

## Assimilation Processes by Arab Learners of English<sup>1</sup>

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**Abstract:** *This study examines optional consonantal assimilation (harmony) processes as produced by Arab learners of English. Eight female learners were recruited and assigned to four groups in accordance with their level of fluency. All Learners were asked to read target phrases in carrier sentences twice: the first reading was at slow speech rate, and the second was at fast speech rate. It was predicted that Arab learners of English would apply assimilation at fast reading since Spoken Arabic does exhibit similar consonantal assimilation at word edges. In general, the results show that Arab learners of English chose not to apply consonantal assimilation neither at slow speech rate, predicted, nor at fast speech rate. Moreover, it was found that neither learner-fluency nor speech rate influenced the assimilation processes. The results are discussed in the view of contrastive analysis approach.*

### 1. Introduction

With the growing and favorable global need for satisfying spoken English as a second and a foreign language, language skills requirements on non-native learners have also become more demanding particularly in the oral communication domain. The fluency/accuracy issue extends into more phonetic detail either with phonetic/phonological detail which contributes to the contrastive power of language, such as contrastive stress and voicing, or with details that do not contrast between phonetic units for instance; assimilation, Epenthesis, deletion, and cluster reduction but provide more elaborate information about speakers' level and fluency. Assimilating consonants at word edges could be one obvious process which contributes to the level of fluency and to a native-like phonology. Even though optional processes are problematic in the sense that learners hesitate to apply them, the phenomenon of consonantal assimilation still contributes to attaining a native-like phonology. This study aimed at examining the magnitude of English consonantal assimilation at word edges as produced by Arab learners of English with varying levels of fluency.

### 2. Theoretical framework

It is supposed that rules of first language (L1) may shape the learning/teaching process of the second language (L2). Linguistic patterns established in L1 which are similar to linguistic patterns presented in L2 are expected to facilitate learning. Although Contrastive Analysis (CA) is more interested in differences rather than similarities among languages, a key principle in CA (James, 1980) is

that when a rule in L1 is entirely consistent with a rule in L2, then these two identical rules have to lead to equal processes.

A further basic principle indicates that the L1:L2 identities (similar rules) need not to be learnt by the learners in view of the fact that learners are already acquainted with such rules by virtue of L1 knowledge (James 1980:151). When analogous processes are present in both languages, comparable processing may apply and may facilitate the speed and quality of the learning process. The learner of a foreign language will find some features of L2 which are relatively easy (elements from L2 related to native language), and other features could be extraordinarily intricate (elements not related to native language).

Typological works are provided by (Mohanar 1993; Jun 1995 and 2005; Zuraiq and Zhang 2006). They established a number of implicational statements on place assimilation. Jun's statements are summarized below and Mohanar's results are similar. Targets are assimilated sounds in the coda position of the first word in a phrase, but triggers are sounds in the onset of the second part of the phrase.

- (1) Target manner:
  - a. If fricatives or nonnasal sonorants are targets of place assimilation, so are stops.
  - b. If stops are targets of place assimilation, so are nasals.
- (2) Target place:
  - a. If velars are targets of place assimilation, so are labials.
  - b. If labials are targets of place assimilation, so are coronals.
- (3) Trigger manner:
  - a. If nonnasal sonorants trigger place assimilation, so do nasals and fricatives.
  - b. If nasals or fricatives trigger place assimilation, so do stops.
- (4) Trigger place:
 

If coronals trigger place assimilation, so do noncoronals.
- (5) Position of target:
 

In  $C_1C_2$  cluster, if  $C_2$  is a target of place assimilation, so is  $C_1$ .

### 2.1. Similar cases of assimilation in Arabic and English

Both English and Arabic exhibit consonantal assimilation at word edges. The patterns conform to the universal implications, some differences are present. (For complete analysis of assimilation in Arabic (see Zuraiq and Zhang 2006) and for a brief discussion on English assimilation (see O' Connor 1967).

A. Arabic /n/ assimilates in place to a following labial or velar stop /b, m, k, g/.

- |     |                |                         |                   |
|-----|----------------|-------------------------|-------------------|
| (1) | /ti:n baladi/  | [ti: <b>m</b> baladi]   | 'local fig'       |
| (2) | /den majjit/   | [de <b>m</b> majjit]    | 'a dead loan'     |
| (3) | /laban kaθiir/ | [laban <b>ŋ</b> kaθiir] | 'a lot of yogurt' |
| (4) | /dʒibin gaasi/ | [dʒibi <b>ŋ</b> gaasi]  | 'solid cheese'    |

English /n/ changes to /m/ before /m/ or /b/. And / n / changes to /ŋ/ before / k / or / g /.

