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Dialect and Standard in Second Language Phonology: The Case of Arabic*

Abstract

This paper shows that students who learn Standard Arabic before a dialect take 'an etymological trip' in learning the phonology of the dialect in question. The paper also discusses instructional implications related to the teaching of foreign languages in general and Arabic in particular, arguing that learners should be exposed to dialects early on. This should be especially the case if the ultimate aim is to use the target language in face-to-face communication and not only to handle printed material.

1. Introduction

One assumption in language acquisition is that the lexicon and the phonology of the target language are learned simultaneously (Tesar et al. 2003: 477; Prince & Tesar 1999: 8). Whereas this is true for first language acquisition and many cases of second language acquisition, the assumption rarely applies to learning an Arabic dialect as a foreign language (outside the country where the dialect – or Arabic in general – is spoken). Most learners of Arabic learn Standard Arabic (hereafter SA) first. SA, however, is never used in everyday interactions and transactions; what native speakers use is a dialect (Levantine, Egyptian, Gulf, etc.), and SA is mainly used in education (e.g., printed material, formal lectures) and some forms of media (e.g., newspapers, news broadcasting). This is the main reason why some learners of Arabic as a foreign language[1] sign up for courses that

* This paper was presented in the Second Language Research Forum (SLRF) 2005 at Teachers College, Columbia University, New York, and at the Thursday Seminar (Fall 2005) in the Linguistics Program at University of Florida in Gainesville. Many thanks are owed to Caroline Wiltshire for her invaluable support and guidance. Also I would like to thank John McCarthy and two SKY-JoL reviewers for their feedback. All errors are mine.

[1] The language learners I have in mind here are university students.

teach a certain dialect after having learnt SA for a period of time, usually after three or four courses.

This implies that learners of an Arabic dialect who have already started with SA come to the dialect with a set of underlying forms that are different from those of the native speaker who normally learns a dialect first and then moves to SA in formal education. This paper shows that in the process of learning a dialect as a foreign language, the learner who comes from SA embarks on an etymological journey, a journey that ends with a grammar that is, not only different from, but also more demanding than the grammar that the native speaker has. I also argue that learners of Arabic whose purpose is to be able to use the language in face-to-face communication with native speakers should be exposed to a dialect early on in order to avoid this confusion. I use Egyptian Cairene Arabic (hereafter CA) to illustrate, focusing on the leftmost edge of Stem-V (FIVE) sound verbs;[2] the analysis is developed in the framework of Optimality Theory (Prince & Smolensky 1993).

The paper is structured in this way: Section 2 delineates the characteristics of the leftmost edge of the prosodic word in both SA and CA. Section 3 highlights the case of Stem-V verbs in both dialects. Section 4 deals with first and second language acquisition of CA Stem-V verbs. Section 5 discusses the implications of the analysis on classroom instruction and language programs. Section 6 summarizes the analysis and offers suggestions for further research.

2. SA vs. CA: The leftmost edge of the prosodic word

Typologically, SA is a language that does not allow consonant clusters or onset-less syllables in the output; all output syllables are either CV or CVC. The same applies to CA, except that this dialect allows a complex coda at the right edge of the prosodic word; e.g., [ʔit.kal.li**mt**] *I talked*. The focus of this paper will be on onsets at the left edge of the word. Codas, as well as variations in vowels between SA and CA, are not pertinent to the discussion at hand and, therefore, they will not be accounted for. Table 1

[2] 'Sound' here means that the verb has three consonants (excluding glides) in its root form; e.g. /ktb/ in the verb /katab/ meaning 'to write'. Compare to /wʒd/ in the verb /waʒad/ meaning 'to find'. A stem is also known as *wazn*, *binjan*, or *conjugation* (see McCarthy 2003).

shows how the leftmost edge of the prosodic word is the same in SA and CA. Compare to Levantine Arabic which allows consonant clusters at the leftmost edge of the word.

SA	CA	Compare to Levantine Arabic	Gloss
muʕallim	miʕallim	mʕallim	teacher/master
kabiir	kibiir	kbiir	big

Table 1.

In the event of an illegal onset, both SA and CA resort to epenthesis as a repair strategy. Therefore, if the underlying form begins with a consonant cluster, such as /CCVC/, [ʔi] or [ʔu] (the latter basically appears in SA) is inserted at the beginning of the prosodic word so that /CCVC/ surfaces as [CVC.CVC], or more precisely [ʔVC.CVC]. The case of the imperative mood is a good example and is discussed in details below.

2.1 The leftmost edge of verbs in the imperative mood: A general account

Take as an example the SA Stem-I verb [**darasa**] (to study) and Stem-II verb [**darrasa**] (to teach). Both forms are by default perfective, 2nd Sg Mas.[3] Descriptively (though not necessarily diachronically), the imperative mood is based on the imperfective form of the verb, namely, [ja-drusu] (he studies / is studying) and [ju-darrisu] (he teaches / is teaching). Tables 2 and 3 show the imperfective forms of each verb with the 2nd person prefixes – since this is the person normally used in the imperative mood.

