics (Wu, 1988, p.94). Langacker (1987) presents his theory of Domains to add more respects to the theory of Frame Semantics by Fillmore. These constructions of semantic hunt help learners increase their vocabularies and build a bridge between the new words and known words.

In Iraq, English as a second language (ESL) learners amplify their vocabulary incidentally throughout the four skills of language teaching. Part of the new acquainted words is not cemented in the deep memory of learners and is thus forgotten. Cognitive semantic studies about English prepositions were done in Iraq to serve the purpose of acquiring the polysemy of English prepositions. These studies have proven the effectiveness of cognitive linguistics approach in treating the English preposition. One of these studies is done to study the multi-meanings of the English preposition *at* (Aajami, 2018). This study aims at launching a long last memory of new vocabulary throughout using Langacker's theory of semantic domains. As long as the meaning is encyclopedic, Iraqi 12 learners do not only need new words, but also they need to know their semantic domains in order to use them more properly and be part and parcel of their bundle. This research tries to detect the reasonability of using the Domains theory in order to get deep understanding of the semantic connectivity among words, identify the matrix domains and sub-domains, and use new vocabularies to sink deeply in their meanings.

2. Literature Review

2.1. Theory of Domains

The term *domain* was first used in (1987) by Langacker who was influenced by Fillmore's theory of Frame Semantics (Clausner & Croft, 1999). Both Fillmore's and Langacker's theories are based on the assumptions that meaning is encyclopedic, and that lexical concepts can be understood depending on larger knowledge structures, which are called domains by Langacker (Evans & Green, 2006, p.230).

"Domains are necessarily cognitive entities: mental experiences, representational spaces, concepts, or conceptual complexes" (Langacker, 1987, p. 147). Langacker's definition of domains depends on humans' mind interpretation to language. If a unit of knowledge structure contains background information against which a lexical concept can be understood and used in language, then this knowledge structure can be counted as a domain. For example, the domain of *temperature* has three different expressions as *hot*, *cold*, and *warm*. These expressions cannot be understood without understanding the *temperature system* (Evans & Green, 2006, p.230). The theory of domain is highly insightful and helps get the meaning in both the source and target languages. It inevitably enhances the quality of language usage (Lowe, 2008, P.1).

Langacker (1987) concentrates on four essential aspects of the theory of domains. These aspects are considered additions to the theory of Frame Semantics. Firstly, the typical arrangements of domains that structure a set of lexical concepts are called the matrix domain of that concept. For instance, the commonsense knowledge of the lexical concept *cow* includes its shape, activities,

physical material, and lifecycle. These aspects of the concept of the *cow* are specified in different subtexts (Clausner & Croft, 1999, p.6)

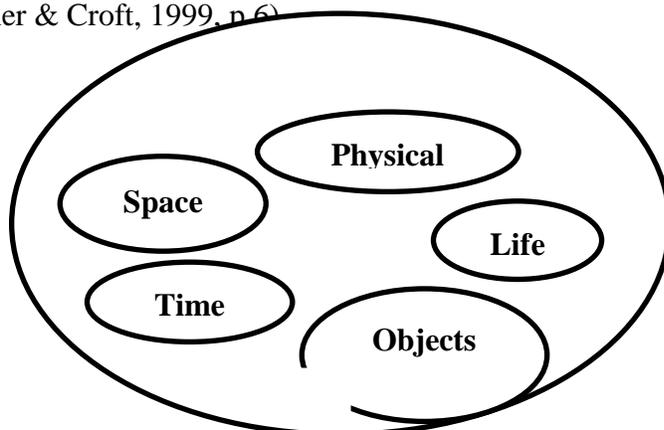


Figure 1. The domain matrix of the word *cow*

This Figure is set by the researcher

Most of the lexical items can be described in terms of domain matrix while very few of them can be described in terms of a single domain. For example, FATHER as a lexical concept involves the following domains (see Figure 2): human being, male sex, kinship network, family, authority within family, respect, honor, discipline, father-offspring relationship, inheritance, and inherited attributes (Lowe, 2008, P.2).

