Reassembling Formal Features in Articles by L1 Persian Learners of L2 English

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Abstract

There has been considerable debate over what the sources of morphological variation in second language acquisition are. From among various hypotheses put forth on the topic, the feature reassembly hypothesis (Lardiere, 2005) assumes that it is the reconfiguration of features in the L2 which causes variation between the performance of natives and non-natives. Acknowledged as one of the most difficult elements of English grammar to be acquired by learners, the article system was the focus of the present study which aimed at attending to the acquisition of that system by Persian learners. This descriptive piece of research focused on how the article system functions in English and Persian, the similarities found across the two languages and the possible sources of difficulty for Persian learners in using English articles as related to their L1. The participants included Persian learners at three levels of grammatical knowledge. A group of English native speakers also took part in the study. A grammaticality judgment test and a translation test were conducted to collect data. Comparisons were made among the four groups, using ANOVAs. Based on the results, it is argued that the observed pattern of article use among Persian speaking learners can be best accounted for by the feature reassembly hypothesis.

Key words: countability, definiteness, reassembly hypothesis, genericity, number, specificity

I. Introduction

In her seminal article, Lardiere (2005) challenged the prevailing notion of parameter resetting, arguing that the formal task facing a learner is much more complex than the simple parametric selecting of a new feature. She attributed the existing cross-linguistic variations to permutations in the configuration of morpho-syntactic features which make up grammatical categories. Difficulties in learning a second language, in the framework of parameter setting and resetting, are explained through the availability of features. If a feature is selected in the L1, it would be easy for the learner to acquire that feature in the L2. On the other hand, features that are morphologically selected in the L2 but not in the L1 would be no longer available and, therefore, unacquirable, resulting in a fossilized grammar. In the later proposed framework of feature reassembly (Lardiere, 2005, 2007, 2009), the difficulties are attributed to the massive task of determining how to reconfigure features from the way they are mapped in the L1 into new configurations which may be realized on quite different lexical items in the L2.

However, as White (2009) suggests, there are two parts to this proposal. If a feature exists in the first language, sometimes the learners should associate that feature with different lexical items in the second language. An example would be the acquisition of articles in a second language like English or Greek by learners whose L1 is article-less such as Mandarin Chinese which has the feature *definiteness* but this feature is realized on other determiners such as demonstratives. So, Chinese learners' task would be to discover that the feature is realized on different lexical items in English: *the* and *a*. In the second place, if feature combinations in L1 and L2 differ, the learner will have to acquire a new language-specific configuration, assembling

features into different bundles in the L2 from the L1. An example would be the way the four features of *plural, definite, human,* and *animate* are assembled in English and Korean resulting in different realizations of plural in each language (Choi, 2009). There are other cases which involve different combinations of features across two languages and the learning of such grammatical points will depend on successful reassembly on the part of learners (see for example Renaud, 2009; Yuan & Zhao, 2009). It is this second form of reassembly which is more complicated and more likely to pose serious problems to learners (Lardiere, 2005).

One area of grammar that has been studied in research on L2 acquisition is the article system. It is of particular interest in testing hypotheses about L2 acquisition because of its complexity and the number of features that play a role in determining the correct article to be used. In case of English, those features include *definiteness, specificity, countability, genericity* and *number.* So, much information is encoded in the two little words *the* and *a.* Wakabayashi (2009) noted this intricacy of marking *definiteness* in English and believed that it has been largely ignored in the existing SLA research which has focused on only one or two features that determine article use. Examples of such studies are Ionin, Zubizarreta and Maldonado (2008), Ko, Ionin and Wexler (2009) and Snape, Leung and Ting (2006). This gave this study the impetus to present a comprehensive account of how the system works in English with regard to the above mentioned features and to find out if those features also operate in Persian. Also, the acquisition of the article system in English by Persian speakers seems to be particularly suitable for testing the theoretical predictions of the feature reassembly hypothesis (FRH henceforth) because many features seem to be bundled into the articles (lexical items) in both languages. The discrepancy in feature combination may explain Persian speakers' reported failure to achieve native-like fluency in the use of English articles (Afzali, 2008; Rahmani, 2010; Momenzade & Youhanaee,

2013). The aim, then, was to seek explanation for the observed pattern of article use by Persian learners. If it can be shown that the configurations of the system differ between the two languages but the features are present at both scenes, then the reassembly hypothesis might explain the process of acquisition as it really is.

II. Properties of the article system in English and Persian

In the following, the article system in English and Persian is elaborated on in order to clarify how the features of *definiteness, specificity, genericity, number* and *countability* actually affect article use. Each point is presented with an example. Similarities and differences between the two languages are highlighted and predictions are made as to the performance of Persian learners of English on each point.

a. Definiteness and specificity
The English article system marks definiteness, not specificity (Ionin, 2006). Therefore, definite determiner phrases (henceforth DPs) in English are marked by *the* and indefinite DPs by *a.* As for specificity, DPs in English may come with *the* or *a* in both [±specific] situations (see Ionin, Ko & Wexler, 2007). Persian, on the other hand, does not have a definite article in its formal written form- though there is an enclitic used to mark definiteness in the colloquial language (Ghomeshi, 2003)- but marks indefinite NPs in three ways (using an enclitic *-i* noun finally, the word *yek* before the noun, or both). Indefinite NPs in Persian can bear specificity as well (see Karimi, 1999). Table 1 presents examples for the two types of NPs in the two corresponding languages:

Table 1
Definiteness and Specificity in English and Persian

English Definite	1. Joan wants to present the prize to *the* winner but he doesn't want to receive it from her. *(specific)*
	2. Joan wants to present the prize to *the* winner so she'll have to wait around till the race finishes. *(non-specific)*
English Indefinite	3. Peter intends to marry *a* merchant banker even though he doesn't get on at all with her. *(specific)*
	4. Peter intends to marry *a* merchant banker though he hasn't met one yet. *(non-specific)*
Persian Definite	5. be *bæche* ghæza dadi? to child food give-Past-2SG 'Did you feed the baby?' *(specific)*
	6. miræm mædrese ke ba *modir-e* Go-1sg school that with principal *Jædid* ashena besh-æm. -Ezafe new familiar get-1sg 'I'm going to the school to get acquainted with the new principal.' *(non-specific)*
Persian Indefinite	7. Mary donbal-e *ye medad* Mary following-Ezafe one pencil *m*igæsht va un-o Prog-search-Past and that-Obj peyda kærd find do-Past-3sg 'Mary was looking for a pencil and she found it.' *(specific)*
	8. Mary donbal-e *ye medad* Mary following-Ezafe one pencil migæsht va yeki peyda Prog-search-Past and one find kærd do-Past-3sg 'Mary was looking for a pencil and she found one.' *(non-specific)*

It is, then, reasonable to predict that Persian learners should have no difficulty with the indefinite article but, since an overt article is lacking in Persian, they may have problems in learning how to use *the*. However, any difficulty should be of short duration on the grounds that the concepts exist and are implemented in Persian and that there is an informal definite enclitic in that language.

Besides definiteness and specificity, there are still a number of other features that affect how articles are used in English. They include *genericity*, *number*, and the *count/mass* distinction. The same features also exist in Persian but the two languages do not behave similarly (as presented in the following sections). How those features influence article use in English plus the difference there is with Persian is explained in the following.

b. Genericity
In English, the concept of genericity can be expressed using *the*, *a/an*, or *Ø*. The three forms are not always interchangeable, a point that is not the concern of the present paper (for more information see Quirk, Greenbaum, Leech & Svartvik, 1972). In Persian, however, only bare singular or bare plural nouns can be interpreted as generic (Moin, 1990). To identify the acquisition problem for Persian learners, one should bear in mind that English uses three ways to denote genericity but Persian uses two. Examples are:

Table 2
Genericity in English and Persian

English	9. *Beavers* build dams.
	10. *A beaver* builds dams.
	11. *The beaver* builds dams.
Persian	12. *shotor* beh-tærin væsile bæraye camel best-Super means for sæfær dær biyaban æst. travel in desert is. 'The camel is the best means for travelling in the desert.'
	13. *gol-ha* be nur ehtiyaj flower-Plu to light need dar-ænd. have-3Plu 'Flowers need light.'

It has to be mentioned that bare plurals in Persian depend on context for their interpretation. They may also be interpreted as *definite*. So, example (13) above can also be interpreted as 'The flowers need light.' when the speaker is referring to some flowers in his office for example.

Although Persian has an overt indefinite article, it cannot be used in a generic NP which is a point of divergence from English. It is also of the same difficulty to Persian learners to figure out that the definite article can be used in a generic NP. It seems, then, reasonable for Persian-speakers to be able to best understand and produce the first type of generic sentences in English (bare plurals) since the same structure exists in Persian as well. For the other two types, difficulties are expected at low levels of proficiency simply because the other two types involve article use that makes them different from their L1 structure. At higher levels, however, learners are expected to comprehend and produce the other two forms as they master the articles.

c. Number

As to number, both languages select the feature but the realization is different again. In English, singular nouns can be accompanied by definite, indefinite, or zero articles (in case of mass nouns). Plural nouns also may occur with definite or zero articles (in case they are generic). In Persian, however, the indefinite article may precede plural nouns as well as singular nouns. If nouns (singular, plural, or mass) are definite or generic, then they are accompanied by a zero article. Another point to mention is that in informal spoken Persian, the definite enclitic is only used with singular nouns (Ghomeshi, 2003). So, whereas in English the definite article is used with both singular and plural nouns, in Persian it is used only with singular nouns. Similarly, whereas in English the indefinite article can only be used with singular nouns, it is used with both singular and plural nouns in Persian. Examples are displayed in Table 3.

Table 3
Number in English and Persian

English Singular	14. *The victim* was taken to the hospital. (definite)
	15. *A plane* crashed in Eastern Spain last night. (indefinite)
Persian Singular	16. *dokhtær-e* amæd girl-Def arrive-Past-3SG 'The girl arrived.' (definite)
	17. *ye sa'æt* tu khiyabun peida kærdæm. one watch in street find did-1SG 'I found a watch in the street.' (indefinite)
	18. *bæche* gerye kærd. child cry do-Past-3SG 'The child cried.' (definite)
English Plural	19. *The prisoners* went on food strike. (definite)
	20. He's in a meeting with city *authorities*. (indefinite)
Persian Plural	21. *bæche-ha* gol dust dar-ænd. child-Plu flower like have-3Plu 'The children like flowers.' (definite)
	22. *mærdan-i* khæshen karkhane ra men-indef rude factory Obj atæsh zædænd.fire fire hit-Past-3Plu '(Some) rude men set the factory on fire.' (indefinite)

To make things more complicated, bare plural NPs in English are either indefinite or generic whereas the same construction can be generic or definite. As a result, the learning task for Persian learners of English would be to use the definite article for singular and plural nouns and to use the indefinite article just for singular nouns. It is, then, expected that Persian speakers should have no serious or long-lasting problems since both features (*definiteness* and *number*) exist in their L1.

d. Countability

The last feature to be discussed is the *count/mass* distinction on nouns. In English, mass nouns can be definite and, thus, preceded by *the*. A zero article can also come before a mass noun in a generic or indefinite sense though in the indefinite reading words like *some* are preferred.