[3] Abbreviations: Sg: singular; Pl: plural; Fem: feminine; Mas: masculine; IND: indicative

ta - **drus** - **Ø** **u** Imperfect 2nd prefix - study MAS IND	**ta** - **drus** - **ii** **n** Imperfect 2nd prefix - study FEM IND
ta - **drus** - **aa** **n** Imperfect 2nd prefix - study DUAL IND	**ta** - **drus** - **uu** **n** Imperfect 2nd prefix - study Pl-MAS IND
ta - **drus** - **na** Imperfect 2nd prefix - study Pl-FEM-IND	

Table 2. – SA imperfective forms for /drus/ with 2nd-person prefixes

tu - **darris** - **Ø** **u** Imperfect 2nd prefix - study MAS IND	**tu** - **darri** - **ii** **n** Imperfect 2nd prefix - study FEM IND
tu - **darris** - **aa** **n** Imperfect 2nd prefix - study DUAL IND	**tu** - **darris** - **uu** **n** Imperfect 2nd prefix - study Pl-MAS IND
tu - **darris** - **na** Imperfect 2nd prefix - study Pl-FEM-IND	

Table 3. – SA imperfective forms for /darris/ with 2nd-person prefixes

In order to form the imperative, the language user has to

- drop the imperfective prefix;

- drop the IND case marker – to be more precise, replace the overt IND marker, /n/ or /u/, by the jussive marker, /Ø/ (Younes 1999: 287).

Therefore, the underlying forms of the imperative paradigms of *to study* and *to teach* are:

Number and Gender	***Study***	***Teach***
Sg Mas	drus	darris
Sg Fem	drus-ii	darris-ii
Dual Mas/Fem	drus-aa	darris-aa
Pl Mas	drus-uu	darris-uu
Pl Fem	drus-na	darris-na

Table 4. – Underlying forms for SA imperative study and teach

The members of the imperative paradigm of *to teach* do not vary in the output since all the forms begin with a legal onset. The paradigm members

of *to study*, on the other hand, begin with a consonant cluster /dr/. As a repair strategy, [ʔu] is inserted at the beginning of every member, so the surface forms are: [ʔudrus], [ʔudrusii], etc. The reason not only a vowel is inserted is because SA does not allow onsetless syllables.[4] This process applies almost exactly in CA, except that [ʔi] is usually used instead of [ʔu].[5]

2.2 The leftmost edge of verbs in the imperative mood: An OT account

In OT terminology, both dialects have a high-ranking constraint against complex onsets. The problem of /drus/ is solved by violating the two low-ranking constraints DEP-IO(C) and DEP-IO(V), leading to the optimal output [ʔudrus], as Tableau 1 shows. [udrus] is also ruled out as the result of a high-ranking ONSET:

- ONSET → A syllable must have an onset.
- *[CC → No complex onsets are allowed.
- DEP-IO(C) → No epenthesis of consonants is allowed.
- DEP-IO(V) → No epenthesis of vowels is allowed.

/drus/	ONSET	*[CC	DEP-IO(C)	DEP-IO(V)
☞ ʔudrus			*	*
udrus	*!			
drus		*!		

Tableau 1. – COMPLEX ONSETS – REPAIR STRATEGY (1)

Other outputs are hypothetically possible: [*rus] - [*dirus] - [*dus]. All are sub-optimal, however, due to the high ranking constraints: MAX-IO and CONTIGUITY-IO, as Tableau 2 below illustrates:

[4] The glottal stop /ʔ/ inserted as a repair strategy is different from the one that starts out in the underlying form; e.g. /ʔam al/ (hope). For more details, see Broselow (1979) and Gadalla (2000). See also Wiltshire (1998) for an analysis of the behavior of epenthetic /ʔ/.

[5] In SA, [ʔi] is inserted when the first stem vowel (the vowel between the 2nd and 3rd consonants) is [i] or [a] (e.g. [ʔism aʕ] *listen!*. [ʔu] is inserted when the stem vowel is [u] (e.g. [ʔudrus]) (Younes 1999: 287).

- MAX-IO → No deletion of segments is allowed.
- CONTIGUITY-IO → "No medial epenthesis or deletion of segments" is allowed. (Kager 1999: 250).

These two constraints rank higher than DEP-IO(V) and DEP-IO(C). [6]

/drus/	MAX-IO	CONTIGUITY-IO	DEP-IO(C)	DEP-IO(V)
☞ ʔudrus			*	*
dirus		*!		*
rus	*!			
dus	*!	*		

Tableau 2. – COMPLEX ONSETS – REPAIR STRATEGY (2)

Tableaux 1 and 2 put together show the following ranking:

ONSET, MAX-IO >> *[CC, DEP-IO(C), CONTIGUITY-IO, DEP-IO(V)

drus-ii	ONSET	*[CC	CONTIGUITY-IO	MAX-IO	DEP-IO(C)	DEP-IO(V)
☞ ʔudrus					*	*
udrus	*!					*
drus		*!				
dirus			*!			*
dus			*!	*		

Tableau 3. – /drus/ to [ʔudrus]

Notice, however, that /darris/ *teach* surfaces faithfully as [darris] by the current ranking of the constraints, as Tableau 4 shows. The insertion of [ʔi] is only a repair strategy in case of complex onsets. If there is no violation of the high-ranked ONSET and *[CC, no overkill is possible.

