ABSTRACT

A plethora of second-language (L2) acquisition studies have tested the acquisition of English determiners in relation to simple noun phrases (NPs) of the generic versus non-generic type (e.g., Ionin., et al., 2008; Momenzadea & Youhanaeeb, 2014) rather than complex NPs, such as the ‘of-phrase’ construction, as in ‘the concept of love’. This study, therefore, contributes to our knowledge by addressing how first-language (L1) transfer from Jordanian-Arabic or Cypriot-Greek to English may influence the use of the definite and zero articles in relation to the configuration of the ‘of-phrase’ construction. This construction is comprised of two nominals (Ns): N1: definite noun+of+N2: bare noun. However, the definiteness feature in the equivalent L1 constructions is realised via an Arabic syntactic construct phrase and a Greek spreading feature. The statistical analyses of the data collected by a questionnaire and a forced-choice elicitation task indicated misuse of the before both Ns by the L2 groups at lower proficiency levels of English and provided evidence of L1 negative transfer, which resulted from the syntax-semantics mismatch between the participants’ L1s and L2. The results supported the Feature Reassembly Hypothesis (Lardiere, 2008, 2009). With the increase in the quality and quantity of input in the form of daily exposure to English, the L2 groups figured out how to restructure their L1 features to match the configuration of the L2 regarding their use of the. The age of the Jordanian participants and exposure to English at university/school/work of both groups influenced the use of zero and the; respectively.
1. INTRODUCTION

Some of the second-language (L2) hypotheses with respect to the different positions on Universal Grammar (UG) shed light on the nature of the initial state and whether the source of that initial state is transfer or UG. For example, proponents of the No Access position posit that L2 acquisition is constrained by maturation: when learners get older, they lose access to UG (Clahsen & Muysken, 1986; Bley-Vroman, 1989). The Partial Access to UG with Full Transfer, on the other hand, claims that L2 learners can only learn some grammatical aspects of the non-native language through the mediation of L1 (Hawkins et al., 2006; Tsimpli & Mastropavlou, 2008). For example, the Interpretability Hypothesis by Tsimpli and Mastropavlou proposes that L2 learners can have access to UG if the target features are interpretable even after puberty, while uninterpretable features are inaccessible after the closure of the critical period. In that way, uninterpretable features might cause learnability problems in L2 acquisition.

The Partial Access to UG position was also assumed by Hawkins et al. (2006), who proposed that if learners’ L1 is an article language, they are expected to have full access to the interpretable semantic features of definiteness and specificity made available by UG. If, however, their L1 is an article-less language, L2 learners will find it difficult to acquire these features. Yet, they can still have access to these universal features and their performance might improve with increased input. Hawkins et al.’s view was empirically supported by testing adult speakers of Greek, an article language, and Japanese, an article-less language. Hawkins et al. found that, unlike the Japanese group, the Greek speakers’ performance was nativelike because of the positive influence from their L1. They suggested that the only option available to the Japanese learners was to have direct access to the interpretable feature of definiteness via UG.

The Feature Reassembly Hypothesis (FRH; Lardiere, 2008, 2009) and the Fluctuation Hypothesis by Ionin et al. (2008) propose that full access to UG is available to L2 learners. The latter hypothesis involves the distinction between two binary parameter settings of the Article Choice Parameter (ACP): The definiteness setting and the specificity setting. When L2 learners have full access to these settings, they are expected to exhibit fluctuation between the features of the ACP only if the learners’ L1 is an article-less language. This fluctuation ends once L2 learners are provided with adequate input (Ionin et al., 2008). However, positive transfer from the L1 to the L2 takes place if the learners’ native language is an article-less language, which has the same ACP setting as the L2 (ibid).

The current study aims to investigate the acquisition of the English definite article by native speakers of Jordanian-Arabic (JA) and Cypriot-Greek (CG) in order to test the FRH (Lardiere, 2008, 2009), and to find out whether their performance was influenced by English proficiency levels, age and length of time learning English. This hypothesis can best explain how the cross-linguistic similarities and differences related to the definiteness feature associated with the morpho-semantic/syntactic configurations of L1 JA or L1 CG and the L2 might influence the (mis-)use of the in relation to the ‘of-phrase’ construction. Although English (Hawkins et al., 2006), JA (Awad, 2011) and CG (Buschfeld, 2013) are similar in that they have the determiner category and encode the definiteness feature, the definiteness feature in relation to the English ‘of-phrase’ construction is realised via different syntactic constructions in JA and CG.
2. BACKGROUND

2.1. ENGLISH ‘OF-PHRASE’ CONSTRUCTION

One of the major English structures within the nominal domain is the ‘of-phrase’ construction. This construction consists of two nominals and normally takes the structure shown in (1):

(1) \[N1+PP\;[of+N2]\] as in

The capital of Spain

[The capital+PP[of+Spain]].

According to Alexiadou et al. (2007), the first constituent of this construction, Noun 1 (N1): capital, takes place in the prenominal position. The second constituent, Noun 2 (N2): Spain, occurs in the postnominal position. Additionally, the semantic relations between N1 and N2 are of many types, such as those in (2).

