

A Lexical Semantic Analysis
of the Verbs ESHTARA/BUY and DAFA/PAY in Arabic

Ashwaag Bazaid

San Francisco State University

ENG 895 Squib

Supervising Committee:

Troi Carleton, Chair	Professor, Linguistics
Jenny Lederer	Professor, Linguistics

Abstract

In this paper I present an analysis of the two verbs ESHTARA/BUY and DAFA/PAY in Arabic. I examine the two verbs in depth for their similarities and differences using frame semantics. The goal is to successfully conduct an in-depth analysis of the Arabic lexicon to better understand the lexical unit. The data collected for this research comes from an Arabic corpus that was manually annotated to account for the fillers of the frame elements and the frequency of the fillers for each verb. The results suggest that certain frame elements are overtly present in the sentence more frequently for different verbs. I argue that through frame semantics we can explain why the frequency of the overtly expressed frame elements for these verbs varies, although they evoke the same frame¹.

1. Introduction

This research paper investigates two verbs in Arabic, ESHTARA/BUY and DAFA/PAY, through frame semantic analysis. Analyzing these two verbs in depth for their similarities and differences sheds light on how speakers may perceive and understand the verbs. To do so, I propose a corpus-based process using an Arabic corpus and the conceptual information contained in the *Commercial transaction* frame as outlined by FrameNet to account for the frame elements. I argue that although the two verbs evoke the same frame, we can account for the differences between the verbs by using frame semantics to examine the different frequencies of the fillers used with each verb. This may indicate the need to incorporate finer details into the *Commercial transaction* frame in Arabic that is yet to be developed.

Our understanding of words is not based on the meaning of the words alone. Each one of us possesses preexisting knowledge, whether from experience, culture, etc., that determines how we understand sentences and words and even perceive the world. Throughout our lives these experiences are stored as semantic frames that correlate to different lexical units. When a lexical unit is produced, a particular frame, or number of frames, is evoked. Semantic frames can

¹ <https://framenet.icsi.berkeley.edu>

explain our understanding of metaphors and culturally related senses as idioms (Fillmore & Johnson 2003).

FrameNet is a “computational lexicography” project, which is based on frame semantics. This project provides the syntactic and semantic properties of words. Lexical units and frames are the main components of lexical analysis in FrameNet (Fillmore & Johnson 2003: 235). Each frame contains frame elements, which are semantic roles adapted to a particular frame. A simple frame, for example, could be the *Transfer* frame, which is defined as “a BUYER and SELLER exchanging GOODS for MONEY.” *Transfer* frame elements include: the *DONOR*, the person who gives something to someone; the *THEME*, the object being transferred; and the *RECIPIENT*, an entity that ends up possessing the *THEME*. These are demonstrated in the example below.

Example 1:

(1) Mary gave John a book.

The *Transfer* frame is evoked here through the verb “give.” Fillers for the frame elements are “Mary” in the *DONOR* position, “book” in the *THEME* position and “John” in the *RECIPIENT* position. As you can see, different formatting styles are used to indicate the frame and frame elements – this is to demonstrate that the normal sense of the English word is not being used. To illustrate, in the example above, the frame element *DONOR* does not signify someone who is charitable, rather the meaning of *DONOR* is circumscribed by the context of that specified in the frame (Fillmore & Johnson 2003).

Semantic relations between words can be provided through FrameNet. Going back to the *Transfer* frame, the lexical units “give” and “receive” both evoke that frame; however, these words are different in the “relative salience” of the *DONOR* and *RECIPIENT* frame elements, which shows in their syntactic expression. FrameNet helps identify syntactic expressions, forms for words and annotated corpus to show how these patterns are noticed or presented in actual sentences. Annotated corpus examples are used as real language data to show how frame and frame elements work (Fillmore & Johnson 2003: 238).

The question I examine here is: How can we indicate the differences between the two verbs ESHTARA/BUY and DAFA/PAY that evoke the same frame? Two typical examples of how these verbs are used are:

Example 2:

(2) Eshtara Mohamed altofaha.

“Mohamed bought an apple.”

Example 3:

(3) Dafa Mohamed 10 riyalat.

“Mohamed paid 10 riyals.”

As we can see from these two examples, there are differences in the frame elements that are overtly expressed with the two verbs. The verb ESHTARA/BUY has the elements BUYER “Mohamed” and GOODS “an apple,” while DAFA/PAY has the elements BUYER “Mohamed” and MONEY “10 riyals.” Although trading is a global experience for human beings, it does not necessarily mean that in every language the two verbs carry similar meanings of exchanging money. If they did, then ESHTARA/BUY and DAFA/PAY would have a complete overlap of semantic and syntactic roles. While there may be some overlap, the aim of this research is to highlight the differences.