In Persian, on the other hand, mass nouns cannot take any article other than zero in which case they can be interpreted as definite, indefinite, or generic. Although on occasions people use the indefinite article with a mass noun in the informal spoken language (Moin, 1990), it is not acceptable in the formal written variety we are discussing. There is, however, a very important difference between English and Persian in that mass nouns can be pluralized in Persian, a construction which is impossible in English. (Table 4)

Table 4
Mass Nouns in English and Persian

English	23. *The money* we borrowed from my father saved our lives. (definite)
	24. *Money* can buy you a house, but not home. (generic)
	25. John has gone out to earn *money*. (indefinite)
Persian	26. *pul* ra bede be mæn money Obj give-2SG to me 'Give me the money.' (definite)
	27. ræfte *gusht* bekhære gone meat buy-3SG 'He's gone to buy (some) meat.' (indefinite)
	28. æz *morgh* bæd-æm miyad from chicken bad-1SG Prog-come 'I hate chicken.' (generic)
	29. *ye chai* be mæn bede. one tea to me give-2SG 'Give me a cup of tea.' (indefinite)
	30. *gusht-ha* ra gozashtæm tu meat-Plu Obj put-Past-1SG in yækhchal. fridge 'I put the meat in the fridge.' (definite)

Again, it seems that differences between the two languages are not due to absence of some features but to how those features are realized on lexical morphemes cross-linguistically. If we take the view that absence of features is the source of difficulty, Persian learners should have no serious problems. If they face difficulties, then, the responsibility falls on the different assembly of features in the two languages.

III. Review of literature

As a difficult linguistic element to be acquired by learners, studies abound on the acquisition of the English article system and on the difficulties learners face. These pieces of research can be generally divided into two groups based on learners' L1 background: if they speak a [+article] or a [–article] first language. Two notions dominate such studies: transfer and fluctuation. That is, either learners have access to UG settings and, therefore, fluctuate between the two settings of using articles for specificity or for definiteness, or they don't have such access and transfer their L1 settings into their pattern of L2 article use. Studies on learners with article-based L1s have shown that the second alternative works and the transfer option is dominant (Snape, Leung & Ting, 2006; Ionin, Zubizarreta & Maldonado, 2008; Jaensch & Sarko, 2009; Garcia Mayo, 2009). Learners from article-less L1s, however, have demonstrated that, for them, fluctuation is the prevailing factor and that they use English articles sometimes to mark specificity and other times definiteness (Guella , Déprez & Sleeman, 2008; Zdorenko & Paradis, 2008).The few studies conducted on the use of articles for generic reference have given support for the strong role L1 plays in L2 acquisition of articles as well (Perez-Leroux, Munn, Schmitt & DeIrish, 2004; Ionin & Montrul, 2009; Snape, Garcia Mayo & Gürel, 2009).

Most studies that have investigated learning of the articles by Persian learners have approached the problem from a pedagogical perspective and so, do not contribute to this research (for instance, Afzali, 2008; Dabaghi & Tavakoli, 2009; Farrokhi & Sattarpour, 2012; Geranpaye, 1995; Mobini, 2006; Pashazade & Marefat, 2010; Sarani, 2009).Two studies, however, have tried to provide a theoretical account for article acquisition using the UG framework. Rezai and Jabbari (2010) were able to show that the learners in their study did acquire the English definite article though some fluctuation was

observed in their teasing apart the definiteness and specificity features in singular contexts. They believed that their study provided another piece of support for the interpretability hypothesis (Tsimpli & Dimitrakopoulou, 2007) which claims that interpretable features are accessible to the L2 learner while uninterpretable features are difficult to identify and analyze in the L2 input due to persistent L1 effects on adult L2 grammars. The definiteness feature is interpretable, they argue, at both conceptual level (LF) and phonetic level (PF) in English. The same feature is, however, interpretable only at the LF in Persian. Nevertheless, the fact that definiteness is an interpretable feature in both languages poses no serious problems to learners and the study supported this claim. Elsewhere, Rezai (2012) tested 50 learners of English on the use of articles for mass nouns and, again, the results substantiated the interpretability hypothesis. He also concluded that article suppliance created more learnability problems in the plural and indefinite mass contexts compared to the count singular ones.

Considering research on feature reassembly hypothesis, on the other hand, numerous studies exist all of which point to the explanatory power of the FRH for the acquisition failure of learners. In fact, Montrul and Yoon (2009, p. 291) called selecting and reassembling of features 'the logical problem of L2 acquisition'. Dominguez, Archi and Myles, (2011) studied *aspect* in Spanish where English learners had to overcome a morphological contrast between the two languages and reported that cases where a meaning-requiring reassembly was necessary, students failed even at the advanced level. In their study of English learners' acquisition of Chinese resultative constructions where there was an asymmetry between reconfiguration of syntactic and thematic features, Yuan and Zhao (2008) concluded that the learners were able to reassemble syntactic structures but not the thematic ones. The writers, then, suggested that reconfiguration of syntactic and semantic features did not develop in a uniform fashion in L2 acquisition. Choi (2009) also added to the

literature by studying the interpretation of wh-in-situ expressions in L2 Korean by adult native speakers of English, a structure that posed difficulty to English learners of Korean. She adequately showed that the difficulty for such learners did not reside in parametric selection because both L1 and L2 selected the relevant features. Instead, the learners had difficulty in reconfiguring such features into a different L2 configuration. Other areas of grammar which have been considered ideal for testing the predictions of the FRH include the existential quantifier (Gil & Marsden, 2013), wh-questions (Muroya, 2013a), accusative clitics (Shimanskaya & Slabakova, 2014), VP adverbs (Muroya, 2013b), past participle agreement (Renaud, 2009), inflectional morphology (Muroya, 2012), and spatial predicates (Stringer, 2012) all of which have lent support to the hypothesis.

