

The Acquisition of Negative Morphemes by Jordanian EFL Learners

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Abstract

This paper reports on the results of a study on the acquisition of negative morphemes (NMs) by a group of Jordanian EFL learners at the University of Jordan. Kharma and Hajjaj (1989), Al-Qadi (1992) and Soudi, Cavalli-Sforza & Jamari (2001) posited that the combination of affixes and roots to change word class in English is quite arbitrary. This study presents empirical evidence that the combination of a NM and a stem is not random: Knowledge of the phonological, morphological, and semantic constraints on NMs, language exposure and frequency of occurrence greatly affect the acquisition of derivational morphology including NMs. The data were gathered through a written task of 32 items representing NMs prefixes. The results suggest that the higher scores are characteristic of derivatives whose formation seems to obey certain phonological constraints such as assimilation. The results also confirm that NMs with the highest scores were those that are characterized by high frequency in the Jordanian English teaching textbooks. The fact that the subjects did not find all NMs equally easy suggests that acquiring certain NMs may depend on the word root or the NM itself. The error data show that *un-* was the most overgeneralized prefix. Finally, since the subjects belong to two different educational levels, (1st and 4th year students), the significant difference in their performance indicates that language exposure is crucial for language acquisition (Hart & Risley, 1995; Shresta, 1998; Rott, 1999; Biemiller, 2006; Tremblay, 2006; Christ, 2007; Pitt, Dilley and Tat, 2011)

Key words: morphology, language acquisition, negative morphemes, language exposure, prefixes, Arabic,

Introduction

Derivational morphology has been relatively neglected while other branches of linguistics like phonetics, inflectional morphology and syntax have received more attention (Marchand, 1969; Bebout, 1993; Katamba, 1993; Tanda & Tabah, 2006). The unsystematic nature of derivational morphology makes morphemic representation of derived words potentially a less effective strategy for lexical processing than it is for inflected words (Ford and Marslen-Wilson, 2009:2). This research is concerned with derivational morphology. In particular, it presents the findings of a study about the acquisition of negative morphemes (NMs) conducted on 40 Jordanian learners of English as a foreign language (EFL) at the University of Jordan. To the best of my knowledge, there is no piece of research that has been conducted on NMs. In this study, I will shed some light on second language acquisition of NMs and the mechanisms of building words by adding NMs prefixes. I argue that there are constraints that govern the use of these morphemes and that the combination of a root word and a NM is not random. I will also show that the base morpheme (the word root) plays a role in acquiring these NMs as well. The ease or difficulty of acquiring certain items seems to correlate also with the negated item as a whole chunk composed of the root and the affix.

Kharmā and Hajjaj (1989:,37) point out that:

Most mistakes made in this area (derivation) are those of affixing the wrong prefix or suffix to the root word in order to form a negative, opposite etc, or another part of speech. This is particularly true of the less common affixes, but it is also true of some of the very productive affixes like *un-*, *in-*, and *dis-*, e.g. **inkind* and **undecent*".(37)

The researchers add that it is the derivational morphology of English that is responsible for the difficulty of acquiring suffixes or prefixes, and Arabic language has nothing to do with it, since other learners of English whose mother tongue is not of Latin or Germanic origin face the same problem. Such a conclusion sounds robust. I will show in the discussion that L1 (Arabic in our case) does affect the subjects' responses.

Different suggestions have been made as to the reasons behind the errors committed in acquiring a second or a foreign language (SL/FL). Kharmā and Hajjaj (1989), Al-Qadi (1992) and Soudi, Cavalli-Sforza & Jamari (2001) posit that the combination of affixes and roots to change word class in English is quite arbitrary. As a result, learners of English have to learn each derivative individually. Hamdan (1984:43) attributes erroneous derivation to the over-generalization of using certain morphological structures such as the erroneous derivation of the agent *seener* from the verb *see*. Al-Qadi (1996:204)

suggests that productivity leads SL learners to using the productive suffixes and prefixes wrongly (204).

The addition of a NM to a root may appear to be random as claimed by Kharma and Hajjaj (1989). However, it should be taken into consideration that NMs differ in meaning (e.g. *un-* vs *mis-*). Additionally, some are applicable to certain roots or to certain derivational words. Still, in dictionaries some words can take more than one negative prefix, and the meaning may be affected accordingly. For instance, dictionaries list *anti-American* and *non-American* where the former carries the meaning of hostility but the later just gives the neutral negative form of the word. In the same way, *inhuman* means 'brutal' and *unhuman* means 'not human, superhuman'.

This study was first piloted on some American and British students, who study Arabic at the University of Jordan, to find out their responses and comments. The written task was adjusted accordingly. It was noticed that there are slight differences in the use of NMs in American English (AmE) and British English (BrE). However, the written task included just one example that could show the difference between the two dialects: *anti-clockwise/counter-clockwise*.

The study aims at answering the following questions:

- (1) a. Assuming that not all NMs have the same level of difficulty, which NMs do Jordanian EFL learners find easier?
- b. Is there an impact of language exposure on the acquisition of NMs?
- c. What is the NM that is used most when the subjects cannot figure out the right answer?
- d. Does the base morpheme (word root) frequency affect word derivation?