I chose to examine these two verbs because they are “normal, everyday” words. As such, their senses tend to be overlooked and unconsciously stored and registered in our minds, as opposed to marked, unusual words (Johnson and Lenci 2011). For this reason, a collection of data on these two verbs might be interesting for a preliminary study. This study can be conducted using FrameNet.

The aim of this study is to determine the typical appearance of these verbs in relation to the *Commercial transaction* frame. This can illuminate the most common similarities and/or differences between these two verbs in the Arabic language. This paper is the first stage of an

extended process of which the goal is to successfully conduct an in-depth analysis of the Arabic lexicon for a better understanding of its lexical units (Hudson 2008).

The paper is structured as follows: Section 2 covers the literature review, which explains the framework used in this analysis, Section 3 covers the details of the methodology used in this research, Section 4 presents the data analysis for the verbs ESHTARA/BUY and DAFA/PAY in Arabic, and Section 4 is a discussion of the findings and the conclusion.

2. Literature Review

The concept that words interrelated through meaning can be classified in a conceptual domain was proposed by semantic theory. In semantic theory, full understanding of a lexical meaning can only be accomplished by looking at a group of words that are related semantically rather than looking at a word in isolation. Further research in the field done by Charles Fillmore (1976) resulted in frame semantics.

Frame semantics is best understood to be that of a language user's mind evoking a frame when a linguistic feature, such as an idiom, word, or phrase, etc., is produced (Fillmore & Atkins 1992). Frame semantics' central idea is that the understanding of a word is driven from people's previous experience and knowledge, which develops a cognitive structure – a "frame" – that is evoked whenever the lexical unit (words) related to the frame is produced (Fillmore and Baker 2009). In other words, identifying a word's meaning must start by first unfolding the conceptual structure. Then lexical units are gathered in a semantically related set, which indicates a certain instance of a semantic frame and refers to these frames in description (Boas 2002). A frame, in frame semantics, is a conceptual structure that provides a prototypical situation. A certain frame can be evoked through the occurrence of its lexical units in a sentence. A lexical unit can evoke a number of frames depending on the context.

Frame semantics researchers distinguish between the frame equated to the words as part of our knowledge, and how we apply the cognitive structure to our experience regardless of whether or not it is language driven (Fillmore and Baker 2009). Since the 1970s, many concepts have developed that can be defined as the knowledge and background that shape our experience and interpretation of an utterance, such as scheme (Rumelhart 1975), narrative (Dawkins 1976), and

“idolized cognitive model” (Lakoff 1987). However, frame semantics plays an important part in explaining how we remember, observe and reason our experience, and how we make assumptions. Some frames are globally quite similar – such as the ones we acquire by simply living on Earth, or the ones we develop from having bodies and our biological and emotional needs. Other frames, however, are developed from being part of a culture as well as being part of a certain speech community that is supported by this culture (Fillmore and Baker 2009). Hence, some frames can be universal, while others may be language specific.

Frame semantics is centered on the conceptual schema that underlies the understanding of the lexical item. Fillmore describes this as being “the most central and powerful” approach to provide conceptual awareness of a word and the semantically related words (Fillmore 1978). Fillmore and Atkins’ (1992) work on the verb RISK demonstrated the applicability of frame semantics. This work served as the basis for the Descriptive Linguistic Specifications (DELIS) project in 1993, which was done under the supervision of Fillmore and the work of a number of his colleagues². Their research compared the English, French, Dutch, Danish and Italian verbs of perception and communication based on frame semantics, which in turn lead to the initial stages of developing FrameNet. They decided that each frame in FrameNet would include a name, definition, frame elements, and example sentences. An illustration of a frame is the *Transfer* frame, which is defined in FrameNet as A DONOR transferring a THEME to a RECIPIENT. The core elements would be the DONOR, THEME, and RECIPIENT.

In terms of recent research, FrameNet is one of the biggest accomplishments on the integration of semantics and syntax along with the semantic arrangement of the lexicon (Johnson & Lenci 2011). FrameNet is an electronic lexicon based project developed at the International Computer Science Institute, affiliated with U.C. Berkeley. It is supported by corpus data and provides syntactic and semantic information about the English lexicon (Fillmore, Johnson & Petruck 2003). Inspired by WordNet (Fellbaum 1998), FrameNet is a network that represents words in relation to the frames they evoke, based on the theory of frame semantics (Fillmore, Johnson & Petruck

² It was the work of Hide, Atkins and computational linguists such as Norling, Nicholas Ostler, Annie Zaenen, Willy Martin and Fillmore, as a consultant.