[6] It might be more precise to rephrase DEP-IO(C) into DEP-IO(ʔ) since, to my knowledge, [ʔ] is the only segment that can be epenthesized in Arabic.

darris-ii	ONSET	*[CC	CONTIGUITY-IO	MAX-IO	DEP-IO(C)	DEP-IO(V)
☞ darris						
ʔidarris					*!	*!

Tableau 4. – from / darris/ to [darris]

In the following section, I use the above analysis to study the behavior of Stem-V verbs in both SA and CA.

3. The case of stem-V verbs

In SA, Stem-V verbs have the underlying form /$t_1a_2C_3a_4C_5C_6a_7C_8$/or the more common Arabic *wazn* 'stem' /tafaʕʕal/; e.g. /takallam/ *to speak*, /taðakkar/ *to remember*, /taʕallam/ *to learn*. Let us assume, with the non-native SA speaker who is learning CA, that CA has the same underlying form; this might or might not be true diachronically, but it must seem true to the CA learner who has learned SA first. Based on the analysis in section 2, we can predict that the left edge of Stem-V verbs will have the same output in both SA and CA. Yet, this is not the case. As the following table of the verb /takallam/ *to speak* shows, the members of the CA perfective paradigm of Stem-V verbs delete the first vowel in the SA form and insert [ʔi] at the beginning of the prosodic word, a behavior accounted for in section 2.2 as a repair strategy in case the verb begins with a consonant cluster.

Person/Number/Gender		SA PERFECTIVE	CA PERFECTIVE
1st	Sg Mas/Fem	takallam-tu	ʔi-tkallim-t
	Pl Mas/Fem	takallam-naa	ʔi-tkallim-naa
2nd	Sg Mas	takallam-ta	ʔi-tkallim-t
	Sg Fem	takallam-ti	ʔi-tkallim-ti
	Dual Mas/Fem	takallam-tum a	
	Pl Mas	takallam-tum	ʔi-tkallim-tuu
	Pl Fem	takallam-tunna	
3rd	Sg Mas	takallam-a	ʔi-tkallim
	Sg Fem	takallam-at	ʔi-tkallim-it
	Dual Mas	takallam-aa	
	Dual Fem	takallam-ataa	
	Pl Mas	takallam-uu	ʔi-tkallim-uu
	Pl Fem	takallam-na	

Table 5.[7] – Stem-V verb /takallam/ in the perfective mood: SA vs. CA

This apparently unnecessary deletion and epenthesis in CA Stem-V verbs is due to the fact that Stem-V verbs do not have the same underlying form in both dialects. The underlying form of Stem-V verbs in SA is /$t_1a_2C_3a_4C_5C_6a_7C_8$/ or /tafaʕʕal/ as we mentioned earlier. Yet, the same stem has the underlying form /$t_1C_3a_4C_5C_6a_7C_8$/ or /tfaʕʕal/ in CA (Gadalla 2000: 44-45). The consonant cluster at the beginning of the CA input makes the epenthesis of [ʔi] in the output necessary, just as it does with the imperative /drus/.

Now we turn to the issue of language acquisition.

4. Acquisition of stem-V verbs in CA

This section delineates how learners acquire CA Stem-V verbs. We first begin with native speakers acquiring their own dialect. Then we turn to foreign language learners of CA who have already had formal SA instruction.

[7] The gaps indicate that the forms are not used in the dialect.

4.1 First language acquisition

Ideally, native speakers of CA should be able to deal with Stem-V verbs the same way they deal with the imperative form /drus/ *study*. A native speaker is never exposed to /tafaʕʕal/ until s/he starts going to school (the assumption here is that it is highly unlikely that the form /tafaʕʕal/ as used in the news – or other forms of media that use SA – will mean anything to a pre-school child). As Kager (1999) states, "if no alternations occur in a morpheme's shape, the learner will never postulate an input deviating from the actual observable output form. Due to *Lexicon Optimization*, the input simply equals the output unless there is reason to deviate" (414). Therefore, the native speaker "adopts, as the underlying form, precisely the surface analysis of the overt form that has been heard" (Prince & Tesar 1999: 8), and s/he simply applies the same ranking of constraints that apply to /drus/. Tableau 5 shows how this is possible:

tkallim	ONSET	*[CC	CONTIGUITY-IO	MAX-IO	DEP-IO(C)	DEP-IO(V)
☞ ʔitkallim					*	*
tkallim		*!				
itkallim	*!					*
takallim			*!			*
kallim				*!		