(2) a. theme relationship

The production of penicillin (Keizer, 2007, p. 65)

b. container relationship

This box of chocolates (Hamawand, 2014, p. 122)

c. appositive relationship

[T]he fields of healthcare (ibid)

d. causal relationship (Quirk et al. 1985)

The dangerous consequences of obesity

In all of these types of the ‘of-phrase’ constructions, the N1s function as the head of the noun phrase (NP henceforth) (Keizer). Solstad (2010) argues the definiteness of N2 is based on N1. Subsequently, if N1 is definite, the whole constituent is definite, even if N2 is not preceded by the definite article. In that way, the head of the ‘of-phrase’ construction achieves all, or almost all, of the syntactic and semantic criteria for headedness and it implies the referent to this construction (Keizer).

2.2. ARABIC IDAFA CONSTRUCTION

The semantics of the definiteness feature in Arabic can be encoded in two ways: The first is by the overt morphological realisation of the definite article ‘al-’, and the other one occurs with the help of a syntactic construct phrase called Idafa (Ryding, 2005). Thus, if the Idafa is a definite NP, then N1 is always a bare noun, while N2 obligatorily takes the definite article. However, definite articles cannot be used with proper names, even if they are the second noun of Idafa, as proper names in Arabic are inherently definite (ibid). This is seen in (3).

(3) مدينة القدس

N1[madiinat–u] N2[l–quds–i]

N1[city-IND] N2[Jerusalem-DEF]

‘The city of Jerusalem’

Unlike English, the two nominals of the Idafa construction are always linearly adjacent without any connecting morpheme such as the English formative ‘of’. Ryding (2005) and Hawwari et al. (2016) agree that this construction denotes different semantic readings, which are shown in (4). These examples are from Ryding (2005, pp. 207–208, 260).

(4) a. appositive relationship as in example (3) above

b. thematic relationship

حمية الرضع

N1[Himayat–u] N2[r–ruDaʕ–i]

N1[protection-IND] N2[DEF–infants]

‘the protection of infants’

c. container/content relationship

الصندوق الأذهب

N1[sanaːdiːq–u] N2[l–dhahab–i]

N1[boxes-IND] N2[DEF–gold]

‘[the] boxes of gold’
2.3. GREEK LINEAR GENITIVE CONSTRUCTION

In Greek, there is an NP juxtaposed construction, which we will refer to here as the linear genitive construction. Unlike English, the two nominals of this Greek construction are always linearly adjacent, as they obligatorily occur without the connecting morpheme ‘of’ (Alexiadou et al., 2007). These semantic readings of the Greek construction can signal both definiteness and indefiniteness, depending on the context. Regarding the differences between the definite and indefinite ‘linear genitive NPs’, the indefinite constructions do not have the spreading feature that the definite constructions have. Alexiadou et al. and Kyriakaki (2011) define the spreading feature as a linguistic feature that simply refers to the multi-use of the definite article that spreads to other nominals within the DP structure.

The linear genitive NP construction encodes many semantic relations, and they can be classified as shown in (5).

\[
\begin{align*}
\text{a. thematic relationship} & \\
\text{the review} & \text{the—GEN-book—GEN} \\
& \text{‘the review of the book’ (Alexiadou et al., p. 80)} \\
\text{b. container/content relationship} & \\
\text{the bottle—NOM/ACC the perfume—NOM/ACC[—GEN]} & \text{(Alexiadou et al., p. 467)} \\
& \text{‘the bottle of perfume’} \\
\text{c. appositive relationship} & \\
\text{the city} & \text{the—GEN Cyprus—GEN} \\
& \text{‘The city of Cyprus’} \\
\text{d. causal relationship} & \\
\text{the bitterness (due to) the—GEN separation—GEN (Nikiforidou, 1991, p. 194)} \\
& \text{‘The bitterness of separation’}
\end{align*}
\]

2.4. L2 ACQUISITION OF THE ENGLISH DEFINITE ARTICLE BY L1 GREEK OR ARAB LEARNERS

Several L2 studies have indicated that input has been measured via proficiency level in English (e.g., Awad, 2011; Ionin et al., 2008; Momenzadea & Youhanaeeb, 2014), while a few studies have measured input via age, age of onset, length of learning of L2 English (Karpava, 2016; Kwame, 2018) and daily exposure to English (Kwame) as other reflections of input.

Karpava’s (2016) study on the acquisition of English by L2 CG learners indicated that L2 participants did not reach nativelike attainment in their article use, though their L1 had the (in) definite articles. She found that L2 learners’ non-targetlike performance was due to differences in the article systems in L2 English and L1 CG. Karpava revealed that some of the participants’ non-targetlike performances were due to negative transfer from L1. Karpava also provided evidence in support of the role of age, age of onset of L2 English, rather than the role of L2 English proficiency or the quantity/quality of input on the acquisition of English determiners.

No study so far has investigated how L1 transfer from CG might influence the acquisition of this construction in L2 English. In Arabic, however, most studies that examined the acquisition of English determiners and the ‘of-phrase’ construction found some instances of transfer from L1
Arabic (Awad, 2011; El Werfalli, 2013). These studies did not investigate how the performance of Arab learners before the N1 items was similar to or different from their performance before the N2 items in argument positions. El Werfalli, for example, asserted that omission errors before the definite ‘of-phrase’ construction were attributed to L1 negative transfer. However, they occurred 24% of the time. El Werfalli (p. 207) provided the example in (6).