2003). In FrameNet, each frame indicates certain semantic roles that describe situations evoked by lexical units. These semantic roles are called frame elements. Moreover, FrameNet has been used to annotate full texts as a mark for “deep semantic annotation” where new lexical units and frames are developed depending on the content (Baker 2008).

The FrameNet approach acts as a reference for many languages (Rodman 2009). In fact, in present day, many languages have developed projects along the lines of FrameNet (Rodman 2009). Non-English FrameNet adopted a top-down resource creation for their FrameNet, which means they re-designed it from an existing frame (Vossen 1999 and Lonneker-Rodman 2007). Many advanced cross-linguistic FrameNets have been developed, such as the Spanish FrameNet, developed under the consultancy of Subirats, (Fillmore, Johnson & Petruck 2003), and the German FrameNet developed at the University of Texas, Austin under the collaborative work of Boas (Burchardt et al 2006). Other cross-linguistic works include Japanese, Chinese, Brazilian Portuguese, and Swedish FrameNet (Lonneker-Rodman 2009). In Arabic, all the work has been devoted to lexical semantics, such as the work of Smith, Oflazr, Mohit and Schneider (2012). In their study of semantic annotation they concluded that Arabic annotation of Wikipedia could be rapid and robust (Smith, Oflazr, Mohit & Schneider 2012). In a collaborative semantic work by Abdulati and his affiliates (Hawwari 2013), a number of Arabic morphological patterns and their behavior with certain verbs were studied. The aim was to examine whether or not there is a relation between a verb’s semantic role and its morphological pattern (Hawwari 2013).

In this paper I will analyze how the verbs DAFA/PAY and ESHTARA/BUY in Arabic evoke the *Commercial transaction* frame, and examine their semantic and syntactic relations in an attempt to better understand the Arabic lexicon. I will do so through a lexical semantic analysis using the *Commercial transaction* frame in English FrameNet.

3. Methodology

The data collected in this research is from the Arabic Corpus (<http://arabiccorpus.byu.edu>), which is the largest and only corpus available in Arabic. However, it’s important to note that this corpus is based entirely on magazines and newspapers. Due to the specific style of writing that the journalist must follow, getting a general lexical resource might be problematic as the data is not

representative of the standard Arabic. Although no balanced corpus in Arabic comparable to the Corpus of Contemporary American English (COCA) exists, newspapers have the benefit of containing a variety of topics such as politics, sports, health, business, etc., and they contain data closer to everyday language.

My first step was the construction of a list of the lexical units, which belong to the same domain (DAFA/PAY, ESHTARA/BUY, BAA/SELL, etc.). The selection of a semantic domain and outlining the frame evolved through carefully studying the data in the corpus. For polysemous words only one sense was considered (trading), in order to make sure that the words evoke the *Commercial transaction* frame. For example, there are two senses to the word DAFA/PAY and DAFA/PUSH; only DAFA in the sense of pay was used. In an attempt to yield a representative sample, a sample of 200 sentences for each verb DAFA/PAY and ESHTARA/BUY from the Arabic corpus was collected to represent the most common frame elements, and gain insights into the syntactic and semantic senses these verbs may carry. Once a general understanding of the word senses and their functions was established, a frame was proposed. In order to develop the Arabic frame and produce a lexical semantic analysis, the *Commercial transaction* frame I was developing was compared to the *Commercial transaction* frame in English FrameNet (<https://framenet.icsi.berkeley.edu>). For example, according to FrameNet, the core frame elements for the *Commercial transaction* frame are BUYER, SELLER, MONEY, and GOODS. I examined these elements in comparison to the Arabic examples for the two chosen verbs in order to identify whether or not the same frame elements apply. An example of the verb ESHTARA/BUY in Arabic, from the Arabic corpus is:

Example 4:

(4) Eshtara_{verb} al mostethmeron_{BUYER} ashomen_{GOODS} beqymat [10 malain Riyal]_{MONEY}.

“The investors_{BUYER} bought_{verb} stakes_{GOOD} worth [10 million Riyals]_{MONEY}.”

And an example for DAFA/PAY from the Arabic corpus is:

Example 5:

(5) Dafa_{verb} alraes_{BUYER} [1.2 Balyon]_{MONEY} mqabel [al muedat]_{GOODS}.

“[The president] _{BUYER} paid _{verb} [1.2 billion] _{MONEY} for [the equipment] _{GOODS}.”

As seen above, I identified the frame elements for this frame alongside the frame elements from FrameNet. After the frame was established, a manual annotation for its semantic role fillers was conducted to identify the frequency of the occurrence of the frame elements and how they are filled for each verb. For example, such an annotation would look like this:

Example 6:

(6) Eshtara _{verb} Mohamed _{BUYER/sub} al tofaha _{GOODS/obj}

“Mohamed _{BUYER/sub} bought _{verb} an apple _{GOODS/obj}.”