The paper proceeds as follows: section 2 presents some related studies and reviews the semantics of negative morphemes. Methodology is discussed in section 3. Section 4 provides the results followed by the discussion in section 5. Section 6 concludes the study.

2. Literature review

2.1 NMs and *not*

Negation is defined as " the presence of a negative in a sentence or constituent or the addition of such an element, or the effect of that element when present" Trask (1993:179). Zanutini (1997) defines it as a syntactic process whereby a language employs negative markers to negate a clause. Tanda and Tabah (2006:5) define negation as a process whereby a negative

particle is added to a sentence or a constituent expressing a proposition with the intention of reversing the truth condition of that proposition (5).

The definitions above suggest that negation can apply either to a sentence or to a constituent. Clauses and sentences are negated mainly by syntactic negative elements such as *not* whereas constituents are negated by negative morphemes such as the prefix¹. In some languages, (e.g. Eastern Khanty) the negative element immediately precedes the constituent whose existence or truth value is falsified in the proposition (Filchenko, 2012).

In a Lexeme-Based Treatment (LBT) model (as in Aronoff, 1994) only lexemes and free morphemes are free minimal grammatical elements. Inflectional or derivational morphemes, suffixes, prefixes and infixes, are not themselves grammatical elements. From the point of view of the lexicon, the lexeme is a lexical entry (Soudi et al., 2001). Accordingly, the freestanding negative marker *not* is a lexeme whereas NMs such as *un-*, *in-*, *dis-* are not.

As opposed to clausal negation, constituent negation usually results in antonymy which can be classified into: lexical and morphological (Justeson and Katz 1991). Lexical antonyms refer to producing a totally different word to convey the negative or opposite meaning such as the pair tall and short, whereas morphological antonyms, or constituent negation, use the word root to express the opposite meaning by adding certain suffixes or prefixes, e.g. tidy and untidy. There is, of course, a significant difference between the two kinds of antonyms. Saying that Omar dislikes pizza, for example, is not the same as saying that Omar hates pizza. However, EFL learners may not always be familiar with such a difference. In fact, they resort to using a morphological antonym as an avoidance strategy when they have no idea what the lexical antonym is.

In terms of acquisition, NMs and *not* are stored and acquired differently. Bebout (1993) conducted two experiments in which subjects with aphasia were presented with both negative morphemes and the freestanding word *not*. The subjects were significantly more likely to produce the required affirmative or negative sentence when the negative element was a prefix than when it was the freestanding *not*. In other words, the aphasia subjects did significantly worse on syntactic negation compared to morphological negation on the production task, but there were no differences on the comprehension task. Bebout (1993:169) explains that by the full-listing account: the prefixed words are not decomposed into constituent morphemes in the mental lexicon, but instead are listed as full forms. Thus, forms like *unripe* and *invisible* are stored as unanalyzed lexical items in the lexicon. So the aphasic subjects would retrieve these lexical items directly from the lexicon in contrast to retrieving two distinct lexical items in the syntactic negation that uses the freestanding *not*. This is supported by the fact

that both normal and Broca's subjects recognize derivational word forms by taking them as independent items. However, from a morphological point of view, these entries are considered as complex lexical entries since the relevant morphemes, whether prefixes or suffixes, are semantically segmentable (Marslen-Wilson et al., 1994).

NMs, like other aspects of derivational morphology, seem to be unpredictable. For example, although both *tidy* and *typical* are adjectives that start with an alveolar plosive 't', the former takes the NM *un-*, whereas the latter takes *a-*. However, the idea of the arbitrariness of NMs is not quite true. After presenting the results of our experiment, I will show that there are phonological, morphological and semantic rules that govern the use of NMs.

2.2 Formation of NMs in English

NMs form a great part of prefixes in English. Nevertheless, a thorough review of related literature reveals that the acquisition of NMs in English has not received much attention in recent studies. In her discussion of the mechanisms of word formation in English, Bauer (1983) mentioned a few of the NMs under different topics but she did not discuss them systematically. She concentrated on their syntactic behavior and their phonological effect on stress. Katamba (1993) was interested in the stratum at which such prefixes are placed. He, further, analyzed the impact of NMs on stress shifting. Marchand (1969) was interested in NMs in specific, and in other prefixes in general. He proposed details of the etymology and semantics of each prefix.

However, the constraints on using NMs to derive new words have not been investigated thoroughly. Here, I will present a brief account of how NMs are formed in English and what determines using certain NMs in producing different words. The account will be mainly based on Marchand (1969) and Lutz (1997):

- 2.1. *a-*: an adjectival prefix which means 'without, devoid of'. It has a Greek origin meaning the same as the English *un-* in terms of opposition. Examples include *acardiac*, *apolitical* and *amoral* (Marchand 1969:140).
- 2.2. *anti-*: has an old Greek origin, meaning, 'counter, opposite, instead, defense' as in *anti-hero*, *anti-novel* and *antimissile*.
- 2.3. *counter-*: has a French origin with the meaning of 'opposite and parallel, opposite in direction or purpose' e.g. *counteract*. It also means reciprocation as in *countersign* (Morris 1982:303).
- 2.4. *de-*: means 'remove from' and mainly attached to verbs ending in *-ize*, to express the reversal of the action. The prefix can also

precede other verbs not ending in -ize such as decompose and decolor.