Tableau 5. – from CA /tkallim/ to [ʔitkallim]

The foreign language learner, however, does not have such a smooth path towards the optimal output, as the following section shows.

4.2 Second language acquisition

How do non-native speakers coming into CA with SA background deal with the fact that what they know as /tafaʕʕal/ is actually realized as [ʔitfaʕʕal]? To such learners, this is considered a 'mapping failure' which results with either modifying the grammar or modifying the lexicon. According to Tesar et al. (2003: 481-2), "when the learner encounters a mismatch between the data and their hypothesized grammar, the learner should first attempt to modify the ranking. If modifying the ranking cannot resolve the problem, only then will the learner attempt to modify the

lexicon." The following analysis shows that there is actually a grammar that can account for the data of the non-native speaker and that this grammar is learnable.

4.2.1 From SA input to CA output: The grammar

In order to understand the difference between the SA perfective paradigm of Stem-V verbs and its CA counterpart (as exemplified in [takallam-a] and [ʔitkallam] in Table 5 above), we must also examine the imperfective paradigms in both dialects. In the imperfective mood, the left edge of the verbs is almost the same in both paradigms, except that the CA forms again lack the first vowel in the stem, as Table 6 shows.

Person/Number/Gender		SA IMPERFECTIVE	CA IMPERFECTIVE
1st	Sg Mas/Fem	ʔa-takallam-u	ʔa-tkallim
	Pl Mas/Fem	na-takallam-u	ni-tkallim
2nd	Sg Mas	ta-takallam	ti-kallim
	Sg Fem	ta-takallam-iin	ti-tkallim-i
	Dual Mas/Fem	ta-takallam-aan	
	Pl Mas	ta-takallam-uun	ti-tkallim-uu
	Pl Fem	ta-takallam-na	
3rd	Sg Mas	ja-takallam-u	ji-tkallim-uu
	Sg Fem	ta-takallam-u	ji-tkallim
	Dual Mas	ja-takallam-aan	ti-tkallim
	Dual Fem	ta-takallam-aan	
	Pl Mas	ja-takallam-uun	ji-tkallim-uu
	Pl Fem	ja-takallam-na	

Table 6. – Stem-V verb /takallam/ in the imperfective mood: SA vs. CA

The output forms in both dialects have legal onsets. The only difference is that the CA form is shorter (three syllables) compared to the SA form (four syllables). To the CA learner who comes from SA, this may seem as a tendency in CA to use vowel deletion in order to make the word shorter. This observation becomes a generalization once the learner is exposed to other CA prosodic words that display the same tendency dialect-internally (i.e., independently from SA). Here are some examples:

(1a) /ʃirib/ → [ʃirib] 'he drank';
(1b) /ʃirib-u/ → [ʃiribu] / [*ʃiribu] 'they drank' (also, 'he drank it' (mas))
(Omar 1973: 31)

(1c) /jaaxud/ → [jaaxud] 'he takes';
(1d) /jaaxud-u/ → [jaxdu] / [*jaaxudu] 'they take' (also, 'he takes him/ it' (mas))

(1e) /kaatib/ → [kaatib] 'a writer' (mas);
(1f) /kaatib-a/ →[katba] / [*kaatiba] 'a writer' (fem)
(Gadalla 2000: 14)[8]

Based on such examples, the learner arrives at the following conclusion: If the size of a word exceeds two syllables, CA tries to shorten it, as long as this shortening involves neither of the following:

- deletion of a consonant or a violation of MAX-IO(C)
- forbidden onset clusters or a violation of *[CC

In the SA imperfective mood of Stem-V verbs, a verb is made up of four syllables without the case ending: $C_1V_2–C_3V_4C_5V_6C_7C_8V_9C_{10}$; e.g., [ʔa-takallam] syllabified as [ʔa.ta.kal.lam] *I speak*. The only way to shorten the word without violating MAX-IO(C) or *[CC is by deleting the first vowel in the stem; thus, / $C_1V_2–C_3V_4C_5V_6C_7C_8V_9C_{10}$/ surfaces as [$C_1V_2C_3.C_5V_6C_7.C_8V_9C_{10}$]; e.g., /ʔa-takallam/ → [ʔat.kal.lam] instead of [ʔa.ta.kal.lam]. The deletion of a vowel satisfies WD-BIN:

- WD-BIN → the prosodic word must NOT be bigger than two syllables.[9]

[8] McCarthy (2003: 29) shows that vowel deletion in Iraqi Arabic can take place to satisfy WSP (Weight-to-Stress Principle) so as to make a syllable heavy; e.g. /fiʔalaw/ → [fiʔ .law] (the 1st syllable is heavy) instead of [fi.ʔa.law](the 1st syllable is light). The 2nd and 3rd examples, [jaaxud] and [kaatib] show that the first syllable is already heavy and that vowel deletion in CA takes place to make the word shorter, satisfying WD-BIN.