Then a comparison between the syntactic and semantic roles of the two verbs was conducted in order to construct the lexical semantic analysis.

Studying these two verbs serves a practical purpose, because they are widely used in the Arabic corpus. There is also a theoretical purpose, however, as although these two verbs appear at first glance to be quite similar, an analysis might reveal otherwise. Because these two verbs are “normal every day used” words, which tend to be overlooked as the unusual senses of a word tend to be consciously stored and registered in our mind as opposed to unmarked words. (Johnson and Lenci 2011). Therefore, a collection of data on them might be interesting for a preliminary study. This data used is to draw the prototypical appearance of the verb and the most common syntactic frames to establish a lexical semantic analysis for these two verbs and indicate their similarities and differences, if plausible. The use of FrameNet identifies valence forms for words and annotated corpus examples to show how these patterns are noticed or presented in sentences. It also indicates the core elements, which narrows down the syntactic fillers for the verbs. Aside from the valence information provided, FrameNet provides a wealth of information about polysemy, collocations, and discrepancies (Boas 2001). This aids in indicating the frequency of elements that act as fillers for each verb, thus creating a syntactic formula specific for the verb. By doing so, we can highlight the syntactic as well as the semantic difference of the verbs.

4. Data Analysis

In the following section, a construction of the frame for both ESHTARA/BUY and DAFA/PAY is established. Within the frame, references to the frame elements and examples that illustrate the use of these elements are given. Without knowing the lexical units that are evoked by a frame, the frame cannot be defined. It is essential that lexical units evoking a particular frame have similar numbers of frame elements. That is because the core elements are frame specific and they are an essential element to understanding the frame. For instance, to understand the *Commercial transaction* frame we need to understand that there is a BUYER who BUYS the GOOD from the SELLER in exchange for MONEY; whether or not all these elements are present in the sentence they are all evoked subconsciously when the frame is evoked. The restriction exemplifies that lexical units and frames are dependent on each other (Rodman & Baker 2009). Furthermore, a description of the syntactic relation of the verbs, presented as syntax, shows a way of expressing meaning for words that might share similar meanings, or can be distinguished, or further explained through their syntactic valences.

4.1. *Commercial transaction* Frame

The *Commercial transaction* frame is the main frame evoked when speakers use the two verbs ESHTARA/BUY and DAFA/PAY. Below, a definition of the frame is represented, followed by the core elements, which are frame specific and are necessary to understand the meaning of the word and the frame. Not all of these elements are necessarily present in each sentence but speakers still understand them to be there. The section is followed by the non-core elements that can be similar across many frames. However, they are not pivotal to understanding the meaning, since they only add additional detail to the meaning. For example, the MANNER in which the verb occurred or the TIME or LOCATION are all non-core elements that might occur in different frames.

4.1.1. Definition

After reviewing FrameNet's definition of the *Commercial transaction* frame in English and examining the data from the Arabic corpora, the definition of the *Commercial transaction* frame in Arabic is:

The BUYER exchanges MONEY with the SELLER for GOODS in which GOODS might include (labor, service, or time).

4.1.2. FEs

4.1.2.1. Core elements

Core elements are necessary to understand the meaning of the frame. The presence of any of these elements evokes the *Commercial transaction* frame. Based on FrameNet's core elements for the *Commercial transaction* frame, and after examining the data from the Arabic corpora, the core elements are:

1. BUYER: The person who needs the GOODS and gives MONEY to the SELLER in exchange.
2. SELLER: The person who owns the GOODS and receives MONEY in exchange for the GOODS.
3. MONEY: An entity the BUYER gives the SELLER for the GOODS.
4. GOODS: What the SELLER owns and gives to the BUYER in exchange for MONEY.

Below is a typical example of the use of each verb, illustrating the way the core elements are represented.

Example 7:

(7) Dafa Ahmed_{BUYER} [50 riyal_{MONEY}] meqdar alketab_{GOODS}

“Ahmed_{BUYER} [paid 50 riyals_{MONEY}] for [the book_{GOODS}].”

Example 8:

(8) Eshtara Fasel_{BUYER} [arbon dajajah_{GOODS}] men Hatem_{SELLER}

“Fasel_{BUYER} bought [forty chickens_{GOODS}] from Hatem_{SELLER}.”