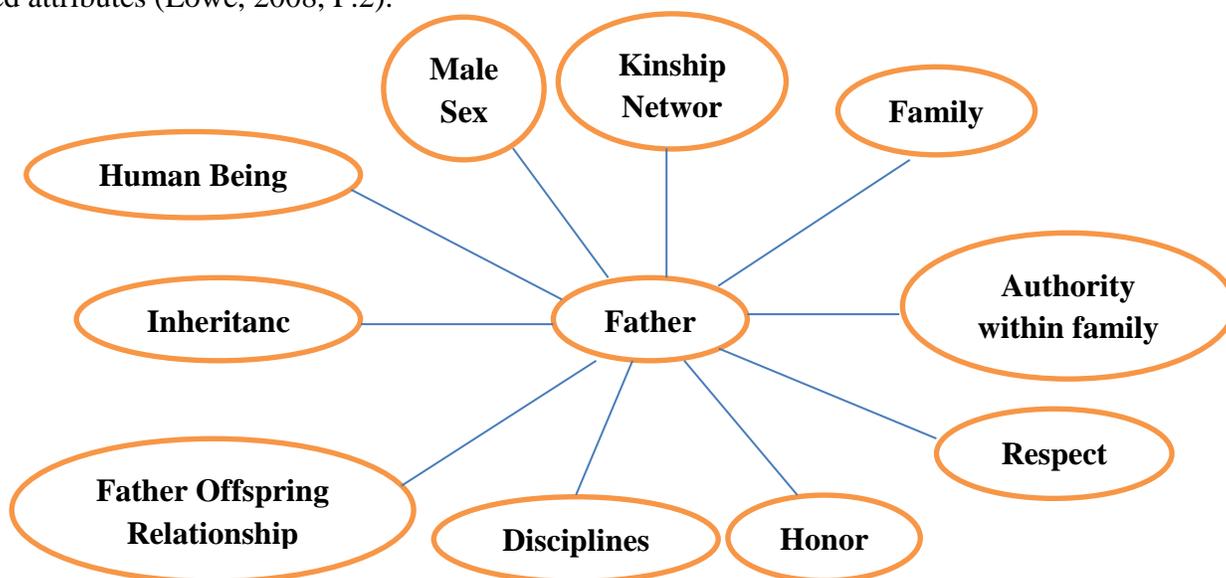


Figure 2. The Matrix Domain of the Word *Father*

This Figure is set by the researcher

Secondly, Langacker (1987) addresses both basic and abstract domains. He develops the level of conceptual organization that is not explicit enough in the theory of Frame Semantics. The difference between the basic domains as *space, time* and the abstract domains as *love, hate, marriage, ..etc* lays in the notion of experiential grounding or embodiment. Basic domains are derived from our sensory perceptual experience with nature while the abstract domains which are also derived from the embodied experience are more complex in their relation with human experiences and culture. Abstract domains need more knowledge, experience, and relation with other domains to be clearly understood. For example, the domain of *love* needs knowledge of embodied experiences like touch and sexual relations. It also needs cultural relations as in marriage ceremonies, dinner, and rituals. Thirdly, Langacker organizes the domains in a hierarchal model. A particular lexical concept presupposes a domain down or over the hierarchy. The concept of *driver* presupposes the domains of *car, street, regulation system, policeman, mistakes, accidents...etc* (see Figure 3). Finally, Langacker's theory of domains is concerned with the conceptual ontogeny which means the structure and organization of knowledge, and the way in which concepts are related and understood in terms of others. Domains that are not understood in terms of other domains are called basic domains (Evans & Green, 2006, p.231).