- |     |                |                             |
|-----|----------------|-----------------------------|
| (5) | /gone back/    | [g <b>o</b> me back]        |
| (6) | /iron man/     | [i <b>r</b> o <b>m</b> man] |
| (7) | /ten men/      | [t <b>e</b> m men]          |
| (8) | /in camera/    | [i <b>ŋ</b> camera]         |
| (9) | /action group/ | [actio <b>ŋ</b> group]      |

B. Arabic coronal plosives /t, d/ assimilate in place to a following labial plosive.

- |      |                 |                                   |                       |
|------|-----------------|-----------------------------------|-----------------------|
| (10) | /samaad baladi/ | [s <b>a</b> ma <b>a</b> b baladi] | ‘national fertilizer’ |
| (11) | /bet baladi/    | [b <b>e</b> b baladi]             | ‘a traditional house’ |

English /d/ changes to /b/ before /m/ or /b/ and /t/ changes to /p/ before /m/ /b/ or /p/

- |      |              |                               |
|------|--------------|-------------------------------|
| (12) | /good boy/   | [g <b>o</b> o <b>b</b> boy]   |
| (13) | /blood bank/ | [b <b>l</b> oo <b>b</b> bank] |
| (14) | /white bird/ | [whi <b>p</b> e bird]         |

C. Arabic stridents, alveolars assimilate to palato-alveolars:

- |      |                |                        |                    |
|------|----------------|------------------------|--------------------|
| (15) | /kaas faraab/  | [/kaa <b>f</b> faraab] | ‘a glass of juice’ |
| (16) | /naas farefeh/ | [naa <b>f</b> farefeh] | ‘honest people’    |

English /s / changes to /ʃ/ before /j/ or / j / followed by a rounded vowel sound:

- |      |                 |                          |
|------|-----------------|--------------------------|
| (17) | /nice shoes/    | [ni <b>ʃ</b> e shoes]    |
| (18) | /space shuttle/ | [spa <b>ʃ</b> e shuttle] |

### 3. Hypothesis

A number of predictions influenced the methodological design of the study. First, it was hypothesized that Arab learners, regardless of their fluency in speaking English, are capable of assimilating consonants at word edges. If a phonological phenomenon exists in L1, it may mean applying it in L2 simply by using automatic transfer of features in L1 into L2 utterances. Second, it was predicted that learners will not employ consonantal assimilation in the slow reading since both languages, Arabic and English, use the process more evidently in fast reading but not in slow reading. In fast rate speech, acoustic changes are more obvious due to coarticulation effect. During slow reading, coarticulation does not occur.

### 4. Method

#### 4.1. Participants

Participants were eight females. Six participants were learners of English as a foreign language at Hashemite University (HU) / Jordan. One participant was a native English speaker from the Midwest (USA) and the other participant was

British. Both native speakers of English were on a study-abroad program at HU. The average age of native speakers of English was 24 years, and the average age of nonnative speakers of English was 20 years. Participants were assigned to four groups according to their fluency: native speakers, advanced speakers, intermediate, and beginner speakers. All nonnative speakers started learning English at the age of eleven at public schools and they have not learnt any foreign language but English. The nonnative speakers were rated by a trained linguist who is a native speaker of English.

#### 4.2. Design of the study

The two native speakers (NSs) constituted the control group, and 6 nonnative speakers (NNSs) formed the test group. Both native speakers of English and nonnative speakers of English read a list of twenty four sentences: sixteen sentences included words without assimilation and eight sentences included noun phrases with assimilation. Sentences were randomized. The examples of assimilation were the clusters [(n, b) - (d, b) - (s, ʃ) - (n, m)]. Therefore, 24 utterances were read by each participant (See appendix A).

#### 4.3. Procedure, task, and analysis of data

All participants were asked to read the list of carrier sentences two times [repeat *target phrase* twice]. The first reading was at slow speech rate for all sentences and the second reading was fast speech rate again for all sentences, as well.

The recording took place at a quite carpeted room at Department of English at the Hashemite University. A Solid State Recorder Marantz 760 and a cardioid microphone were used for rerecording. The readings were recorded and then transferred from card into a PC. None of the participants had previous information about the aim of the study

A native speaker of English listened to all stimuli randomly and decided on cases of assimilation. Also, acoustic information was inspected by using Praat (Boersma & Weenink 1992) software for speech Analysis.

### 5. Results

Table 1: Number of successful tokens of assimilation divided by total number of tokens.

Participants	Reading 1	Reading 2
<b>American Speaker</b>	<b>1/8</b>	<b><u>7/8</u></b>
<b>British Speaker</b>	<b>1/8</b>	<b><u>6/8</u></b>
Advanced 1	0/8	<u>2/8</u>
Advanced 2	0/8	<u>1/8</u>
Intermediate 1	0/8	<u>0/8</u>
Intermediate 2	0/8	<u>0/8</u>
Beginner 1	0/8	<u>1/8</u>
Beginner 2	0/8	<u>0/8</u>

As predicted, table 1 indicates that both NSs and NNSs normally did not assimilate consonants in English phrases at word edges when reading was slow. The assimilation phenomenon usually did not occur in slow reading since there was no consonant cluster to break, and effects of coarticulation were not present. In the second reading, NS, as predicted, did assimilate consonants at word edges regressively since there was a need to break such a cluster in fast/casual English speech. This is true for both speakers of American English and British English. Unpredictably, NNSs did not assimilate targeted consonants in English phrases at word edges. The study predicted that NNSs would assimilate consonants in the fast reading since such a process does exist in their L1 (Arabic). The results show that NNSs did not succeed in producing patterns that are analogous to NSs nor to the patterns already established in their L1.