As presented in the examples above, both verbs ESHTARA/BUY and DAFA/PAY evoke the *Commercial transaction* frame, defined as a BUYER purchasing GOODS from a SELLER for MONEY. As Example 7 illustrates, the verb DAFA/PAY evokes the *Commercial transaction* frame where Ahmed is the BUYER and the book is the GOODS that costs 50 riyals that represents the MONEY. Similarly, in Example 8 ESHTARA/BUY evokes the same frame where Fasel is the BUYER, the forty chickens are the GOODS and Hatem is the SELLER. These two example shows that not all core elements (SELLER in Example 7 and AMOUNT in Example 8) are necessarily present in

each sentence, but can be understood implicitly. In Example 7 it is understood that Ahmed paid someone 50 riyals for a book. In the same way, in Example 8 it is understood that Fasel bought forty chickens from Hatem for a certain amount of MONEY.

4.1.2.2. Non-core Elements

The non-core elements are the elements that can be similar in other frames, and which further describe the frame and add more detail to the meaning. However, their presence is not necessary to understand the meaning of the frame.

From examining the data from the Arabic corpora the following non-core elements were concluded:

(1) MANNER: Describes the BUYER's transaction (quickly, secretly, anonymously etc.).

Example 9:

(9) Dafat 5 riyal thaman al shay besuraa wa kharajt

"I paid 5 riyals for the tea quickly and went out."

The example above illustrates that DAFA/PAY evokes the *Commercial transaction* frame. The core elements in this case are, "I" being the BUYER, "tea" the GOODS, and "5 riyal" the MONEY. Although the SELLER is not represented, it is understood that "I" bought the "tea" for "5 riyals" from a SELLER. In this example, a detail is added to the sentence, which is the MANNER in which the BUYER purchased the GOODS, in this case "quickly." Adding the manner in which a transaction takes place sometimes becomes necessary for reasons dependent on the speaker. The speaker might want to emphasize the manner of the transaction, rather than the transaction itself. For example, "paid quickly" or "bought secretly," rather than simply saying "paid" or "bought." However, eliminating the manner does not affect the understanding of the basic action of "paying." Hence, it is a non-core element. This is similar to how the verb ESHTARA/BUY evokes the *Commercial transaction* frame, as can we see in the example below.

Example 10:

(10) Eshtara-t laha almeatf khelsah don an ta-shur

"I bought her the jacket secretly, without her noticing."

In this example too, ESHTARA/BUY evokes the *Commercial transaction* frame. The core elements for the frame are represented in this example as the BUYER “I,” the GOOD is the “jacket,” and, as mentioned previously, the SELLER and the MONEY are not explicitly stated, but the listener still understands that the jacket was bought from a SELLER for a sum of MONEY. The MANNER in which the purchase occurred in this example is “secretly.” The description is added to the sentence to give more detail, and often to emphasize the MANNER in which the event occurred. Nevertheless, if the MANNER is not stated, it does not affect our understanding of the *Buying* event.

(2) MEANS: The way in which the BUYER pays (cash, check, transfer etc.).

The following example from the Arabic corpus represents the MEANS with which the BUYER pays.

Example 11:

(11) Dafa WorldCom thaman safqat al MCI fe surat ashum

“WorldCom paid for its acquisition of MCI in stock.”

In this example, the MEANS with which the BUYER paid for the GOODS was stocks. The MEANS here add some detail to the *Commercial transaction* frame of paying for MCI. This detail may be important if the speaker’s emphasis is on the MEANS. However, deleting the MEANS does not affect our understanding of the *Commercial transaction* frame of PAYING.

(3) FREQUENCY: How frequent does the BUYER need to pay a certain amount of MONEY.

The following example from the Arabic corpus represents the FREQUENCY with which the BUYER pays.

Example 12:

(12) Yadafaon 500 riyal shahryan

“They will pay 500 riyals every month.”

In example 12, the frequency with which the BUYER pays, in this case “every month,” is presented. Our understanding of the *Commercial transaction* frame of PAYING is not affected by the deletion of the frequency detail, however, it adds some information.

All of the examples above (core and non-core) illustrate that both verbs, ESHTARA/BUY and DAFA/PAY, evoke the *Commercial transaction* frame. In every example the four core elements (BUYER, SELLER, GOODS, and MONEY) are either present or implied. Some examples show the presence of the non-core elements used to elaborate and add details when necessary.

Examining the English FrameNet, both verbs, PAY and BUY in English, evoke the *Commercial transaction* frame in the same way as Arabic verbs. The core elements also overlap in both languages. This demonstrates that a strong correlation between the Arabic frame and the English frame exists.

As noted above, the verbs DAFA/PAY and ESHTARA/BUY had different core elements that were necessary in a sentence, whereas others were omitted but still implicitly understood. The following section is an attempt to analyze the two verbs and try to explain those differences.