- 2.5. dis-: mainly means 'not, fail to' as in the words disbelieve, dislike, and distrust.
- 2.6. in-, il-, ir-, im-: these allomorphs mean 'un, not' in adjectives, e.g. intolerant, illegal, irresponsive, and immature, and 'lack, absence of' in nouns, as in inflexibility and inactivity.
- 2.7. mal-: conveys the meaning 'ill, evil, wrong, defective, improper'. It originated in loans from French. Malnutrition, malpresentation and malobservation are examples of this prefix.
- 2.8. mis-: is mainly used with verbs and deverbal nouns and has the meaning of 'wrongly, improperly' e.g. mislead, misunderstand.
- 2.9. non-: attaches to nouns, adjectives and participles. So we find non-Arab, non-harmonious and non-graduated.
- 2.10. un-: Bauer (1988: 226) classified un- into two types: The first is attached to adjectives that have roots from old Greek e.g. unfair. It conveys the meaning of 'not' as in unclean and unwise. The second is the reversative type which forms a great number of verbs, like undo, unlock, unfold and unplug.

3. Methodology

3.1 Subjects

Forty (40) Arabic-speaking Jordanian students participated in this study. The subjects' LI was Jordanian Spoken Arabic. The subjects were divided into two equal groups: 1st year (freshman) and 4th year (senior) students. Most freshmen have taken around 30 credit hours including at least one or two English courses, such as 'Communication Skills' and 'Oral Skills', whereas the seniors have taken around 100 credit hours, two thirds of which are English courses. Most of the seniors had already taken a course or two in 'Syntax' as an obligatory requirement for obtaining a B.A. degree in English language and literature at the University of Jordan.

Before being admitted to the university, all subjects had received at least 8 years of formal instruction in English (from grade 5 until the 2nd secondary grade) at a rate of five 45 minute lessons per week. Some had started learning English as early as grade 1.

Finally, before taking the questionnaire, the subjects were told that their responses would be kept confidential.

3.2 Data collection

The data were elicited through a written task of 32 items representing almost all NMs prefixes in English. Each item was included in a sentence of two clauses. The first clause had a positive, neutral word that functioned as a stimulus, while the second one had a blank space which had to be filled by forming a negative counterpart to that word. To see all the items, the reader is referred to the 'Appendix'.

The subjects, guided by 3 illustrative examples that varied in difficulty, were asked to read the first clause of each sentence and then complete the second with the target word that needs to be prefixed with a NM as in the following example:

(2) The police found that the first man was honest, while the second was dishonest.

The subjects were given about 40 minutes to complete the task. However, most of them were able to finish in lesser time. Although NMs could be either prefixes or suffixes, the written task included prefixes only. Each NM prefix was represented by 2 or 3 sentences distributed randomly.

4. Results

The results of the written task were analyzed in light of the research questions: which NMs are found easier?, what impact does language exposure have on the acquisition of morphology?, what is the most common NM? and does the base morpheme (word root) frequency affect word derivation?

The subjects' responses revealed that choosing the right NMs was a real challenge for a large number of the subjects. Figure (1) summarizes the results of the two groups.

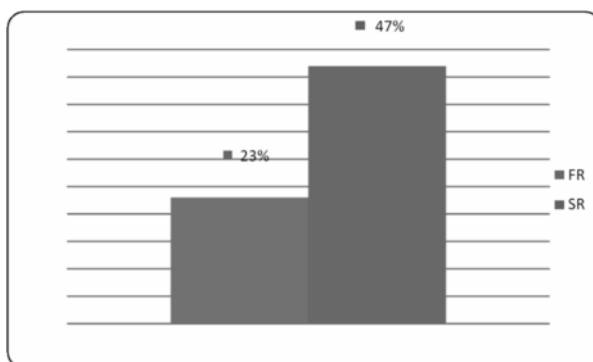


Figure (1): Percentages of Freshmen (FR) and seniors' (SR) acquisition of NMs out of 660 possible attempts.