(6) I study at *faculty of Arts.

Another study was conducted by Sadek (2016), who examined Emirati university learners’ acquisition of English articles by analysing a corpus of data obtained from first-year university test essays. Sadek (p. 82) provided the example in (7).

(7) The importance of *the honesty in our lives

In example (7), the word ‘honesty’ is the second constituent of the ‘of-phrase’ construction, and it is an abstract noun. Sadek pointed out the use of the with the noun ‘honesty’ might be due to transfer from Arabic.

2.5. FRH

Returning now to the theoretical underpinnings of the FRH, it goes beyond the parametric selection of features as suggested, for example, by the ACP (Ionin et al., 2008). It is built on the proposal that languages vary on the basis of how they encode features in their functional morphology and how these features are voiced on lexical items. Lardiere (2008, 2009) suggests that having full access to the definiteness and specificity features associated with functional categories is possible if L2 learners figure out how to remap the semantic universal features to match the L2 syntactic representations once they get adequate input. This hypothesis also predicts the degree of difficulty that L2 learners may face in L2 acquisition. For example, if a specific feature has to be reassembled into a new L2 bundle, then the learning process is expected to be more difficult and, consequently, L2 learners might need more time to acquire the target feature.

Assuming the FRH, the semantics of the definiteness feature of the target phrase in Arabic and Greek is clustered into lexical items via syntactic linear genitive constructions that encode different semantic relations between their first and second nominals. In English, on the other hand, the syntax-semantics interface of the definiteness feature is realised via a genitive ‘of-phrase’ construction. In the present study, we assume that the initial state of L2 acquisition by JA and CG learners will show evidence of unsuccessful mapping that might inhibit L2 learners from accessing the definiteness feature associated with the syntactic structure of the target lexical items. In line with the Full Access/Full Transfer position (Lardiere, 2008, 2009; Schwartz & Sprauste, 1994), we assume that this unsuccessful mapping may be the result of having less exposure to primary linguistic data and lower English proficiency levels. Yet, the L2 English learners with an L1 JA or CG background are expected to be able to remap the definiteness feature from their L1 to the L2 morphology with the increase of L2 input. Thus, the L2 participants will steadily develop their L2 linguistic competence once they detect the differences between their L1 knowledge of definiteness that is conditioned and realized by virtue of a linear genitive construction at the syntactic-semantics interface and the L2 knowledge of definiteness associated with the English ‘of-phrase’ construction.

Evidence to support the FRH on the acquisition of English determiners came from Momenzadea and Youhanaeeb (2014). The results of the grammaticality judgement task completed by 43 L1 Persian university students indicated that, though both Persian and English have the same features of definiteness and number, the L2 learners failed to positively transfer these features into L2 English. Consistent with the FRH, Momenzadea and Youhanaeeb (p. 1186) asserted that article misuse occurred “because the learners were unable (temporarily, at least) to [...] reconfigure] the features associated with a particular form in their first language and re-assemble them in a way that represents the second language characterization”.

Furthermore, Kwame (2018), investigated the acquisition of English articles by 45 speakers of Dagbani, a language that has the determiner category. Kwame’s findings, based on a grammaticality judgement task, were in line with the FRH. They indicated that L1 Dagbani seemed to negatively influence the participants’ article choice and that the mapping and reassembly problems were overcome with the increase of English proficiency.
3. RESEARCH QUESTIONS

It was anticipated that using the before the N1 in the English ‘of-phrase’ construction would be challenging for the L2 groups. More specifically, the JA participants’ non-targetlike performance might be linked to L1 negative transfer in the form of omission errors. For the CG group, two different scenarios were predicted. The first is related to the use of the before the N1 items in that the participants might correctly supply the in [+definite/+specific] environments, as the Greek construction is preceded with the in these environments. The second is to overuse a(n) or even omit the (in)definite article before this construction because in CG, the N2 is bare when the linear genitive construction is indefinite. In that case, their performance will be irrespective of the context-related factors that demand the use of the before the target NPs.

Thus, the foci of the study are to investigate the L2 (mis-)use of the in relation to the ‘of-phrase’ construction; to find out whether the L2 groups’ performance is related to transfer from their L1s, and to examine whether English proficiency, age, length of learning English and daily exposure to English have significant impact on the acquisition of the target articles. Therefore, three research questions were formulated. First, do L2 learners of English transfer from their L1 the syntactic configuration of the definite genitive linear constructions into the L2? Second, what is the role of age, English proficiency, length of learning English and quantity and quality of exposure to English with respect to the L2 acquisition of the definite article by L1 JA and L1 CG speakers? Third, can the patterns of acquisition of the L1 groups be explained by the FRH (Lardiere, 2008, 2009)?

4. METHODOLOGY

4.1. PARTICIPANTS

The participants of the study were divided into three groups: A control group and two experimental groups who were L2 learners of English. The control group consisted of 27 native speakers of English residing in the United Kingdom, Jordan or Cyprus. One experimental group consisted of 91 native speakers of JA residing in Jordan. The second experimental group was comprised of 93 speakers of CG living in Cyprus.