Concerning studies on English articles, Lardiere (2005) presented data from a Chinese learner of English (Patty) who had apparently been able to use the article system to mark *definiteness* and *number*. These two features are lacking in Chinese and the researcher argued that 'the acquisition of definiteness and plural marking is not a matter of mere parameter resetting from a *minus* value in Chinese to a *plus* value in English. Rather, it involved 'a more painstaking process of *reassembl*ing the relevant features from the way they were conditioned and realized in the L1 to that of the L2' (p. 183). In another study, Kaku (2006) provided evidence by testing a group of L1 Japanese learners of English. Japanese does not have an article system but the concept of in/definiteness is expressed through other means (demonstratives, pronouns, etc). In other words, the two features required for the English articles (definiteness and referentiality) are expressed by case markers and demonstratives. Using an elicitation task and a translation task, she showed that, overall, a good proportion of articles had been supplied correctly especially by the advanced learners. The researcher, then, suggested that it was plausible that the features of the English articles could be

acquired (based on the performance of the advanced students) and that the variability in article choice among the intermediate learners could be because of unsuccessful reassembly of features in the L2. However, this study was based on data from only five participants (three advanced and two intermediate) so it is difficult to make generalizations based on it.

The article system, therefore, is an ideal grammatical category for comprehensive testing of the FRH since it involves lexical encoding of more than one feature. We believe that investigating the acquisition of articles by Persian speakers is a fruitful case because of the variety of features involved, the complexities that exist in the Persian article system, and the cross-linguistic comparability of the two systems.

IV. The focus of the present study

Previous studies on Persian L2 learners of English have documented the article system as a major barrier to native-like proficiency even at the advanced level (Mobini, 2006; Momenzade & Youhanaee, 2013) and have sought to alleviate the problem by providing pedagogical suggestions (Dabaghi & Tavakoli, 2009; Pashazade & Marefat, 2010). Nevertheless, Persian is an article-based language which marks definiteness and which bundles some other features into its article system besides *definiteness*. The main aim of this study was, then, finding out whether Persian learners of English are able to reconfigure the assembly of features from their L1 to the L2 and if so, at what level of grammatical proficiency. Besides, we were interested in finding out if Persian gives clues as to what article should be used with nouns in English. To that purpose, the following questions were formed:

➢ Are Persian EFL learners eventually able to reassemble *definiteness*, *specificity*, *genericity*, *number*, and *countability* on English articles?

➢ Is there any order of acquisition with regard to the features related to article use?

➢ Does the function of nouns as subject/object help correct use of articles in English?

V. Method

Participants

Forty three Persian-speaking learners of English at Sheikhbahaee University took part in the present study. Initially, they took the Oxford Placement Test (2001, version 1) based on which their level of grammatical knowledge was determined and three groups of grammatical proficiency were identified. In the highly advanced group, learners who scored 55-60 on the OPT were placed. They had an age range of 25-40. This group included 11 people. The intermediate group consisted of those participants who could score 37-47 on the OPT. They were 14 in number and 19-27 years old. The elementary group included 18 participants who scored 18-27 on the placement test. They had the same age range as the intermediate group. It should be mentioned that wider gaps were considered between the groups in order to make sure that they belonged to different levels of grammatical knowledge. Fifteen native speakers were also included in the study as the control group. They were 9 males and 6 females and aged 8-34, from school children to adults. Actually, they were the only available natives to the researchers. They all were originally Americans having lived in their home county all their lives and volunteered to take our English test. Table 5 summarizes the specifications of the participants.

Table 5
Participant Specifications

Groups	Number	Age range	OPT score
Elementary	18	19-27	18-29
Upper intermediate	14	19-27	40-47
Very advanced	11	25-40	55-60
Native speakers	15	8-34	-

Instruments

Data elicitation in the present study was based on an OPT test, a grammaticality judgment test and a translation test, the description of each is presented in the following.

a. The Oxford Quick Placement Test (OPT)

The quick placement test used in this study is a flexible test of English developed by Oxford University Press and Cambridge ESOL (2001) to give teachers a reliable and time-saving method of finding a student's level of English. The paper and pencil version of the test used here includes 60 multiple-choice items to be answered within 30 minutes. According to the publishers, elementary students are the ones who score 18-29 on the test. Intermediate learners score 30-47 and those who score within the range of 48-54 are considered as advanced. Any learner who scores above 55 (55-60) is a very advanced one. The test also has a writing task with a different scoring method which was not used in the present study.

b. The grammaticality judgment (GJ) test

To tap the participants' understanding of grammaticality/ungrammaticality of the forms associated with the English article system, a grammaticality judgment (GJ) test was developed and used for the purposes of this study. The test included 100 items. There were eleven categories on the test which measured the five features that have an effect on article use. For each category, both grammatical and ungrammatical items were included. The reason was that acquisition implies knowledge of both grammatical and ungrammatical forms. So, only when learners know the correct and incorrect form of a grammatical item, they can be said to have acquired it. To distract the participants' attention from the point that was tested, some filler items were also included. The categories on the test and the number of items in each category are presented in Table 6 below.

Table 6
The GJ Test Make-up

No	Categories	Grammatical	Ungrammatical	Total
1	definite, singular, specific	4	8	12
2	definite, singular, non-specific	4	8	12
3	definite, plural, specific	4	4	8
4	definite, plural, non-specific	4	4	8
5	indefinite, singular, specific	4	8	12
6	indefinite, singular, non-specific	4	8	12
7	generic, bare plural	4	4	8
8	generic, singular, definite	4	4	8
9	generic, singular, indefinite	4	-	4
10	generic, mass	4	4	8
11	mass, definite, specific	4	4	8
	Total	44	56	100

Two points have to be mentioned: first, an effort was put into considering all types of nouns in English with which an article should be used, so we came up with eleven categories. Second, the number of ungrammatical items across categories was not equal because the cases were different. For example, considering plural nouns, whether definite or indefinite, the use of *a* was completely out of the question. So, the number of ungrammatical items in such groups was 4 (*zero article +N* for definite plurals and *the +N* for indefinite ones) whereas for singular nouns, more ungrammatical items could be included. To further clarify the point, consider the sixth

category (indefinite, singular, non-specific nouns). Ungrammatical items included four sentences containing *the+N* and four including *zero article+N*. Finally, the ninth category included no ungrammatical sentences simply because the corresponding ungrammatical items (*zero article +N*) were included in the 8th category. So, there was no need to make the test lengthier than it was.

