

## **The Syntax and Semantics of Some Locative Alternations in Arabic and English**

**Abdul Jawad T. Mahmoud**

*Assistant Professor, Department of European Languages  
and Translation, College of Languages and Translation,  
King Saud University, Riyadh, Saudi Arabia*

(Received A.H. 20/8/1418, accepted A. H. 29/1/1419)

**Abstract.** Despite the fact that Arabic and English are typologically different, the locative alternations exhibited by the 'substance - adding' verbs have been shown in this study to have the same syntactic properties and the same subtle difference in semantic interpretation. The findings of the study have also shown that the Arabic and English 'substance - adding' verbs do not in fact constitute a homogeneous class. Based on syntactic and semantic evidence, these verbs have been categorized into three classes: the 'spray / rassa' class, the 'pour / sabba' class, and the 'fill / mala'a' class. Each class is associated with distinct syntactic behavior and distinct semantic interpretation.

However, despite the striking similarity between the two languages with respect to the phenomenon under consideration, it has been found in this study that some English 'substance - adding' verbs allow for both the 'locative preposition' alternation and the 'with / bi' alternation, while their Arabic counterparts allow for the 'locative preposition' alternation only. This implies that an understanding of verb classes is essential for predicting what alternations will be possible when translating from one language to another. Thus, these findings could be useful in Arabic / English translation, as well as in the representation of these verbs in bilingual dictionaries.

### **1. Introduction**

As a component of linguistic competence, lexical competence includes knowledge of possible verbs and their semantic properties. In many languages, it has been observed that verbs - more than any other types of lexemes seem to determine the syntactic patterns of clauses. (See, among others [1, pp. 205-26; 2, pp. 148-73; 3; 4; 5, pp. 76-138; 6, pp. 7-68; 7, pp. 1-25; 8, pp. 35-77; 9; 10, pp. 119-34]. Not only do verbs determine the selection of arguments within a clause, but they also determine the way in which these arguments are organized in syntactic patterns. Thus, the investigation of the semantic classes of verbs and the syntactic alternations associated with them will help in reaching a better understanding of the interrelation between lexical semantics and syntax.

The Lexicon Project of the MIT Center for Cognitive Science is a cross-linguistic study of lexical information in English, Berber, Warlpiri, and Winnebago. The aim of the project is to characterize the types of lexical semantic information that determine syntactic patterns. See [11;12;13;14].

In this paper, I will examine the syntactic and semantic features of the alternations exhibited by some locative verbs in Arabic<sup>1</sup> and English. In particular emphasis will be placed on the similarities and differences between English and Arabic with respect to the syntactic and semantic properties of these alternations. I will also examine the type of verbs that participate in these alternations to see if they constitute a homogeneous class. In this regard, both the syntactic behavior and the semantic features of these verbs will be considered. Finally I will see if these findings have any implications for English / Arabic.

## 2. Verb Classes That Allow for Locative Alternations in English and Arabic

The English locative alternations have received considerable attention in the linguistic literature. See [15, pp.387-96; 16, pp. 767-811; 17, pp. 715-729;18]. The Arabic locative alternations, on the other hand, have not received sufficient attention. In general, locative alternations are associated with two semantic classes of verbs. The first class includes verbs that express an action in which something - mostly a substance or entity - is added to a location, such as the English spray of the Arabic rašša<sup>2</sup> I will call this class 'substance - adding' verbs. The second class includes verbs that relate to removing substances from surfaces or containers, such as the English empty or the Arabic farašša. This paper is confined to the locative alternations exhibited by the 'substance - adding' verbs. Hence, throughout this paper, the term 'locative alternations' is used to refer to the type of alternation exhibited by the 'substance - adding' verbs only.

The English 'substance - adding' verbs include verbs such as spray, load, stuff, pile, spread, splash, cultivate and smear. In Arabic the 'substance - adding' verbs are verbs like rašša 'spray', haša 'stuff', ħammala 'load', kaddasa 'pile', and faraša "spread". As illustrated in the next section, all the English and Arabic 'substance - adding' verbs mentioned above allow for two locative alternations.

## 3. Description of Locative Alternations in English and Arabic

This section is concerned with the basic description of locative alternations in Arabic and English. Specifically, I will examine 'substance - adding' verbs that

<sup>1</sup> Here and throughout the paper, reference to Arabic is to the standard variety.

<sup>2</sup> The phonetic symbols used to represent the Arabic data are given in Appendix 1.

allow for two locative alternations in both languages. These verbs will be referred to as 'spray / rašša' verbs. I will also provide a basic syntactic and semantic analysis of these alternations.

### 3.1. Occurrence of the 'spray / rašša' Alternations

Consider the alternations exhibited by the English 'substance - adding' verbs below:

1. a. John sprayed water on the wall.  
b. John sprayed the wall with water.
2. a. John loaded the hay on the cart.  
b. John loaded the cart with hay.
3. a. John spread rugs on the floor.  
b. John spread the floor with rugs<sup>3</sup>.

(For a sample list of the English 'substance - adding' verbs that allow for these alternations, see Appendix 2).

The Arabic 'substance - adding' verbs corresponding to the English ones exhibit the same alternations. Consider the examples below:

4. a. rašša aḥmad-u l-maa? -a ʃala al-ḥaaʔiṭ-i  
sprayed Ahmed-Nom. the-water-Acc. on the-wall-Gen.  
Ahmad sprayed water on the wall.
- b. rašša aḥmad-u al-ḥaaʔi-a bi-l-maaʔ-i  
sprayed Ahmed-Nom. the-wall-Acc. with-the -water-Gen.  
Ahmad sprayed the wall with water.
5. a. ḥammala aḥmad-u l-qašš-a ʃala-l -arabat-i  
loaded Ahmad-Nom. the-hay -Acc. on the - cart -Gen.  
Ahmad loaded the hay on the cart.
- b. ḥammalla aḥmad-u l-ʃarabat-a bi- l-qašš -i  
loaded Ahmad-Nom. the-cart -Acc. with- the -hay -Gen.  
Ahmed loaded the cart with hay.
6. a. faraša aḥmad-u ssajjad -a ʃal - ʔarq-i  
spread Ahmad-Nom. the- rugs -Acc. on the - floor - Gen.  
Ahmad spread rugs on the floor.
- b. faraša aḥmad-u l-ʔarq - a bi - ssajjad - i  
spread Ahmad-Nom. the-floor-Acc. with - the rugs-Gen.  
Ahmad spread the floor with rugs.