The percentages of accurate attempts show that senior students remarkably outperformed their freshmen counterparts. A t-test comparing the two proportions revealed that the difference between the two groups is significant (Std Err. 0.02627, $p < 0.0001$). A closer look at the scores of each item reveals that the words under each NM were not equally difficult. Figure (2) contrasts the total accurate scores of each item for each group:

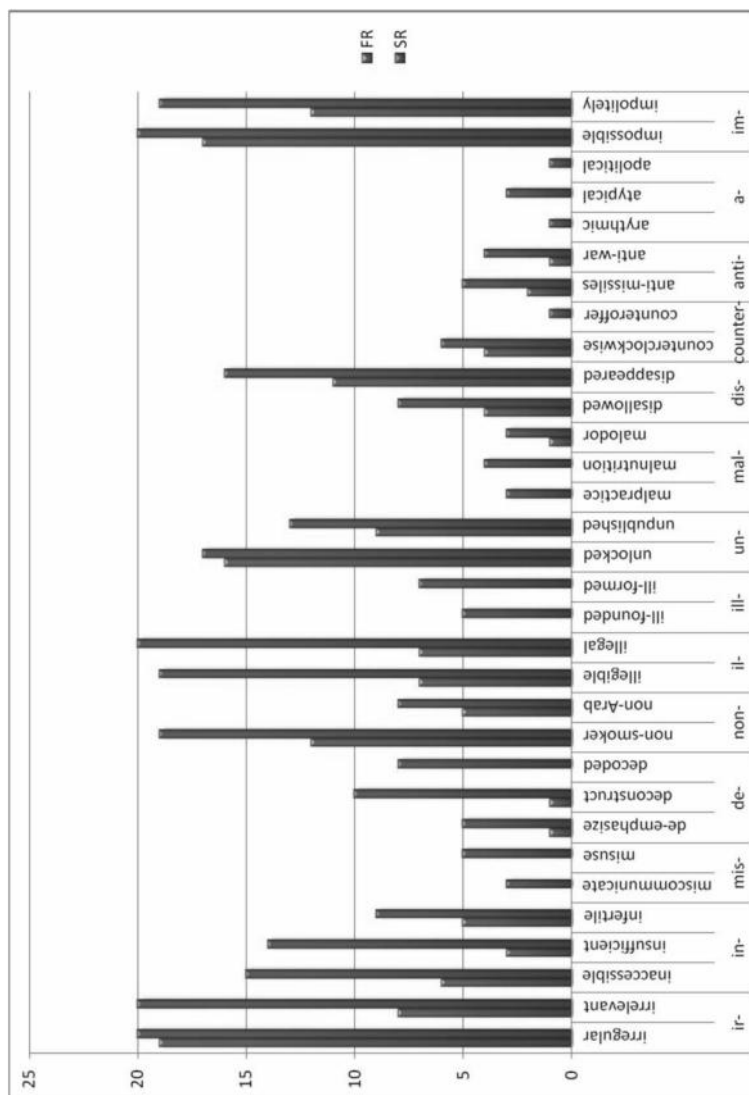


Figure (2) : Freshmen and seniors' accurate scores of each NM

A quick glance at the scores in Figure (2) confirms the assumption implied in the first research question: the subjects did not find NMs equally easy/difficult even with the same NM, e.g. relevant and regular. Almost all freshmen were able to give the right answer for regular, because they had heard it so many times; at least they had often heard the expression 'irregular verbs'. By contrast, only 8 freshmen could provide the correct answer for relevant. This indicates that the word root (base morpheme) does affect word derivation (research question d). In general, Figure (2) shows that, whereas some target items such as *regular* and *possible* had very high scores, others like *political* and *rhythmic* got very low scores.

The figure also shows that senior students outperformed freshman students in all NMs (research question b). In addition, seniors' scores for words under the same NM were relatively close. For example, 7 subjects were able to answer *ill-formed*, and 5². This indicates that seniors' scores were more consistent.

In order to decide whether there was a significant difference for each NM between the two groups, a t-test was carried out. Table (3) provides the different scores of each NM achieved by freshmen and seniors along with the 'Standard Error' and *p*-value:

Table (3)
Freshmen and seniors' scores for each NMs³

NM	No. of attempts	FR scores	SR scores	Std Err	P-value
ir	40	27	40	0.08249	< 0.0001
in	60	14 (9.3)	38 (25.3)	0.09047	< 0.0001
mis	40	0	8	0.07395	< 0.0068
de	60	2 (1.3)	23 (15.3)	0.07415	< 0.0001
non	40	17	27	0.11124	0.0246
il	40	14	39	0.10573	< 0.0001
ill	40	0	12	0.08496	0.0004
un	40	25	30	0.09083	0.3102
mal	60	1 (.6)	10 (6.7)	0.05268	0.0044
dis	40	15	24	0.11177	0.0441

cont/ Table (3)
Freshmen and seniors' scores for each NMs⁴

NM	No. of attempts	FR scores	SR scores	Std Err	P-value
counter	40	4	7	0.07700	0.3301
anti	40	3	9	0.07984	0.0603
a	60	0 (0)	5 (3.3)	0.04279	0.0515
im	40	29	39	0.07984	0.0017

NMNo. of attempts FR scoresSR scoresStd ErrP-value

(P-value was taken at $p < .05$)

Table (3) reveals that the differences between freshmen and seniors' responses were significant for all NMs except for *non-*, *un-*, *dis-*, *counter-*. The NMs prefixes that had low scores were *ill-*, *anti-*, *mal-*, *counter-*, *mis-*, and *a-*. These were almost non-existent in the freshmen's responses, and had low scores in the seniors' responses.