Each item on the test included two sentences. Following the stem, the test takers had three choices. They were supposed to judge the grammaticality or ungrammaticality of the second sentence in each pair based on the first one. They were asked to choose √ if the second sentence was, in their opinion, grammatically correct and * if incorrect. They were also given the option of choosing ? if they didn't know or were not sure of the answer. Examples of each category on the test are provided below. They are all selected from the grammatical items:

1. I saw an accident on my way back home. A man was injured in *the accident*.

2. I'm going to the boss today to ask him for a raise. *The man* who comes with me will not regret it.

3. Mr. Peterson owns two houses. He tries to keep *the houses* in good condition.

4. I returned from the shopping center to find that my car had been punctured. I must find *the wrongdoers* whoever they are.

5. Alice is so angry. *A pig* has stepped on her front garden.

6. My pen ran out of ink. Will you give me *a pen*, please?

7. Whenever I can't find something, my dog does it for me. *Dogs* are very intelligent.

8. When you are at a zoo, you should stay away from lions' cages. *The lion* is a dangerous animal.

9. Large animals usually give birth to their children. But *an ostrich*, which is the biggest bird of all, lays eggs.

10. What would you like best for desert? Oh, I prefer *ice cream* to the rest.

11. We'll never go to that restaurant again. *The food* was awful.

c. The translation test
The test was made up of 72 items and included categories some of which were similar to the ones in the GJ test. There were still some categories in the translation test that were not found in the other test. The reason was that this test was constructed based on the concept of definiteness and how it is assembled with other features in Persian. Therefore, there were cases which existed in Persian but not in English (see Tables 1-4). The purpose of developing the translation test was to detect possible L1 transfer effects on how Persian-speaking EFL learners used the article system in English. The following table summarizes the details of the test:

Table 7
The Translation Test Make-up

No	Categories	Number of items
1	Definite	30
2	Indefinite	26
3	Generic	16
	Total	72

The definite, indefinite, and generic items on the test were evenly distributed for number, specificity, countability, and function (subject/object). Considering the nouns in object position, the test included both direct objects (with the object marker *ra*) and indirect objects (without the object marker *ra*) so that the influence of the object marker in correct article use could be detected. A sample item from the test is:

وقتی از اتاق بیرون رفتم بچه ها گریه کردند.

The underlined word is plural, definite, specific and in the subject position.

Data Collection, scoring, and analysis

Prior to data collection, a pilot testing was done with 15 language learners. Few inconsistencies that existed in the tests were modified and an approximate time limit was set for each one. The language of instruction was decided to be Persian. Also, two experts in the field of language acquisition scrutinized the tests and validated the content of each one. After data collection, the internal consistency was measured for each test, using a Cronbach alpha coefficient. For the GJ test, the alpha coefficient was .96. It was calculated to be .87 for the translation test. Therefore, both tests could be considered reliable with the specified sample of the study.

The L2 learners voluntarily participated in the study. Initially ninety-five learners took the OPT based on which forty-three were selected and put into three quite distinct levels. The participants took the GJ test in the following week. On the third week, they were asked to do the translation test. Because the tests were rather long and they had to be done at times other than class hours, a one week interval was observed between the tests. So, the participants met once a week for three weeks. The second test was the GJ test. Each correct answer was worth one score and each incorrect one was given a zero score. Also, for each incorrect item on the test, only if the participant had circled * and supplied the right answer, s/he was scored 1. To put it differently, just circling *was not enough to indicate the participant necessarily knew which part of the sentence made it ungrammatical. For the correct answers as well, the participants had to mark √ to merit 1. They weren't granted any scores if they had left the sentence intact or if they had chosen ?.On the translation test, the concern was with the noun phrase in question. It didn't matter if the whole sentence was translated correctly. Each correct answer was granted 1and the wrong answers were given a zero.

The 1/0 coded data was submitted to the Statistical Packages in Social Sciences (SPSS, 16) software for the purpose of analysis. For each category on the tests, the mean percentage for each individual participant and later for each proficiency group was calculated. Since there were four groups of participants and one independent variable on each category, one-way between groups ANOVA was performed as the proper statistical procedure to see if inter-group differences existed with regard to the features in question. Wherever necessary, the paired samples t-test was conducted to detect significant intra-group differences in performance. Also, in cases where comparisons needed to be made between two groups, the independent samples t-test was used.

VI. Results

The first research question asked if the Persian learners could eventually reassemble *definiteness*, *specificity*, *genericity*, *number*, and *countability* on English articles. The results are presented separately for each feature so that group performance can be compared. The first feature to examine is *definiteness*. Table 8 presents results on the GJ test.

Table 8
Mean Accuracy Scores (%) for [± definite] on the GJ Test

Groups	Definite	Indefinite
Elementary	45	45
Intermediate	60	63
Advanced	81	87
Native control	99	99

For the sake of comparison, a one-way between groups ANOVA was used. It showed that the groups' performance on this test was significantly different from each other (Table 9).