[9] WD-BIN means that words made up of more than two syllables must satisfy the minimal word constraint. Words that are made up of one syllable are not affected by this constraint. In this sense we can divide WD-BIN into WD-BIN$^+$ and WD-BIN$^–$

WD-BIN ranks higher than MAX-IO(V) and CONTIGUITY-IO. This ranking allows for a medial deletion of a vowel in order to make the word shorter. It also ranks higher than DEP-IO(V) and DEP-IO(C), which allows the epenthesis of [ʔi] in the perfective mood as we will see shortly.

However, WD-BIN ranks lower than ONSET, *[CC, and MAX-IO(C) so that word size is not satisfied at the expense of illegal onsets or deletion of consonants.

ʔa-takallim	ONSET	*[CC	MAX-IO (C)	WD-BIN	CONTIGUITY-IO	MAX-IO(V)	DEP-IO(C)	DEP-IO(V)
☞ ʔat.kal.lim				*	*	*		
ʔa.ta.kal.lim				**!				
ʔta.kal.lim		*!		*		*		
ʔtkal.lim		*!				**		

Tableau 6. – from SA /ʔa-takallim/ to CA [ʔat.kal.lim]: interaction with WD-BIN

WD-BIN is a gradient constraint as shown in Tableau 6. Both the first and the second candidates violate WD-BIN, yet the first is optimal because it violates the constraint by only one syllable.

Therefore, deletion in the *imperfective* mood takes place to satisfy WD-BIN. Yet, there is no reason why the same phenomenon happens in the *perfective* mood. In other words, the SA /takallam t-u/ must be realized in CA as [*takallam t]; the deletion of the first vowel only results with an undesirable onset (e.g., [tkallam t]) which is repaired by violating DEP-IO to get the optimal output [ʔitkallam t]; both the expected [*takallam t] and the actual [ʔitkallam t] are three syllables each; so the whole deletion-insertion process serves no purpose, which is against the economy property as stated by Prince and Smolensky (1993: 27):

> Economy Property of Optimality Theory: Banned options are available only to avoid violations of higher-ranked constraints and can only be used *minimally.*

The banned option [ʔitkallam t] does not satisfy the higher-ranked constraint WD-BIN and, therefore, should not be optimal. Yet, it is the output that native speakers use. The following section tries to explain why this is so.

4.2.1.1 The optimal paradigm theory and CA stem-V verbs

The apparently unnecessary alternation in the perfective paradigm of the CA Stem-V verbs can be explained in McCarthy's (2003) framework of Optimal Paradigm Theory (hereafter OP) which is an expansion of Benua's (1997) Transderivational Correspondance Theory (TCT) and Kenstowicz's (1996) Uniform Exponence (UE).

According to McCarthy, "a paradigm is a set of inflected forms based on a common lexeme or stem." In OP, the candidates of a paradigm strive to have similar phonological forms in accordance with output-output "intraparadigmatic correspondence relation." Alternation takes place as long as OP-Faithfulness constraints are not outranked by other Markedness or IO-Faithfulness constraints that resist change (McCarthy 2003: 1-2).

The question is: which output form do the other candidates strive to resemble? McCarthy calls this form "the attractor" and defines it as the candidate that satisfies the highest ranking markedness constraints. This means that the attractor is the least marked, and the other candidates "are forced to resemble it by visibly active [OP]-faithfulness constraints," the result of which is usually "overapplication-only" (McCarthy 2003: 6-8). Overapplication means that some members of the paradigm experience the same alternation as the attractor although they lack the environment for it (see Kager 1999: 198).

In CA, the highest ranking markedness constraints are ONSET, MAX-IO(C), *[CC and WD-BIN. In the perfective paradigm, WD-BIN is indecisive since it is equally violated by the optimal/less faithful candidate [ʔitkallam t] and the suboptimal/more faithful candidate [*takallam t], both being composed of three syllables each. The other three constraints are equally satisfied by both candidates. Faithfulness must have the final say between them, which contrary to facts seems to favor the suboptimal [*takallam t].

In the imperfective paradigm, however, the optimal/less faithful candidate [ʔat.kal.lim] satisfies WD-BIN better than does the suboptimal/more faithful [ʔa.ta.kal.lam]. Both candidates equally satisfy the rest of the high ranking constraints: ONSET, MAX-IO(C) and *[CC. This makes [ʔat.kal.lim] – or any member of the imperfective paradigm – the winner, the least marked, and … the attractor; the other members of the paradigm are attracted to it by trying to resemble the stem [tkallim] ([ʔa] is a morpheme that varies according to aspect and agreement). The OP-

faithfulness constraint that the perfective paradigm tries to satisfy is: DEP-OP(V):

- DEP-OP(V) → Let A be the paradigm attractor and B a paradigm candidate. Every vowel in B must have a corresponding vowel in A.

