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# Spatial Prepositions in Arabic and English

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FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

A MA Project submitted in partial fulfillment of the  
requirements for the degree of

MASTER OF ARTS

in

LINGUISTICS

by

Maha Hamed Alshammari

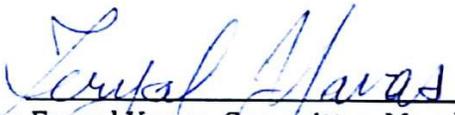
2017

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

To: Director, Linguistics Program  
College of Arts, Sciences and Education

This MA Project, written by Maha Hamed Alshammari, and entitled Spatial Prepositions in Arabic and English, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this MA Project and recommend that it be approved.

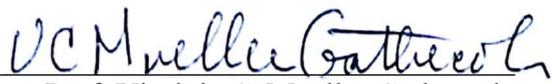
  
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Date of Defense: 11/29/2017

The MA Project of Maha Hamed Alshammari is approved.

  
Prof. Virginia C. Mueller Gathercole  
Director, Linguistics  
College of Arts, Sciences, and Education

Florida International University, 2017

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

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DEDICATION

I dedicate this project to my parents and to my husband who have been always  
tremendously supportive to all my endeavors.

ACKNOWLEDGEMENTS

I would like to thank my supervisor Prof. Virginia C. Mueller Gathercole for her endearing support, guidance, feedback, and extreme patience with me in the duration of my project. I am honored to have been in the company of such great scholars who always encouraged me to produce my best work. Through their tireless effort, my committee members, Dr. Feryal Yavas and Dr. Marisa Filgueras-Gomez, provided great encouragement and positive words that lifted me when the work seemed overwhelming. I am forever grateful for all the academic support that I have received these past few months. This just goes to show that with hard work and dedication, everything is possible. I am confident in my skills as a researcher and I intend to continue working in this field to reach all my goals.

# SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

## ABSTRACT OF THE MA PROJECT

### SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

by

Maha Hamed Alshammari

Florida International University, 2017

Miami, Florida

Prof. Virginia C. Mueller Gathercole, Major Professor

The acquisition of English prepositions is particularly challenging for students learning English as a second language. This project explores the acquisition of English spatial expressions by Arab ESL learners. This study examines several issues that may affect the processes of acquiring the English prepositions among Arab ESL learners such as the age of acquisition, learning transfer, and frequency. Furthermore, it considers the difficulties that Arab learners may encounter when learning English spatial locatives via transfer phenomena. These phenomena involve possible positive transfer and negative transfer in second language acquisition. This is especially problematic in the case of the lack of a one-to-one mapping and the different number of prepositions in Arabic and English. The study elicits English prepositions by Arab ESL learners through a Cloze procedure. The experiment focuses on the use of the spatial prepositions *in*, *on*, and *at* across different levels of Saudi students in Miami.

*Keywords:* spatial, learning transfer, positive transfer, negative transfer

# SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

## TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION .....	1
II. BACKGROUND.....	2
Semantics of Prepositions in English.....	2
Semantics of Prepositions in Arabic .....	3
Acquisition of English Spatial Prepositions in Children .....	5
The Second Language Acquisition of English Prepositions.....	6
Transfer Phenomena and Expectations for Arabic to English Prepositions .....	7
Research Questions .....	10
III. METHODS .....	10
Participants.....	10
Materials .....	10
Procedure .....	16
IV. RESULTS.....	16
Correct Performance .....	17
Errors.....	21
V. DISCUSSION .....	22
Accuracy .....	23
Errors.....	25
VI. CONCLUSION.....	26
VII. LIMITATIONS AND FUTURE RESEARCH .....	27
REFERENCES .....	28
VIII. APPENDICES .....	30

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

LIST OF TABLES

TABLE	PAGE
Table 1. The conditions of the spatial preposition in Arabic and English.....	13
Table 2. Non-linguistic stimuli. ....	15

# SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

## LIST OF FIGURES

FIGURES	PAGE
1. Google Books Ngram Viewer.....	12
2. Examples of the task.....	14
3. The main effect of age of acquisition. ....	18
4. Performance on each preposition type by frequency.....	19
5. Interaction of Prep Type X Freq X AoA .....	20
6. Errors: prepositions chosen by condition and participant groups.....	22

ABREVIATIONS AND ACRONYMS

ESL	English second language learners
L2	Second language
AoA	Age of acquisition
Freq	Frequent
Infreq	Infrequent

## I. INTRODUCTION

The purpose of this project is to explore the acquisition of English spatial expressions by Arab ESL learners. In particular, the main issues to be addressed are (i) whether the age of acquisition affects Arab learners' performance while acquiring English spatial prepositions, (ii) what the difficulties are that Arab learners encounter when learning English spatial prepositions, (iii) which of the three most basic spatial prepositions, *in*, *on* and *at*, are the most difficult to acquire and why, and (iv) whether frequency affects the Arab learners' performance. The reason that these questions are important is that the result may help Arab learners to find a better strategy to learn English spatial prepositions more easily. This study is expected to be useful to Arab ESL students, teachers, and translators.

Prepositions, which describe relationships between two entities, are often polysemous and always contingent on ontological categories (Hasan & Abdullah, 2009). Learners of English as a foreign language are often faced with the decision of choosing which prepositions to use since the conceptual mapping of their mother tongue is often very different (Clark, 2002). The usage of prepositions is, therefore, a major challenge to achieving grammatical accuracy and fluency for learners of English as a second language. There are many reasons that Arab ESL learners struggle to learn English prepositions. According to some, most learners relate the use of English prepositions to the preposition system of their mother tongue (Hasan & Abdullah, 2009). This is especially problematic because of the lack of one-to-one mapping and the different number of prepositions between Arabic and English prepositions (Hasan & Abdullah, 2009).

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

In the current study, I examine the acquisition and use of the English prepositions by Arab ESL learners through an experiment. The experiment focuses on the errors of using spatial prepositions *in*, *on*, and *at* by two groups of Saudi students in Miami.

### II. BACKGROUND

#### Semantics of Prepositions in English

There are around 150 prepositions in English, and all prepositions in English are free morphemes (Essberger, 2012). According to Fion (2005), prepositions can be used for expressing the spatial relationship between the figure and the landmark, for giving reasons, or for showing temporal aspect, manner, circumstance, and state. This study focuses exclusively on spatial locative use. A spatial relationship is a semantic relation that defines the location of an object in space with regard to other objects. In English, the spatial relationship is often expressed via the most common locative prepositions *in*, *on*, and *at*.

Tyler and Evans (2003) discuss the notion of a spatial scene which involves two entities that are associated in a particular spatio-configurational way. They explained this notion through two examples: (i) *The cup is on the table*, and (ii) *the coffee is in the cup*. The spatial scene in the first example involves the cup is in contact with the upper side of the table. It also involves a support function between the table and the cup. The scene in the second example includes the coffee being located inside (as opposed to outside) the cup. Moreover, the spatial scene relating to *in* involves a containment function. Being contained *in* the cup prevents the coffee from spreading out of the cup; if the cup moved, the coffee moves with it (Tyler & Evans, 2003). The preposition *in* denotes containment and inclusion e.g. *in a box*, *in my hand*, and this can be extended to a geographic location

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

e.g. *in Germany*. By contrast, the preposition *on* denotes the surface supporting something e.g. *the book is on the table*. Spatial meaning of the preposition *at* is to exist in a specific point of space e.g. *at the university* (Boquist, 2009).

### Semantics of Prepositions in Arabic

With the existence of over 20 Arabic prepositions, Arab grammarians consider only eight lexical items, namely, /*baa?* /, /*laam*/, /*fii*/, /*ʕalaa*/, /*ilaa*/, /*min*/, /*ʕan*/ and /*hattaa*/, as prepositions of place relation. The locative prepositions in Arabic are /*baa?* /, /*fii*/, and /*ʕalaa*/ (Rahman, 1990).

Hasan and Abdullah (2009) discussed a comparison between English and Arabic prepositions, in which the Arabic preposition /*fii*/ can be used as an equivalent of the English prepositions *in*, *at*, and *on*. The other preposition relevant here is /*ʕalaa*/, which can be equivalent in English to *on*, *over*, *at* and *onto*. /*fii*/ and /*ʕalaa*/ are the commonly used prepositions in Arabic when transferring from English to Arabic.

Generally, the Arabic preposition /*fii*/ denotes the sense of location in, within or inside a place (Rahman, 1990). Al-Marrani (2011) considers that the Arabic preposition /*fii*/ has four functions; space qualifier, time qualifier, causative, and accompaniment.

Below are some examples of the spatial function:

- 1) /ʔat ta:lɪbo fi: ʔal qa:ʕah/                      (*fii* = *in*)  
The student *in* the hall  
The student is *in* the hall.
  
- 2) /ʔat ta:lɪbo fi: ʔal dʒa:mɪʕah/                      (*fii* = *at*)  
The student *in* the university.  
The student is *at* the university.

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

- 3) / sa:farto fi: ?a tʕa:erah / (fi= on)  
Travelled I *in* the plane.  
I travelled *on* the plane.

The Arabic preposition *ʕalaa*, on the other hand, denotes higher in place or position on surface (Al-Marrani, 2011). For instance:

- 4) /rakıbtu ʕalaa ħısa:n/ (ʕalaa = on)  
rode I *on* the horse.  
I rode *on* the horse.
- 5) /wadaʕtu ?al qalam ʕalaa ?a tʕa:wılah/  
put I the pen *on* the table.  
I put the pen *on* the table.

According to Hasan and Abdullah (2009) and Al-Marrani (2011), the preposition *ʕalaa* can be an equivalent of the English preposition *over*. For example,

- 6) /qafaztu ʕalaa ?al ħa:ʔıt/  
jumped I *on* the wall.  
I jumped *over* the wall.