4.2. Semantic Differences

Frames offer a way to represent semantic relations between lexical units. As shown above, the verbs ESHTARA/BUY and DAFA/PAY are related, as they both evoke the *Commercial transaction* frame. This relatedness occurs if both verbs generate the same FEs and evoke a similar understanding of the *Commercial transaction* frame. However, the verbs are different in the “perspective” through which they execute the *Commercial transaction* frame (Fillmore & Petruck 2003).

As indicated by the Arabic corpus attestations, the frequencies of core elements that lexically co-occur with each verb are as follows:

Table 1:

Verb	BUYER	SELLER	MONEY	GOODS
ESHTARA/BUY	200	62	87	197
DAFA/PAY	200	33	171	186

*Frequency of the core element occurrence in the verbs ESHTARA/BUY and DAFA/PAY

The frequencies in the table above were all manually annotated in each sentence for the fillers of the core elements that are BUYER, SELLER, GOODS, and MONEY. For example:

Example 13:

(13) [Dafa_{verb}] [alraes_{BUYER}] [1.2 Balyon_{MONEY}] mqabel [al muedat_{GOODS}]

“[The president_{BUYER}] [paid_{verb}] [1.2 billion_{MONEY}] for [the equipment_{GOODS}].”

The difference in the frequency of core elements paired with the two verbs may be due to a complex difference in the definitions of the verbs, which could be explained through a deep semantic analysis.

ESHTARA/BUY clearly indicates commercial trading where an exchange of ownership of the GOODS between the BUYER and the SELLER occurs. However, DAFA/PAY (paying for something) is more complex. The difference is that ESHTARA/BUY can be part of DAFA/PAY as an entity exchanges MONEY for GOODS, however, DAFA/PAY can also include other things that don't represent physical GOODS, i.e. labor, favors and services. Moreover, at times one frame can be part of another frame, or various numbers of other frames. To illustrate, ESHTARA/BUY indicates, or can be represented through, the *Getting* frame. As presented in FrameNet, the *Getting* frame is defined as follows: “The RECIPIENT starts off without the THEME in their possession, and then comes to possess it.”³ Since the focus in ESHTARA/BUY is on the GOODS so that the BUYER HASAALA/GET the GOODS for MONEY we can replace ESHTARA/BUY with HASAALA/GET, as in the following example:

Example 14:

(14) Hasala Mohammad ala al sayarah bemgdar 50,000 riyal.

“Mohammad got a car for 50,000 riyal.”

As we can see from the example, HASAALA/GET can replace ESHTARA/BUY and carry the same meaning. However, although HASAALA/GET can be used interchangeably with ESHTARA/BUY, there is nevertheless a crucial semantic difference between HASAALA/GET and ESHTARA/BUY, where ESHTARA/BUY implies that the BUYER bought it for MONEY. This is illustrated in the following example:

³ FrameNet, *Getting* Frame (<https://framenet2.icsi.berkeley.edu/fnReports/data/frameIndex.xml?frame=Getting>)

Example 15:

(15) Eshtara Khaled altofaha

“Khaled bought an apple.”

However, HASAALA/GET is more generalized and does not necessarily imply an exchange for MONEY. This is illustrated in the following example:

Example 16:

(16) Hasalat Fatimah ala tofaha

“Fatimah got an apple.”

In this sentence, Fatimah got an apple, but not necessarily for MONEY; however, the implication in the first example with ESHTARA/BUY is that Khaled got the apple for a certain amount of MONEY.

On the contrary, DAFA/PAY is indicated, or can be represented through, the *Giving* frame. As stated in FrameNet, the *Giving* frame is defined: as a DONOR transfers a THEME from a DONOR to a RECIPIENT⁴. As the focus is on the MONEY, the BUYER QADAM/GIVE MONEY for a benefit but not necessarily physical GOODS, hence replacing QADAM/GIVE with DAFA/PAY is plausible, as illustrated in the example below:

Example 17:

(17) Qadam Salm 24 riyal mqabel gaseel al nafetha

“Salm gave 24 riyal for a window wash.”

From this example, we can see that QADAM/GIVE can replace DAFA/PAY and afford the same meaning. However, the two verbs have a complex relationship. DAFA/PAY implies the involvement of MONEY, with an explicit exchange of MONEY for a benefit to the BUYER. However, GIVE does not. As we can see in the following example:

⁴ *Giving* frame, from FrameNet;
<https://framenet2.icsi.berkeley.edu/fnReports/data/frameIndex.xml?frame=Giving>

Example 18:

(18) Dafa Ahmed thaman al kitab

“Ahmed paid for the book.”

