L1 AND ANIMACY EFFECTS IN THE ACQUISITION OF GENDER AGREEMENT IN ARABIC[*]

Ali Alamry and Laura Sabourin
University of Ottawa

1. Introduction

A considerable amount of literature in Second Language Acquisition (SLA) has addressed whether adult second language (L2) learners can attain an equivalent level of proficiency as that of native speakers. Theories in SLA differ with regard to the extent to which L2 learners can reach native-like proficiency (e.g. Clahsen & Felser, 2006; White, 2007). In some cases attaining native-like proficiency seems to be possible, while in other cases it seems to be difficult. A number of factors have been suggested to play a role in this variation, and among them is the effect of the L1. The influence of the L1 on the L2 has been a controversial issue in the field of SLA, especially with the increased attention to the role of Universal Grammar (UG) (Chomsky, 1965; 1981) in assessing L2 acquisition. For some SLA researchers, learners' first language (L1) is a key factor in mastering an L2; that is, postpuberty L2 learners are unable to incorporate grammatical features that are not present in their L1s. One of these grammatical features is gender agreement (Hawkins & Chan, 1997; Smith & Tsimpli, 1995; Tsimpli & Mastropavlou, 2007).

Grammatical gender is defined by Hockett (1958) as the "classes of nouns reflected in the behavior of associated words" (p.231). This system of noun classification is present in many languages throughout the world and absent in many others. Languages with gender systems may have two or more classes or genders; that is, a language may consist of masculine and feminine genders, or masculine, feminine, and neutral genders. In most languages, noun classes are categorized based on semantic and formal criteria (Corbett, 1991). Gender is one of the grammatical categories that requires a process called 'agreement' or 'concord'. That is, the gender of a noun affects the form of other related words in the sentence; these related words differ among languages but they could be verbs, pronouns, adjectives, adverbs, determiners, and quantifiers, among others.

The acquisition of grammatical gender is considered one of the most difficult structures that non-native learners need to acquire (Dewaele & Véronique, 2001; Sabourin et al., 2006). Part of this difficulty lies in the complexity of the system itself, but this system is also a significant area in which languages differ. There are a number of studies that have investigated this issue (Franceschina, 2001; 2002; McCarthy, 2008; Montrul et al., 2008; White et al., 2004), yet no consensus has been reached. In effect, there exist two conflicting views about whether L2 learners can ultimately acquire the grammatical gender of L2. The first group of researchers claims that gender and its

features are functional categories that cannot be acquired in adulthood unless L2 learners have similar features in their L1 (Franceschina, 2001; 2002; Hawkins, 1998; Tsimpli & Mastropavlou, 2007). This view is in line with Hawkins and Chan's (1997) Failed Functional Features Hypothesis (FFFH), which states that linguistic properties and features that are not present in L1 fail feature checking in L2 acquisition. In contrast, other researchers provide empirical evidence suggesting that L2 learners are not restricted to their L1 grammar and can acquire the grammatical features of L2 regardless of their age, as well as their L1 (Bond et al., 2011; Slabakova, 2000; White et al. 2004). This view supports the Full Access/Full Transfer hypothesis (FTFA) (Schwartz & Sprouse, 1996), which claims that L2 learners have full access to Universal Grammar (UG) and have the ability to acquire all the linguistic properties and features that an L1 learner acquires. Both hypotheses agree that there is an important role for transfer of the L1 at least in the initial stages of language learning. The main difference is confined to the final outcome that L2 learners can expect to achieve.

The above two hypotheses and the various findings on grammatical gender acquisition upholding them motivated the present study to explore this issue in Arabic[1] by adult L2 learners from different L1 backgrounds that vary in their gender systems. Arabic is a language that has a two-gender system; nouns are either masculine or feminine. The surface morphological marking of gender is very complicated as it differs according to the case, number and person. Due to this complexity, this study will only examine one structure of the gender agreement system; verb-subject gender agreement.

2.   The Arabic Gender System

Arabic has a rich grammatical gender system. It is comprised of two gender classes: masculine and feminine. These nouns then display agreement with verbs, adjectives, adverbs, and pronouns. The masculine is the default base form, while the feminine form usually exhibits one of the following three endings:

(1)   taʔ marbuutˤa (*-at*) as in تفاحة *tuffaħ-at* 'apple-FEM'

(2)   ʔlif tˤawiila (*-aʔ*) as in صحراء *saħr-aʔ* 'desert-FEM'

(3)   ʔlif maqsˤuura (*-aa*) as in بشري *bushr-aa* 'tidings-FEM'.