4.2. TASKS

The cross-sectional data obtained from the participants were based on a written questionnaire and a forced-choice elicitation task.

4.2.1. Written questionnaire

The information extracted from the questionnaire revealed that none of the L2 participants had lived in an English-speaking country. The JA, CG and English participants ranged in age from 16–50, 16–56 and 17–56 years old, respectively. The L2 participants’ age of onset for L2 English ranged from 4–12 years old as they began studying English either at kindergarten or at school. *Table 1* provides details about each participant group.

| L1 GROUP | AGE | LENGTH OF LEARNING ENGLISH | AGE OF ONSET TO ENGLISH | LENGTH OF RESIDENCE IN JORDAN | LENGTH OF RESIDENCE IN CYPRUS | GENDER |
|----------|-----|-----------------------------|-------------------------|-------------------------------|-------------------------------|--------|
|          |     |                             |                         |                               |                               | MALE   |
|          |     |                             |                         |                               |                               | FEMALE |
| JA       | n   | 91                          |                         |                               |                               | 36     |
|          |     |                             |                         |                               |                               | 55     |
|          | Mean (years) | 26.15               | 14.25                 | 6.73                          | 26.15                         | 0.00   |
| CG       | n   | 93                          |                         |                               |                               | 33     |
|          |     |                             |                         |                               |                               | 60     |
|          | Mean (years) | 22.99               | 11.99                 | 7.43                          | 0.00                          | 22.99  |
| English  | n   | 27                          |                         |                               |                               | 7      |
|          |     |                             |                         |                               |                               | 20     |
|          | Mean (years) | 32.85               | 21.78                 | 2.44                          | 0.80                          | 2.04   |

Regarding the L2 participants’ proficiency levels in English, the classifications were based on institutional taxonomies (Callies, 2015), global English proficiency examinations such as the IELTS and TOEFL or Cambridge GCSE/A-Level English. The participants’ proficiency classifications
were compared with the IELTS bands or TOEFL scores to get comparable measures for equivalent proficiency levels. Accordingly, the participants were classified into five proficiency levels as provided in Table 2.

In order to examine the role of length of learning English on the use of the definite and zero articles, the L2 participants were asked to indicate how many years they spent learning English at school/university/language centres. Additionally, they were asked to provide the rate of their daily use/exposure to English in three different settings: at university/work/school, at home or in the community using a five-range of rates: 0%, 10–20%, 30–40%, 50–60%, 70–80%, 90–100%.

### Table 2 Distribution of L2 participants per proficiency level.

| ENGLISH PROFICIENCY | L2 PARTICIPANTS |
|---------------------|-----------------|
|                     | JA  | CG  |
| Low intermediate (LI) | 9   | 16  |
| Intermediate (Inter) | 16  | 14  |
| Upper intermediate (UI) | 25  | 22  |
| Advanced (Adv) | 25  | 22  |
| Upper Advanced (UA) | 16  | 19  |
| Total | 91  | 93  |

4.2.2. Forced-choice elicitation task

The overall number of the sentences in the forced-choice elicitation task was 54. There were 36 experimental items and 18 distractors as part of a larger research project to investigate the acquisition of English articles. The English experimental items that were investigated in the study, as provided in the Appendix, are the first constituent the+N1 and the second constituent zero+N2 of the ‘of-phrase’ construction. The N1 is a definite noun, which is postmodified with the, while the N2 is a bare abstract, mass, or plural noun.

In this task, three possible responses were provided to the participants before each nominal: The, a/n, zero. Concerning the responses relevant to the N1 and N2 items, the target articles were supposed to be the and zero, respectively.

The whole ‘of-phrase’ construction signals the feature bundle [+definite/+specific] in certain environments. The equivalent English genitive structure in JA and CG is a realization of the feature bundle [+definite/+specific] but, unlike English, this feature bundle is realised via the morpho-syntactic Idafa construction in JA and the morphological spreading feature in CG. This is expected to pose a reassembly problem at the initial state of L2 acquisition. The semantic features of definiteness and specificity in JA and CG are assembled/mapped as in (8).

(8) bare N1+definite N2 JA *Idafa linear construction
    definite N1+definite N2 CG *linear construction

Ionin et al. (2004, p. 5) argued that “the feature [+definite] reflects the state of knowledge of both speaker and hearer, whereas the feature [+specific] reflects the state of knowledge of the speaker only”. Yet, their definition of definiteness may not always hold. The taxonomy of English determiners adopted in the study require the use of the before the ‘of-phrase’ construction and zero before the N2 items (Hawkins, 1978; Quirk et al., 1985; Chesterman, 1991; Lyons, 1999). These taxonomies encode three types of unique identifiable referents and imply that the target experimental NPs are [+definite/+specific]. The NPs that encode unique references were not equal in type or number, as the aim behind the classifications of the different uses of the definite article adopted in the study was to ensure that the NPs encode the [+definite/+specific] features.