On the basis of freshmen and seniors' responses presented in table (3) above, NMs were classified into three levels of difficulty for each group as shown in tables (4) and (5) respectively:

Table (4)
Level of difficulty according to freshmen's responses

Range of accurate scores answers	Category	Morphemes acquired
25-40	Easy	im-, ir-,un-
10-24	Moderate	non-. dis-, in-.il-
1-9	Difficult	anti, mis-, counter-, a-, ill-, de-, mal-
25-40	Easy	im-, ir-,un-, il-, in-, non-
10-24	Moderate	dis-, de-, ill-
1-9	Difficult	anti, mis-, counter-, a-, mal-

A quick look at the two tables reveals that the two groups did not have the same NMs under each category. More accurately, the number of easy and moderate NMs for the senior subjects were more than those for their freshmen counterparts. *ll-* and *ir-* were moderate for freshmen but easy for

seniors. Similarly, *ill-*, *de-*, and *mal-* were difficult for freshmen but moderate for seniors. Tables (4&5) provide a straightforward answer to research question (a).

In order to provide a complete description of the acquisition path of NMs, we need to examine the subjects' unsuccessful attempts as well. The errors may give us some idea about the most common NM: the prototypical NM that the subjects thought first of and consequently overgeneralized to other base forms when they were in doubt. Table (6) below provides the errors of the freshman students in terms of formation mechanisms, and their distribution in terms of the erroneously selected prefix⁵.

Table (6)
Freshmen's errors distribution in terms of erroneously selected prefix

NM	Errors No.	Distribution of errors in terms of erroneously selected prefix														Others	B
		<i>ir</i>	<i>im</i>	<i>il</i>	<i>in</i>	<i>un</i>	<i>dis</i>	<i>non</i>	<i>de</i>	<i>mis</i>	<i>anti</i>	<i>ill</i>	<i>mal</i>	<i>counter</i>	<i>a</i>	<i>not</i>	
<i>Ir</i>	13	-	-	-	-	8	1	1	-	-	-	-	-	-	-	2	1
<i>Im</i>	11	-	-	-	-	5	3	-	-	-	-	-	-	-	-	-	2
<i>Il</i>	26	-	-	-	2	12	5	1	-	-	-	-	-	-	-	4	2
<i>In</i>	46	-	-	-	-	28	1	4	-	-	-	-	-	-	-	6	3
<i>Un</i>	32	-	6	-	2	-	4	5	-	-	-	-	-	-	-	9	4
<i>Dis</i>	25	-	-	-	-	6	-	-	-	-	-	-	-	-	-	15	4
<i>Non</i>	23	-	-	-	1	3	-	-	-	-	-	-	-	-	-	9	9
<i>De</i>	58	-	1	-	6	16	8	8	-	-	-	-	-	-	-	6	8
<i>Mis</i>	40	-	-	-	4	10	7	3	-	-	-	-	-	-	-	11	4
<i>Anti</i>	37	-	3	-	1	6	7	2	-	-	-	-	1	-	1	2	9
<i>Ill</i>	40	-	-	-	-	6	1	2	-	-	-	-	-	-	-	15	14
<i>Mal</i>	59	-	-	-	4	19	6	4	-	-	1	-	-	-	-	3	14
<i>Counter</i>	36	-	-	-	3	10	4	1	-	-	-	-	1	-	-	5	6
<i>a</i>	60	4	8	-	2	22	3	4	-	-	1	-	-	-	-	6	3
<i>total</i>	506	4	18	-	25	145	50	35	-	-	2	-	2	-	1	93	81
<i>Per.</i>	100%		4%	-	5%	29%	10%	7%	-	-		-		-		18%	16%

The last row in table (6) presents the percentages of the erroneously selected NMs. The table shows that freshmen erroneously selected *un-* in most cases for the target words that they could not figure out the answer for (Research Question c). Freshmen tended to attach the prefix *un-* to various types of base forms in 29% of their attempts. The freestanding negative element *not* comes in second place with 18%. The percentage of errors due to the erroneous selection of *counter-*, *a-*, *mis-* and *de-*, was almost nil. However, they are obviously less frequent than other NMs in English.

Table (7) below provides the errors of the senior students in terms of formation mechanisms, and their distribution in terms of the erroneously selected prefix.