The gender categories of nouns are classified based on either semantic gender in the case of animate referents, or grammatical gender in the case of inanimate objects.

In Arabic, verbs are richly inflected and display agreement with the subject in person, number, and gender. This agreement differs according to the sentence word order, that is, whether it has a VS (verb subject) or SV (subject verb) order. For VS order, the verb agrees with its subject in gender and person, but always takes the default singular form regardless of whether the subject is singular, dual or plural (see (4)):

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[1] Arabic in this study refers to Modern Standard Arabic.

(4) a. *katabat*   ʔl-muʕallimah
         wrote-Past.3.FEM.SG   the-teacher-FEM.SG [2]
         'The teacher wrote'

     b. *katabat*   ʔl-muʕallim-aat
         wrote-Past.3.FEM.SG   the-teacher-FEM.PL
         'The teachers wrote'

The examples in (4) show that the verb *katab* 'wrote' is inflected with the feminine marker [at], which refers to feminine third person singular forms. The verb remains the same with the singular subject in (4a) and the plural subject in (4b).

In contrast, for the SV order the verb exhibits full agreement with the subject in gender, person, as well as number, as demonstrated in (5):

(5) ʔl-muʕallim-aat   *katab-na*
     the-teacher-FEM.PL   wrote-Past.3.FEM.PL
     'The teachers wrote'

In (5), the verb *katab* 'wrote' is inflected with the feminine marker [*na*] in order to agree with the plural subject *ʔl-muʕallim-aat* 'teachers' in gender, number and person.

Verbs in Arabic are inflected by means of prefixes and suffixes in order to agree with the subject in gender, number, and person. For gender agreement, verbs take the gender markers for masculine and feminine in the second and third person. The first person (I, we) is gender-neutral. In the past tense, the verb is inflected with a suffix that indicates all the agreement features, while in the present tense, the verb stem is inflected with a prefix and a suffix. The prefix gives gender and person information, while the suffix gives number and gender information.

3. Theoretical Background

3.1 Second Language Acquisition: Language Transfer and Universal Grammar

There are many published studies on the influence of the L1 on the course of SLA (Gass & Selinker, 1983; Odlin, 1989, 2003); yet this topic is still under debate. In recent decades, with the increased attention on the concept of UG in SLA, many studies (e.g. Schwartz & Sprouse 1994, 1996; White, 1993) have attempted to explore language transfer in light of this framework. Notably, this interest was intensified following Chomsky's (1981) introduction of the Principles and Parameters approach. UG is an innate biological language system of abstract constraints that guides the acquisition of the L1 by restricting the class of possible natural human grammars. UG is comprised of invariant principles generally shared by all languages, as well as parameters that allow

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[2] The following abbreviations are used in the glosses: 3 = third person, MAS = masculine, FEM = plural, SG = singular, PL = plural, AN= animate, IN= inanimate

for variation across languages (White, 1989). One of the fundamental focuses of the current literature on SLA is whether or not adult L2 learners have access to UG and whether this access, if it exists, is full or partial. If UG is accessible to L2 learners, then they are expected to not only adopt the L2 grammatical categories available in their L1s but they are also expected to accommodate the input from L2 that is not available in their L1 by accessing UG. In other words, they can use their access to UG to reconstruct and reprogram their grammatical categories to accommodate any input from L2.

White (1989, 2003) states that access to the principles and parameters of UG in SLA is controversial. There are logically three approaches to the role of UG in SLA which vary based on the degree of UG accessibility by adult L2 learners: *(1) no access:* UG is no longer available to L2 learners; *(2) full access:* UG is fully available to L2 learners; and *(3) partial access:* UG is partially available to L2 learners.