(A sample list of the Arabic 'substance - adding' verbs that allow for these alternations is given in Appendix 3).

<sup>3</sup> Locative alternations should not be confused with dative - shift alternation where the prepositional frame "NP2 to NP3" alternates with the double object frame "NP3 to NP2".

### 3.2. Description of the Spray / rašš' Alternations

Obviously, the examples given in 1 - 6 are identical in both languages, and the syntactic alternations exhibited by the verbs are also the same. Specifically, in both languages the verbs participating in these alternations require three arguments: the subject, the direct object and the object of a preposition. In other words, the action depicted by any of these verbs can be described as shown in 7.

7 [An entity or substance (i.e., the direct object) comes to be at a particular location (i.e., the object of a preposition through the action of an agent (i.e., the subject)].

Following the unmarked Theta - conventions [19, pp. 27-66], the arguments involved in the 'su- adding' verbs in both languages as shown in 1.a - 6.a can be mapped with Theta - roles as given in 8:

8	Argument1	Argument 2	Argument 3
	Subject	Direct Obj.	Obj. of a Prep.
	Agent	(Theme)	(Goal)

According to Clark & Clark [16] and Levin [1] among others, the term 'locatum' is used to refer to the entity or substance whose location is changed, and the term 'location' to refer to the argument that receives the substance. Thus, the arguments involved in the (a) sentences in both English and Arabic can be mapped with Theta - roles as shown in (9) :

9	Argument1	Argument 2	Argument 3
	Subject	Direct Obj.	Obj. of a Prep.
	Agent	(Location)	(Location)

The question now has to do with the syntactic and semantic differences between the sentences in 1.a - 6.a and the alternations exhibited by these verbs in 1-b - 6-b. Syntactically, in both languages the object of a preposition in the (a) sentences (i.e., the location) becomes a direct object in the corresponding (b) sentence, while the direct object of the (a) sentences (i.e., the Locatum) becomes an object of a preposition in the corresponding (b) sentence. To illustrate this argument permutation, consider the English example in 10:

10 a.	<u>John</u>	sprayed	<u>water</u>	on the	<u>wall</u> .
	Subject		Direct Obj.		Obj. of a Prep.
	(Agent)		(Locatum)		(Location)
b.	<u>John</u>	sprayed	<u>the wall</u>	with	<u>water</u> .
	Subject		Direct Obj.		Obj. of a Prep.
	(Agent)		(Location)		(Locatum)

Arabic, on the other hand, exhibits the same argument permutation, the same grammatical functions, and the same Theta - role assignment. The only difference between Arabic and English so far has to do with case marking only. Consider the illustration in 11:

11. a.	rašša	<u>ahmad-u</u>	l-maa?-a	šala	l-ħaa?it - i
		Subject		Direct Obj.	Obj. of a Prep.

	( Agent )	(Locatum )	(Location )
b. rašša	ahmad-u l - haaʔit- a	bi-l-maaʔ- i	
	Subject	Direct Obj.	Obj. of a Prep.
	(Agent )	(Location )	(Locatum )

In English, both the (a) sentences and the (b) alternations in 1-3 are common constructions. Even though both variants have the same verb, the same number of arguments, the same grammatical functions, and the same Theta - roles, the syntactic permutation that occurred in the (b) alternations carries a semantic difference. Specifically, when the argument bearing the Location Theta - role becomes a direct object, as in 1b-3b, the entire object is affected by the action depicted by the verb. When it is expressed as an object of a preposition, as in 1a-3a, it may only be partially affected. This interpretation difference is known in the linguistic literature as the 'holistic' vs. 'partitive' effect. See [20, pp 361-377,17, 21,22,23] among others.

Similarly, the Arabic (a) sentences and their (b) alternations in 4-6 are commonly used in Arabic. As shown in 11, both variants have the same verb, the same number of argument, the same grammatical functions, and the same Theta - roles. However, the syntactic permutation which occurred in the (b) alternations leads to a different interpretation. Specifically, when the argument bearing the Theta - role Location becomes a direct object, as in 4b-6b, the entire object is supposed to be affected by the action, i.e. holistic interpretation. When it is expressed as an object of a preposition, as in 4a -6a, we get the partitive interpretation.

### 3.3 Conclusion

As far as the data discussed so far is concerned, the syntactic and semantic features of the locative alternations exhibited by the 'substance-adding' verbs in English and Arabic are the same. Despite the fact that the two languages are typologically different and genetically unrelated, the locative alternations discussed so far exhibit the same syntactic behavior and the same subtle difference in the semantic interpretation. In the rest of this paper, I will attempt to explore further facts about the locative alternations in English and Arabic.

### 4. Locative Verbs That Do Not Allow for Two Alternations in English and Arabic

In this section, I will provide evidence that the 'substance - adding' verbs do not constitute a homogeneous class in English or Arabic. Specifically, I will show that there are 'substance - adding' verbs in both English and Arabic that require the same number of arguments and the same Theta-roles as 'spray / rašša' verbs, but they exhibit different syntactic behavior. I will also examine the various syntactic / semantic properties of the 'substance- adding' verbs in English and Arabic. I will finally propose a new classification of these verbs.