Hasan and Abdullah (2009) gave other examples which illustrate how the preposition *ʕalaa* could be an equivalent of the English prepositions *at* and *onto*.

Following are the examples:

- 7) /jalsna ʕalaa ?a tʕa:wılah/  
We sat *on* the table.  
We sat *at* the table.

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

8) /yusila sartʕano ʔal baħar ʕalaa ʔa ʃtʕ/

The crab was washed up *on* the shore.

The crab was washed up *onto* the shore.

### Acquisition of English Spatial Prepositions in Children

Research overwhelmingly suggests that age matters in children's performance in first language acquisition with spatial prepositions. A study by Washington and Naremore (1978) used productive and receptive tasks involving two- and three-dimensional objects to determine the age at which native speakers of English acquire certain prepositions (inside, on, around, under, over, behind, in front of, between, and beside). For the production task, the children were shown two objects and asked to state the location of one in relation to the other using prepositions (e.g., the ball is on the table). For the receptive task, the children were told to orient objects with each other according to the researcher's instructions (e.g., put the ball in the box). The participants were scored based on correct descriptions in the productive task and correctly following instructions in the receptive task. The results showed that acquisition of the prepositions was positively correlated with age, and 70 percent of the children had acquired the prepositions by age 4.

Prepositions are used by L1 children as soon as they start to understand two word utterances, which usually occurs at the end of the second year. Rice (1999), however, observed that acquisition of prepositions in children is linguistically motivated rather than cognitively, and it is linked to language use and frequency of input of the child.

According to Clark (1973), children produce spatial prepositions earlier than temporal ones. For instance, children would produce phrases such as *in the box* far more

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

than the temporal usage e.g., *in a minute*. In fact, the age of acquisition of the spatial preposition *in* can be approximated as 2.0-2.6 years. *On* and *at* seemed to be more difficult to acquire and L1 children take a long time to completely learn them (Clark, 1973).

### The Second Language Acquisition of English Prepositions

Research conducted with Arabic learners has indicated that spatial prepositions are one of the biggest challenges for Arabic learners (Fender, 2003). Boquist (2009) discussed the mismatch of prepositions in different languages and the inconsistency of prepositions in English within a Cognitive Linguistics (CL) model. Each preposition has a central meaning, associated with a mental image of a spatial relationship. Subsequently, a set of various meanings branch out in a polysemous network (Evans & Tyler, 2005).

CL can clarify the mismatch problem between two languages. Each language has different views of the scene depending on the culture of that language. So, the emphasis of the language determines which preposition to use and how to use it (Boquist, 2009). This phenomenon can be made much clearer by an example from a study by Evans and Tyler (2005). They show the mismatch between French and English. In English, one would say, “*The woman walks in the rain.*” But in French, one would say, “*La femme marche sous la pluie,*” where *sous* is generally translated *under*. English emphasizes that as a woman walks outside while it is raining, she is indeed surrounded by rain, and therefore she is *in* it, while French emphasizes that the woman is *under* the rain because it is pouring down from above (Evans & Tyler, 2005).

One study, by Fion (2005), examined the acquisition and use of the English prepositions by Chinese ESL learners. He concluded that the English preposition *at* is the

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

most difficult one to acquire among the spatial prepositions *in*, *on* and *at*. In the Arabic language, there is no particular equivalent of the preposition *at*. So, learners may tend to use the preposition *in* or *on* instead of *at* (Asma, 2010).

### Transfer Phenomena and Expectations for Arabic to English Prepositions

Yu and Odlin (2015) defined transfer as “an influence from the similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired.” Therefore, second language learners depend on their native language, as it is a source of their prior knowledge, and the transfer of items depends on the perception of similarities and differences between their mother tongue and the target language. Thus, cross-linguistic influence can in some cases lead to errors as a result of negative transfer, and in other situations will result in the correct form being produced in the target language, which is known as a positive transfer (Asma, 2010).

Asma (2010) illustrated that if students do not master English simple preposition usage, then they will transfer, positively or negatively, from Standard Arabic. In her study, 30 participants were asked to fill in the gaps with the appropriate prepositions. The 20 sentences in the test were divided into three parts: (1) cases where the two languages use the same preposition, (2) cases where the two languages use different prepositions, and (3) cases where one of the two languages use a preposition and the other language does not. The results were disparate among the usage of the three prepositions *in*, *on*, and *at*. One sentence in the test was *write your name at the top of the page*. Only 7 participants gave the correct answer (23.34%) among 30 participants. In their wrong responses, participants used the prepositions *in* (12), *on* (8), and  $\emptyset$  (03). Asma (2010)

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

attributed this to “learners transferred negatively the usage of this preposition from Standard Arabic where *fii* shares the same concept as *in*” (p.34).

Another sentence, in which Asma (2010) examined the transfer of the preposition *in*, is *Antoine was a miserable street in Paris*. The percentage of the correct responds was 90%. The analysis of this result, by Asma (2010), was “The first English preposition that is likely to be used as the equivalent of the Standard Arabic preposition *fii* to denote place is *in* [...] the Standard Arabic preposition *fii* shares the same concept as *in*” (p.37).

The sentence *in Britain, we drive on the left-hand side* is used by Asma (2010) to examine the usage of the preposition *on* before *left-hand side*. The correct responses were 56.66%. The wrong preposition used by participants was *from*. Asma (2010) explained that by saying “...the fact that, in Standard Arabic, the appropriate preposition is ‘*mina*’ which is the equivalent of the English simple preposition ‘*from*’. So, learners transferred negatively the Standard Arabic preposition ‘*mina*’ to English and the result is an incorrect one in the English sentence” (p.38).

Rahman (1990) explored some facts that might cause some problems for Arab ESL learners in particular. The first fact is that the number of Arabic prepositions is fewer than that of English prepositions, which could lead to under- differentiation in the interlanguage of Arab learners. Secondly, the number of senses associated with some English prepositions is more than of those associated with their Arabic counterparts. Finally, the lack of one-to-one correspondences among the collocational possibilities of prepositions in Arabic and English causes errors. Therefore, literal translation of prepositions from Arabic into English could cause erroneous use when direct mapping is not possible and correct use where English and Arab prepositions converge.

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

Other errors may arise due to the fact that languages and cultures often express spatial relations in languages differently. While Arabic represents the relation between *xatim* ‘a ring’ and *isbuʕ* ‘a finger’ by using containment through the preposition *fii* e.g., *xatimun fii isbuʕ-i* ‘a ring in my finger’, English encodes such a relation in terms of support e.g., ‘a ring on my finger’ (Bowerman 1996). Aldwayan (2013) discussed the mismatch between the property of containment and support and their linguistic forms in conceptualizing spatial scenes by comparing the Arabic prepositions *fii* and *ʕalaa* and the English prepositions *in*, *on*, and *at*. He states that “..., the predominance of CONTAINMENT or SUPPORT in conceptualizing these scenes does not seem to depend on the properties of the socio-physical environment alone, but also, more importantly, on how a culture profiles the spatial scenes” (p. 15). Sub-schemas of enclosure e.g. *kuratun fii ʔasunduq* ‘a ball in the box’, or penetration e.g., *mismarun fii-l ʕaaʔitʕi* ‘a nail in the wall’, or encirclement e.g., *xatimun fii isbuʕ-i* ‘a ring on my finger’, or dangling e.g., *ʕurayya fii-s saqfi* ‘Chandelier on the ceiling’, or attachment e.g., *Damidatun fii rijli-ha* ‘Band-Aid on her foot’ are conceptualized as containment in Arabic. In contrast, in English only enclosure and penetration are conceptualized as containment through the preposition *in* and the rest of the sub-schemas (encirclement, dangling, and attachment) are conceptualized as support through the preposition *on*.

Moreover, there are some cases of enclosed or partially enclosed spaces like *school, college, university, hospital*, etc... that cannot be conceptualized as containment or support in English and profiled as containment in Arabic. In these cases, English uses the preposition *at*, however, Arabic uses the preposition *fii* (Aldwayan, 2013).

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

### Research Questions

1. Does the age of acquisition affect Arab learners' performance while acquiring English spatial prepositions?
2. What are the difficulties that Arab learners may encounter when learning English spatial locatives?
3. Among the three most basic spatial prepositions *in*, *on* and *at*, which one will be the most difficult to acquire and why?
4. Does the frequency of use have an effect on Arab learners' performance?

### III. METHODS

#### Participants

This experiment featured forty-two ESL Arabic learners with ages ranging from 18-40. The participants were divided into two groups. The first consisted of twenty-one participants who began learning English before the age of ten. These participants were aged 18-40 ( $M=29$  years). The second group consisted of twenty-one participants who began studying English after the age of fifteen. This group included an age range of 21-40 ( $M=30.5$  years). All the participants were from Saudi Arabia and they are currently international students living in Miami.

#### Materials

##### **Linguistic stimuli**

Participants were asked to perform a fill in the blanks task. The equivalent sentences in Arabic would contain one of two Arabic prepositions, *fii* and *ʕalaa*. The sentences involved prepositions that involved five different conditions: (1) cases in which

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

the Arabic preposition *fii* corresponds to the English preposition *in*, (2) cases in which the Arabic preposition *fii* corresponds to the English preposition *on*, (3) cases in which the Arabic preposition *ʕalaa* corresponds to the English preposition *on*, (4) cases in which the Arabic preposition *fii* corresponds to the English preposition *at*, and (5) cases in which the Arabic preposition *ʕalaa* corresponds to the English preposition *at*. There were six sentences in each condition. In each condition, the six sentences were subdivided into those involving frequent expressions and those involving infrequent expressions, as judged by using Google Books Ngram viewer (see figure 1). After putting a particular expression in place of a word, the Google Ngram Viewer will display the percentages of using this expression between 1800 and 2008. The cut-off points for frequent is between .005 and .0001 per 1000000, and the cut-off points for infrequent is between .00005 and .000001 per 1000000. The frequent and infrequent groups each included three different spatial expressions (see table 1).

# SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

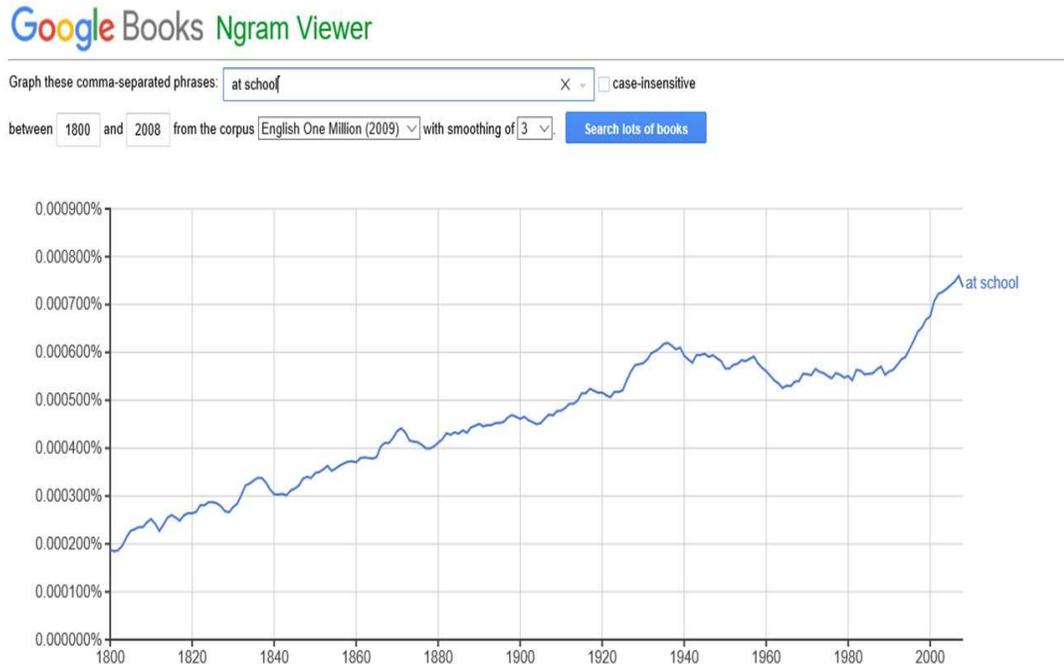


Figure 1. Google Books Ngram Viewer

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

Table 1. The conditions of the spatial preposition in Arabic and English

	<b>Frequent</b> <b>.005 &lt; _ &gt; .0001 per</b> <b>1000000</b>	<b>Infrequent</b> <b>.00005 &lt; _ &gt; .000001 per</b> <b>1000000</b>
<b>Condition (1)</b> <i>in match fii</i>	In bed (.000140) In a row (.000248) In the river (.000252)	in a drawer (.0000310) in the cabinet (.0000450) in the closet (.0000800)
<b>Condition (2)</b> <i>on match fii</i>	on campus (.000300) on the farm (.000165) on the bus (.000110)	on the third floor (.0000500) on the hook (.0000310) on the plate (.0000460)
<b>Condition (3)</b> <i>on match salaa</i>	on the wall (.000550) on the table (.00120) on the sofa (.000240)	on the dotted line (.00000800) on the collar (.0000098) on the turnpike (.00000590)
<b>Condition (4)</b> <i>at match fii</i>	at school (.000740) at the hospital (.000220) at work (.00190)	at the dentist (.00000210) at the bus stop (.0000160) at the movie (.00000590)
<b>Condition (5)</b> <i>at match salaa</i>	at the gate (.000200) at the window (.000220) at the table (.000550)	at the counter (.0000525) at the box office (.0000250) at the stop sign (.00000350)

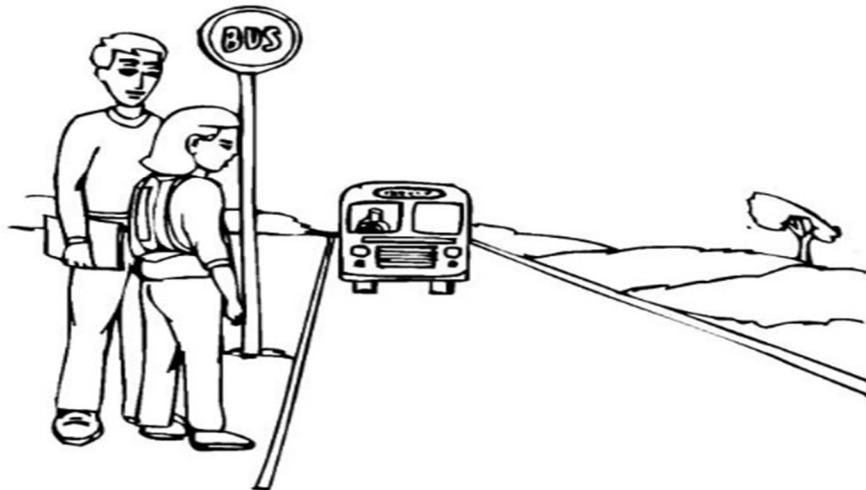
### Non-linguistic stimuli

These linguistic stimuli were accompanied by pictures depicting the location expressed in the sentence. The pictures were present to help the participants to imagine the sense expressed by the sentences. Below are examples of the pictures (see Figure 2):

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



The children are sitting at the table.



Mary and John are waiting at the bus stop

*Figure 2. Examples of the task*

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

Table 2. *Non-linguistic stimuli.*

<b>Sentence</b>	<b>Picture</b>
1. I felt sick and I stayed ___ the bed.	1. A picture of a sick boy lying in the bed.
2. Mary lives ___ third floor.	2. A picture of a building consisting of several floors.
3. The clock is ___ the wall.	3. A picture of a clock that is on a wall.
4. The man is standing ___ the gate.	4. A picture of a man who is standing at a gate.
5. The children are ___ the bus.	5. A picture of children who are on a school bus.
6. Bill is ___ dentist's.	6. A picture of a boy who is at the dentist.
7. Mary and John are waiting ___ the bus stops.	7. A picture of woman and man who are waiting at a bus stop.
8. Look! There is a fish ___ the hook.	8. A picture of a fish on the hook.
9. The student files are ___ a drawer.	9. A picture of a drawer filled with files.
10. The cat is sleeping ___ the sofa.	10. A picture of a cat that is sleeping on a sofa.
11. The children are sitting ___ the table.	11. A picture of children who are sitting at a table.
12. Jack and Jean are playing ___ the river.	12. A picture of boy and girl playing in a river.
13. I left my books on the table.	13. A picture of books on a table.
14. Miss Ana is ___ work.	14. A picture of a woman who is at work.
15. Please, sign your name ___ the dotted line.	15. A picture of a pen and a dotted line.
16. Mark and his wife are standing ___ the box office.	16. A picture of a man and woman who are standing at a box office.
17. John is going to spend the weekend ___ the farm.	17. A picture of a farm
18. Katia put her stuff ___ the closet.	18. A picture of a woman who is standing next to a closet.
19. They are ___ the movie.	19. A picture of a group of people watching a movie.
20. The girl is sitting ___ the window.	20. A picture of a girl who is sitting at a window.

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

21. The children stood ___ a row against the wall.	21. A picture of children standing in a row.
22. Doctors work ___ the hospital.	22. A picture of a hospital.
23. I can't wear my shirt because there is a stain on the collar.	23. A picture of a shirt with a stain on the collar.
24. I was standing ___ the counter when you called me.	24. A picture of a man who standing at a counter.
25. There was too much traffic ___ the turnpike.	25. A picture of a highway with cars.
26. Jack is ___ school.	26. A picture of boy who is at school.
27. Julie is putting her toys ___ the cabinet.	27. A picture of girl who is putting her toys in a cabinet.
28. Students spend most of their time ___ campus.	28. A picture of a campus.
29. Julia was standing ___ the stop sign, waiting for her friend.	29. A picture of a girl who is standing next to a stop sign.
30. Fish is usually served ___ a plate.	30. A picture of a fish on a plate.

### Procedure

After participants signed the adult consent forms, they were asked to complete a questionnaire prior to starting the task. The questionnaire gathered information regarding the participants' age, gender, educational level, when they started learning English, and how long they have been living in the United States. Once the questionnaire was submitted, the participants were asked to complete 30 sentences by filling in the blanks in the sentence completion task with one of the English spatial prepositions *in*, *on*, and *at*. The task was completed in a written form and no feedback was given to the participants.

### IV. RESULTS

The data were examined first for correct performance, and then error types were investigated in more detail.

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

### Correct Performance

A repeated measures ANOVA was conducted to compare the effect of age of acquisition (AoA) and frequency of occurrence on Arabic-English speakers' acquisition of English spatial prepositions in the five different conditions: (1) cases in which Arabic preposition *fii* corresponds to English preposition *in*, (2) cases in which Arabic preposition *fii* corresponds to English preposition *on*, (3) cases in which Arabic preposition *ʕalaa* corresponds to English preposition *on*, (4) cases in which Arabic preposition *fii* corresponds to English preposition *at*, and (5) cases in which Arabic preposition *ʕalaa* corresponds to English preposition *at*. The independent variables entered were age of acquisition (before age 10, after age 15), frequency (frequent expressions, infrequent expressions), and preposition conditions (the 5 conditions above). The dependent variable was accuracy of provision of the English preposition.