The first approach assumes that UG is not available to adult L2 learners, and is therefore not involved at any stage of L2 acquisition. Bley-Vroman (1989) in his Fundamental Difference Hypothesis, and other researchers (e.g. Clahsen & Muysken, 1986; Clahsen, 1990) who argue for this position emphasize the difficulties faced by L2 learners, and the differences between L1 and L2 acquisition. Some proponents of this view argue against L1 transfer and claim that L2 acquisition is fundamentally different from L1 acquisition, in which L1 acquisition is directed by UG, while L2 acquisition is guided by means of general problem-solving skills. In this respect, L2 learners' level of proficiency is attributed to successful general learning strategies or other, non-linguistic, factors, (e.g. Bley-Vroman, 1989; Clahsen & Muysken, 1986; Clahsen, 1990; Meisel, 1997). In Clahsen and Muysken's (1989) study of word order in German, the authors explain children's facility in L2 acquisition compared to adult L2 learners by the fact that adult learners cannot access UG and depend instead on general learning strategies.

The second approach is the *full access* approach. In contrast to *no access*, it states that UG is fully available to adult L2 learners, meaning that the language faculty involved in L1 acquisition is involved in adult L2 acquisition in the same manner (Flynn, 1996). UG was initially motivated by the observation that native speakers end up with a highly complex grammar that goes beyond what is available in the linguistic input. This logical problem of L1 acquisition has encouraged SLA researchers to argue that if L2 learners are also able to adopt highly complex grammar that goes beyond the input then SLA must also be mediated by UG. Within this view, Schwartz and Sprouse (1994, 1996) propose the Full Transfer/Full Access (FTFA) approach, which states that "the initial state of the L2 acquisition is the final state of L1 acquisition (Full Transfer) and that failure to assign a representation to input data will force subsequent restructurings, drawing from options of UG (Full Access)" (Schwartz & Sprouse, 1996, p. 40). When L1 grammar fails to accommodate the L2 input, the learners call upon unused options of UG, including new parameter settings, functional features, and feature values. Although this hypothesis claims that there exists full access to UG, L2 learners' final outcome grammar might differ from the target language. Regardless, it is still UG constrained since L2 learners start the L2 initial state grammar from their L1 grammar values, leading them to analyze the input differently and to construct grammar values that differ from those of native

speakers. Many studies have supported the FTFA hypothesis (e.g. Haznedar, 1997; Slabakova, 2000; Yuan, 1998).

The final approach is *partial access* to UG. Advocates of this approach declare that L2 learners are able to partially access UG, although they disagree about which parts are accessible and which are not. Hawkins and Chan propose the Failed Functional Features Hypothesis (FFFH), according to which certain features of functional categories – instead of the categories themselves - such as *Complementizer, Agreement, and Determiner* are inaccessible to L2 adult learners. Hawkins and Chan illustrate their proposal by investigating the acquisition of *wh*-movement in Chinese L2 speakers of English. The learners were not able to acquire English *wh*-movement fully due to the absence of the same structure in their L1. They acquired the complementizer *that* but analyzed it as the [-wh] feature *ge* in Cantonese or *de* in Mandarin rather than the lexical realization of [+wh]. What appeared to be parameter resetting is in fact a reanalysis of L1 values; participants analyzed construction of L2 English as constructions in their L1 counterparts. According to Hawkins and Chan, L2 learners will first tend to map morphological forms from the L2 onto L1 feature specifications. Then, with more exposure to the L2 input, they will move progressively toward the target language. However, because L2 learners have no access to certain functional features, they will establish a grammar different from that found in their L1 and in the target language; though their L2 grammar would be constrained by the principles of UG.

3.2   Previous research on grammatical gender

A large number of studies have investigated grammatical gender and whether L2 learners can achieve native-like attainment. These studies vary in terms of languages being tested, the methods being used, and the results being reported.

Sabourin (2001) investigated the effects of L1 on off-line processing of Dutch grammatical gender by adult L2 learners. The learners were native speakers of German, a Romance language, and English. German has a similar grammatical gender system to Dutch. Romance languages have a gender system which is different from the one employed in Dutch. English has no grammatical gender system. Sabourin's findings showed a hierarchy of performances with significant differences between learners. The German group achieved the better score among the L2 learner groups, but still placed significantly lower than the native speakers. The Romance group not only performed significantly worse than the native speakers, but also worse than the German group. The English group had the worst results. Sabourin concluded that the presence of a grammatical gender system in L1, as well as the similarity between this system in L1 and L2, strongly influence the acquisition of the L2 grammatical gender system. Similar results were also found in other studies that employed off-line tasks (e.g. Ellis et al., 2012; Franceschina, 2002; Sabourin et al., 2006), as well as on-line tasks (e.g. Foucart & Frenck-Mestre, 2011; Meulman et al., 2014; Sabourin & Stowe, 2008).