The first type of unique NPs does not require discourse-related factors, as the constituents of this construction denote the entailment use of proper names (Lyons, 1999). This type was tested in relation to the N1s which convey appositive relationships (Quirk et al., 1985). For example, if the N1 is postmodified with N2 (e.g., a proper name of people/places), the N1 has to be headed with the but not the post-proper name. An example from the task is in (9).

(9) I can’t believe that you visited Paris and didn’t visit (the, a/an, zero) Palace of Versailles.
The second type of unique NPs was tested in relation to experimental nominals that require discourse-related factors. These definite DPs were modified by a complement NP that entails a cataphoric reference with contextual clues, relative clauses (10.a and 10.b) or a reference to situational uses of the utterance (Hawkins, 1978; Lyons, 1999) (10.c and 10.d). These situational uses are triggered by context and shared by the speaker and hearer’s familiarity with that referent in specific physical situations (Lyons, 1999).

(10) a. (The, a/an, zero) rules of business have changed because of the financial crisis that our company suffered from.
   b. The aspects of reality (the, a/an, zero) that you are referring to are not mentioned in the report.
   c. We are against (the, a/an, zero) domination of machines in our society.
   d. This article talks about the mystery of (the, a/an, zero) love.

4.3. PROCEDURES

The written instruments were administered to the participants in person. Testing took place in two separate sessions on the same day with a 20-minute break between the sessions. The time needed to finish both tasks took 30–40 minutes. The participants were instructed to provide the response that came first to their minds when doing the forced-choice elicitation task. Regarding coding, a correct answer was given 1 point and an incorrect answer was given 0 points. Thus, the participants’ total scores ranged from 0 to 6.

4.4. DATA ANALYSIS

The statistical tests used in the study included one-way between groups analyses of variance (ANOVAs), followed by post-hoc Scheffé tests to compare the L2 groups’ results with the control group. To answer the first research question, which was focused on the source of transfer, paired sample t-tests were performed to compare the error types committed by the participants. To answer the second research question, ordered probit regression analyses with marginal effects were run to check if the input factors contributed significantly to the use of the and zero. The input factors were considered as discrete variables. The third research question was then addressed in view of the theoretical perspectives of the FRH.

5. RESULTS

5.1. OVERALL GROUP RESULTS

Overall, the analysis of the data as provided in Table 3 showed that the mean percentage scores of the L2 groups before the N1 items were much lower than their scores before the N2 items. Their results were also lower than those of the control group.

| L1 GROUP | the+N1 | zero+N2 |
|----------|--------|---------|
|          | M      | SD      | M      | SD      |
| JA       | 83.88  | 17.647  | 60.07  | 24.706  |
| CG       | 84.95  | 18.886  | 51.79  | 27.743  |
| English  | 96.30  | 7.061   | 95.68  | 10.932  |

A one-way ANOVA demonstrated there were significant differences among groups in supplying the before the N1 items (F(4,308) = 5.391, p = 0.000) and zero before the N2 items (F(4,308) = 16.989, p = 0.000). As represented in Table 4, post-hoc Scheffé tests revealed that there were clear differences between the control group’s performance and the experimental groups in the use of the (p < 0.05). Regarding the groups’ performances on the use of zero, there were significant differences between the English group and the experimental groups.

| (I) L1 GROUP | (J) L1 GROUP | the+N1 MEAN DIFFERENCE (I-J) | p-VALUE | zero+N2 MEAN DIFFERENCE (I-J) | p-VALUE |
|-------------|-------------|------------------------------|---------|-------------------------------|---------|
| English     | JA          | 12.614                       | .041    | 35.606                        | .000    |
|             | CG          | 11.350                       | .078    | 43.887                        | .000    |
| JA          | CG          | -1.063                       | .997    | 8.281                         | .296    |
5.2. TRANSFER IN L2 ACQUISITION

To specify the source of transfer, which was the target behind the second research question, the raw scores and the mean percentage scores of the accuracy rates and error types were compared on the basis of the L2 participants’ proficiency levels in English. These results are tabulated in Table 5. The analysis of the data revealed that the accuracy scores of the L2 groups before the N1 items were higher than the N2 items at all proficiency levels.

The paired sample t-tests, provided in Table 6, demonstrated that the results for the L2 groups’ performance before each nominal were statistically significant. The findings of the JA participants revealed that the mean scores of the omission errors before the N1 items were more than the substitution errors at most English proficiency levels. They also indicated that their substitution of the before the N2 items was more than their substitution of a(n). Yet, the paired sample t-tests indicated statistically significant differences at the upper intermediate and advanced levels before the N1 items and at all English proficiency levels before the N2 items. This can be illustrated by the examples in (11) by some JA participants:

(11) a. Some people argue against (the, a/an, *zero) domination of machines in our society. (*omission error before N1)

b. This article talks about the mystery of (*the, a/an, zero) love. (*substitution error before N2)
The JA participants’ performance before the N1 items was linked to their L1 as the N1 in the ‘of-phrase’ construction is definite while the N2 is realised as a bare nominal. In contrast, the mean scores of the CG participants showed asymmetrical performances in their error types before the N1 items, while their substitution of the before the N2 items was more than their substitution of a(n). The paired sample t-tests revealed that their omission errors before the N1s were only statistically higher than their substitution errors at the advanced level of English proficiency. However, their results before the N2s revealed that there were statistically significant differences at all English proficiency levels except at the low intermediate level. The results indicated the CG participants were left with two options. The first was to correctly use the before the ‘of-phrase’ construction because the N1 and N2 of the CG genitive construction are always definite in [+specific] environments. The second option was to incorrectly substitute the with a(n) because the N2 of the CG construction is bare if the CG construction is indefinite. Taken together, the results from the CG group can be attributed to their L1. Examples of the omission and substitution errors by some CG participants are in (12).