This constraint prevents /takallam t/ from surfacing as [*takallam t] since the first vowel in the output does not have a correspondent in the attractor [tkallim].

Now let us see how this constraint interacts with the other constraints. As a reminder, we have to bear in mind that for the learner the underlying form of the CA Stem-V verb *to speak* is most likely the SA /takallam/. Another point is worth noting before we proceed: In OP, the "violations of a candidate paradigm are the summed […] violations of its individual members" (McCarthy 2003: 7-8). In other words, if five members in a paradigm violate a constraint, the result is five violations.

Here is a list of the paradigm members of /takallam/ followed by a tableau that illustrates the above OP analysis:

CA IMPERFECTIVE

ʔa-tkallim, ni-tkallim, ti-tkallim, ti-tkallim-i, ti-tkallim-uu, ji-tkallim, ti-tkallim, ji-tkallim-uu
Prefixes: {ʔa - ni - ti - ji}
Suffixes: {Ø - i - uu}

CA PERFECTIVE

ʔi-tkallim-t, ʔi-tkallim-na, ʔi-tkallim-t, ʔi-tkallim-ti, ʔi-tkallim-tuu, ʔi-tkallam, ʔi-tkallim-it
ʔi-tkallim-uu
NO Prefixes
Suffixes: {Ø - t - na - it - uu - ti - tuu}

In Tableau 7 below, the 16 members of the winning paradigm (a) violate WD-BIN 24 times: 8 three-syllable members with Ø or C-suffix cause one violation each, the total of which is 8. The other 8 members are four syllables each since they have a V or CV-suffix; these cause two violations each, the total of which is 16. 8+16=24. Paradigm (a) does not violate

DEP-OP(V) since all the members are faithful to the imperfective attractor. All the members are unfaithful to the input /takallam/ since all of them undergo deletion of the first vowel in the stem.

Paradigm (b) has the 8 members of the perfective mood faithful to the input since – as we mentioned earlier – the vowel deletion and [ʔi]-epenthesis is apparently an overkill, resulting in no gain as to the size of the word. This means that the outputs of these 8 members are unfaithful to the attractor, resulting in 8 violations of DEP-OP(V). Paradigm (b) violates WD-BIN 24 times as well (the same math done for Paradigm (a) applies to Paradigm (b)). The paradigm loses because of the OP-faithfulness constraint DEP-OP(V) which ranks higher than IO-faithful constraint MAX-IO(V).

	{ʔa - ni - ti - ji} + takallam + {Ø - i - uu - t - na - it - uu - ti - tuu}}	WD-BIN	DEP-OP(V)	MAX-IO(V)
Attractor: tkallim	a) ☞ ʔa-tkallim, ni-tkallim, ti-tkallim, ti-tkallim-i, ti-tkallim-uu, ji-tkallim, ti-tkallim, ji-tkallim-uu, ʔi-tkallim-t, ʔi-tkallim-na, ʔi-tkallim-t, ʔi-tkallim-ti, ʔi-tkallim-tuu, ʔi-tkallam, ʔi-tkallim-it, ʔi-tkallim-uu	24		16
	b) ʔa-tkallim, ni-tkallim, ti-tkallim, ti-tkallim-i. ti-tkallim-uu, ji-tkallim, ti-tkallim, ji-tkallim-uu takallam-t, takallam-na, takallam-t, takallam-ti, takallam-tuu, takallam, takallam-it, takallam-uu	24	8	8

Tableau 7. – from SA input to CA output: Optimal Paradigm

If we combine the ranking in Tableau 6 with the ranking in Tableau 7, we get the following grammar:

ONSET,	***[CC,**	**MAX-IO(C) >>**
WD-BIN >>	**DEP-OP(V) >>**	**CONTIG-IO,**
MAX-IO(V) >>	**DEP-IO(C),**	**DEP-IO(V)**

This grammar accounts for the CA outputs based on the SA input. The next step is to explain how the learner arrives at the optimal CA output. The following section provides an analysis of this process based on Prince and Tesar's (1999) Biased Constraint Demotion Approach (BCD) and its further application by Tesar (2002), Tesar et al. (2003), and McCarthy (2005).

4.2.2 From SA input to CA output: Learning through BCD

The learner comes to CA with a lexicon and starts comparing her/his underlying forms with the outputs s/he comes across in the dialect. Based on these outputs, the learner forms a "list of winner-loser pairs" called the "*mark-pair data*" or the "*Support*."

Lexicon	Winner ~ loser
takallam-t	ʔit.kal.lam t~ ta.kal.lam t
ta-takallam	tit.kal.lam ~ ta.ta.kal.lam

Table 7. – the SA speaker's Support

Having formed the Support, the learner uses Biased Constraint Demotion (BCD) to modify the grammar. Here is how BCD works (Prince and Tesar 1999):

1. The learner identifies the constraints that favor winners only. For example, in Tableau 8 markedness constraint M2 and faithfulness constraint F1 favor winners only. (An 'L' in the Support tableau means that the constraint favors the loser; A 'W' means that the constraint favors the winner.)