## **6. Discussion**

The results of the study indicated that the presence of a phonological process in L1 did not necessarily propose an identical phonological access in L2. Assimilation rules were comparable in both Arabic and English, but Arab learners of English did not produce the anticipated patterns regarding consonantal assimilation. A possible account for not employing assimilation rules that already existed in L1 may be linked to the notion of “simpler version” (Ferguson 1971). NNSs opted to produce less detailed versions by basically using an economical structure where learners did not have to use each and every rule they already know - neither from their L1 nor from L2.

Good perception of assimilated forms is predicted to be translated into correct performance. However, Foreign Learners did not perceive assimilated consonants in L2 basically because they restored assimilated phonemes into their unassimilated and original form. Phonemic restoration (Warren 1970; Warren & Warren 1970; Samuel 1981) does not only occur in L2 but also in L1. Listeners, either native or nonnative, tend to put underlying phonemes back together even if they did not hear some of them. Warren (1970) found that listeners in L1 reported segments that were not present in the original message. When subjects were told that some sounds were missing from the stimuli, they were not able to name these sounds. Phonemic restoration occurs when lots of other more essential information is being processed. Perceivers then use high-order contextual factors.

NNSs didn't apply assimilation basically because they did not perceive assimilation perfectly and then they were more likely to abandon linguistic conformity by resorting to unassimilated forms of utterances which were “less elaborate” and by being nearer to the fundamental and neutral structure (Krzewowski 1976). This may be related to issues connected to lexical access where accessing words and phonological information forming them in the mental lexicon required fixing the whole structure regardless of partial received input. It is not correct to simply suggest that learners always transfer features from L1 into L2 Automatically.

Another possible explanation which is sometimes reported by learners themselves, and consistent with faithfulness constraints on phonological structure of words, is the notion that nonnative learners preferred to produce full forms which were faithful to the underlying input thinking that identical segments demonstrated good learning of segments. In a number of studies (Flege 1980; Flege and Bohn 1989; Fokes and Bond 1989; and Teng 2001) learners of English as foreign language did not reduce unstressed vowels, for instance, into English schwa.

### 6.1. Educational implication

CA is an approach that focuses on teaching more than learning. Phonological assimilation rules must be included in the language courses and must be emphasized by course designers. Moreover, language teachers should push learners to pay more attention to assimilation rules while perceiving and producing English. Arab learners of English as a second/ foreign language have to have a direct technique in learning phonological assimilation rules of English. In other words, explicit teaching and training on assimilation may result in a successful production. Direct teaching/learning of phonological rules in the L2 will possibly improve the correct production of assimilated forms at word edges.

### 6.2. Theoretical implications:

The results are not in favor of Contrastive Analysis assertion, which entails that rules in L1 corresponding perfectly with rules in L2 result in no contrast. And hence these two rules must entail alike operations in L1 and L2. The results indicate that the strategies of choosing simpler structures (versions), which require fewer processes, are in favor over more demanding processes. If phonological assimilation which is one of the established universal properties conspiring against consonant clusters in many L1s such Arabic and English fails to work in L2 structures, then there is a necessity to understand which processes are stronger, and hence outranks, such a universal process.

Transferring L1 features may be limited to cases where main processes are involved. But when optional and less contrastive processes are involved, learners choose not to worry about non-phonemic burden of phonological rules/constraints. With this situation, L1 process may not be related to the success or failure of L2 perfect utterances.

CA is originated on the hypothesis that L2 learners will transfer features of their L1 to their L2 utterances. Learners familiar with a certain feature do not automatically employ positive transfer to L2. The issue of optional processes requires more investigation since we want to draw a line between learners' real competencies and the choices they make for economical purposes.

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**APPENDIX A.****1. List of all sentences and sentences with predicted assimilation are underlined [17-24]**

1. Repeat gone twice
2. Repeat seven twice
3. Repeat space twice
4. Repeat good twice
5. Repeat ten twice
6. Repeat sun twice
7. Repeat nice twice
8. Repeat good twice
9. Repeat back twice
10. Repeat mountains twice
11. Repeat shuttle twice
12. Repeat boy twice
13. Repeat men twice
14. Repeat burn twice
15. Repeat shoes twice
16. Repeat buy twice
<b>17. Repeat gone back twice</b>
<b>18. Repeat seven mountains twice</b>
<b>19. Repeat space shuttle twice</b>
<b>20. Repeat good boy twice</b>
<b>21. Repeat ten men twice</b>
<b>22. Repeat sun burn twice</b>
<b>23. Repeat nice shoes twice</b>
<b>24. Repeat good buy twice</b>

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