Table 9
ANOVA Results for Definiteness on the GJ Test

		Sum of Squares	F	Sig.	r
definite	Between Groups	24794.25	160.495	.000	.8
	Within Groups	2677.76			
	Total	27472.02			
indefinite	Between Groups	26276.90	75.542	.000	.8
	Within Groups	6029.33			
	Total	32306.23			

At the $p< .05$ level, the four groups' performance on the GJ test was significantly different from each other both on the definite items ($F = 160.49$, $p = 0.00$, r = 0.8) and on the indefinite items ($F = 75.54$, $p = 0.00$, r = 0.8). A Sheffe post-hoc test was also conducted which revealed that the learner groups were significantly different from each other and from the native group. On the indefinite items of the test, however, the advanced group could catch up with the natives as the difference between the two groups was not significant ($p= 0.08$). Elementary and intermediate learners were significantly different from both advanced learners and native speakers.

The second feature involved in article selection was *specificity*. Table 10 summarizes performance on [± specific] items.

Table 10
Specificity (%) on the GJ Test

	elementary	intermediate	advanced	native
+definite +specific	51	73	91	99
+definite -specific	37	44	73	98
-definite -specific	45	67	92	99
-definite +specific	44	58	82	99

Performance in the [definite non-specific] context was not as good as that in [definite specific] for all proficiency groups which shows that our participants had more doubts about using *the* for non-specific definite nouns and were clearly non-native-like even at the advanced level. Considering the indefinite context, using *a* was unaffected by specificity for the elementary group as no difference could be detected. Evidence for these conclusions came from a one-way between groups ANOVA the results of which are tabulated below.

Table 11
ANOVA Results for [±definite, ±specific] on the GJ Test

		Sum of Squares	F	Sig.	r
+definite, +specific	Between Groups	20503.65	66.714	.000	.7
	Within Groups	5327.19			
	Total	25830.85			
+definite, -specific	Between Groups	33871.30	80.997	.000	.7
	Within Groups	7248.41			
	Total	41119.71			
-definite, +specific	Between Groups	25661.69	68.630	.000	.8
	Within Groups	6481.15			
	Total	32142.85			
-definite, -specific	Between Groups	27477.38	46.694	.000	.7
	Within Groups	10199.94			
	Total	37677.33			

At $p< .05$, there was a statistically significant difference among the groups in their performance in the four contexts ($p= 0.00$). The effect size (r) was large for all contexts. Post-hoc comparisons using the Scheffe test indicated that, in all four contexts, the elementary and intermediate groups performed significantly different from the native speakers ($p = 0.00$ for the elementary group and $p = 0.00$ for the intermediate group). The advanced participants performed similar to the natives in [definite, specific] and [indefinite, non-specific] contexts

($p = 0.28$ and $p = 0.75$ respectively). In the two suspected contexts of [definite, non-specific] and [indefinite, specific], in which learners are prone to fluctuation, even the advanced learners performed significantly different from the natives ($p = 0.00$ and $p = 0.00$ respectively).

The next feature to be checked is *genericity*. Performance on singular and plural generic NPs is displayed in Table 12.

Table 12.
Mean Accuracy Scores (%) for Generic Nouns on the GJ Test

Groups	Singular	Plural
Elementary	56	58
Intermediate	57	62
Advanced	76	85
Natives	99	95

In order to see if the observed differences in performance on singular and plural generics was meaningful, a one-way between groups ANOVA was calculated. The results (Table13) revealed significant differences between the groups. The effect size, using eta squared, was large for both singular and plural generic nouns.

Table 13
ANOVA Results for Generic Nouns on the GJ Test

		Sum of Squares	F	Sig.	r
Singular	Between Groups	16918.52	27.43	.000	.6
	Within Groups	10689.36			
Plural	Total	27607.88			
	Between Groups	13837.89	24.37	.000	.5
	Within Groups	9842.35			
	Total	23680.24			

Further post-hoc calculation using a Scheffe test revealed that, considering singular generic NPs, none of the learner groups conformed to the native speaker norm as there was a significant difference detected ($p = 0.00$ for all learner groups). For the plural generic items, however,

the advanced group performed similarly to the native speakers ($p = 0.00$ for the elementary and intermediate groups but $p = 0.38$ for the advanced group).

The next feature to be examined is *number*. Group performance is presented in Table 14.

Table 14
Mean Accuracy Scores (%) for [±singular] on the GJ Test

Groups	Singular	Plural
Elementary	40	48
Intermediate	58	58
Advanced	81	83
Natives	98	99

Again, differences in performance among the four groups were tested by a one-way between groups ANOVA which pointed to significant gaps (Table 15).

Table 15
ANOVA Results for [±singular] NPs on the GJ Test

		Sum of Squares	F	Sig.	r
singular	Between Groups	29180.38	93.357	.000	.8
	Within Groups	5417.82			
	Total	34598.21			
plural	Between Groups	22782.76	79.405	.000	.8
	Within Groups	4973.23			
	Total	27755.99			

In other words, at $p < .05$, the participant groups were significantly different from each other in using the correct article for both singular ($F = 93.35$, $p = 0.00$, r = 0.8) and plural nouns ($F = 79.40$, $p = 0.00$, r = 0.8). In both cases there was a large effect size: using eta squared, 80% of the total variance could be accounted for by the groups' knowledge state. The results of a post-hoc Scheffe test also revealed that the learner groups differed from each other and from the

native controls in performance on both singular and plural nouns (*p* = 0.00 on both singular and plural nouns for all groups).

The last feature to put under scrutiny is *countability*. Only the participants' performance on definite items was analyzed mainly because the tests did not include indefinite mass nouns. Table 16 summarizes group performance on the two types of nouns:

Table 16
Mean Accuracy Scores (%) for [± singular] on the GJ Test

Groups	Count	Non-count
Elementary	44	47
Intermediate	58	64
Advanced	82	80
Native control	98	100

At *p*< .05, the groups were significantly different from each other in using the correct article for both count (*F* = 123.93, *p* = 0.00, r = 0.8) and non-count nouns (*F* = 67.59, *p* = 0.00, r = 0.7) based on a one-way between groups ANOVA.