#### 4.1 The 'Substance - Adding' Verbs That Do Not Allow for the 'With / bi' Alternation

In addition to the 'substance - adding' verbs that yield two syntactic alternations<sup>4</sup>, as exemplified by 'spray / raṣṣa' verbs, there are other English and Arabic verbs that do not allow for the 'with / bi' alternation'. They allow for the 'locative preposition' alternation only. Compare the following examples with the ones given in 1-3:

12. a. John [ placed ] the books on the shelf.  
[ put ]
- b. \*John [ placed ] the shelf with books.  
[ put ]
13. a. John [ poured ] the water into the cup.  
[ dripped ]
- b. \*John [ poured ] the cup with water.  
[ dripped ]

Interestingly, Arabic exhibits the same phenomenon. Thus, the 'substance - adding' verbs in the examples below do not allow for the 'with / bi' alternation; they allow for the 'locative preposition' alternations only. Compare the following examples with the ones given in 4 -6 :

14. a. [waḍaʕa] aḥmad - u l - kutub - a ʕala r - raff - i  
[ raṣṣa ]  
put Ahmad - Nom. the - books - Acc. on the - shelf - Gen.  
Ahmad put the books on the shelf.
- b. \*[ waḍaʕa ] [ raṣṣa ] Ahmad-u r - raff - a bi - l - kutaub - i  
put Ahmad-Nom. the-shelf-Acc. with-the-books-Gen.  
\*Ahmad placed the shelf with books.
15. a. [ ṣabba ] Ahmad-u l - maaʕ - a fi l - kuub - i :  
poured / dripped Ahmad-Nom. the-water-Acc. in the-cup-Gen.  
Ahmad poured / dripped the water into the cup.
- b. \*[ ṣabba ] [ qaṭṭara ] Aḥmad-u l - ukuub - a bi - l - maaʕ - i  
poured / dripped Ahmad-Nom. the - cup - Acc. with - the - water - Gen.  
\*Ahmad poured / dripped the cup with water.

Thus, the argument / Theta - role pattern associated with the Arabic and English 'locative preposition' alternations in (12 a) - (15 a) is the same as the one given in (9). These verbs do not allow for the pattern given in (8). In other words, the first argument required by these verbs is the Agent, the second is the Substance (i.e. the Locatum, and the third is the Location. Hence, these alternations do not necessarily imply holistic interpretation. (Appendix 4 includes a sample list of the

<sup>4</sup> Since this alternation involves the preposition 'with' or its Arabic equivalent 'bi', from now on, I will call it 'with/bi' alternation. Alternations involving locative prepositions such as 'in', 'into', 'onto', and the Arabic fi 'in' and ʕala 'on' will be referred to as 'locative preposition' alternations.

English and Arabic 'substance - adding' verbs that allow for the 'locative preposition' alternations only).

#### 4.2. The 'Substance - Adding' Verbs That Do Not Allow for the 'Locative Preposition' Alternation

Furthermore, there are other 'substance-adding' verbs in both languages that allow only for the 'with / bi' alternation. These verbs do not allow for the 'locative preposition' alternation. Compare the English alternations below with the ones given in 1-3 and the ones in 12 -13:

16. a. John covered the body with a blanket.  
 b. \*John covered the blanket over the body.  
 17. a. John filled the cup with water.  
 b. \*John filled the water into the cup.<sup>5</sup>

Similarly, the Arabic verbs below do not allow for the 'locative preposition' alternation. They allow for the 'with / bi' alternations only. Compare the Arabic alternations below with ones in 4 -6 and the ones in 14 -15:

18. a. Ṣaṭṭa aḥmad-u ṭ- ṭifl -a bi-l -baṭṭaniyyat-i  
 Covered Ahmad-Nom. the-child-Acc. with-the-blanket-Gen.  
 Ahmad covered the child with the blanket.  
 b. \*Ṣaṭṭa aḥmad-u l -baṭṭaniyyat-a fawqa ṭ- ṭifl -i  
 Covered Ahmad-Nom. the-blanket-Acc. over the-child-Gen.  
 \*Ahmad covered the blanket over the child.  
 19. a. malaʔa aḥmad-u l -kuuba bi -l -maaʔ -i  
 filled Ahmad-Nom. the-cup with-the-water-Gen.  
 Ahmad filled the cup with water.  
 b. \*malaʔa aḥmad-u l-maaʔ -a fi l -kuub -i filled  
 Ahmad-Nom. the-water in the -cup -Gen.  
 \*Ahmad filled the water in the cup.

Thus, the argument / Theta - role pattern associated with the English and Arabic 'with / bi' alternations in 16.a -19.a is the same as the pattern given in 8. These verbs do not allow for the pattern given in 9. Specifically, in 16.a -19.a, the first argument is the Agent, the second is the Location, and the third is the Substance (i.e. the Locatum). Accordingly, these alternations are more likely to imply 'holistic' rather than 'partitive' interpretation. (Appendix 5 includes a sample list of the English and Arabic 'substance-adding' verbs that allow for the 'with / bi' alternations only.)

<sup>5</sup> For the grammaticality judgement of the English data in this paper, I have consulted some native speakers of English at the College of Language and Translation, King Saud University. Among them are Dr. William Peachy and Dr. Donald Lachowicz.

### 4.3. New Classification of the 'Substance - Adding' Verbs

Based on the English and Arabic data discussed so far, one can identify three different classes of the 'substance-adding' verbs. In both languages, each of these classes exhibits distinct syntactic behavior, despite the fact that verbs of all these classes require the same number of arguments and the same Theta - roles. The first class can be represented by the verb 'spray / rašša', the second with 'pour / šabbā', and the third with 'fill / mala?a'. As indicated by the alternations in 1 -6, the verbs belonging to, the 'spray / rašša' class allow for two alternations: the 'locative preposition' alternation and the 'with / bi' alternation. The verbs belonging to the 'pour / šabbā' class - as shown in 12 -15 allow for the 'locative preposition' alternation only. As illustrated in 16-19, the verbs of the third class allow for the 'with / bi' alternation only. This distinct syntactic behavior of each class is also accompanied by subtle difference in semantic interpretation: the first class allows for the 'holistic / partitive' contrast, while the other two classes do not. Specifically, verbs that allow for the 'locative preposition' alternation only (i.e., the 'pour/šabbā' class) do not necessarily imply 'holistic' interpretation. Conversely, verbs that allow for the 'with / bi' alternation only (i.e. the 'fill / mala?a' class) yield holistic interpretation.