Analyses revealed, first, a significant main effect of age of acquisition (AoA),  $F(1,40) = 50.1, p < .001$ . This indicates that age of acquiring English as a second language affects the performance of Arab learners: the group who acquired English at an early age (before the age of ten) outperformed the other group who acquired English after the age of fifteen [before the age of ten: 2.4, out of 3; after the age of fifteen: 1.6] (see figure 3). Similarly, there was a statistically significant main effect of the different conditions of the prepositions,  $F(4,160) = 35.0, p < .001$ . Follow-up pairwise comparisons of the five different conditions of the prepositions indicated that the performance on condition 2 (*fii* corresponding to *on*) was significantly lower than on any other condition,  $p$ 's  $< .001$  [condition 2 (*fii* = *on*): 1.1 (out of 3); condition 1 (*fii* = *in*): 2.1; condition 3 (*ʕalaa* = *on*):

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

2.2; condition 4 (*fii=at*):2.4; condition 5 (*ʕalaa = at*): 2.2]. Finally, there was no main effect of frequency.

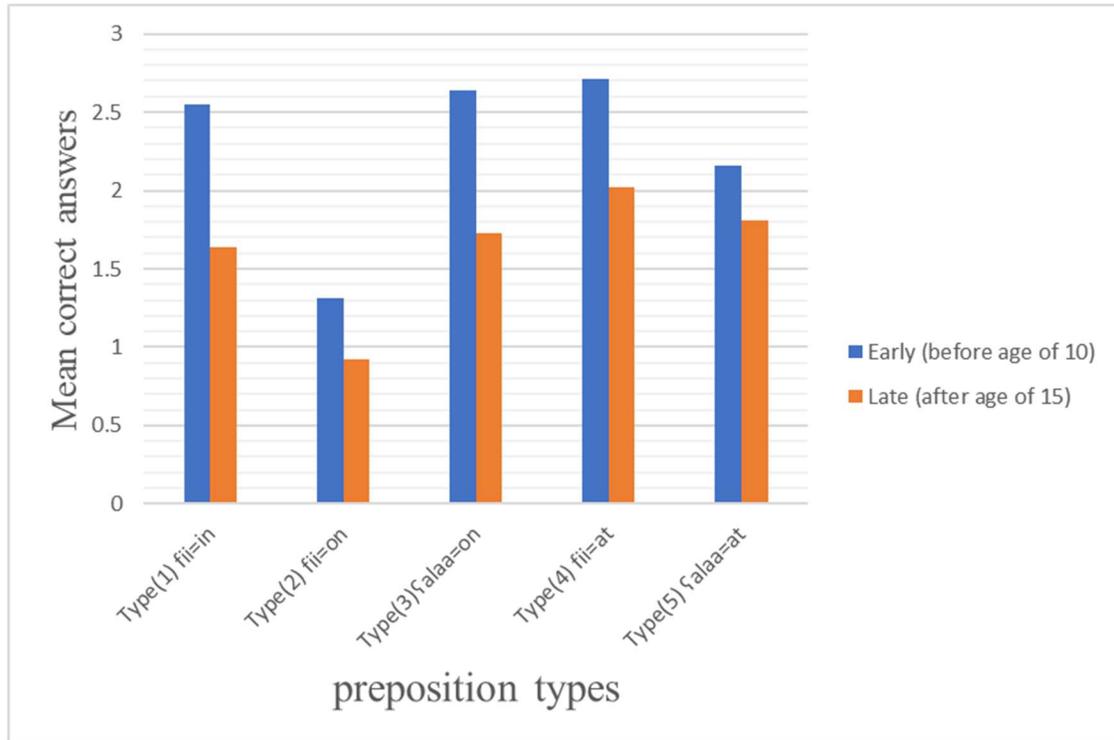
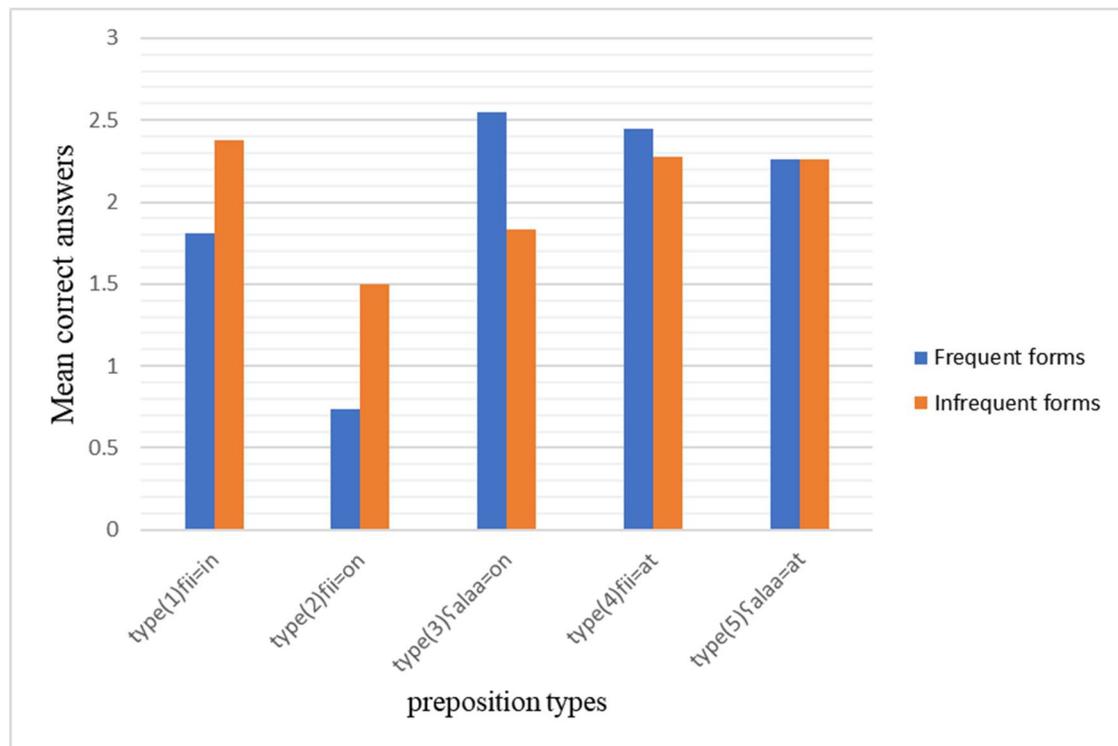


Figure 3. The main effect of age of acquisition.

These main effects were modified by a significant interaction of Preposition Type X Frequency,  $F(4,160) = 18.9, p < .001$ , and a near-significant interaction of Preposition Type X Frequency X AoA,  $F(4,160) = 2.09, p = .084$ . To explore the interaction of Prep Type X Frequency, individual  $t$ -tests were performed for the comparison of the frequent vs. infrequent cases for each preposition type. Those tests revealed significant differences in performance on frequent vs. infrequent cases for types 1, 2, and 3: type 1:  $t(41) = 3.7, p = .001$ ; type 2:  $t(41) = 5.3, p < .001$ ; type 3:  $t(41) = 5.3, p < .001$ . For types 1 and 2, performance was better on the infrequent forms than the frequent forms (type 1: 2.4 vs 1.8; type 2: 1.5 vs .74), but for type 3, performance was better on the frequent

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

forms than the infrequent forms (2.5 vs 1.8). (For information, performance on each type by frequency is shown in Figure 4).



*Figure 4. Performance on each preposition type by frequency.*

To explore the near-significant interaction of Prep Type X Freq X AoA, the data by AoA were examined; these suggest that on types 1 and 3, the gap between the frequent and infrequent forms for each preposition type is less pronounced in the performance of early AoA participants than in those with later AoA, while the gap for type 2 is large for both groups and perhaps even greater in the early AoA group than the later AoA group. Performance is shown in Figure 5.

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

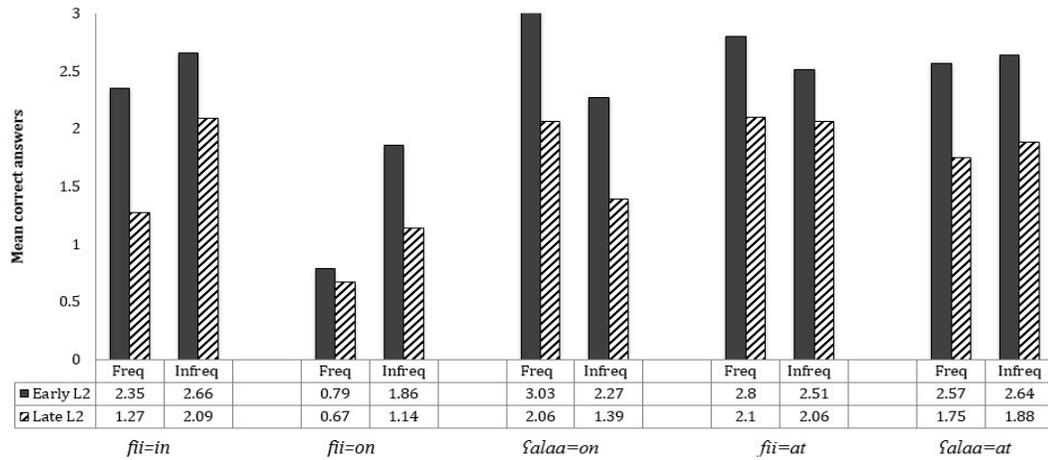


Figure 5. Interaction of Prep Type X Freq X AoA

In sum, the analysis of speakers' accuracy of performance indicates that the age of acquisition affects learners' performance. The early L2 learners' performance outperformed the late L2 learners'. Moreover, the five different conditions of prepositions affected participants' performance. The performance on the second condition, where the Arabic preposition *fii* corresponds to the English preposition *on*, was the worst among all the conditions. Although there was no main effect of frequency, there was an interaction of Prep Type X Frequency. In some conditions, i.e. condition 4 (*fii* corresponding to *at*) and condition 5 (*salaa* corresponding to *at*) frequency was irrelevant. However, in condition 1 (*fii* corresponding to *in*) and on condition 2 (*fii* corresponding to *on*) performance was better on infrequent forms than on frequent forms. In condition 3 (*salaa* corresponding to *on*), performance on frequent expressions was better than on infrequent ones.