In contrast, another body of research contradicts the above-mentioned results claiming that the presence of a grammatical gender system is not essential in order to show native-like knowledge. White et al. (2004) investigated how L2 learners who vary

in their L1s acquire Spanish gender and number agreement. Based on off-line tasks, White et al. found that number agreement was acquirable by all learners. Participants at lower proficiency performed better on number agreement than on gender agreement, and on masculine nouns more than feminine ones. Advanced and intermediate groups performed about as accurately as native speakers. Moreover, the findings indicated that there were significant effects of proficiency but not of L1 or of prior exposure to an L2 with a gender system. High proficient learners whose L1 was English were able to perform well in the off-line tasks, just like the French L1 and native speaker control groups. Similarly, Bond et al. (2011) conducted an ERP study to examine number and gender agreement in Spanish by native speakers of English. Number features on verbs are similar between the two languages, but number features on adjectives and gender agreement are only present in Spanish. The findings indicated that the participants were able to develop native-like processing in terms of gender agreement, even though it is a feature that is not instantiated in their L1. Guijarro-Fuentes et al. (2013) investigate the effect of participants' L1, level of proficiency, and animacy on processing gender and number agreement in Spanish. Participants performed a self-paced reading task (moving window task) and a grammaticality judgment task. For the self-paced task, the results revealed that the mean reaction times (RT) for all groups seem similar at the word before the adjective, whereas the mean RTs for intermediate and native Spanish speakers tend to be longer at the adjective and the word after the adjective in the disagreement condition. For the grammatical judgment task, intermediate learners, but not beginners, were more accurate with sentences that had gender agreement and disagreement. The authors argue that the intermediate group showed emergence of target-like processing, which suggests that L2 learners with no gender system in their L1s can acquire gender agreement. The results also revealed that noun animacy affects both native and L2 processing.

With regard to research that investigated grammatical gender in Arabic within the framework of UG and L1 transfer theories, Alhawary (2005, 2009) tested the acquisition of Arabic morphosyntactic structures including subject-verb agreement, noun-adjective agreement, and noun-adjective word order. Alhawary tested groups of L1 English and L1 French speakers divided into three groups based on the amount of formal Arabic instruction they had received. The results indicated that for subject-verb agreement there was no difference between the French and English groups. However, there was a significant difference between them for noun-adjective agreement. English participants also faced more difficulty with formal gender than with natural gender. The results also revealed that, overall, the L1 French speakers outperformed the L1 English speakers; however, some advanced L1 English participants obtained a perfect score. Alhawary declared that the FTFA hypothesis generally aligns with the results of his study.

4.   The current study

The current study sets out to investigate these areas of differences between the FTFA and FFFH by examining the acquisition of the grammatical gender system in Arabic by adult L2 learners. Specifically, it investigates the acquisition of subject-verb gender agreement by two groups of L2 Arabic learners with different L1s. The first group (+Gender group)

includes learners with L1s that have a gender agreement system. The second group (-Gender group) contains learners with L1s that have no gender agreement system. This study attempts to answer the following research questions:

RQ1: Will L2 learners acquire Arabic verb-subject gender agreement as accurately as native speakers of Arabic?

RQ2: Among the L2 learners, will the –Gender group acquire Arabic verb-subject gender agreement as accurately as the +Gender group?

RQ3: Will level of proficiency affect the acquisition of gender?

RQ4: Will the results support the FTFA or FFFH hypotheses?

5.   Methods

5.1 Participants

Forty-one participants took part in this study; 26 L2 learners of Arabic and 15 Arabic native speakers**.** The 26 Arabic learners were recruited at the Arabic Linguistics Institute at King Saud University in Riyadh, Saudi Arabia. All participants were studying Arabic for academic purposes. The institute offers four levels, which requires two years of full-time study to complete. All Participants in this study were at levels three and four at the time of testing. The participants were adults and their age ranged from 21 to 29 (mean age of 24.4 years), they were first exposed to Arabic after puberty, and they have been in Saudi Arabia from two to three years.