Win ~ lose	M1	M2	F1	F2
A ~ B	L		W	
C ~ D	L	W		L
E ~ F	W			W

Tableau 8.

2. If a markedness constraint and a faithfulness constraint favor winners only, the learner ranks the markedness constraint high, postponing the ranking of the faithfulness constraint as long as possible. In Tableau 8, M2 is ranked high while the ranking of F1 is postponed.
3. When a constraint is ranked, it is removed from the Support tableau, along with the winner-loser pair that caused the ranking, as Tableau 9 shows, and the process is repeated with the other pairs and the other constraints.

Win ~ lose	M1	F1	F2
A ~ B	L	W	
E ~ F	W		W

Tableau 9.

4. If all the constraints that favor winners only are faithfulness constraints, the learner ranks the one that makes the ranking of a markedness constraint possible. In Tableau 9, F1 makes the ranking of M1 possible; by ranking F1 high, the whole row of the winner-loser pair A~B is removed. This "frees up" M1, which is now ranked higher than F2 (see point 2 above).

Win ~ lose	M1	F2
E ~ F	W	W

Tableau 10.

Thus the ranking is: M2 >> F1 >> M1 >> F2

By ranking markedness higher than faithfulness, the learner forms the most restrictive ranking. Restrictiveness means that a grammar has its "faithfulness constraints dominated by as many markedness constraints as

possible" (Prince and Tesar 1999: 6). The assumption is that in first language acquisition learners/children begin with all markedness constraints outranking faithfulness constraints; markedness constraints get demoted as needed (see Gnanadesikan 1995). Therefore, a learning algorithm must offer a grammar that is consistent with the data and that is the most restrictive. Restrictiveness can be computed through the r-measure:

> The r-measure for a constraint hierarchy is determined by adding, for each faithfulness constraint in the hierarchy, the number of markedness constraints that dominate that faithfulness constraint. (Prince and Tesar 1999: 6-7)

For the ranking M2 >> F1 >> M1 >> F2, the r-measure is the sum of the markedness constraints outranking F1 + the markedness constraints outranking F2, which is 1+2=3.

Let us see how this applies to the Support in Table 7, repeated below.

Lexicon	Winner ~ loser
takallam-t	ʔit.kal.lam t~ ta.kal.lam t
ta-takallam	tit.kal.lam ~ ta.ta.kal.lam

Table 7. – the SA speaker's Support

In the process of learning, the learner notices that CA tends to satisfy WD-BIN by shortening words that are made up of more than two syllables; for example,

(2a) /ʃiribu/ 'he drank it' (mas) → [ʃirbu];
(2b) /kaatiba/ 'a writer' (fem)→[katba]

This makes WD-BIN an active constraint. The other relevant constraints are MAX-IO(V), DEP-IO(V), and DEP-IO(C); these correspond to vowel deletion, vowel epenthesis, and consonant epenthesis that the words in the Support undergo. The following tableau shows how these constraints interact with the Support.

Lexicon	Win ~ lose	WD-BIN	MAX-IO(V)	DEP-IO(V)	DEP-IO(C)
takallam-t	ʔit.kal.lam t~ ta.kal.lam t		L	L	L
ta-takallam	tit.kal.lam ~ ta.ta.kal.lam	W	L		

Tableau 11. – BCD and the ranking of WD-BIN

WD-BIN is the only markedness constraint in the tableau. It favors winners only; therefore, it is ready to rank as the highest constraint. The second pair in the Support tableau is removed from the list along with the high-ranking constraint. This leaves us with the first pair and three constraints.

Lexicon	Win ~ lose	MAX-IO(V)	DEP-IO(V)	DEP-IO(C)
takallam-t	ʔit.kal.lam t~ ta.kal.lam t	L	L	L

Tableau 12. – no ranking prior to Optimal Paradigm constraint

As Tableau 12 shows, none of the constraints favors a winner. Here, the 'efficient' learner realizes that there is an output-output correspondence constraint at work. Or as stated by Kager (1999: 415),

> [t]o deal with alternations, morphologically related output forms must be subjected to constraints which enforce 'uniform exponence', *limiting the phonological dissimilarity between alternants*. This is where OO-correspondence comes into play: it eliminates the function of UR in capturing phonological shape similarities between morphologically related output forms.

As we saw in section (3), because of WD-BIN the stem in the imperfective mood becomes the attractor, which activates the constraint DEP-OP(V). The learner adds this constraint to the Support tableau.

Lexicon	Attractor	Win ~ lose	DEP-OP(V)	MAX-IO(V)	DEP-IO(V)	DEP-IO(C)
takallam-t	tkallam	ʔit.kal.lam t ~ ta.kal.lam t	W	L	L	L

Tableau 13. – BCD and the ranking of DEP-IO(V)

All the constraints in Tableau 13 are Faithfulness constraints, with only one of them, DEP-OP(V), favoring the winner. This constraint automatically ranks the second highest, second to WD-BIN (according to BCD, markedness ranks higher than faithfulness). Therefore, we get the following ranking:

WD-BIN >> DEP-OP(V) >> MAX-IO(V), DEP-IO(V), DEP-IO(C).