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

### Errors

A second set of analyses investigated participants' errors in performance on choosing English prepositions in each condition. Overall late L2 learners made more errors than early L2 learners. Performance by condition is shown for each group and frequency level in Figure 6. In condition 1 (*fii* corresponding to *in*), both groups tended to choose the preposition *on* in frequent forms, however, the late L2 learners selected *at* more than *on* in infrequent forms. In condition 2 (*fii* corresponding to *on*), late L2 learners used the preposition *in* instead of *on*, however, early L2ers used *at* instead of *on*. In condition 3 (*ʕalaa* corresponding to *on*), the number of errors in frequent forms is lower than in infrequent forms. Early L2 learners chose *at* more than *in*, while late L2 learners used *in* and *at* interchangeably. In condition 4 (*fii* corresponding to *at*), early L2 learners selected *in* more than *on* in both frequent and infrequent forms. On the other hand, late L2 learners used *in* more than *on* in frequent forms and chose *in* and *on* interchangeably in infrequent forms. In condition 5 (*ʕalaa* corresponding to *at*), early L2 learners selected *on* more than *in* in both frequent and infrequent forms. However, late L2 learners used *on* more than *in* in frequent forms and used *in* more in infrequent forms. (For more information see figure 6).

# SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

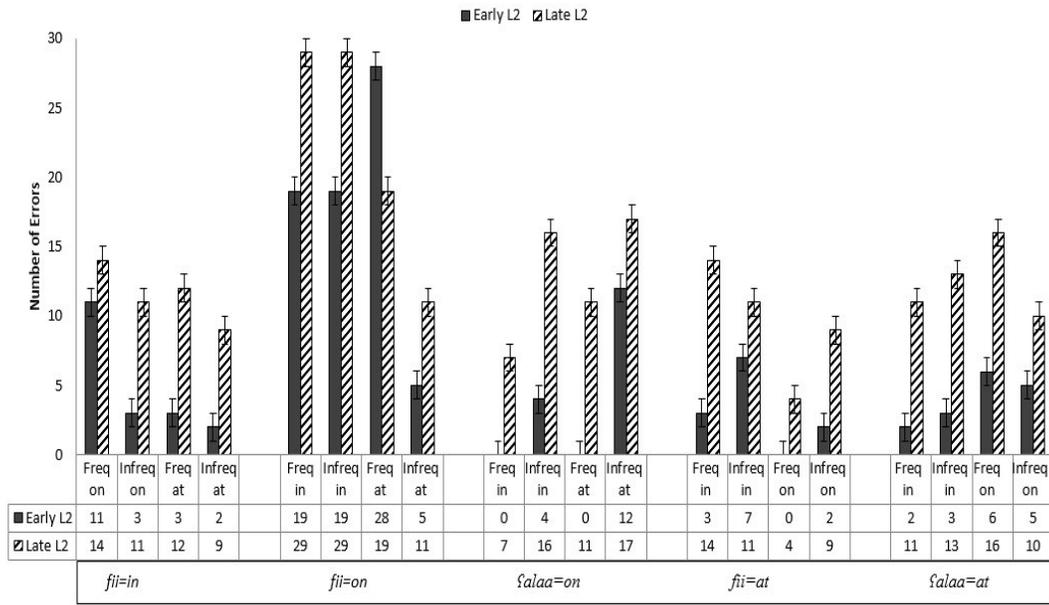


Figure 6. Errors: prepositions chosen by condition and participant groups

## V. DISCUSSION

The main purpose of this study was to investigate (a) whether the age of acquisition has an impact on acquiring the locative spatial English prepositions or not, (b) whether frequent and infrequent expressions have any effect on Arab ESL learners' performance, and (c) whether the transparency/opacity of the mapping between the Arabic preposition and the English preposition mattered. We have examined the performance of 42 Saudi students who live and study in Miami. They were divided into groups; 21 acquired English before the age of ten, 21 acquired English after the age of fifteen. The experiment examined the problems that the students might encounter during the spatial acquisition process. The prepositions were distributed into five different conditions: (1) cases in which the Arabic preposition *fii* corresponds to the English preposition *in*, (2) cases in which the Arabic preposition *fii* corresponds to the English preposition *on*, (3) cases in which the Arabic preposition *Salaa* corresponds to the

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

English preposition *on*, (4) cases in which the Arabic preposition *fii* corresponds to the English preposition *at*, and (5) cases in which the Arabic preposition *ʕalaa* corresponds to the English preposition *at*. There were six sentences in each condition; three were frequent forms in English and three were infrequent forms.

### Accuracy

The results clearly indicate that the age of acquisition affects Arab learners' performance because the group who started learning English before the age of ten performed better than the group who started learning English after the age of fifteen, and this held for all the different types of prepositions.

It is worth noting that one hypothesis with regard to this study was that the learners would uniformly perform better on the frequent expressions than the infrequent expressions, and this was not what was found. Results have shown influence of frequency of use on participants' performance, particularly for the second condition, in which Arabic preposition *fii* corresponds to the English preposition *on*: almost all the participants performed more poorly on the frequent forms of sentences than on the infrequent forms. Both groups of participants tended to choose the English preposition *in* or *at* instead of *on* in frequent expressions used in this experiment, such as on campus, on the bus, or on the third floor. In the first condition, performance was also better on the infrequent forms than the frequent forms. However, in the third condition (*ʕalaa* corresponding to *on*), performance was better on the frequent forms than the infrequent forms. The better performance on the infrequent forms in conditions 1 and 2 was counter to our expectations. Upon examination of the data, this appears due to the interference of the learners' native tongue (Arabic) on the English language. Prepositional phrases like

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

on the bus or on the third floor, on campus, on a plate, on a hook are profiled as providing support in English, however, these expressions are conceptualized as containment in Arabic. Therefore, participants tended to choose the preposition *in* instead of *on* which is a negative transfer. Additionally, frequency factor was irrelevant with some conditions. Performance on both conditions 4 and 5 in frequent and infrequent forms were similar.

Moreover, results have shown a main effect of the type of prepositions when the participants performed better in some conditions than in other conditions. Performance in condition 2 (*fii* corresponding to *on*) was worse than in other conditions. This appears due to that participants transferring negatively from Arabic to English. However, in condition 1 (*fii* corresponding to *in*) and in condition 3 (*ʕalaa* corresponding to *on*), performance was better than in the other conditions, probably because of positive transfer from Arabic to English. In the first condition, cases in which the Arabic preposition *fii* corresponds to the English preposition *in*, the correct responses were over 85% in the early L2 learners and around 56% in the late L2 learners. The reason behind that appears related to the use of corresponding preposition in the Arabic *fii*. The two languages, Arabic and English, have identical use for the two prepositions (the Arabic *fii*, the English *in*) in this case particularly. This fact facilitated the correct answers for the participants and it can be seen as positive transfer. Prepositional phrases in the third condition (*ʕalaa* corresponding to *on*) like on the wall, on the sofa, on the table, etc. are conceptualized as support in both Arabic and English. Thus, most of participants had correct responses on this condition.

In the fourth condition (*fii* corresponding to *at*) and fifth condition (*ʕalaa* corresponding to *at*), performance of early and late L2 was better than in the other

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

conditions. This result is the opposite of Asma's (2010) suggestion, when she assumed that the learners tend to use the preposition *in* or *on* instead of *at* since there is no direct equivalent preposition for *at* in Arabic.

### Errors

Although Arabic and English have similar semantics for the two prepositions (Arabic *fii*, English *in*) in condition 1, most of participants did poorly in one sentence in this condition. Participants in both groups (early L2 and late L2) used the preposition *on* instead of the preposition *in* in the sentence '*I felt sick and I stayed \_\_\_ bed*'. According to Asma (2010), a bed is considered as an enclosed space in English and Standard Arabic. However, in some varieties of Arabic, *bed* can be a one-dimensional object i.e. a surface. This fact might help illuminate the inappropriate answers for those participants.

As mentioned, almost all the participants did poorly in condition 2 (*fii* corresponding to *on*), suggesting that they transferred negatively from Arabic into English. While Arabic conceptualizes some locations such as on the bus, on the third floor, on the hook as containment, English profiles them as involving support. Thus, participants used the preposition *in* instead of *on* in such expressions. Also, it was noticed that early L2 learners tend to choose *at* more than *in* in some prepositional phrases like on campus or on the farm<sup>1</sup>. Early L2 learners used *at* more in this expression, whereas late L2 learners preferred to use *in*. This suggests that late L2 learners relied on their native language more and transferred their previous knowledge to their second language.

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<sup>1</sup> It is possible to say *at the farm* in English, and we would probably not use this expression in future work.

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

Performance on the fourth condition (*fii* corresponding to *at*) and fifth condition (*ʕalaa* corresponding to *at*) was quite good, except for one sentence i.e. *the children were sitting \_\_ the table*. Here, only 47.6% of answers were correct. Most of the participants used the preposition *on*, again suggesting negative transfer from participants' mother tongue, where *ʕalaa* would be used.

## VI. CONCLUSION

The acquisition of English spatial prepositions is governed by several factors: semantic boundaries, age of acquisition, transfer phenomena, and frequency of usage. Corresponding prepositions in two languages may differ in their semantic boundaries, which may cause critical issues while acquiring the second language. In the case where the two languages conceptualize the same locative relation differently, more errors are expected to appear. This seems to be the best explanation for the poor performance in condition 2 in which the Arabic preposition *fii* corresponds to the English preposition *on*. In this condition, Arabic has a different conceptualization from that of English. Arab second language learners might make errors while acquiring English prepositions because of the L1 interference. Seemingly poor performance of a second language after or during the process of learning can be a result of language transfer. Furthermore, the age of acquiring the second language plays an essential role. Participants who acquired English as a second language before the age of ten performed much better in all the different conditions for the prepositions. One hypothesis with regard to this study was that performance on the frequent forms would be better than the one on the infrequent forms, however, results of this study do not support this hypothesis. Performance on some conditions i.e. conditions 1 and 2 was better in infrequent forms. In other conditions, i.e.