### 4.4. Further Syntactic Evidence Supporting the Proposed Classification

It is also noted that the spray / rassa class allows for the implicit expression of either argument (i.e. the Substance or the Location), whereas the 'pour / sabba' class and the 'fill / mala?a' class allow for just one argument to be expressed implicitly. For instance, John sprayed the water on the plants allow for John sprayed the waterØ, or John sprayed the plantØ, where 'Ø' stands for the implicit Location in the first construction, and the implicit Substance in the second. By contrast, John poured water into the cup allows for John poured waterØ, where Ø stands for the implicit Location; it does not allow for John poured the cupØ, where Ø stands for the implicit Substance. Similarly, John filled the cup with water allows for John filled the cupØ, where Ø stands for the implicit Substance; it does not allow for \*John filled the waterØ, where 'Ø' stands for the implicit Location.

It is interesting that Arabic yields the same syntactic properties. Thus, rašša aħmadu lmaa?a ʿala nnabaataati allows for 'rašša aħmadu lmaa?a Ø', or rašša aħmadu nnabaataati 'Ø', where 'Ø' stands for the implicit Location in the first construction, and the implicit Substance in the second. Conversely, šabbā aħmadu lmaa?a fi lkuubi allows for šabbā aħmadu lmaa?a Ø, where 'Ø' stands for the implicit Location; it does not however allow for \*sabbā aħmadu lkubba Ø, where 'Ø' stands for the implicit Substance. Similarly, mala?a aħmadu lkuuba bilmaa?i allows for mala?a aħmadu lkuuba Ø, where Ø stands for

the implicit Substance; it does not allow for \*mala?a aḥmadu lmaa?aØ,<sup>6</sup> where 'Ø' stands for the implicit Location.

Another syntactic property of these alternations has to do with the formation of gerundive forms. Specifically, 'spray / raṣṣa' verbs allow for gerundive forms with the Substance argument or the Location argument, while the other classes (i.e., 'pour / ṣabba' verbs and 'fill / mala?a' verbs) allow for gerundive forms with one argument only. Specifically, 'pour / ṣabba' verbs allow for gerundive forms with the Substance argument, while 'fill / mala?a' verbs allow for these forms with the Location argument. Thus, John sprayed water on the plants allows for the spraying of water or the spraying of the plants. By contrast, John poured water into the cup allows for the pouring of water, where 'water' is the Substance, but it does not allow for \*the pouring of the cup, where 'the cup' is the Location; similarly, John filled the cup with water allows for the filling of the cup, where 'the cup' is the Location, but it does not allow for \*the filling of water, where 'water' is the Substance.

The Arabic alternations, on the other hand, yield the same results when applying a similar syntactic test. This test has to do with the formation of the so called 'Idafa' construction, which basically corresponds to the English gerundive forms. Specifically, 'spray / raṣṣa' verbs allow for 'Idafa' constructions where the second term of these constructions is either the Substance argument or the Location argument. Thus, raṣṣa aḥmadu lmaa?a ʕala nnabaataati allows for either raṣṣu nnabaataati or raṣṣu l-maa?i. By contrast ṣabba aḥmadu l-maa?a fi l-kuubi allows for ṣabbul-maa?i, where the second term of the 'Idafa' is the Substance l-maa?i, but it does not allow for \*ṣabbu l-kuubi, where the second term of the 'Idafa' is the Location 'l-kuubi'; similarly mala?a aḥmadu l-kuuba bi l-maa?i allows for mal?u l-kuubi, where the second term is the Location 'l-kubbi', but it does not allow for \*mal?u l-maa?i, where the second term is the Substance 'l-maa?i'.

Thus, on the basis of the discussion in 4.3 and 4.4, the new classification of the English and Arabic 'substance - adding' verbs and the distinctive features of each class are shown in the diagram given in 20.

#### 4.5. Summary and Conclusion

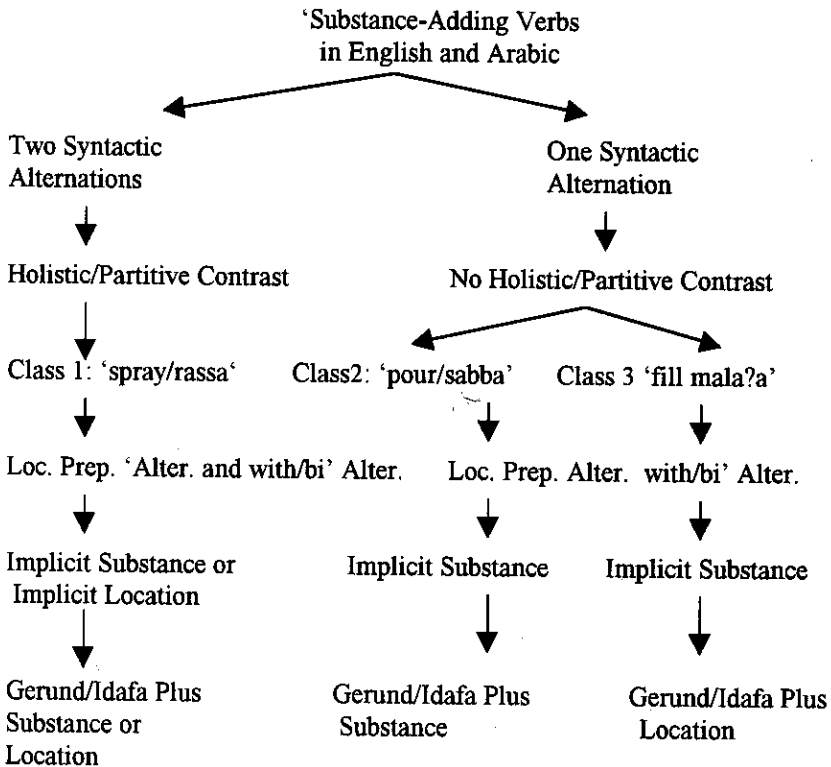
In this section, three distinct classes of the English and Arabic 'substance - adding' verbs have been identified: the 'spray / raṣṣa' class, the 'pour / ṣabba' class, and the 'fill / mala?a' class. Each class exhibits different syntactic behavior, as well as different semantic interpretation, as outlined below.