This study consisted of two experimental groups and a control group. The L2 learners of Arabic were divided into two groups. The –Gender group consisted of learners whose L1 does not have a gender agreement system, and the +Gender group consisted of learners whose L1 has this feature. The Arabic learners were given an Arabic reading proficiency test (see below for details). According to the results of this test, participants who scored 70% and above were included in the study. Five participants were eliminated from the study due to low scores on the proficiency test. Of the remaining 21 learners 12 participants formed the –Gender group (the L1 of these participants included Filipino, Indonesian, Malay, Chinese, English and Tajik) and 9 participants formed the +Gender group (the L1 of these participants included Nepali, Urdu and French). The 15 adult native Arabic speakers were graduate or undergraduate students, and they were between 21 and 32 years of age (mean age 25.7 years). For all of them, Arabic was their mother tongue and the language of their primary education. Some of them spoke English as a second language. All participants in this study were male.

5.2   Language tasks

5.2.1 Proficiency Test

The reading proficiency test given to participants to determine their proficiency level is part of a standardized Arabic proficiency test administrated by the Arabic Linguistics Institute at King Saud University. The test consisted of 12 multiple-choice questions

divided into two parts: the first part asked participants to read short passages and then answer questions by choosing the correct answer, and the second part asked participants to read long passages and then answer questions by choosing the best answer.

5.2.2 Grammaticality Judgment Task (GJT)

A written Grammaticality Judgment Task was administrated to test participants' comprehension of subject-verb gender agreement in Arabic. Participants were presented with 200 sentences consisting of 120 experimental sentences and 80 fillers. All experimental sentences were in the past tense and VS word order. Half of the 120 experimental sentences were grammatical, and the other half were ungrammatical. Sentences were further divided into four categories resulting in 15 sentences with animate-masculine subjects, 15 with animate-feminine subjects, 15 with inanimate-masculine subjects, and 15 with animate-feminine subjects (see (6) for examples).

(6)   a.   Masculine verb - Masculine animate subject:

   qafaza   ʔaθ-θaʕlabu   ʕalyan
   jump-Past.3.MAS   the-fox-MAS.SG.AN   high
   'The fox jumped high'

   b.   Feminine verb - Feminine animate subject:

   nasiy-at   Fatimatu   kitaba   ʔan-naħowi
   forget-Past-3.FEM   Fatimah-FEM.SG.AN   book   the-grammar
   'Fatimah forgot her grammar book'

The ungrammatical sentences were designed to exhibit disagreement in grammatical gender between the verb and the subject (see (7) for examples).

(7)   a.   Masculine verb - Feminine animate subject:

   * tasallaqa   ʔl-qitˤatu   ʔʃ-ʃaʒarata
   clibm-Past.3.MAS   the-cat-FEM.SG.AN   the tree
   'The cat climbed the tree'

   b.   Feminine verb - Masculine animate subject:

   * sˤanaʕ-at   ʔan-naʒʒaru   ʔbwaaban ʒamiilah
   make-Past-3.FEM   the carpenter-MAS.SG.AN   doors   beautiful
   'The carpenter made beautiful doors'

The 80 fillers were designed to draw the participants' attention away from the structure being investigated. Half of these fillers were grammatical. Since the incorrect part of the ungrammatical experimental sentences was always at the beginning of the sentences, the ungrammatical fillers were designed to show the incorrect part in the middle or at the end

of the sentences. The 200 sentences in the GJT were presented to all participants in the same random order. To ensure that learners knew all of the vocabulary items used in the task, the vocabulary was kept very basic, and learners were instructed to ask any questions they had before or during the task.

Participants were asked to judge the sentences as either *grammatically correct*, *grammatically incorrect*, or as *I do not know*. They were also asked to circle or underline the incorrect part of all sentences they marked as ungrammatical.

5.3   Procedure

The data for this study was collected at King Saud University in Riyadh, Saudi Arabia. On Day 1, participants were asked to complete a consent form, followed by a short background questionnaire that asked for biographical data such as age, L1, length of residency in Saudi Arabia, the age at which they began learning Arabic, their points of weakness and strength in Arabic, and information about other languages in their background. They were then asked to complete the reading proficiency test. These procedures took approximately 1.5 hours. On Day 2 each participant received the GJT. The first page of the task contained instructions on how to perform the tests and provided participants with examples. Participants were allowed to ask about any difficult vocabulary while performing the tests.

6.   Results

6.1.   Proficiency Test

As previously before, the reading proficiency test given to the participants consisted of 12 questions, with each correct response receiving one point. The native control group (with an accuracy of 98.88 %) performed significantly better than the Arabic learners (with an accuracy of 86.11 %). This difference was significant (t (34) = -8.2, p < .001). A small, but non-significant difference (t (19) = 1.36, p = .187) was found between L2 groups with the −Gender group slightly outperforming the +Gender group.