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

condition 4 and 5 there was no difference between the performance on frequent forms and infrequent forms. While in condition 3, performance on frequent forms was better than on infrequent ones.

To conclude, our results indicate that, given the conditions studied here, the preposition *on* is the most difficult to acquire when it corresponds to the Arabic preposition *fii*. This probably is due to the way how each language conceptualizes differently some spatial expressions. Consequently, L2 learners rely on their previous knowledge and tend to transfer from their native tongue to the target language which causes the appearance of inappropriate responds.

### VII. LIMITATIONS AND FUTURE RESEARCH

The current study determines the age of acquisition as the main variable. Additional research on this study should investigate how long the participants were exposed to English in the United States and see how this factor would affect their performance. In future research, the focus should be more on how the two languages in question conceptualize the same scene differently. For example, does the language/culture make a distinction that being in/on the bus maintain an entity that is contained within the physical structure of the bus.

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

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## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

[https://www.academia.edu/898700/A\\_Comparative\\_Study\\_of\\_English\\_and\\_Arabic\\_Use\\_of\\_Prepositions\\_Amongst\\_Arab\\_Native\\_Speakers](https://www.academia.edu/898700/A_Comparative_Study_of_English_and_Arabic_Use_of_Prepositions_Amongst_Arab_Native_Speakers)

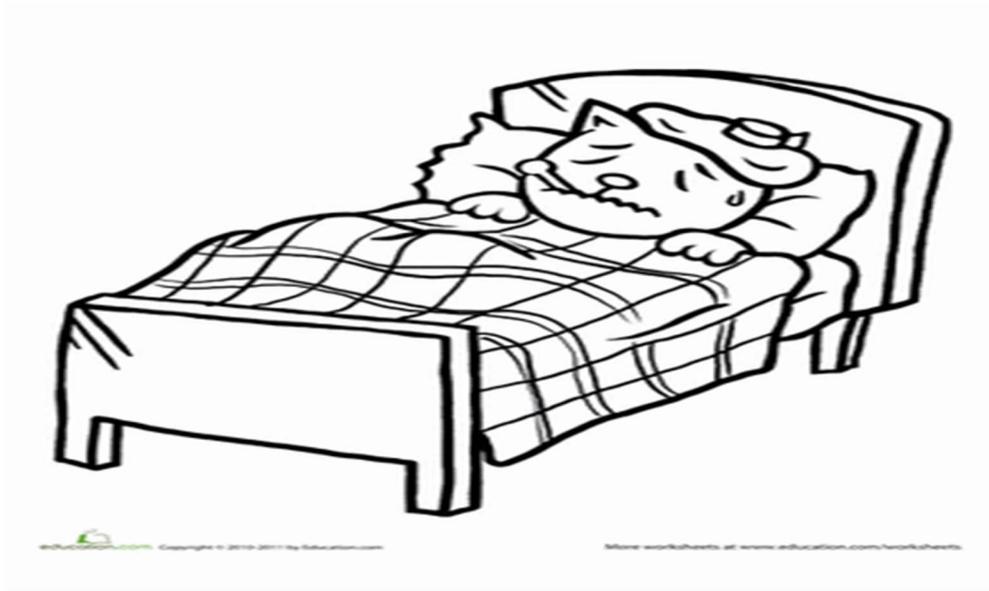
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## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

### VIII. APPENDICES

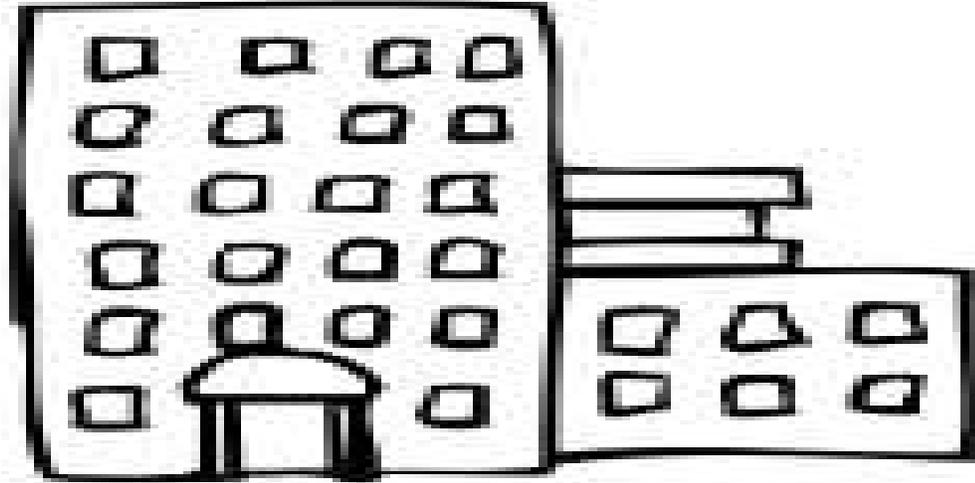
#### Appendix A

Exercise I: Complete the following sentences by choosing **ONE** of the following prepositions (in, on, at) only:



- 1) I felt sick and I stayed \_\_\_ bed.
  - a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



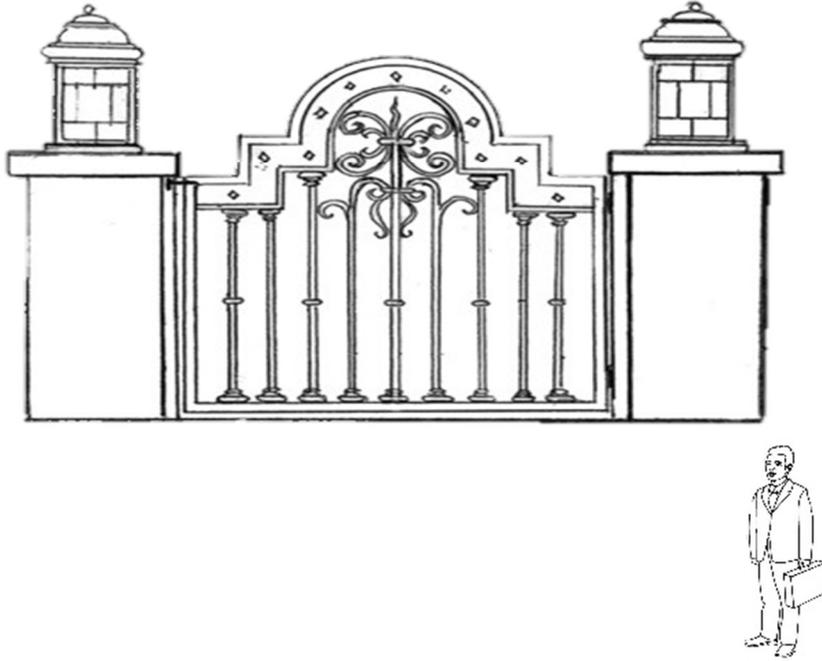
- 2) Marry lives \_\_\_ the third floor.
- a. in
  - b. on
  - c. at

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



- 3) The clock is \_\_\_\_\_ the wall.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



- 4) The man is standing \_\_\_\_\_ the gate.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



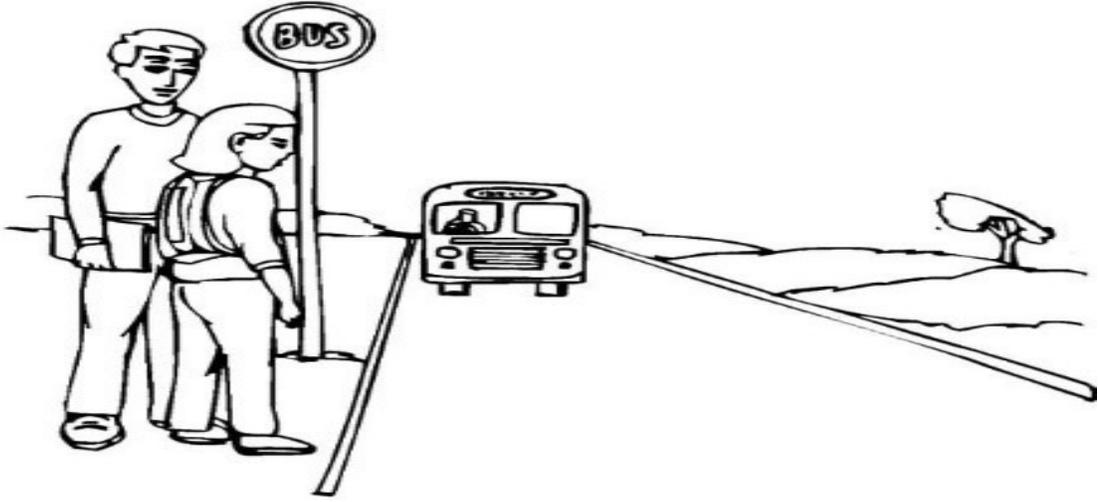
- 5) The children are \_\_\_\_\_ the bus.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