Firstly, 'spray / raṣṣa' verbs allows for both the 'locative preposition' alternation and the 'with / bi' alternation, whereas 'pour / ṣabba' verbs allow for the

<sup>6</sup> \*mala?a aḥmadu lmaa?a should not be confused with ṣabba?a aḥmadu lmaa?a, since the verb ṣabba?a belongs to the 'spray / raṣṣa' class which allows for the implicit expression of either the Substance or the location.

first alternation only, and 'fill / mala?a' verbs allow for the second alternation only. Semantically, the 'with / bi' alternation is associated with the 'holistic' interpretation, while the 'locative pr' alternation implies 'partitive' interpretation.<sup>7</sup> Secondly, 'spray / rassa' verbs allow for the implicit expression of either the Substance argument or the Location argument, while 'pour / sabba' verbs allow for an implicit Substance only, and 'fill / mala?a' verbs allow for an implicit Location only. Thirdly, 'spray / rassa' verbs allow for the 'gerund / Idafa' formation with either the Substance or Location argument, whereas, 'pour / sabba' verbs allow for 'gerund / Idafa' forms with the Substance argument only, and 'fill / mala?a' verbs allow for the formation of 'gerund / Idafa' with the Location argument only.

## 20. New classification of the English and Arabic 'Substance- Adding' Verbs.



<sup>7</sup> It should be pointed out that using the semantic notions alone to distinguish classes of verbs is not sufficient.

For instance, it is not easy to provide a precise characterization of the notion of 'holistic' vs. partitive interpretation as used by Anderson [20], Jeffries & Willis [17]. Similarly, the notion of 'affectedness' adopted by Tenny [24, pp 1-27], Hale & Keyser [12] still requires further refinement. Therefore, one has to take the syntactic behavior of these verbs into account when classifying them into classes.

Thus, based on the English and Arabic data discussed so far, one may conclude that the 'substance - adding' verbs in the two languages exhibit the same semantic and syntactic properties. One may also conclude that predictions about the syntactic behavior of verbs are feasible because particular syntactic properties are associated with certain verb classes.

## 5. Comparison, Conclusion, and Significance of the Study

In this section, the locative alternations as exhibited by the 'substance - adding' verbs in English and Arabic will be contrasted. The similarities and differences between the two languages with respect to these alternations, as well as the relevant conclusions will be outlined. Reference to the significance of this study will also be included in this section.

### 5.1. Comparison

As discussed in Section 3, the syntactic and semantic properties of the locative alternations exhibited by the English and Arabic spray / rassa verbs are the same in the two languages. In both languages, these verbs allow for two alternations : the 'locative preposition' alternation and the 'with / bi' alternation. Similarly, in both languages the 'with / bi' alternation is more likely to be associated with the 'holistic' interpretation, while the 'locative preposition, alternation is more likely to be associated with the 'partative' interpretation. The argument / Theta - role pattern associated with these alternations are the same in the two languages. The accusative / genitive case marking permutation involved in these alternations is a morphological difference between the two languages independent of the phenomenon under discussion.

As concluded in Section 4, the 'substance - adding' verbs in both languages do not constitute a homogeneous class. In both English and Arabic, there are 'substance - adding' verbs that allow for the 'locative preposition' alternation only, and others that allow for the 'with / bi' alternation only. The semantic properties of these alternations are the same in the two languages.

Based on the syntactic / semantic properties of these verbs, the 'substance - adding' verbs in the two languages are categorized into three classes : the 'spray / rassa' class, the 'pour / ṣabba' class, and the 'fill / mala?a' class. As shown in Appendices 2, 3, 4, and 5, verbs that belong to each class in one language have basically the same meaning as their counterparts in the other language. The syntactic evidence supporting this new classification is the same in the two languages. Specifically, in both languages, the 'spray / raṣṣ' verbs allow for the implicit expression of either the Substance argument or the Location argument, while the 'pour / ṣabba' verbs allow for an implicit location only, and the 'fill / mala?a' verbs allow for the implicit Location only. Similarly, in both languages, the 'spray / rassa' verbs allow for the 'gerund / Idafa' formation with either the Substance or the Location argument, while the 'pour / ṣabba' verbs allow for the 'gerund / Idafa' formation with the Substance argument only, and the 'fill / mala?a' verbs allow for the formation of 'gerund / Idafa' with the Location argument only.

However, despite the striking similarity between English and Arabic with respect to the syntactic / semantic properties of the locative alternations, it seems that the two languages exhibit few differences at the lexical level. In particular, there are certain English 'substance - adding' verbs that allow for both a 'locative preposition' alternation and a 'with / bi' alternation, while their Arabic counterparts allow for the 'locative preposition' alternation only. Compare the English and Arabic pairs below.

21. English :

- a. John hung the poster on the wall.
- b. John hung the wall with posters.

21. Arabic:

a.  $\int$ allaqa aḥmad-u l-ʔiʃlaanaat-a ʃala l-ḥaaʔit-i  
 hung Ahmad-Nom. the-poster-Acc. on the-wall-Gen.  
 Ahmad hung the posters on the wall.

b. \* $\int$ allaqa aḥmad-u l-ḥaaʔit-a bi l-ʔiʃlaanaat-i  
 hung Ahmad-Nom. the-wall-Acc. with the-poster-Gen.  
 Ahmad hung the wall with posters.

22. English :

- a. John plastered the posters on the wall
- b. John plastered the wall with posters

22. Arabic:

a. ʔaʃaqa aḥmad-u l-ʔiʃlaanaat-a ʃala l-ḥaaʔit-i  
 plastered Ahmad-Nom. the-posters-Acc. on the-wall-Gen.  
 Ahmad plastered the posters on the wall.

b. \* ʔaʃaqa aḥmad-u l-ḥaaʔit-a bi-l-ʔiʃlaanaat-i  
 plastered Ahmad-Nom. the-wall-Acc. with-the-posters- Gen.  
 Ahmad plastered the wall with posters.