Table (7)
Seniors' errors distribution in terms of erroneously selected prefix

NM	Errors No.	Distribution of errors in terms of erroneously selected prefix															Others	Bl
		ir	im	il	in	un	dis	non	de	mis	anti	ill	mal	counter	a	not		
Ir	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Im	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Il	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
In	22	-	-	-	-	14	1	2	-	-	1	-	-	-	-	-	2	2
Un	20	-	6	-	1	-	4	1	-	-	-	-	-	-	-	-	6	2
Dis	16	-	-	-	1	6	-	1	-	-	-	-	-	-	-	6	1	1
Non	23	-	-	-	1	6	-	-	-	-	-	-	-	-	-	8	7	1
De	36	-	-	-	4	12	8	-	-	-	-	-	-	-	-	4	4	4
Mis	32	-	-	-	2	7	6	3	1	-	-	-	1	-	-	1	7	4
Anti	31	-	3	-	2	4	2	2	-	-	-	-	1	-	-	-	10	7
Ill	28	-	-	-	-	8	-	-	-	-	-	-	2	-	-	2	10	6
Mal	50	-	-	-	7	8	4	3	1	1	2	1	-	-	-	5	6	12
Counter	33	-	-	-	3	5	7	1	-	-	1	-	-	-	-	1	4	11
a	55	5	3	1	1	19	3	14	-	-	1	-	-	-	-	2	2	4
total	348	5	12	1	22	88	36	27	2	1	5	1	4	-	-	30	59	54
Per.	100%	1%	3%		6%	25%	11%	8%			1%		1%	-	-	9%	17%	16%

As far as senior students are concerned, table (7) shows that, here too, *un-* had been the most overgeneralized NM with a percentage of 25% (Research Question c). In the second place comes *dis-* rather than *not*. *Mal-* and *anti-*, which are less common in English, were more erroneously selected by senior subjects than freshmen. The percentage of errors due to the erroneous selection of *counter-* and *a-*, *mis-* and *de-*, remained almost nil.

Moreover, as an avoidance strategy some students in both groups resorted to lexical antonymy which means that they used a totally opposite word. Examples include *Arab-foreign*, *war-peace*, *lock-open*. In some cases, subjects could not come up with any NM, and due to L1 interference they used free morphemes to convey negativity such as *against* as in *war/*against war*. Furthermore, NMs that are phonologically or orthographically similar were confused; *mis-* was confused with *dis-*, *dis-* with *de*, etc. For example, *discommunicate* was used instead of *miscommunicate* and *disemphasize* in place of *de-emphasize*. Finally, some NMs can stand on their own as free morphemes. When they do so, they may have lexical antonyms, e.g. *well* and *bad*. As a result, the lexical opposite word was thought of as being a NM and hence incorrectly used as in the pair *well-formed* and **bad formed*.

5. Discussion

In general terms, the significant difference between freshmen and seniors (23% to 47%) confirms the findings of many previous studies that the amount of language exposure (Research Question b) plays a significant role

in the process of acquisition (Hart and Risley, 1995; Shresta, 1998; Rott, 1999; Biemiller, 2006; Tremblay, 2006; Christ, 2007; Pitt, Dilley and Tat 2011; , to name a few). The fact that the subjects did not find the same NM equally easy suggests that, in addition to the constraints that govern the use of these NMs, acquiring certain NMs may depend in some way on the base morpheme frequency (Research Question d) as suggested by Ford, Davis and Marslen-Wilson (2010) e.g. *unlocked* vs *unpacked*. Furthermore, more productive NMs are quite easier to acquire than unproductive ones e.g. *non-Arab* vs. *malnutrition* (Research Question a). The current study provides convincing demonstrations that affix productivity has a robust and important influence on the subjects' responses. Besides, because those who answered these NMs correctly were senior subjects, this accounts for the role of language exposure in acquiring these morphemes (Research Question b).

Statistically, there were significant differences between the two groups in acquiring NMs except for *non-*, *un-*, *dis-*, *counter-*. Perhaps the gap between the two groups with regard to *non-*, *un-*, *dis-*, was small because these prefixes and the root words to which they are attached are quite frequent. Therefore, both groups had close percentages or correct answers. *Counter-*, on the other hand, had very low scores for both groups due to its rareness rarity as a NM. As a result, it did not show a significant difference between freshman and senior students. This may suggest that the subjects' perception of *counter-* and other rare NMs as negative markers takes place at a later stage of the learning process. Thus, it can be concluded that the subjects, who actually never overgeneralized the prefixes *counter-* and *a-*, tended to perceive these NMs as the least frequent negative markers.

Larsen-Freeman (1975) maintains that "Although admittedly the amount and type of English input might vary according to the situation, there are stable factors that would be cogent for all learners; frequency of occurrence is a possible contender". Accordingly, the constraints that govern the use of the relevant prefixes, particularly, those that require the use of the low frequent NMs such as *a-*, *mal-*, *counter-*, *anti-* and *ill-* are less transparent to the EFL learners than those that require the use of other quite frequent prefixes. Hence, the derivatives with low frequent NMs were found more difficult. The low percentage may be due to the rare occurrence of these negative markers in English in general and in Jordan textbooks in particular. Therefore, many Jordanian EFL learners are not familiar with them. However, since the correct answers to these less frequent NM were scored by senior students, this

answers our question about language exposure and the role it plays in acquiring NMs.