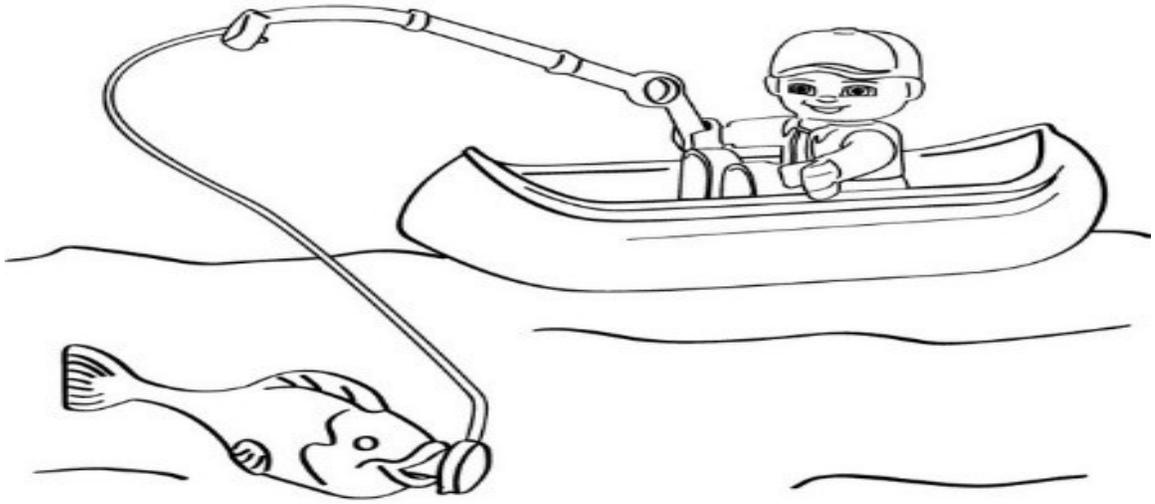
- 6) Bill is \_\_\_\_\_ the dentist's.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



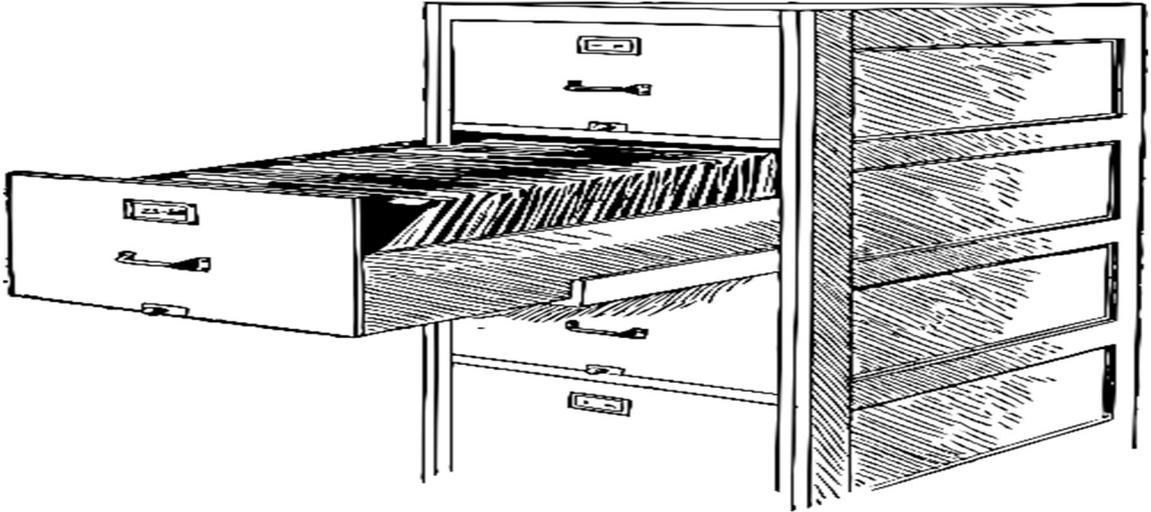
- 7) Mary and John are waiting \_\_\_\_\_ the bus stop.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



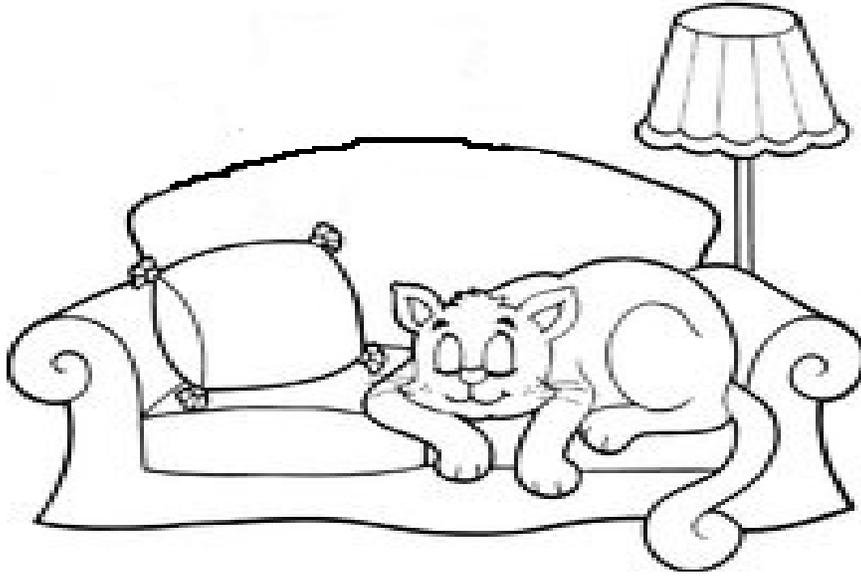
- 8) Look! There is a fish \_\_\_\_\_ the hook.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



- 9) The student files are \_\_\_\_\_ a drawer.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



- 10) The cat is sleeping \_\_\_\_\_ the sofa.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



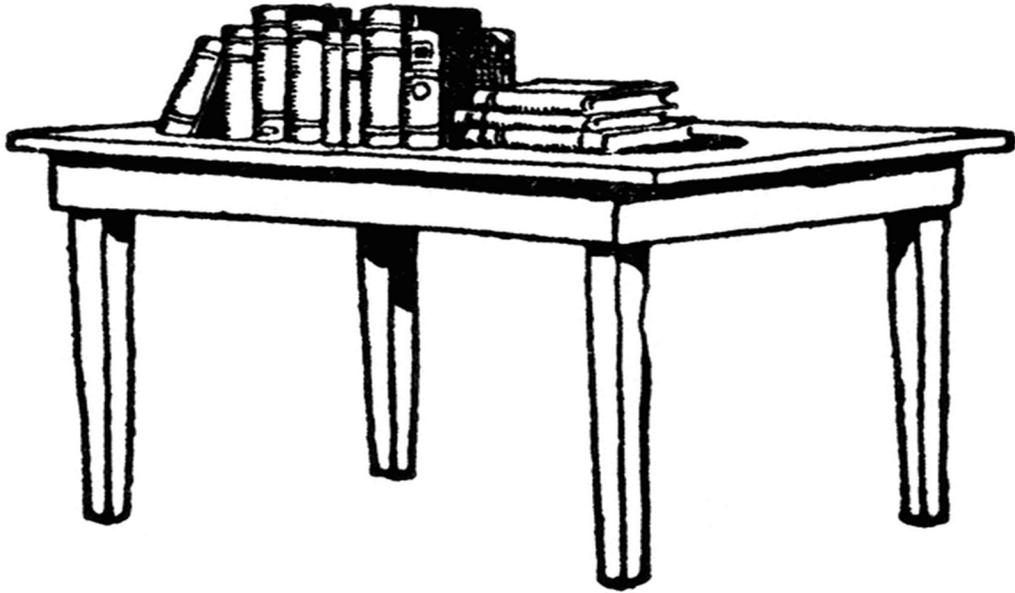
- 11) The children are sitting \_\_\_\_ the table.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



- 12) Jack and Jean are playing \_\_\_\_\_ the river.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



- 13) I left my books \_\_\_\_ the table.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



- 14) Ana is \_\_\_\_ work.  
a. in  
b. on  
c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



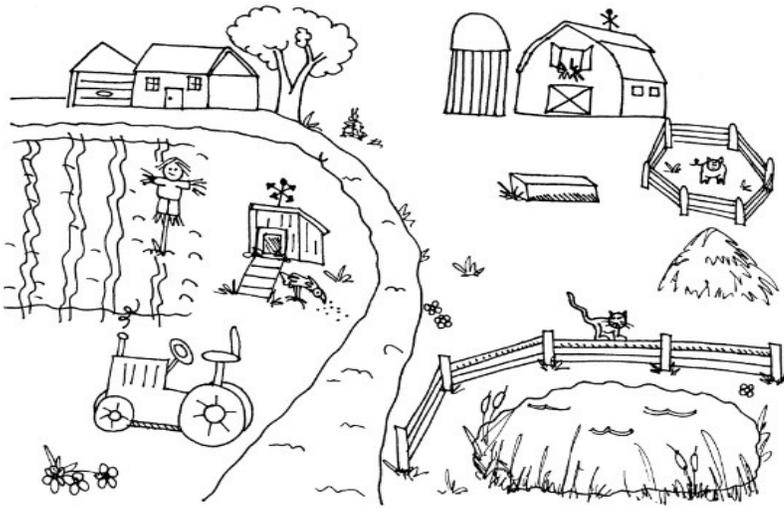
- 15) Please, sign your name \_\_\_\_\_ the dotted line.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



- 16) Mark and his wife are standing \_\_\_\_\_ the box office.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