Obviously, the unacceptability of the Arabic 'with / bi' alternations in 21.b - 22.b means that, unlike their English counterparts, the Arabic 'substance - adding' verbs involved do not allow for such alternations. Thus, in order to provide the Arabic counterparts for the English alternations in 21.b-22.b, one has to resort to a different Arabic verb whose lexical semantic properties are compatible with the 'holistic' interpretation which these 'with / bi' alternations imply. This means that an accurate Arabic translation of the English 'with / bi' alternations in 21.b -22.b should contain verbs other than those included in the Arabic 'locative preposition' alternations in 21 and 22.

For instance, in order to translate hung the wall with posters into Arabic, the use of the verb  $\int$ allaqa which is lexically the Arabic counterpart for hung is not appropriate on the assumption that its lexical semantic properties are not compatible with the meaning expressed in the English 'with / bi' alternation. Hence \* $\int$ allaqa rrajul ul-ḥaaʔita bil- iʃlaanaat-i is unacceptable. Instead, one has to resort to another verb like  $\int$ atta on the assumption that its lexical semantic properties are compatible with the 'holistic' interpretation conveyed by the English 'with / bi' alternation above. Thus, an accurate translation of this alternation would be  $\int$ atta rrajul ul-ḥaaʔita bil-ʔiʃ-  
laanaati .



In 23, there are five different verbs that allow for both the 'locative preposition' and 'with / bi' alternations. In Arabic, it is not easy to express both alternations by using five different Arabic verbs corresponding to the English ones. It is possible to find only one or two Arabic verbs corresponding to the English five verbs. What I have in mind is just the verb kaddasa. Consider 24:

24.a. Kaddasa     aḥmad-u     l kutub-a     ʕala rraff-i  
 [ crammed ]     Ahmad-Nom. the books-Acc. on the shelf-Gen.  
 [ packed ]  
 [ piled ]  
 [ stocked ]  
 [ heaped ]

Ahmad [ crammed ] the books on the shelf.

[ packed ]

[ piled ]

[ stocked ]

[ heaped ]

b. Kaddasa     aḥmad-u     rraff-a     bi-l-kutub-i  
 [ crammed ] Ahmad-Nom. the shelf-Acc. with-the-books-Gen.

[ packed ]

[ piled ]

[ stocked ]

[ heaped ]

Ahmad [ crammed ] the shelf with books.

[ packed ]

[ piled ]

[ stocked ]

[ heaped ]

## 5.2. Conclusion

The syntactic and semantic properties of the locative alternations as exhibited by the English and Arabic 'substance - adding' verbs have shown to be strikingly similar in the two languages. The new classification of the 'substance - adding' verbs and the distinctive features of each class are almost the same in the two languages. These findings are consistent with the current trend that despite the surface typological differences, human languages have many semantic and syntactic principles in common.

However, it has been found out that there are some English 'substance - adding' verbs that allow for both the 'locative preposition' alternation and the 'with / bi' alternation, while their Arabic counterparts allow for the 'locative preposition' alternation only. This difference could be attributed to the lexical semantic properties of these English verbs that enable them to participate in both alternations. This sort of 'overlap' between the two languages should be taken into account when translating from one language into the other. Hence, an understanding of verb classes is essential

for predicting what alternations will be possible when translating from one language to another.

It should be pointed out here that the English locative alternations have received considerable attention in the linguistic literature, while their Arabic counterparts have been ignored. Thus, the investigation of these English alternations is not meant to be the main contribution of this study. It is only for the purpose of contrasting these English alternations with their Arabic counterparts. Hence, the main contribution of this study has to do with the investigation of the Arabic locative alternations within the framework adopted by the recent lexical semantic studies to see how the lexical semantic properties of these alternations determine their syntactic patterns. Also the comparison between English and Arabic with respect to these alternations and the implications that follow could be viewed as contribution.

### 5.3. Significance of the Study

Since English and Arabic are both genetically unrelated and typologically diverse, an attempt to capture the similarities and differences between the two languages with respect to locative alternations will be useful from both theoretical and practical standpoints. Theoretically, a representation of lexical knowledge is supposed to provide lexical entries for verbs which incorporate the verb meaning, and which allow the meanings of verbs to be properly associated with the syntactic expressions of their arguments. The findings of this study could be useful in the development of such a representation, particularly because it has added a new language, namely Arabic, to the data-base for the study of the locative alternations.

The findings of this study could also help in making predictions concerning the sentence or alternation patterns that will be possible when translating from English to Arabic (See illustrations in Section 5.1). It is also hoped that these findings will provide useful guidelines for the representation of the English and Arabic 'substance - adding' verb in bilingual dictionaries.

#### Appendix 1

The phonetic symbols used to represent the Arabic data are listed below with their corresponding Arabic orthography in parentheses :

[ b ]	voiced bilabial stop .....	[ ب ]
[ t ]	voiceless alveo dental stop .....	[ ت ]
[ t̤ ]	voiceless alveo dental velarized stop .....	[ ط ]
[ d ]	voiced alveo dental stop .....	[ د ]
[ d̤ ]	voiced alveo velarized stop .....	[ ذ ]
[ k ]	voiceless velar stop .....	[ ك ]
[ q ]	voiceless uvular stop .....	[ ق ]
[ ? ]	voiceless glottal stop .....	[ ء ]

[j]	voiced alveo-palatal affricate .....	[چ]
[ħ]	voiceless pharyngeal fricative .....	[ح]
[ʕ]	voiced pharyngeal fricative .....	[ع]
[f]	voiceless labio-dental fricative .....	[ف]
[θ]	voiceless dental fricative .....	[ث]
[ð]	voiced dental fricative .....	[ذ]
[ʒ]	voiced dental velarized fricative .....	[ج]
[s]	voiceless alveolar fricative .....	[س]
[ʒ]	voiceless alveolar velarized fricative .....	[س]
[z]	voiced alveolar fricative .....	[ز]
[ʃ]	voiceless alveo palatal fricative .....	[ش]
[x]	voiceless uvular fricative .....	[خ]
[ʁ]	voiced uvular fricative .....	[غ]
[h]	voiceless glottal fricative .....	[ه]
[r]	voiced alveolar trill	[ر]
[l]	voiced alveolar lateral .....	[ل]
[m]	voiced bilabial nasal .....	[م]
[n]	voiced alveolar nasal .....	[ن]
[y]	voiced palatal glide .....	[ي]
[w]	voiced bilabial round glide .....	[و]
[i]	high front vowel .....	[ي]
[a]	low back vowel .....	[ا]
[u]	high back rounded vowel .....	[و]

**Note :** Consonant gemination (tashdid) and vowel length are represented by doubling the respective consonant or vowel.