The analysis of the accurate answers for each NM suggests that the higher scores are characteristic of derivatives whose formation seems to obey wholly or partially certain orthographic or phonetic constraints. Aside from the quite common NM *un-*, the NMs that ranked first in terms of ease were *im-* and *ir-* for both groups and *il-*, for seniors only. The high scores for these NMs could be accounted for by the phonological constraints of assimilation. Tomori (1977) points out that assimilation may take place between the NM and the first letter of the word to which it attaches. He presents four examples illustrating the same idea: *inaudible*, *impossible*, *illogical* and *irrelevant* (three of which were included in our study). He states that "these elements (NMs) have different phonetic forms in the four words. The occurrence of the different forms, *in-*, *im-*, *il-*, and *ir-* can be explained by the law of phonological conditioning" (Tomori 1977:26). In the same vein, Katamba (1993:28) maintains that: "the selection of the allomorph that is used in a particular context is not random". He explains that the prefixes *im-*, *i* and *in-* are three allomorphs of the morpheme *in-*. He postulates the selection rules as follow:

- (3) a. put [im] before labial consonants (p, b, f, m)
- b. put [i] before velar consonants (k, g, q)
- c. put [in] elsewhere (alveolar consonants and vowels)

On this basis, it is likely that the NMs which undergo assimilation were rather easy. In the second rank come the prefixes *dis-*, and *non-* which did not show significant differences between the two groups as mentioned earlier. The relatively high scores of *dis-* may be ascribed to the word *disappeared* which appears in elementary stage syllabuses and recurs in later stages. The same can be said for *non-smoker*. This enhances the role of the word root (base morpheme) frequency in acquiring NMs.

The results of this study add to the growing body of evidence indicating that language exposure plays a major role in language acquisition. This is supported by the fact that the number of easy NMs for the senior subjects was more than those for their freshmen counterparts, and vice versa with regard to the hard NMs as shown in tables (4) and (5) above.

The third research question seeks to find out the most common frequent NM. Tables (6) and (7) show that both groups erroneously selected *un-* in most cases when they could not figure out the right answer. The overgeneralization of using this prefix suggests that *un-* is considered the most common,

or the prototypical NM. Notably, Arabic expresses negativity by the negative elements *lajsa*, and *laa*, which equate to the freestanding English negative marker *not*, and by which is equivalent to the NM *un-*.

- (4) a. *laa* *ya-naam-u* *Akram-u* *mubakkiran*
 neg:verbal impf-sleep-ind Akram-nom early
 'Akram does not sleep early'.
- b. *leijsa* *Akram-u* *sa?eed-an*
 neg:nominal Akram-nom happy-acc
 'Akram is not happy'.
- c. *Akram-u* *Bejru* *sa?eed-in*
 Akram-NOM NEG: adjectival happy-GEN
 'Akram is unhappy'.⁶

However, neither *lajsa* nor *laa* are NMs because they are free-standing morphemes. Perhaps the subjects, particularly freshmen, who tended to overgeneralize *un-* and *not* more, were affected by LI and so used those two negative elements when translating negativity from English to Arabic or vice versa. In fact, our conclusion is supported by Al-Qadi (1996:212) who found that EFL Arab speakers of English derive words by 'false analogy' (212).

The fact that seniors chose *dis-*, as the second highest erroneously selected NM indicates that at this stage they started to use more technical NM than *not* which is not a NM. This also suggests that language exposure has an important role in the identification and use of such morphemes.

Not as well as lexical antonyms were both used as an avoidance strategy especially by freshmen. Al-Qadi (1996:203) reported that "morphology is subject to avoidance phenomenon by foreign learners". However, avoidance should not be always thought of as lack of knowledge of the avoided structure. It may be attributed to other variables such as confidence, anxiety and motivational orientation (Kleinmann 1977:106).

In some cases, subjects erroneously clipped the target word just because it starts with a syllable that is homophonous with separate morphemes (e.g., *missiles* /**ssiles* and *emphasize* /**phasize*). This indicates that they were aware of the fact that *mis-* and *em-* could be NM prefixes. Nevertheless, it suggests that they are ignorant of the morphology and semantics of these words.

Finally, the lack of training in derivational morphology, especially for freshmen, resulted in a high percentage of errors. Hamdan (2002) in a study

conducted on the acquisition of nationality words by Jordanian EFL learners, concluded that the English language system and the inadequate training in derivational morphology are some of the factors responsible for errors made in EFL learners' productions (279). To the extent that both nationality words and negative morphemes are part of derivational morphology, and undergo the same process in terms of word formation, Hamdan's results can be validated to the acquisition of NMs.

6. Conclusion

This study presented empirical evidence that the combination of a NM and a stem is not random: knowledge of the phonological, morphological and semantic constraints on NMs as well as language exposure and frequency of occurrence greatly affect the acquisition of derivational morphology in general and NMs in specific..

First, when assimilation results in making the negative marker orthographically similar to the first letter of the target word, the subjects found it easier to form the word with NMs. This actually accounts for the high scores in words like *illegal* and *irregular*. However, through analyzing the whole data of the inaccurate attempts, it was noticed that the subjects overgeneralized assimilation, hence the ill-formed **impractice* and **irrythmic*. Phonological assimilation tended to affect the subjects' answers either positively as in *impolitely* or negatively as when spreading the same morpheme *im-* to other words that start with a 'p' sound as in **impolitical*. Additionally, NMs that are phonologically or orthographically similar were confused; *mis-* was confused with *dis-*, *dis-* with *de*, etc. For example, *discommunicate* was used instead of *miscommunicate* and *disemphasize* in place of *de-emphasize*.