(12) a. Some people argue against (the, *a/an, *zero) domination of machines in our society. (*substitution/*omission errors before N1)

b. This article talks about the mystery of (*the, *a/an, zero) love. (*substitution errors before N2)

5.3. INPUT FACTORS THAT MIGHT INFLUENCE L2 ACQUISITION

Marginal effects of the ordered probit regression analyses using STATA/MP 14.0 (Stata Corp, Texas) software were performed to find whether any of the explanatory independent variables had a significant influence on each of the two dependent variables (Sy et al., 1997). This type of analyses was used to see how the increase of input factors might accelerate the reassembly process in relation to the use of the definite or zero article before each target item. The marginal effects explained the change of probability in the independent variables (Breen et al., 2018). The explanatory variables (Vs) entered in the models were: (V1) age of L2 participants; (V2) English proficiency; (V3) exposure to English at university/work/school; (V4) exposure to English in the community; (V5) exposure to English at home and (V6) length of learning English (in years). The likelihood-ratio of the Chi square tests (p = 0.000) tabulated in Table 7 suggested that at least one of the coefficients in the model was not equal to zero (Sy et al., 1997).

| INDEPENDENT VARIABLES | JA N1 | JA N2 | CG N1 | CG N2 |
|-----------------------|-------|-------|-------|-------|
| V1                    | 0.004/(0.016) | 0.036/(0.014) | 0.025/(0.021) | 0.020/(0.017) |
| V2                    | 0.519***/(0.119) | 0.588***/(0.111) | 0.404***/(0.110) | 0.707***/(0.11) |
| V3                    | 0.379***/(0.113) | 0.137/(0.097) | 0.386***/(0.118) | 0.046/(0.105) |
| V4                    | 0.115/(0.088) | 0.048/(0.079) | -0.108/(0.095) | 0.153/(0.089) |
| V5                    | -0.205/(0.110) | 0.099/(0.092) | 0.030/(0.082) | -0.085/(0.072) |
| V6                    | 0.004/(0.040) | 0.018/(0.036) | 0.001/(0.034) | -0.005/(0.028) |
| Chi-square            | 46.377 | 55.681 | 41.889 | 69.796 |
| p-value               | 0.000  | 0.000  | 0.000  | 0.000  |

Table 7 Likelihood-ratio of Chi-square.

Table 8 presents the margins, z-statistics and p-values of the input factors on rating the (+N1) and zero (+N2) by each L2 group. Some of the factors were found to predict the L2 groups’ performances (p < 0.05).

The marginal effects related to the use of the before the N1 items by the JA participants revealed that if English proficiency increased by one level, the participants were 14.7% more likely to score 6/6. It was also revealed that a one day increase in exposure to English at university/work/school was associated with being 10.7% more likely to score 6/6. It should be
noted, though that this is a very rough estimation; it is difficult to predict high accuracy in use of the before the N1s based on regression models. The results are illustrated in Figure 1; they demonstrated that the probability of having a nativelike performance by the JA participants from the low intermediate level was approximately 20% in comparison with the participants from the intermediate (40%), upper intermediate (60%), advanced (79%) and upper advanced (89%) levels, when they had 90–100% of daily exposure to English.

| ITEM | NUMBER OF ITEMS (6) | TARGET-LIKE PERFORMANCE J A MARGIN Z-STATISTICS (P-VALUE) | CG MARGIN Z-STATISTICS (P-VALUE) |
|------|---------------------|----------------------------------------------------------|----------------------------------|
| N1   | V1                  | 0.00113 (0.26)                                           | 0.00756 (1.22)                   |
| N2   | V1                  | 0.00561* (2.38)                                          | -0.00202 (1.19)                  |
| N1   | V2                  | 0.147*** (5.35)                                          | 0.122*** (4.26)                  |
| N2   | V2                  | 0.0928*** (4.05)                                         | 0.0711*** (3.32)                 |
| N1   | V3                  | 0.107*** (3.75)                                          | 0.117*** (3.48)                  |
| N2   | V3                  | 0.0217 (1.37)                                            | 0.00460 (0.43)                   |
| N1   | V4                  | 0.0327 (1.33)                                            | -0.0328 (-1.15)                  |
| N2   | V4                  | 0.00760 (0.61)                                           | 0.0154 (1.57)                    |
| N1   | V5                  | -0.0582 (-1.94)                                          | 0.00910 (-1.94)                  |
| N2   | V5                  | 0.0156 (1.07)                                            | -0.00855 (-1.13)                 |
| N1   | V6                  | 0.00121 (0.11)                                           | 0.000445 (0.04)                  |
| N2   | V6                  | 0.00284 (0.50)                                           | 0.000542 (-0.19)                 |

Table 8 Marginal effects on rating the and zero for the JA and CG group.
*p < 0.05, **p < 0.01, ***p < 0.001.