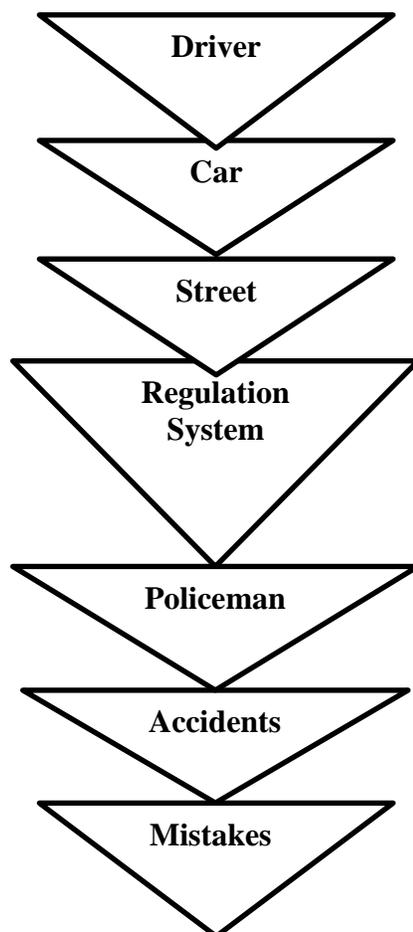


Figure 3. The hierarchy model of domains
This Figure is set by the researcher

Langacker's theory of domains has its own characteristics. The first is dimensionality; some domains are organized to one or more dimensions. Domains as *time*, *temperature* are organized along a single dimension and are thus called one-dimensional domain. *Space* is organized with two or three dimensions. In terms of drawing, there are only two dimensions; e.g. *drawing a tree on a sheet of paper*. In terms of the real world, there are three dimensions; e.g. *the boys are playing football*. The second is the locational characteristic as in the color domain. The color domain is calibrated with respect to a given experience. Color is a locational domain, and each point of the color along the dimension represents different color experiences. The third characteristic is the configuration which is not calibrated as with the locational domain. Space is a configurational domain; irrespective to its position with respect to the dimension of space, the shape circle remains a circle until one says a rectangle.

2.2. Previous works

A great bulk of word meanings analysis has been accumulated to serve the semantic purposes in identifying words meaning and relations. Robert (2008), who adopts the multidimensional approach to the layering of the lexicon and its semantic organization, declares that "meaning is construed in extremely varied ways according to common mechanisms". Thus, a single unit has many different meanings and refers to more than a referent; e.g. the word *greens* can refer to both a village community and a political party (Robert, 2008, p.2). Robert finds that meaning of a concept is part of hierarchal architecture whereas Langacker (1991) says that meaning is encyclopedic and hierarchal. According to Robert, the word *uncle* incorporates both the designated element and the structure of parental relations (Robert, 2008, p.8).

Finkbeiner and Nicol (2003) declare that vocabularies should be taught in semantic groups. They depend on the recommendations of Grains and Redman (1986) who deeply assert that "grouping words by meaning can provide greater precision in guiding students towards meaning, and in helping them to define the boundaries that separate lexical items" (p. 32). Similarly, Seal (1991) explains the same point when words are learned in semantic sets, "the learning of one item can reinforce the learning of another"; it can further facilitate understanding because "items that are similar in meaning can be differentiated" (p. 300). The results of Finkbeiner and Nicol's study approve its main purpose in acquiring new words by setting them into semantic groups. However, they find that it is slower than acquiring first language (L1) words randomly (Finkbeiner & Nicol, 2003). Tinkham (1997) talks in the same line of the domain's theory. He finds that the thematic and semantic manner of organizing new L2 vocabulary is suggested by more recent psychological research which would predict that clusters like *frog*, *green*, *hop*, *pond*, *slippery*, *croak* would be more easily learnt than groups of unassociated words. An experimental study based on L2 learners find that the thematic clustering of lexical items ought to be prioritized over semantic or haphazard clustering of the vocabulary items chosen to be taught to L2 learners (Shirazi ,et.al. 2015).

Widyastuti (2010) analyzes the meaning of words using the componential analysis approach. She explains the componential meaning of the semantic domain of *man*, *woman*, *boy*, *girl* as humans. Thus, the word *human* is the common component; however, they are distinguished by *adult*, *male*, and *female*. Therefore, the meaning of an individual item or word can be expressed by the combinations of these features. The features of human are: a man, woman, girl, boy, male

female....etc. She finds that these components serve to distinguish among the meanings of semantically related lexemes in the same semantic domain.

Khosravizadeh and Mollaei (2011) apply the theory of semantic field to L2 learners with different levels. They aim at scrutinizing the contribution of the semantic field approach to learning new vocabulary items in EFL settings. In this experiment, Khosravizadeh and Mollaei depend on the aspect of word meaning in accumulating and increasing the process of vocabulary acquisition in students' minds. They find that new words with close relation to the learners' culture can be acquired quickly and last for a long period.

Wangru (2016) uses the semantic field theory in his experimental study to increase the vocabularies of L2 learners. The semantic field theory in vocabulary teaching includes hyponymy, synonym, antonym, meronymy and homonymy, and builds a semantic network between new words and known words. He insists on the importance of the linguistic competence that is largely affected by words acquisition. However, he finds that learning vocabularies is an extremely difficult task in English because it covers many aspects of English language, such as the semantic, syntactic, lexical, and phonological. Wangru claims that the deep comprehension of semantics can be of great help for students to master words.

This study works with the same issue, vocabulary acquisition. It uses Langacker's theory of domains in order to draw eloquent boundaries for Iraqi L2 learners to elicit word meaning and help them give more concentration on the details and relations of meanings.