6.2.   Grammaticality Judgment Task (GJT)

A score of 1 was given for a correct response, and 0 for an incorrect or "I do not know" response. Results of this task will be presented in two sections. Section 1 presents results for native control group vs. Arabic learner group. Section 2 presents results for the Arabic learner subgroup, namely, +Gender group vs. −Gender group.

6.2.1.   Result for Native speakers vs. Arabic learners

A t-test revealed that the native speakers significantly outperformed the learners (t (34) = 5.49, p < .001). A 4-way repeated measure ANOVA with grammaticality, gender, animacy and group was conducted on participants' performance on the GJT. A

significant main effect of grammaticality was found (F (1, 34) = 5.386, p = 0.026). Participants performed better on grammatical sentences (M = 0.97) than on ungrammatical sentences (M = 0.94). There was a significant interaction between groups and grammaticality (F (1, 34) = 5.942, p = 0.020) in which the learners, unlike the native control group, performed better on grammatical sentences.

A significant main effect of animacy was also found (F (1, 34) = 44.322, p < .001) in which participants performed better on sentences with animate nouns (M = 0.97) than on sentences with inanimate nouns (M = 0.94). There was also a significant interaction between group and animacy (F (1, 34) = 36.693, p < .001) in which the learners performed better on sentences with animate nouns (M = 0.95) than on sentences with inanimate nouns (M = 0.88) while native speakers showed no such differences.

No main effect of gender was found (F (1, 34) = 1.653, p = 0.207). However, a trend towards a significant interaction between group and gender was seen (F (1, 34) = 3.461, p = 0.072). The learners performed slightly better on sentences with masculine nouns (M = 0.93) than on sentences with feminine nouns (M = 0.91).

The results also revealed a significant 3-way interaction between groups, grammaticality and animacy (F (1, 34) = 5.233, p = 0.029). On both grammatical and ungrammatical sentences, the learners performed better on sentences with animate nouns and this difference seems to be larger for ungrammatical sentences (Figure 1).
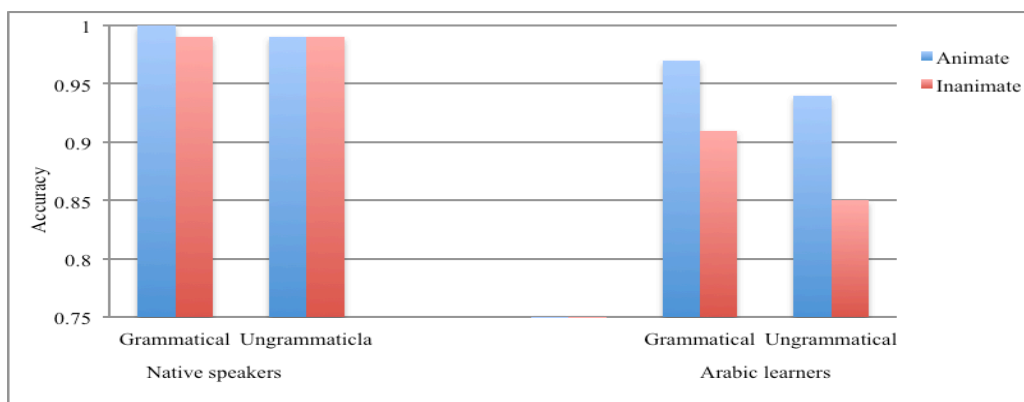

Figure 1: Performance on the GJT by group, grammaticality, and animacy.

6.2.2   Results of Arabic learners' subgroups: +Gender vs. –Gender

Surprisingly, the results revealed that -Gender group significantly outperformed the +Gender group (t (19) = -2.317, p = .032). A 4-way repeated measure ANOVA with grammaticality, gender, animacy and group was conducted. A significant main effect of grammaticality was found (F (1, 19) = 9.751, p = 0.006). Overall, Arabic learners performed better on grammatical sentences (M = 0.94) than on ungrammatical sentences (M = 0.89). Similarly, a significant main effect of animacy was found (F (1, 19) = 61.849, p < .001) showing that participants performed better on sentences with animate nouns (M = 0.95) than on sentences with inanimate nouns (M = 0.88). Finally, a

significant main effect of gender was also found (F (1, 19) = 6.008, p = 0.024). Overall, participants' performed better on sentences with masculine nouns (M = 0.92) than on sentences with feminine nouns (M = 0.90). Further, there was a significant interaction between groups and gender (F (1, 19) = 6.008, p = 0.024). This represents the fact that the –Gender group performed similarly on sentences with masculine and feminine nouns while the +Gender group performed better on sentences with masculine nouns (M = 0.91) than on sentences with feminine nouns (M = 0.87).