Figure 1 Influence of some factors on scoring 6/6 before the N1s by the JA participants.
The marginal effects of the CG participants before the N1 items revealed that if English proficiency increased by one level, the participants were 12% more likely to score 6/6. Furthermore, a one day increase in exposure to English at university/work/school was associated with being 11.7% more likely to score 6/6. The results, illustrated in Figure 2, indicated that the probability of using the by the participants from the low intermediate level was approximately 31% in comparison with the participants from the intermediate (43%), upper intermediate (60%), advanced (78%) and upper advanced (84%) levels when they had 90–100% of daily exposure to English.

The marginal effects of the JA participants regarding the influence of the six explanatory variables on the use of zero before the N2 items revealed that if the age increased by one year, the participants were 5.6% more likely to score 6/6. It was also found that if English proficiency increased by one level, the participants were 9% more likely to score 6/6. As represented in Figure 3, the probability of using the by the participants who were 48–50 years old and were from the low intermediate and intermediate levels was less than 10% in comparison with the participants from the upper intermediate (19%), advanced (37%) and upper advanced (59%) levels.

1 The age was considered as a discrete variable, but it is provided in Figures 3 and 4 as ranges for clarification.
The marginal effects in relation to the CG participants’ use of zero revealed that the enhancement of English proficiency by one level increased the probability of the correct use of the relevant article by 7%. The results represented in Figure 4 indicated the probability of using the by the CG participants from the low intermediate, intermediate, upper intermediate and advanced levels was approximately less than 8%. In contrast, the probability of using the by the participants from the upper advanced level was approximately 20%.

6. DISCUSSION

The primary goal of this study was to examine the L2 (mis)use of the English definite article by L1 speakers of JA and CG. It was concluded that the restructuring process before the N2 items was more difficult than the N1 items for the L2 groups because of the complexity of the equivalent ‘of-phrase’ structure in their L1s.

Answering the first research question, the results suggest that the variation in the acquisition of the by the L2 groups was linked to the featural specifications of the linear genitive construction in each language. The CG participants incorrectly used zero/a(n) before the N1 items and the before the N2 items. Their non-targetlike performance is attributed to their L1, as in CG, the prenominal item is only definite if the postnominal is definite due to the spreading feature associated with the CG genitive construction. Furthermore, the omission errors before the N1 items and the substitution errors (the) before the N2 items by the JA group were attributed to the negative influence of the syntactic Idafa construction because in JA, the N1 is always a bare nominal, while the N2 is always definite. However, these errors decreased with the increase of the participants’ English proficiency levels. The participants from both groups seemed to reconfigure the feature bundles of the L1 lexical items, which were (i) morphologically expressed on the genitive construction via a purely Arabic syntactic construction as a marker of definiteness instead of the overt morphological realisation of the definite article or (ii) via the Greek spreading feature into the L2 ‘of-phrase’ construction. The participants seemed to recognise that the whole ‘of-phrase’ construction was definite instead of dealing with each lexical item in this construction alone.

The performance of the JA group was consistent with the study conducted by El Werfalli (2013), who reported that omission errors before the ‘of-phrase’ construction were not problematic for her participants. However, the results were not in line with Hawkins et al.’s (2006) findings that showed that the L2 Greek learners did not find it difficult to transfer the determiner category from their L1 Greek to their L2 English regardless of English proficiency. The current study demonstrated that the CG and JA participants at the lower English proficiency levels did not reach the nativelike standards in using the, though their L1s have the determiner category and they are definiteness-based languages. It is worth pointing out that Hawkins et al.’s study did not attempt to make a direct comparison with Hawkins et al.’s investigation. This previous study had the aim of providing a feature-based account as opposed to the parametric account of the ACP suggested by Ionin et al. (2004), although the present study was designed to determine the effect of a set of factors on the (mis-)use of the in relation to the definite ‘of-phrase’ construction using a different task.
Regarding the second research question, it was found that the increase in English proficiency of the L2 groups helped in speeding up the reassembly process with regard to the targetlike use of the two English articles. The marginal effects of the L2 groups implied that the probability of being more targetlike in using the and zero was higher for the L2 participants who were at higher English proficiency levels than those at lower levels. However, the age factor contributed significantly to the use of zero by the JA group and not the CG group. Furthermore, the exposure to English at university/work/school was found to be an influential factor in the use of the rather than zero by the L2 groups, whereas exposure to English in the community and at home played no significant role. The results were not completely in line with Karpava’s (2016), who confirmed the role of age rather than the role of L2 English proficiency.