3. The Experiment

This study aims at enhancing Iraqi students' awareness of Langacker's theory of domains and developing their comprehension in gaining the semantics of English words. It is an experimental study which is designed in the pre-test and the post-test. Forty- six students participate in this experiment as an experimental group. The researcher tests students' information about the theory of domains in explaining the related meanings of some English words throughout the multiple frequencies of occurrence of each word in different forms within the same domain. She uses the blended learning method in order to facilitate students' participation in this experiment. To achieve the aim in question, the researcher prepares an experiment of three phases:

- The first phase, the introduction, in which the researcher introduces the principles of the theory in a brain storming game via Facebook group. She posts words for example, *mother, war, food, space, school, love.....etc.* The participants comment on these words by single words that are related to the meaning of the words being posted;
- The second phase, the pre-test, is designed to analyze the meaning and frequency of the same words in different sentences.
- The participants are requested to test the polysemous meanings for the matrix domain. For instance, in the following sentence, *mothers have great roles*, the matrix domain is the "mother", who is characterized as being: human being, female sex, kinship network, family, emotions, authority within family, respect, honor, discipline, mother-offspring relationship, inheritance, inherited attributes; and

– The third phase, the post-test, is designed to test the difference in the related semantic domains of the same lexical concept in the two given different positions. E.g., the lexical concept 'school' in these two examples "*Hani draws a school*" and "*Hani goes to school every day*".

4. Participants and Procedures

The participants were forty six second year students who are mostly of intermediate level in English language. The students have not known anything about the theory of domains before the participation in this experiment. They also have not tested the validity of domains in gaining the semantics of English words. The procedures were done as shown below:

1. The researcher displays slides in the classroom that explain the aspects of the domains approach and its characteristics;
2. Then, a handout is distributed to them that contains a detailed explanation of the theory;
3. Students work in groups during class time to identify the matrix domain and the sub-domains of the lexical concepts given to them. In order to achieve a high level of participation, WhatsApp groups are hold. The researcher sends two or more sentences about a lexical concept, for students to practice analyzing the main meaning and identifying its domains. They can also clarify the related domains throughout diagrams. They are also required to pinpoint the dimensions and configurations of these domains;
4. The researcher asks the students to compare between domain and sub-domains of each given lexical concept in different sentences and elicit their related domains; and
Then, the post test is arranged in accordance to the steps in the procedures.

5. Target Words

There are seven words that are selected by the (5) panelists to apply the theory of domain on. One word is related to the abstract domain, such as the word "*love*" and another one is related to the basic domain as in the word "*space*". The other 5 words discuss and analyze words that have wealthy background information as in: *mother, war, food, school, and bird*. These lexical concepts are chosen to test the effect of the theory of domains in explaining word meaning.

6. Results of the Pre-test

Forty-six marks were collected by the researcher in the preliminary examination of students' abilities to interpret and analyze the meanings of *mother, war, bird, food space, love and school*. It was noticed that the participants have limited aptitude in analyzing the meaning of the above mentioned lexical concepts. Their limitations appear drastically when identifying the domains related to each lexical concept. Besides, they neither could compare the dimensions of the same lexical concept in different sentences, nor were able to configure the lexical concepts.

The result of the pre-test showed that all students have simple clues about the domains approach and its sights. It is obvious that students depended on their initial knowledge when representing the ideas or roles that are related to the lexical concepts. Most of the participants showed blameless ability to differentiate among the basic, abstract, and configurational domains.

7. Treatment

The treatment phase started after the results of the pre-test. The target words were embedded in

some different sentences. The words appeared in different subjects to present the different meanings.

The participants were asked to analyze the different meanings of each lexical concept and identify the different related domains. They had to get the meaning of the lexical concept in each sentence, and classify the direct and indirect related domains. Sinking deep into the semantics of the lexical concepts helps gain more control in the usage of new words. Eliciting a lexical concept from a given image and identifying the surrounded domains enhance the learners' ability to analyze the domains of any lexical concept. Thus, knowing the kind of domain is an important step in the semantic analysis of this approach. During the class time, the participants worked individually and in groups; each group prepared representations about a chosen lexical concept that help identify the domains and their characteristics. After identifying whether the lexical concepts are abstract, basic, or domain matrix, they were asked to identify the dimensionality and configuration of the domains. They also classified the meaning intricacy or the interrelated meanings of each domain. Participants participated in activities, in which they were asked to complete some drawings. Then, they had to explore the domains or matrix domains of the given drawing; e.g. students were given worksheets that contain incomplete drawing of a bird, for they had to complete it in the most suitable way according to their understanding. In a further step, they had to answer comprehensive questions or write a short summary to describe the drawings in details. Students were asked to prepare a complete project about a given lexical concept. The activities were planned just for the students to be more engaged and exposed to the target words. This study was intended to assess the contribution of domains theory in identifying the meanings of lexical concepts with respect to domains and vocabulary learning. After sixteen sessions of treatment, the students were allowed to sit for the post-test.