Second, some subjects were ignorant of the morphological conditions on word formation. They were unaware that certain categories like verbs go well with certain negative marker(s). If the subjects were aware of such morphological conditions, they may have eliminated certain NMs and chosen others depending on the word category.

From a semantic point of view, although the NMs have roughly the same semantic function, i.e. negativity or reversativity, there are some slight differences between them. For example: *mis-* means 'wrongly, improperly' *counter-* 'opposite and parallel', and *dis-* 'the reverse of'. However, not all EFL learners are aware of these semantic differences. Therefore, some use NMs interchangeably, especially when they encounter a word that they have never seen prefixed with a NM.

Etymology is another constraint: many of the NMs have a Greek, Romance, or Latin origin. Consequently, a certain word often takes a NM that

came from the same origin. For instance, the prefix *counter-* which has an old French origin, attaches mainly to old French or old English words such as *counterbalance* (Marchand 1969:152). This may account for some derivatives which were thought to select randomly certain NM. In fact, being unaware of such a constraint, some researchers claim that derivational morphology in English is arbitrary.

Further research in the field of NMs is needed. Research may include both NM prefixes and suffixes; e.g. *-less* and *-free*, or words that can take more than one NMs but with a difference in meaning as in *anti-Arab* and *non-Arab*.

Endnotes

Dear Student,

Look at the following sentences:

- 1 - The police found that the first man was honest, while the second man was dishonest.
- 2 - The function of his kidneys is okay, but the tests show malfunction of the liver.
- 3 - In order to eliminate the friction, the physicist used an antifriction.

As you can see, there is a positive word, i.e., *honest*, *function*, and *friction* followed by a negative counterpart, i.e., *dishonest*, *malfunction*, and *antifriction*, respectively.

Please fill in the blank in each sentence with the suitable negative prefix.

- 1 - The past tense of the regular verb "walk" is "walked." The past tense of the ----- verb "fall" is "fallen."
- 2 - Now that there is an elevator in the building, the second floor is accessible to people in wheel chairs. Before it was -----, and they could not visit our office.
- 3 - We can communicate well with him, but with her we have difficulty and seem to -----.
- 4 - The presidential candidates emphasize their strong points and work hard to ----- their weaknesses.
- 5 - My parents are heavy smokers. Happily, my brothers and I are -----.
- 6 - The printed material is legible, but your small handwriting is -----.

- 7 - Your logic has to be well founded. If your argument is ----- it will not convince the philosophy professor.
- 8 - You have to lock the safe to protect the money. Don't leave it -----.
- 9 - Most doctors are very careful and have a high standard of practice, but occasionally we hear that a doctor has made a serious mistake and is accused of -----.
- 10 - For many years medical expenses were allowed as tax deductions, but as of this year they are -----.
- 11 - Her information is relevant and will help us, but your evidence seems to be ----- and unnecessary.
- 12 - Sami's dad is an Arab, but his mum is -----, from Europe.
- 13 - In England people drive around a traffic circle in a clockwise direction. Here we drive -----.
- 14 - Some children gather smaller units of language together and construct larger chunks, while others ----- the larger chunks into smaller units.
- 15 - Sometimes children make well-formed utterances, but other times they make ----- ones and are difficult to understand.
- 16 - Two spoons of sugar are sufficient, but one is ----- and the tea will not be sweet enough.
- 17 - The enemy used new missiles and we were ready to defend with new -----.
- 18 - Regular rhythmic heartbeats are normal, but ----- heartbeats may be a problem.
- 19 - Our land was fertile 3 years ago, but after 2 years of no rain it is now -----.
- 20 - Nutrition is good in many Arab countries and people are healthy, but Darfur suffers from lack of water and food and there is widespread -----.
- 21 - The prospective employee did not like everything in the job offer so he made a -----.
- 22 - The Badia Program may be possible after some years, but at the moment without proper funding it is -----.
- 23 - Buying things from abroad is legal, but smuggling them into the country is ----

- 24 - Some workers use machines correctly, but others are not trained and ----- them.
- 25 - At first, she talked to the manager politely, but then she became angry and started speaking -----.
- 26 - As an example of birds, the sparrow is typical but the ostrich is -----.
- 27 - Usually our neighborhood is very clean and has a pleasant odor, but someone dropped a lot of garbage and now there is a terrible -----.
- 28 - At dawn, the sun appeared very bright, but after one hour it ----- behind the clouds.
- 29 - Some countries voted for war, while many countries were strongly -----.
- 30 - The manager coded some secret programs on the main computer, but one of the officers ----- them.
- 31 - He published his M.A. thesis in 1993, but his Ph.D. dissertation is still -----.
- 32 - The students who were political attended the debate, but the students who were ----- went to their lectures as usual.

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