Table 17
ANOVA Results for [± count] Definite Nouns on the GJ Test

		Sum of Squares	F	Sig.	r
mass	Between Groups	23075.42	67.594	.000	.7
	Within Groups	5917.32			
	Total	28992.74			
count	Between Groups	25792.62	123.935	.000	.8
	Within Groups	3607.31			
	Total	29399.93			

Furthermore, Persian learners were significantly different from the native control group in performance on both count and mass NPs. This was revealed using a Scheffe post-hoc test (*p* = 0.00).

Based on the results presented so far, it is clear that the participants in this study could not be claimed to have acquired the features in question at none of the three proficiency levels, so the answer to the first research question is negative.

To arrive at an answer to the second research question concerning the order of acquisition of the features, performance of the participants in the advanced group was further analyzed to compare their degree of mastery over the five features. Mastery was defined as correct article use over 90% for each feature in question in which case no significant difference could be detected between natives and non-natives. The findings on the GJ test are presented in Table 18. The + mark shows that learner performance was accurate over 90%.

Table 18
*Order of Acquisition for the Advanced Group Based on the GJ Test*

Participant number	85	89	90	91	92	95
± Definite	+	+	+	+		+
± Specific	+		+	+		+
± Count				+		+
± Plural	+	+		+		+
± Generic				+	+	+

The observation we made was that *definiteness* was the only feature in which five of the advanced participants were accurate. Three participants could satisfy the accuracy criterion in article use for the features of *specificity* and *number*. Three participants were accurate in article use for *generic* expressions. And only two of the participants could achieve the accuracy criteria for the feature of *countability*. So, the order of *definiteness* > *specificity/ number* > *genericity* > *countability* was found as the answer to the second research question. It has to be mentioned that the learner participants in this study, as will be discussed in the following section, could not be considered to have acquired

those features so the order that is found is, at best, tentative.

The last research question was formed to see if the grammatical function of the noun as subject or object in Persian would be of any help to the learners in appropriate article use in English. Results on the translation test can help arrive at an answer to that question. (Figure 1)

Figure 1 *Mean Accuracy Scores (%) on the Translation Test*
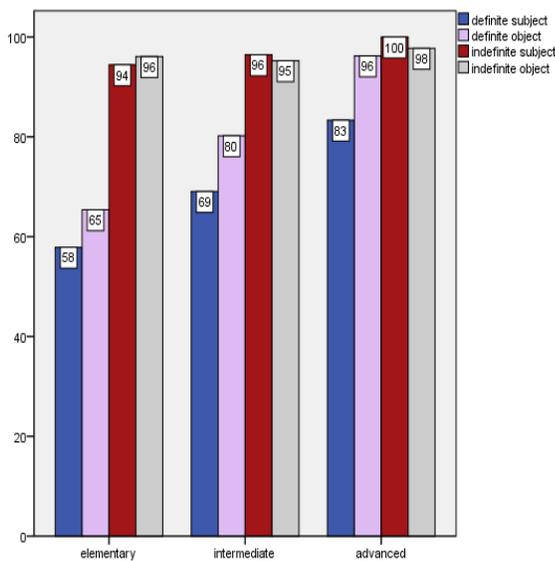
As the figure depicts, the participants were more successful in indefinite article use either for subject or object NPs. This is not surprising because it was previously concluded that the Persian learners had fewer problems using the indefinite article and were actually native-like at the advanced level (Table 8).However, performance of the learners showed that they were more successful in using the definite article for NPs as objects. Although the results of a series of paired samples t-tests showed that there was no significant difference in definite article use for subject/object NPs for the elementary group ($t(17)= 1.25$, $p<0.22$ (two-tailed)), the other two groups had a better performance on object nouns ($t(13) = 2.58$, $p<0.02$ (two-tailed)

for the intermediate group and $t(10) = 3.12$, $p<0.01$ (two-tailed) for the advanced group).The answer to the third research question is, then partially positive. NP function helped the participants in using the correct definite article for subject NPs at higher levels of grammatical knowledge.

VII. Discussion
The first question in this study concerned the acquisition of English article system. Comparisons between our learner groups and the native group revealed that Persian learners were significantly different form the natives in their article use, a difference which was observed for all the features that affect article use. In other words, the study revealed that Persian learners, regardless of their L2 state of grammatical knowledge, were non-native-like in their article use for ±definite, ±specific, ±singular, ±generic, and ±count nouns. These results were not in line with the ones reported by Rezai and Jabbari (2010). They reported that their Persian subjects were able to acquire the definite article and, hence, could provide support for the interpretability hypothesis. According to them, definiteness is interpretable in both English (at both LF and PF) and Persian (just at LF) and so, it should not pose serious problems to the learners. More than that, following Ghomeshi (2003), we assume that there is a definite enclitic in the spoken form of Persian. So, definiteness would be considered as interpretable at both LF and PF (quite like English) and it should not be an obstacle to learning anyway. Results from the present study, however, do not seem compatible with Rezai and Jabbari (2010), henceforth R & J. We suggest that this is due to the scope and methodology of their study and the present one. First, R & J considered only two features of definiteness and specificity whereas we looked at the combination of three more grammatical features and more importantly their assembly in English and Persian articles. Second, the main source of their data was an elicitation task. In fact, in the present study we also used an elicitation task the results of which showed no difference between native and non-native

speakers, which is compatible with R & J results. However, as we found significant differences between the performances of the L2 learners on the other two tasks, we found that the elicitation task was easy and its results did not perfectly represent the status of knowledge of English articles. This is not surprising given the fact that the context of English L2 learning in Iran is an instructed setting, where English is taught explicitly in most schools and hence all Persian learners of English have a good command of explicit grammatical knowledge. Therefore, we concluded that this pen and paper task tapped only the learned linguistic knowledge of our learners and decided to exclude its results. Third, R & J pooled the data of their intermediate and advanced learners, which actually blurs the picture additionally. Finally, the lack of a group of native speakers was a major hindrance to make detailed comparisons and carry out in-depth analyses. In fact, considering these differences, we construe that R & J's study does not provide counter evidence to our study.