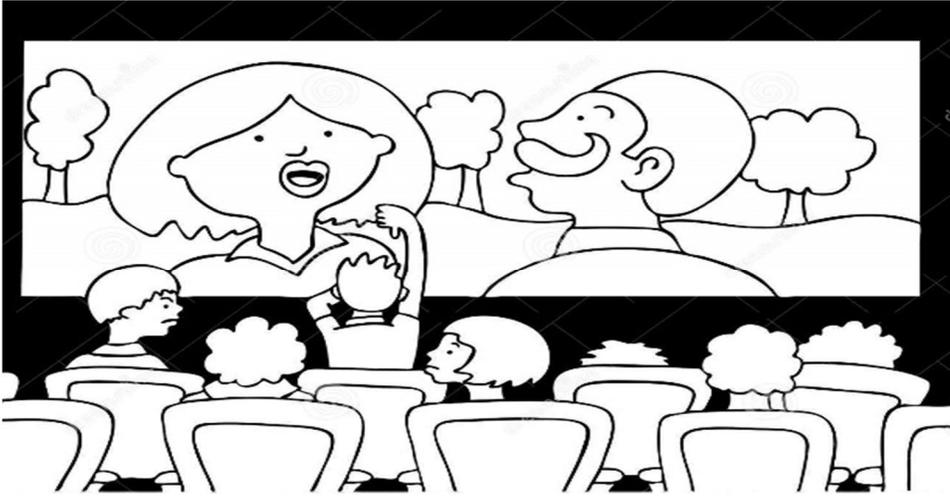
- 17) John is going to spend the weekend \_\_\_\_\_ the farm.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



- 18) Katia put her stuff \_\_\_\_\_ the closet.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

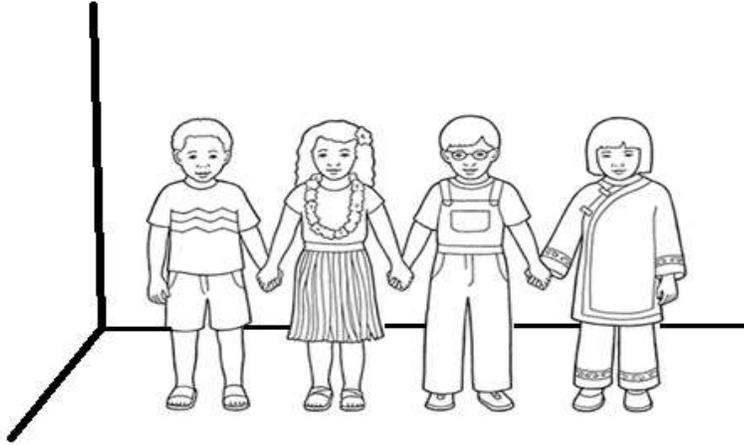


- 19) They are \_\_\_\_ the movie.
- a. in
  - b. on
  - c. at



- 20) The girl is sitting \_\_\_\_ the window.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



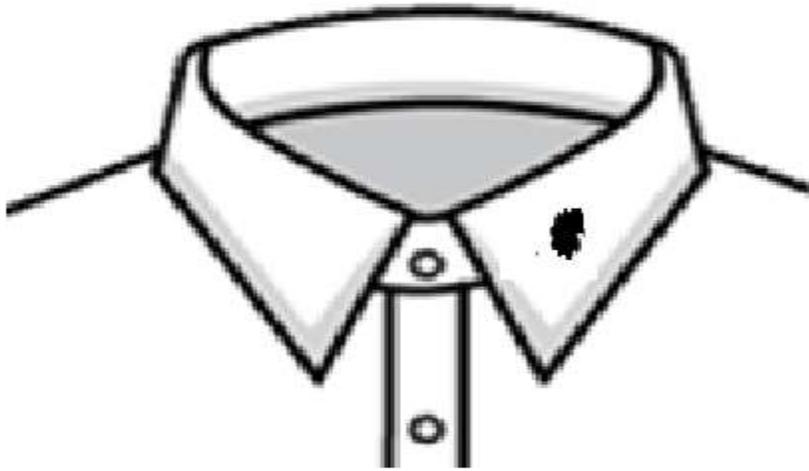
- 21) The children stood \_\_\_\_\_ a row against the wall.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



- 22) Doctors work \_\_\_\_\_ the hospital.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



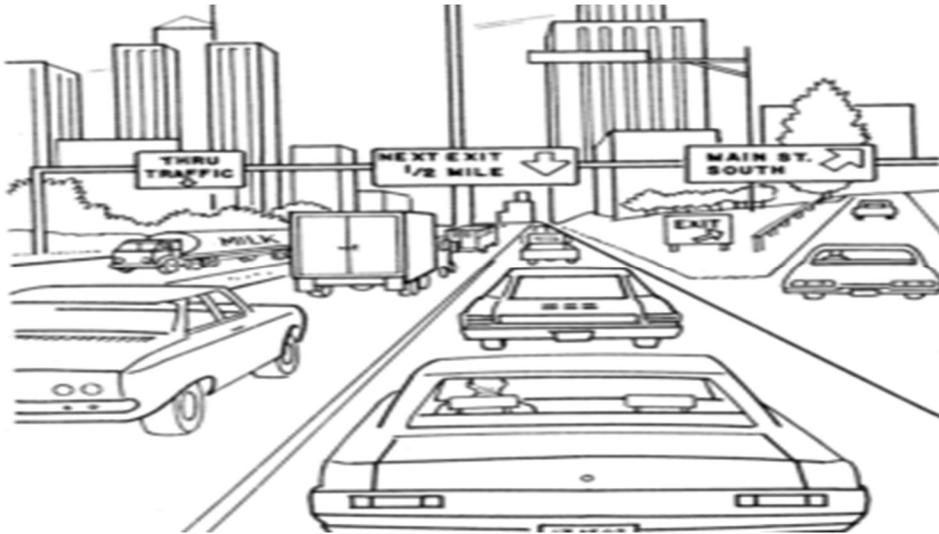
- 23) I cannot wear my shirt because there is a stain \_\_\_\_ the collar.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



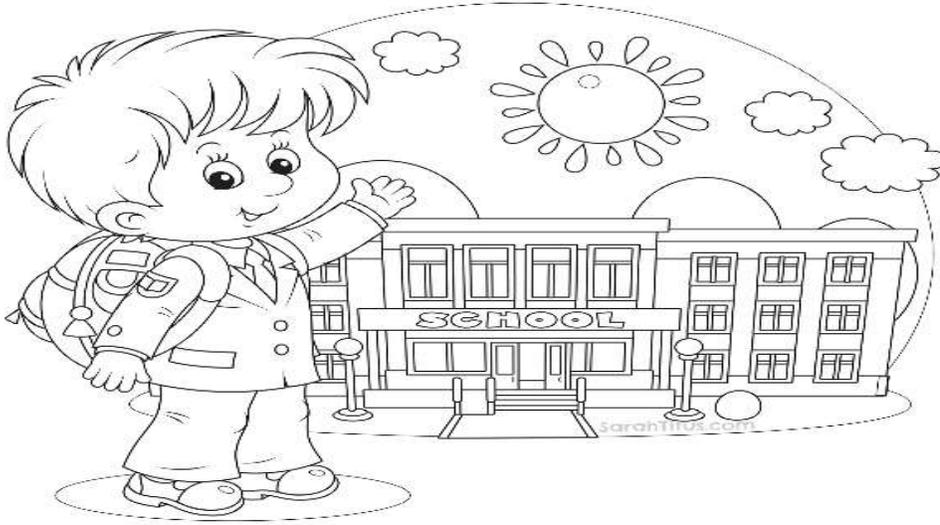
- 24) I was standing \_\_\_\_ the counter when you called me.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



- 25) There was too much traffic \_\_\_ the turnpike.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



- 26) Jack is \_\_\_\_ school.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



- 27) Julie is putting her toys \_\_\_\_\_ the cabinet.
- a. in
  - b. on
  - c. at

## SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

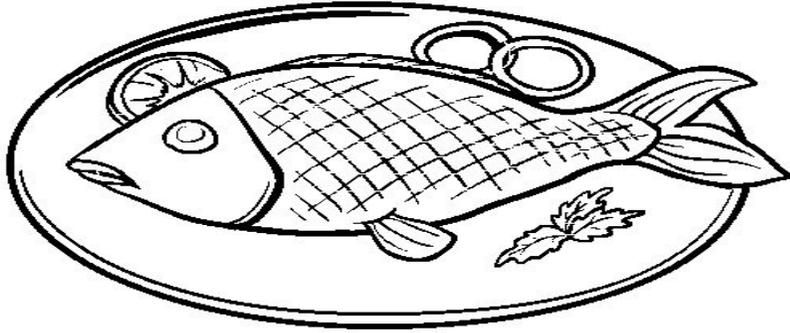


- 28) Students spend most of their time \_\_\_\_\_ campus.
- a. in
  - b. on
  - c. at



- 29) Julia was standing \_\_\_\_\_ the stop sign, waiting for her friend.
- a. in
  - b. on
  - c. at

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH



- 30) Fish is usually served \_\_\_\_ a plate.
- a. in
  - b. on
  - c. at

# SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

## Appendix B

### Questionnaire

ID 

We would be grateful if you could give us the following background information to help us with our study.

1) Are you: Male  Female ?

2) Your age: \_\_\_\_\_

3) What is your mother tongue? \_\_\_\_\_

4) What is your education level?

High school

Undergraduate

Graduate

5) At what age, did you start learning English?

0 to 5

6 to 10

11 to 15

16 to 20

After 20

6) How long did you study English in Saudi Arabia?

1 to 2 years

2 to 3 years

3 to 4 years

more than 5 years

7) What age were you when you start learning English? \_\_\_\_\_

SPATIAL PREPOSITIONS IN ARABIC AND ENGLISH

8) Were your teachers in Saudi Arabia native speakers of English?

- Yes                       No                       Some were, some were not.

[Please specify \_\_\_\_\_]

9) Have you ever studied English in another country other than Saudi Arabia or the United States? If so, please specify? And for how long?

- Yes                       No

Where? -----

How long? -----

10) How long have you been living in the United States?

- less than one year  
 1 – 2 years  
 3 – 4 years  
 more than 5 years [Please specify: \_\_\_\_\_]

11) Have you studied English in United States? And for how long?

- Yes                       No

How long?

- 1 to 2 years  
 2 to 3 years  
 3 to 4 years  
 more than 5 years

12) Were your teachers in United States native speakers of English?

- Yes                       No                       Some were, some were not.

[Please specify \_\_\_\_\_]