8. Post-Test

After sixteen sessions of working on the domains theory, the participants sat for the post-test. They were asked to analyze the lexical concepts alone and within sentences. They have to compare between the same lexical concept in two different sentences.

Low model analysis is used to represent the domains of the lexical concepts in diagrams. Throughout the results of the post-test, the participants showed a remarkable improvement in analyzing the lexical concepts into domains and identify their meanings as well. They achieved a notable awareness in determining the kinds and merits of domains. They were further able to grasp the surface and deep meanings of the target words. Their ability appeared in using these words in different sentences. They were also capable of eliciting and classifying the matrix domain.

9. Data Analysis

The results obtained from the pre-test and post-test were put to two SPSS statistical editor tests. Each test compared the performance of all students when determining the domains and their characteristics. Table 1 displays the basic descriptive statistics of the pre-test scores of the students. In this Table, the number of students and the mean of their scores along with the other statistical variables are described.

T-Test**Table 1. Shows the difference between the pre-test and post-test***[DataSet0]*

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-test	10.45	46	2.816	.318
	Post-test	16.81	46	1.112	.196
Paired Samples Correlations					
		N	Correlation	Sig.	
Pair 1	Pre-test & post-test	46	.207	.043	

Table 1 shows the number of the participants which is 46, and their average in the pre-test, which is 10.45, and the post-test, which is 16.81. The participants showed a progress of 6.36 marks. Since the difference between the two means of both tests showed a progress that was more than $(0, 05)^*$, then, this study is valid. This means that the domain theory can make a remarkable positive change within the participants' comprehension and usage of the semantics of English words.

10. Discussion

The results of the study show that Iraqi learners enhance their ability in gaining new words by using the theory of domains. Since the theory depends on finding the most closed words to the demanded lexical concept semantically, this process of research and analysis can certainly inflate learners' vocabulary and strengthen the intricacy of words in their minds.

The theory of domains proposes more emphasis on the lexical concepts and its relations with the closed domains. Sometimes, this needs more time and analysis and more sentences drawings and diagrams to be used to assure their knowledge about each domain. Inevitably, the learners absorb a new strategy when thinking about words. Thus, they can open more and more widows for vocabulary learning during their analysis or search about vocabularies and their background information.

Unsurprisingly, the learners get in-depth understanding of the semantic networks of the lexical concepts throughout their work on the domains theory.

11. Conclusion

The theory of domains can offer a considerable benefit in vocabulary learning. Regarding the number of participants and the number of words, this study is very limited. The encouragement of the participants' results opens the gate to further research studies, and to use more words and more groups of learners in different places.

12. Recommendation

According to the obtained results, the following points are recommended:

1. Using the domains theory in comprehension class can better up the students' performance.

2. Arranging workshops to train both teachers and researchers.
3. Another research can be conducted on the profile and base organization in a sentence or the active zone in a sentence.

13. Limitation of the Study

This study is limited to second year students of the intermediate level at the department of English in the University of Baghdad during the academic year 2018/2019. Forty-six participants were randomly selected by putting their names in a basket, shaking the basket and then randomly selecting the names.

About the Author:

Raghad Fahmi Aajami is an instructor of linguistics at the Department of English/ College of Education for Women/ University of Baghdad. Her major research interests include applied Linguistics, and cognitive linguistics and English language studies.

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Appendix A

1. Draw a diagram for the lexical concept "war" to identify its domains.
2. Identify the domains that related semantically to the concept represented in the image?



3. Identify and analyze the lexical concept "war" in the following sentences in the light of domains theory.
 1. The **war** is on.
 2. Common knowledge the **war** spilled over," the Watcher snapped.
 3. He had a feeling the **war** was just starting to get interesting.
 4. We got a **war** to fight and women waiting for us.
 5. A long **war**, not with cranes, but with weeds, those Trojans who had sun and rain and dews on their side.
 6. Instead of **war** in his background, there was peacemaking and diplomacy from the beginning.
 7. In **war**, they were savage and cruel; for **war** always makes men so.
 8. Under what conditions can we claim victory in this **war** on disease?