The results also revealed a significant 2-way interaction between grammaticality and gender (F (1, 19) = 4.811, p = 0.041). Both +Gender and –Gender groups performed better on ungrammatical sentences with masculine nouns (M = 0.91) than those with feminine nouns (M = 0.86). There was also a significant 2-way interaction between grammaticality and animacy (F (1, 19) = 4.583, p = 0.045). On both grammatical and ungrammatical sentences, +Gender and –Gender groups performed better on animate nouns than on inanimate nouns.

Finally, there was a trend toward a significant 3-way interaction between group, grammaticality, and gender (F (1, 19) = 3.852, p = 0.065). On the ungrammatical sentences, +Gender group performed better on masculine nouns (M = 0.90) than on feminine nouns (M = 0.81). Figure 2 shows the mean scores of this interaction
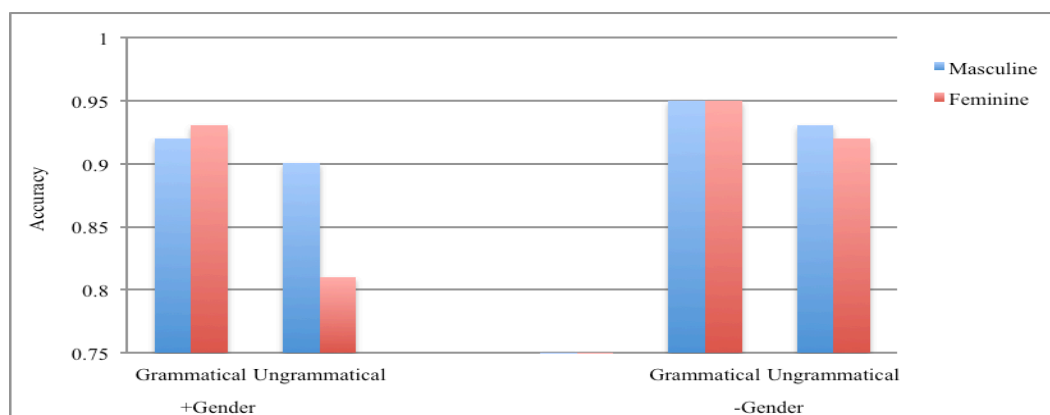

Figure 2: Learners performance on the GJT by group, grammaticality, and gender.

7.   Discussion

The results of this study will be discussed in light of the research questions presented above, divided into two sections: participant performance, and FTFA versus FFFH.

7.1. Participant Performance

Research questions 1-3 focused on the acquisition of subject-verb gender agreement in the various participant groups. The answers to these questions are as follows:

RQ 1: Will L2 learners acquire Arabic verb-subject gender agreement as accurately as native speakers of Arabic?

No, the learners did not perform as accurately as the native speakers. This result was highly consistent across proficiency, experimental tasks and Arabic learner subgroups.

RQ 2: Among the L2 learners, will the –Gender group acquire Arabic verb-subject gender agreement as accurately as the +Gender group?

Yes, the –Gender group was able to not only acquire subject-verb gender agreement as well as the +Gender group but in fact they outperformed them. The +Gender group showed evidence of a possible 'yes'-bias effect which happens when participants tend to assume a sentence must be grammatical when they are not sure what the correct answer is (Sabourin et al., 2006). An alternative explanation could be that the +Gender group tended to use masculine as the default form and overgeneralized it. The preference of masculine over feminine is reasonable as masculine in Arabic is the default form. Moreover, in the case of the third person, which is the focus of the study, the masculine agreement morpheme is null, which also might explain why learners found using or identifying the masculine form easier than the feminine form. Several studies have also reported that L2 learners tend to use one gender (masculine or feminine) as a default (e.g. White et al, 2004; Sabourin et al, 2006).

RQ 3: Will level of proficiency affect the acquisition of gender?