The results of the present study then indicated divergence between native speakers and non-native L2 learners due to morphological variability in the performance of L2 learners which seems not to disappear even at advanced levels hence a persistent problem. We suggest that the source of this problem could be morphological feature combination and conditioning as proposed by Lardiere 2005. She assumes that L2 learners 'initially seek the morphological equivalents from already assembled lexical items in the L1 to analyze L2 conditioning environment' (2009, p. 213). Proof of this assertion was found in our study where the participants had more difficulty in using the definite article than the indefinite one, where they could not adequately mark [± definite] on count/non-count as well as singular/plural NPs, and where they could not use the correct article for singular generic NPs. We would like to argue, then, that using English articles to mark *in/definiteness* by Persian learners reflects L1 transfer effects. This effect is not syntactic in nature, though, because the DP structure and

definiteness as a feature exist in both languages. There are definite, indefinite, and zero articles in both English and Persian. And article use is affected by other features as *specificity, number, countability*, and *genericity* in both languages. Despite all these cross-linguistic similarities, the developmental patterns of the participants' performance did not bear significant resemblance to the native speaker group. They obviously had problems in using English articles. Why would such learners, regardless of their language proficiency, have persisting problems in article use? The answer relates to the fact that the difference between the two languages is of a morphological nature as the features that have a role in article use are bundled differently and into different lexical items in English and Persian. The definite article (as a lexical item) in Persian is not overtly realized in the formal language. It is reasonable for Persian-speaking learners to have persistent difficulty with the English definite article. Other studies have also pointed to the difficulty the learners face when one or both of English articles are lacking in learners' L1s (Jaensch & Sarko, 2009; Kaku, 2006). As for the indefinite article, it encompasses different feature combinations in Persian as well. The present study is also backed up by Lardiere (2005) where she argues that knowledge of definiteness feature does not correlate with Definite article use in the performance of a Chinese L2 learner of English. Similarly, Dominguez, Archi and Myles (2011) claim that feature reassembly is a necessary process during the course of acquiring a second language. The feature reassembly hypothesis can best account for such problems as the one in the present study because it does not consider a facilitative role for the L1 even in situations where the point is seemingly identical across the two languages. In fact, the situation for L1 Persian learners in this study is exactly like this: the contexts seem to be identical across the two languages. However, the participants' performance showed that the identicality is superficial. As they could display mastery in none of the features realized in article use, feature reassembly seems to provide a

reasonable explanation for such failure. The reason for lack of mastery in article use could be, therefore, the combination of the features which differed across the L1 and L2 and the inability of the learners to recombine those L1 features so that they would conform to the L2 configuration.

The second research question, which asked about the order of acquisition of the article related features, cannot be definitely answered based on the data from this study as it was revealed that the learners at all three levels of grammatical knowledge had not achieved full mastery over article use as English native speakers. Being so, no order of acquisition could be arrived at. It has to be mentioned, however, that our participants were more proficient in using the appropriate article to mark *definiteness* and *specificity* on English NPs and that they had the most difficulty in dealing with the feature of *countability*. Reasons for the observed pattern can be traced in how the two languages realize each feature. They both have means to show definiteness and specificity on nouns (Table 1) whereas the realization of definiteness on non-count nouns is more complicated because of cross linguistic differences (Table 4). Also, it was elaborated on in Table 2 that the two languages stand in sharp contrast as to their generic forms. Again, generic NPs in Persian are bare while this is not the case in English. In other words, difficulty in article use occurred in situations where either the means were different in the two languages or they were absent in one language and present in the other.

Moreover, performance of these participants showed their sensitivity to NP function within the sentence which was the answer to the third research question. They did much better in contexts where the NP in question was in object position. Performance on subject NPs was not at all comparable to object NPs, showing that NP function affected article use at least for the participants in this study. The effect of noun function on article use by learners from other language backgrounds is yet unexplored since it is not documented by any study so far. In case that no such effect is found in other languages, then, reassembly of features would be more difficult for Persian learners because they have to additionally be sensitive to noun function. This implies that, for some learners with a specific language background, reassembly of features would be intertwined with other aspects of grammar (for instance, NP function). So, reassembly would be language specific, making it more difficult for some learners but not others.

VIII. Conclusion

The central goal of this study was to find out if Persian-speaking learners of English were able to use the article system in a native-like fashion. Analysis of the data, collected through two different measures, showed that the participants had not mastered appropriate article use even at the very advanced level. Explanation was sought from the feature reassembly hypothesis according to which the source of such failure was unsuccessful reconfiguration of the features related to article use from the way they were bundled in Persian into L2 English. Our data were in line with Lardiere's (2008, p. 114) assertion that 'persistent L2 variable morphological production (omission and/or faulty use) is attributable to differences in the 'conditioning environment' for the assembly of features into lexical items between L1 and L2'. The findings of this study indicate that the problem Persian-speaking learners faced was not acquiring new features but rearranging the already existing ones into different lexical items in their L2. Elsewhere, Lardiere (2009) suggests that 'if a feature contrast is detectable, it is eventually acquirable' (p. 214). Since the advanced learners in this study were shown to be highly proficient in other areas of English grammar (scored above 55 on the OPT), the question still remains as to how long they would still need to figure out the contrasts and to be able to perform like a native speaker. With this goal in mind, attention should now be turned to conducting studies that focus on the pedagogical aspect and look for more fruitful methods of instruction. The present study also paves the way for future studies that focus on why the NP

function affects article use or on other possible aspects of grammar that may play a role.

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