In contrast to the parametric selection of features as suggested by the ACP (Ionin et al., 2004, 2008), the results are in line with the FRH (Lardiere, 2008, 2009). It was predicted that the L2 groups would find a difficulty in using the or zero, as the definiteness feature in JA and CG is encoded via different lexical items by virtue of morpho-syntactic linear genitive constructions that mismatch with the English lexical items. Thus, the variability in the performance of each group was either because of the syntactic restrictions the Arabic Idafa imposed on the use of both types of articles or the morphological restriction that involved the Greek spreading feature. The findings revealed that the L2 groups who had more linguistic experience (e.g., English proficiency and/or age or daily exposure to English) were successfully able to remap the definiteness feature to match the syntactic ‘of-phrase’ construction in a nativelike way. Similar results were reached by Momenzadea and Youhanaeeb (2014) and Kwame (2018), who found reassembly difficulties in the use of the definite article by L2 participants whose L1 configurations were different from the L2 English configurations. Furthermore, their findings showed that English proficiency was the factor found to positively influence the reassembly process in L2 production.

**7. CONCLUSION**

With the FRH, Lardiere (2008, 2009) proposed that the learnability and development in L2 acquisition involves reassembly of feature specifications of functional categories into new morphological exponents. However, the degree of reassembly difficulty is based on structural differences and input cues as well. This study, therefore, offers empirical evidence in support of the theoretical perspectives of the FRH by examining a new linguistic phenomenon concerning the acquisition of English determiners in relation to the ‘of-phrase’ construction.

Consistent with the FRH (Lardiere, 2008, 2009), the findings of both L2 groups indicated that JA and CG played a role in the acquisition of the definite English ‘of-phrase’ construction. This English construction mismatches with the JA and CG corresponding linear genitive constructions; yet, the role of each language was different. For example, the results of the L2 groups at the initial state of L2 acquisition did not provide evidence of facilitative transfer in utilising the before the N1 constituent, though their L1s and L2 are similar due to the existence of the determiner category in each language. Data analysis revealed that input drives a direct mapping between the L1 and L2 morpho-syntactic and semantic features of definiteness by “de-linking definiteness from” (Lardiere, 2008, p. 14) the L1 syntactic marker in Arabic and the spreading feature in Greek. The JA and CG participants at the advanced and upper-advanced levels of English proficiency were more successful than the participants from the lower levels at remapping the configuration of L2 English. In addition, the L2 groups’ probability of converging with the L2 grammar was influenced by the increase of exposure to English at university/work/school. The L2 participants were able, then, to reconfigure how to restructure the semantic features of the JA Idafa or the CG spreading feature into a different configuration in L2 English. Nonetheless, both L2 groups were more sensitive to the grammatical value of the second nominal. One explanation, as suggested by White (2003, p. 164), is that “the learner has to detect the presence of relevant structural cues in the input. These cues motivate particular parameter settings”, which explains why the feature reassembly of the latter items were more difficult than the former items.

The generalisability of the results of this study is subject to limitations. Data triangulation is recommended; a grammaticality task and oral elicitation tasks could help to give a deeper insight into the performance of L2 learners. Moreover, further work needs to be done to establish whether the performance of L2 learners whose L1s do not have the determiner category are similar to or different from L2 learners whose L1s are article languages, such as CG and JA. Research is also
needed to determine if the different semantic relations between the two constituents of this construction are a factor that may impose a difficulty in the acquisition of English determiners by participants with other L1 backgrounds. L1 Persian and Hebrew may be worth investigating because in the former definiteness is recognised via a linear genitive construction (equivalent to the Arabic construct state) and the latter also displays definiteness spreading as argued by Danon (2008).

APPENDIX: FORCED-CHOICE ELICITATION TASK

| CONTEXT A: N1 LEXICAL ITEMS IN THE ‘OF-PHRASE CONSTRUCTION’ | CONTEXT B: N2 LEXICAL ITEMS IN THE ‘OF-PHRASE CONSTRUCTION’ |
|---------------------------------------------------------------|---------------------------------------------------------------|
| Circle the right item in parentheses (the, a/an, zero):       | 1. ‘The Death of ___ Humanity’ is written by Richard Weikart.  |
| 1. ___ Sultanate of Oman is a beautiful country.               | 2. The Isle of ___ Man is an island in the Irish Sea.          |
| 2. ___ increase of population in China causes lots of economic problems. | 3. The aspects of ___ reality that you are referring to should be mentioned in the report. |
| 3. ___ Principle of equality between the poor and the rich should be based on respect, and it should reject discrimination. | 4. I watched ‘The Kingdom of ___ Heavens’ three times so far. |
| 4. Some people argue against ___ domination of machines.      | 5. I read a book which explains the consequences of ___ war on human beings. |
| 5. The modern political situation affects ___ position of women not only in our society but also all over the world. | 6. I can’t believe that you visited Paris and didn’t visit ___ Palace of Versailles. |
| 6. Don’t be like those who don’t understand the goal of ___ life. | Note: These contexts were also part of a larger research project that aimed to investigate other contexts as follows: |

Context C: Definite proper names of people/places in specific linguistic environments (e.g., ‘the Smiths’, a reference to the members of a family called ‘Smith’)

Context D: Bare NPs preceded with titles/honorifics (e.g., ‘Ms. Malala Yousafzai’)

Contexts E and Context F: Indefinite singular NPs (e.g., ‘a birthday party’)

ETHICS AND CONSENT

The tools were approved by the University Research Ethics Committee at the University of Central Lancashire on 13 September 2017 and the Cyprus National Bioethics-Committee on 14 March 2018.

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