#### Appendix 2

Sample list of the English 'Substance - Adding' verbs that allow for two alternations.

- spray :	to spray water on the floor
	to spray the floor with water
- smudge :	to smudge dirt on his face
	to smudge his face with dirt
- load :	to load hay on the truck
	to load the truck with hay
- squirt :	to squirt water on the flowers
	to squirt the flowers with water
- splash :	to splash water on his face
	to splash his face with water
- shower :	to shower seeds over the field
	to shower the field with seeds

- splatter :	to splatter mud on his pants
	to splatter his pants with mud
- dust :	to dust fertilizer on the plant
	to dust the plant with fertilizer
- cultivate:	to cultivate flowers in the garden
	to cultivate the garden with flowers
- spread :	to spread rugs on the floor
	to spread the floor with rugs
- hang :	to hang posters on the wall
	to hand the wall with posters
- dab :	to dab medicine on the wound
	to dab the wound with medicine
- stock :	to stock goods in the store
	to stock the store with goods
- smear :	to smear paint on the wall
	to smear the wall with paint
- cram :	to cram books into the shelf
	to cram the shelf with books
- stuff :	to stuff papers into the file
- pile :	to pile boxes in the corridor
	to pile the corridor with boxes
- plaster :	to plaster posters on the wall
	to plaster the wall with posters
- crowd :	to crowd people into the room
	to crowd the room with people
- sprinkle :	to sprinkle water on the lawn
	to sprinkle the lawn with water
- stud :	to stud jewels on bracelets
	to stud bracelets with jewels
- inject	to inject medicine into his arm
	to inject his arm with medicine

## Appendix 3

Sample list of the Arabic 'Substance - Adding' verbs that allow for two alternations.

- rassa :	a. rassa lmaa?a ʃala lhaa?iji
	to spray water on the walls
	b. rassa lhaa?ita bi-lmma?i
	to spray the wall with water
hammala:	a. hammala lqassa ʃala ljamali
	to load hay on camel
	b. hammala ljamala bi-lqassi
	to load the camel with hay
- badara :	a. badara ssamaada fi-lhaqli
	to sprinkle the fertilizer in the field
	b. badara lhaqla bi-ssamaadi
	to sprinkle the field with fertilizer
- rassa a :	a. rassa a ddahaba ʃala ʕoawbi
	to stud the Jewels on the dress
	b. rassa a ʕoawba bi-ddahabi.
	to stud the dress with Jewels
ʃabba?a :	a. ʃabba?a lkutuba fi-ssanduqi
	b. ʃabba?a ssanduqa bi-lkutubi

- baxxa :	a. baxxa lmma?a ʕala zzuhuuri to squirt water on the flowers
	b. baxxa zzuhuura bi-lmaa?i to squirt the flowers with water
-lattaxa :	a. lattaxa l-qaaduuraata ʕala wajhihi to smudge dirt on his face
	b. lattaxa wajhahu bi-lqaaduuraati Smudge his face with dirt
- tartasa :	a. tartasa lmaa?a ʕala wajhihi to splatter his face with water
	b. tartasa wajhahu bi-lmaa?i to splatter his face with water
- naʕara :	a. naʕara lmaa?a ʕala wajhih. to splash water on his face
	b. naʕara wajhahu bi-lmaa?i splash his face with water
- zaraʕa :	a. zaraʕa lwarda fi-lhadiiqati Cultivate the roses in the field
	b. zaraʕa fhadiiqati bi-lwardi Cultivate the field with roses
- farasa :	a. farasa ssajaada ʕala lʔardi to spread rugs on the floor
	b. farasa lʔarda bissajjadi to spread the floor with rugs
- kaddasa :	a. kaddasa lbidaaʕa fi-lmaxzani to stock goods in the store
	b. kaddasa lmaxzana bi-lbidaaʕati to stock the store with goods
- haʕa :	a. haʕa lqutna fi-lwisaadati to stuff cotton in the pillow
	b. haʕa iwisaadata fi-lqutni to stuff the pillow with cotton
- hasada :	a. hasada nmaasa fi-lqaaʕati to crowd the people into the hall
	b. haʕada lqaaʕata bi-nmaasi. to crowd the hall with people
- haqana :	a. haqana ddawaa?a fi-diraa ihi to inject the medicine into his arm
	b. haqana diraaʕahu bi-ddawaa?i to inject his arm with midicine
- sahana :	a. sahana l bidaaʕata ʕala ssayyarati to load the goods on the car
	b. sahana ssayyarata bi-l bidaaʕati to load the car with goods

## Appendix 4

Sample list of the English and Arabic 'substance - adding' verbs that allow for the 'locative preposition' alternations only:

## First: The English Sample

- place :	a. to place the books on the shelf
	b. *to place the shelf with books
- put :	a. to put the dishes on the table
	b. * to put the table with dishes

- pour :	a. to pour the water into the cup
	b. * to pour the cup with water
- drip :	a. to drip the liquid into the bottle
	b. * to drip the bottle with water
- dump :	a. to dump the apples into the cart
	b. * to dump the cart with apples
- shovel :	a. to shovel the dirt into the grave
	b. * to shovel the grave with dirt
- arrange :	a. to arrange the books on the shelf
	b. * to arrange the shelf with books
- spill :	a. to spill the water on the floor
	b. * to spill the floor with water
- push :	a. to push the boat into the river
	b. * to push the river with the boat
- raise :	a. to raise the flag on the building
	b. * to raise the building with the flag
- roll :	a. to roll the balls on the floor
	b. * to roll the floor with balls
- drop :	a. to drop the medicine into the eye
	b. * to drop the eye with medicine
- channel :	a. to channel the water into the river
	b. * to channel the river with water