In this example the BUYER “Ahmed” DAFA/PAY for the GOODS “book” and the implication is that he paid with MONEY. Here Ahmed is the RECIPIENT who possesses the THEME “book” through the exchange of MONEY. However, in the next example with QADAM/GIVE:

Example 19:

(19) Qadam le Ahmed alkitab

“Ahmed was given a book.”

In this example the RECIPIENT “Ahmed” also possesses the GOODS “book;” but in this case the exchange of MONEY is not necessarily implied.

However, the verbs ESHTARA/BUY and DAFA/PAY are not perceived as being part of the frames *Giving* and *Getting*; and these frames are considered an elaboration of the *Commercial transaction* frame because the verbs demonstrate a more specific event (trading), rather than just simply transferring a THEME. Additionally, it is more complex where the BUYER actually gives MONEY to the SELLER and takes GOODS but the SELLER also takes MONEY and gives the GOODS to the BUYER, making it a double-sided transaction.

In sum, the difference between the two verbs based on what core elements are mandatorily present in a sentence can be explained through the different perspectives of the verbs. Since ESHTARA/BUY can be seen from a GETTING perspective, the focus is on the GOODS. Hence it is mandatory for the GOODS to be present in sentences using ESHTARA/BUY, and, therefore, the frequency of the GOODS was high. And as DAFA/PAY can be seen from a GIVING perspective, the focus is on the MONEY; hence it is mandatory for the MONEY to be present.

As indicated from Table 1 above, ESHTARA/BUY necessarily needs to express the elements BUYER and GOODS for the sentence to be complete. The SELLER and the MONEY are understood and not often expressed. In contrast, DAFA/PAY needs the MONEY and BUYER to be present. In

some instances the GOODS are not present and this occurs only if the listener has previous knowledge of what the GOODS are. The SELLER, however, is implied and is most of the time not explicitly expressed. This might be due to the universal understanding of the *Commercial transaction* frame that implies having a BUYER, SELLER, GOODS and MONEY involved in the event. The different conceptual perspectives for each verb, previously explained as GETTING and GIVING, might be the reason for the different elements that are mandatorily expressed in relation to these verbs. The verb ESHTARA/BUY focuses on the GOODS changing owners, whereas DAFA/PAY focuses on the MONEY paid. These differences between the verbs in the frame indicate that semantic differences between the two verbs exist, and that the relation between the frame elements is complicated.

In sum, the two verbs might evoke the same frame, however, they are semantically different where the verb ESHTARA/BUY can be interchangeable with HASAALA/GET and DAFA/PAY can be interchangeable with QADAM/GIVE. This suggests a rather complicated relationship between verbs that evoke the same frame.

5. Discussion and Conclusion

From the analysis presented in this research, two Arabic verbs were chosen: ESHTARA/BUY and DAFA/PAY. By establishing the *Commercial transaction* frame in Arabic along the lines of the English FrameNet, the core elements that evoke the frame were identified as the BUYER, SELLER, GOODS, and MONEY. This helped to indicate the semantic differences between the verbs. The data illustrates that the verb ESHTARA/BUY in Arabic implies GETTING, in which the core elements necessary to indicate a syntactic and semantically correct sentence are the BUYER and the GOODS. The main focus is on the RECIPIENT (BUYER) and the THEME (GOODS), as opposed to DAFA/PAY, which indicates giving, as illustrated through the core elements that are necessary for the sentence to be syntactically and semantically correct. As shown, the focus of DAFA is on the DONOR and the THEME that is the MONEY in this case. The passing of GOODS from the SELLER to the BUYER can be a rough definition of ESHTARA/BUY, however, DAFA/PAY is the passing of the MONEY from the BUYER to the SELLER.

As presented throughout this paper, understanding the verbs' meaning is complex. It might be inherent from a number of frames and, entrenched in a complex conceptual system. The semantic and syntactic differences of words can be studied through the use of FrameNet, as well as the analysis of the frequencies of the collection of words. The different frequencies of collected words suggest differences in the meaning and how both the speaker and the listener perceive them. From a semantic perspective, the verbs don't apply to the same range of situations; hence, the two verbs have different meanings.

An essential criterion is the semantic filler. It is essential to help define the frame membership of lexical units and can also be helpful to identify the syntactic information. This further aids in identifying the frame evoked because the same syntactic pattern, but with different semantic types, often evokes different senses of a word (Johnson and Lenci 2011).