Yes, proficiency level had an effect on the learners' performance; the –Gender group who performed better on the proficiency task outperformed +Gender groups on the GJT.

With regard to question 1, the difference in performance between the Arabic learners and the native speakers was expected even at an advanced level since the participants of this study were still learning Arabic and they had not reached target-like performance. However, upon closer examination, it was found that three individual learners did perform as well as native speakers (scored 96.66% and up). All of them were from the –Gender group. It can be argued that attaining native-like performance in Arabic is still possible for the Arabic learner participants regardless of their L1s. Several studies that investigated Arabic SLA have reported that Arabic verbal gender agreement is one of the linguistic structures that are acquired at early stages (e.g. Nielsen, 1997; Alhawary, 2003; Mansouri, 1995).

7.2. FTFA vs. FFFH

Research Question 4 explores how the answers to questions 1-3 are consistent or inconsistent with two hypotheses: FTFA and FFFH.

RQ 4: Will the results support the FTFA or FFFH hypotheses?

The results of this study showed the following: *1)* the Arabic learners did not reach native speakers' level of performance; *2)* the –Gender group outperformed the +Gender group. This result tends to support a Full Access account of SLA, since the –Gender group was able to reset their L1 parameter according to the L2 gender values. As for L1 transfer, the results suggest that this effect may be found at the initial and earlier stages of acquisition, but disappears as the learners reach the advanced levels in their development and

progress toward the target language. Table 1 compares the results of the present study with the predications of the FTFA and FFFH.

Table 1. Predictions of FTFA and FFFH with results of this study

Case	FTFA	FFFH	Results of this study
Arabic learners vs. Native speakers	NS = Adv	NS = Adv +G	NS > Adv
-Gender vs. +Gender	**-G = +G**	Adv +G > Adv -G	**-G > +G**

The learners in this study did not perform as well as the native speakers, which is inconsistent with both the FTFA and FFFH hypotheses. However, both the FTFA and FFFH are concerned with L2 learners' end state of acquisition. As mentioned above, the advanced participants in this study are still in the process of learning Arabic, and it cannot be claimed that as a group they have reached an end-state of acquisition. For this reason, their performance does not support either of the hypotheses. However, the results of those individual learners who performed as well as native speakers could lend some support to the prediction of the FTFA.

The FTFA further predicts that at an advanced proficiency level both –Gender and +Gender groups would perform similarly. The results of this study support this prediction and aligns with White et al's (2004) study of Spanish gender acquisition by L2 learners from different L1s and proficiency levels. They found that there was no effect of L1, even at low proficiency levels. Bolotin (1996) and Alhawary (2005, 2009) provide similar results to this study where L2 learners with no gender system in their L1s were able to acquire the L2 system as well as those learners with a gender system in their L1.

The results of this study do not support the FFFH, as this hypothesis claims that learners' L1 will determine the acquisition of the L2 gender system, and thus that the +Gender group would outperform the –Gender group at all stages of development.

8.   Conclusion

The present study investigates the possible effect of L1 transfer and the effect of proficiency level on grammatical gender acquisition in Arabic. The L2 learners were divided into two subgroups, -Gender and +Gender, based on whether or not their L1 has grammatical gender. The reason for having these two groups was to determine how the native language could affect L2 gender acquisition, and to shed light on the role of UG in L2 acquisition. The results revealed that the Arabic learners performed significantly worse than the native speaker control. There was also a significant difference between the L2 learners' subgroups. Interestingly, the –Gender group outperformed the +Gender group. These results support the FTFA rather than FFFH model, as it appears that the –Gender group was able to reset their L1 gender parameter according to the L2 gender values. As for L1 transfer, the results suggest that while this effect may be found at the initial stages of acquisition, it disappears as the learners reach the intermediate and advanced proficiency levels. The outperformance of the –Gender group over the +Gender

group could be due to an effect of proficiency in the L2 as the former group obtained a better score on the proficiency task, or it could be that the +Gender group has adopted an incorrect strategy of using the masculine as the default form and hence accepting ungrammatical sentences as being grammatical. Although the learners in this study are advanced, they did not perform as well as the native speakers, which is inconsistent with both the FTFA and FFFH hypotheses. However, as they are still learning the language we can assume that they have not yet reached their final state of acquisition. The results also showed that animacy had a positive effect on acquiring gender with learners performing better on sentences with animate nouns than those with inanimate nouns.

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