Second: the Arabic Samples

- wadaʿa :	a. wadaʿa l-kutuba ʿala r-raffi to place the books on the shelf
	b. * wadaʿa r-raffa bi-l-kutubi to place the shelf with books
- sabba :	a. sabba l-maaʿa fi-l-kuubi. to pour the water into the cup
	b. * sabba l-kuuba bi-l-maaʿa to pour the cup with water
- ʿalqa :	a. ʿalqa t-tuffaaha fi-s-sallati to dump the apples into the basket
	b. * ʿalqa s-sallata bi-t-tuffaahi to dump the basket with apples
- ʿasqata :	a. ʿasqata lʾawraaqa ʿala lʾardi to drop the papers on the floors
	b. * ʿasqata l-ardi bi-lʾawraqi to drop the floor with papers
- dafaʿa :	a. dafaʿa l-qaariba fi-n-nahri to push the boat into the river
	b. * dafaʿa n-nahra bi-l-qaaribi to push the river with the boat
- rafaʿa :	a. rafaʿa l-ʿalama fawqa l-mabna to raise the flag over the building
	b. * rafaʿa l-mabna bi-l-ʿalami to raise the building with the flag
- sakaba :	a. sakaba l-maaʿa ʿala lʾardi to spill water on the floor

	b. * sakaba l'arda bi-lmaa?l to spill the floor with water
- dahraja :	a. dahraja lkuwara ?ala ?ardi to roll the balls on the floor
	b. * dahraja ?arda bi-lkuwari to roll the floor with balls
- rassa :	a. rassa lkutuba ?al rraffi to arrange the books on the shelf
	b. *rassa rraffa bi-lkutubi to arrange the shelf with books

## Appendix 5

Sample list of the English and Arabic 'substance - adding' verbs that allow for the 'with / bi' alternations only:

## First: the English Sample

- fill :	a. to fill the pitcher with lemonade b. * to fill lemonade into the pitcher
- cover :	a. to cover the child with the blanket b. * to cover the blanket over the child
- pollute :	a. to pollute the air with smoke b. * to pollute the smoke into the air
- surround:	a. to surround the field with trees b. * to surround the trees around the field
- season :	a. to season the food with spices b. * to season the spices into the food
- dam :	a. to dam the river with logs b. * to dam the logs into the river
- block :	a. to block the street with cars b. * to block cars into the street
- decorate :	a. to decorate the entrance with flowers b. * to decorate flowers over / onto the entrance
- pave :	a. to pave the highway with tarmac b. * to pave tarmac on the highway
- dirty :	a. to dirty his face with dust b. * to dirty dust on his face

## Second: the Arabic Sample

- mala?a :	a. mala?a lkuuba bi- ?asiiri to fill the cup with juice b. *mala?a ?asiira fi-lkuubi to fill the juice into the cup
- Yatta :	a. Yatta tifla bi-lbattaaniyyati to cover the child with the blanket b. *Yatta lbattaaniyyata ?ala tifli to cover the blanket over the child
- lawwa@a:	a. lawwa@a lhawaa?a bi-dduxaani to pollute the air with smoke b. * lawwa@a dduxanaa fi-lhawaa?i to pollute the smoke into the air
- ?ahaata :	a. ?ahaata lhaqla bi-l?asjaari to surround the field with trees

	b. *ʔaħaata lʔaħjaara ħawla lħaqli
	to surround the trees around the field
- tabbala :	a. tabbala ttaħaama bi-ssattati
	to season the food with hot pepper
	b. *tabbala ṣattata fi-ttaħaami
	to season hot pepper into the food
- sadda :	a. sadda ttariqa bi-ssayyaarati
	to block the road with cars
	b. *sadda ssayyaaraata fi-ttariqi
	to block cars into the road
- zayyana :	a. zayyana lmadxala bi-zzuhuuri
	to decorate the entrance with flowers
	b. *zayyana zzuhuura ṣala lmadxali
	to decorate the flowers onto the entrance
- wassaxa :	a. wassaxa wajhahu bi-tturaabi
	to dirty his face with dust
	b. *wassaxa tturaaba ṣala wajhihi
	to dirty dust on his face
- rasafa :	a. rasafa ttariqa bi-zzifi
	to pave the road with tarmac
	b. *rasafa zzifta ṣala ttariqi
	to pave tarmac on the road

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## السمات النحوية والدلالية لبعض التراكيب المكانية التبادلية في العربية والإنجليزية

عبد الجواد توفيق محمود

أستاذ مساعد، قسم اللغات الأوروبية والترجمة، كلية اللغات والترجمة،  
جامعة الملك سعود، الرياض، المملكة العربية السعودية

(قدم للنشر في ١٤١٨/٨/٢٠ هـ، وقبل للنشر في ١٤١٩/١/٢٩ هـ)

ملخص البحث. على الرغم من التباين اللغوي بين العربية والإنجليزية فقد أثبتت هذه الدراسة تشابه اللغتين في السمات الدلالية والنحوية للتراكيب المكانية التبادلية *locative alternations* المتعلقة بالأفعال الدالة على إضافة مادة ما *substance-adding verbs*. وكشفت هذه الدراسة كذلك عن أن هذه الأفعال لا تشكل فئة متجانسة في أي من اللغتين. وبناء على أدلة نحوية ودلالية، تم تصنيف هذه الأفعال في كلتا اللغتين إلى ثلاث فئات تميز كلا منها سمات نحوية ودلالية خاصة. غير أنه على الرغم من التشابه الشديد بين العربية والإنجليزية في هذا الظاهرة، فقد كشفت هذه الدراسة، عن وجود اختلاف بين اللغتين، مفاده أن بعضاً من هذه الأفعال الإنجليزية تسمح بنوعين من التراكيب التبادلية، في حين أن المقابل العربي لهذه الأفعال يسمح بنوع واحد. وعليه يمكن الاستفادة من نتائج هذه الدراسة في الترجمة بين العربية والإنجليزية، وكذلك في عملية تمثيل هذه الأفعال في القواميس الثنائية.