This work is only a fraction of the research that can be done on these two verbs alone. Future work in this field can contribute to a better understanding of the Arabic lexicon. Also, future work can be done to contribute to the yet to be developed Arabic FrameNet, to make it comparable to that of the English FrameNet. This research is also a valuable addition to the lexical semantic field that has seldom been studied in Arabic. Determining the feasibility of a truly independent description and analysis of another language based on semantic frames to connect a number of FrameNets could be another important point (Boas, 2002). Where the frame is not complete, there seem to be differences between the verbs ESHTARA/BUY and DAFA/PAY. For instance, why can we say DAFA/PAY for things we can't BUY? And, why is it that DAFA/PAY can be extended to time and services while ESHTARA/BUY cannot? Clearly, further investigation could provide more information about the syntactic and semantic behavior of these two verbs.

Furthermore, it would be interesting to examine all verbs evoking the *Commercial transaction* frame and analyze their semantic and syntactic structure to indicate their similarities and differences. This would provide a better perspective of the way people might perceive and understand those verbs. Comparing the findings cross-linguistically with the English *Commercial transaction* frame would also be helpful, as well as defining what the differences and similarities

in the semantic frames are across the two languages. This is interesting because the *Commercial transaction* frame is used globally. Such an investigation would grant more information about how the languages conceptualize the event, and whether verbs may evoke the same frame or only certain aspects of the frame. As the frame is global, it might be necessary to distinguish between universal frames and language-specific frames. This could provide a better indication of what aspects of the *Commercial transaction* frame are universal, and which aspects are merely correlated to the discrepancy of lexical units across languages.

Finally, applying the analysis to a more balanced corpus might be interesting, as standard Arabic is quite different from everyday Arabic. This may reveal further interesting differences between the two verbs.

References

- Baker, C. 2008. *FrameNet, present and Future*. In Proceeding of First International Conference on Global Interoperability for Language Resources. C(ICGL-2008).12-17. Hong Kong, January.
- Boas, Hans C. 2002. *Bilingual FrameNet Dictionaries for Machine Translation.*" *Proceedings of the Third International Conference on Language Resources and Evaluation*. Eds. González M. Rodríguez, and Paz Suárez C. Araujo. Vol. IV. Las Palmas. 1364-1371
- Boas, Hans C. 2005. Semantic Frames as Interlingual Representations for Multilingual Lexical Database: 445-478
- Burchardt, A., Erk, K., Frank, A., Kowaliski, A., Pado, S., and Pinkal, M. 2006. *The SALSA Corpus: A German Corpus Resource for Lexical Semantics*. In Proceedings of the fifth International Conference on Language Resources and evaluation (LREC-06),969-974, Genoa, Italy.
- Dawkins, 1976. In: Fillmore, C. & Baker, C. 2009. *A Frames Approach to Semantics Analysis*. June 30. P.314
- Fellbaum, C. 1998. *WorldNet: An Electronic Lexical Database*. Cambridge, MA : MIT Press.
- Fillmore, C. 1976. Frame Semantics and the Nature of language. *Annals of the New York Academy of Science* 280. 20-32
- Fillmore, C. 1978. In: Fillmore, C. 2003. *Background on FrameNet*. *International Journal lexicography*. 235-250.
- Fillmore, C. & Baker, C. 2009. *A Frames Approach to Semantics Analysis*. June 30. 16-59
- Fillmore, C. & Atkins, S. 1992. Towards a Frame –based Lexicon: The Semantics of RISK and its Neighbors. In A. Lehrer & E.F. Kittay (Eds), *Frame, fields and contrast* (75-102). Lawrence Erlbaum Associates.
- Fillmore, C. Johnson, R. & Petruck, M. 2003. *Background on FrameNet*. *International Journal lexicography*. 235-250
- Francopoula, G. George, M. Calzolari, N. Monachini, M., Bel, N., Pet, M., and Suria, C. 2006. *Lexical Markup Framework (LMF)*. In Proceedings of the fifth International Conference on Language Resources and evaluation (LREC-2006),233-236, Genoa, Italy.
- Hawwari , A., Zaghouni, W. , Gorman, T. , Badran, A. , Diab, M. 2013. *Building a Lexical Semantic Resource for Arabic Morphological Patterns*.
- Hudson, R. 2008. *Lexical semantics and syntax: commercial transactions reanalyzed*. *Language Journal*.
- Lakoff, 1987. In : Fillmore, C. & Baker, C. 2009. *A Frames Approach to Semantics Analysis*. June 30.P.314
- Rodman, B. 2009. *FrameNet Model and its Applications*. Cambridge, UK. Cambridge University Press.
- Rumelhart, 1975. Fillmore, C. & Baker, C. 2009. *A Frames Approach to Semantics Analysis*. June 30. P.314
- Smith, N. , Oflazr, K., Mohit, B. and Schneider, N.2012. *Coarse Lexical Semantic Annotation with Supersenses: An Arabic Case Study*. School of Computer Science, Carnegie Mellon University.