These constraints interact with the other constraints in the learner's grammar, and eventually the learner has the following ranking:

ONSET,	***[CC,**	**MAX-IO(C) >>**
WD-BIN >>	**DEP-OP(V) >>**	**CONTIG-IO,**
MAX-IO(V) >>	**DEP-IO(C),**	**DEP-IO(V)**

Will the learner attempt to change the lexicon so as to have the same underlying form as the native speaker? UNLIKELY. The learner attempts to modify the lexicon and do any necessary adjustments to the Support via what Tesar et al. call "surgery" if s/he detects inconsistency; that is, when the learner determines that "no amount of ranking modification will reconcile [her/him] with the data" (Tesar et al. 2003: 483-7). This usually happens in cases like the following when no ranking is possible because no constraint favor winners only:

Win ~ lose	C1	C2
A ~ B	L	W
C ~ D	W	L

Tableau 14.

In the case of Arabic, the ranking could account for the data, so no surgery is needed.

5. Instructional implications

As we have seen so far, arriving at the output [tkallim] from the input /takallam t/ only happens to learners of CA coming from SA. For the CA native speaker, the SA input /takallam t/ is pointless since it does not occur in the dialect. This is what Prince and Smolensky (1993) call Stampean occultation. Though the underlying form /takallam t/ "is in principle possible under richness of the base, [native speakers] will never be moved to set it up as an actual lexical item because it is hidden or occulted by the actually occurring form [[tkallim]], with which it always neutralizes" (McCarthy 2003: 16).

Stated differently, there is no Optimal Paradigm constraint coming into play when the native speaker acquires CA. The only constraints that are active are Markedness and IO-Faithfulness constraints. This is not to imply that the above analysis is incorrect. It only implies that the OP analysis accounts for the etymological or historical variation that took place

when the Arabic language (what we call SA today) underwent change in Egypt to become Egyptian Arabic (as it did everywhere else in the Arab world – for example, in Lebanon, Syria, and Palestine it became Levantine Arabic).[10] OP in this sense does not account for the current grammar of the native speaker. It accounts for the historic path that SA took to become CA!

This means that Learners of Arabic as a Foreign Language who first get exposed to SA are only getting ready for a historical, etymological ride when they move to CA, forming a grammar that the native speaker does not have because s/he has never taken that ride, at least not in the same direction. This suggests that learners who want to use Arabic for more than gaining access to printed material should begin by learning a dialect first and then move to SA, just as native speakers do. In this way, they have the chance to learn the dialect in its own right.

In practice, however, this proposal is not without its problems. One problem is that dialects are strictly used in oral/aural communication but not in written material; for foreign language learners who are exposed to the language three to five hours per week, it is hard to retain material if they do not have a concrete reference – e.g., a textbook – to fall back on and visit and revisit. Nevertheless, the writing system in Arabic, which is different from that of most other languages and thus needs formal teaching in its own right, is mainly used for writing SA. Here lies the dilemma: learning an informal language by using a formal writing system!

A solution is possible, however. One suggestion is that learners CAN learn a dialect by using a SA writing system, especially because

[10] There are two views as to the relation between SA and the dialects. One view says that the dialects descended from some form of Arabic called the Arabic Koine that was used side by side with SA yet different from it in several aspects (Ferguson 1959). Another view says that the dialects in question are actually descendents of SA (Versteegh 1997; Holes 1994). For the purpose of this paper, I will adopt the latter view, although if we assume that the Arabic Koine was phonologically similar to SA and to the Arabic dialect used by the Bedouins of the time, then the former view could be adopted as well.

Further, whether SA and the different Arabic dialects are diachronically related or not is really orthogonal to the present discussion. What is more relevant is that the non-native speaker who comes to the dialect with an SA background cannot but see that a big portion of the lexical items in the dialect have SA counterparts that s/he is familiar with, only phonologically different. Consequently s/he will take the latter as underlying forms for the former simply because s/he was exposed to the SA forms first.

orthography in Arabic is to a large extent phonemic with a writing system that lends itself to sound-letter correspondence. As a matter of fact, textbooks that teach CA from level one without assuming any prior knowledge of SA on the part of the learner do exist. One example is the series *Anistuna* by the Egyptian author Nahed Awni.

Alternatively, a language program can be designed such that learners learn both SA and a dialect at the same time. The focus in SA should be on reading and writing and partly on listening (e.g., news broadcast). The focus in the dialect should be on oral/aural skills, providing learners with enough opportunity to practice with what Hall (1999: 138-9) refers to as "prosaics of interaction" or "recurring interactions" involved in the everyday life of the native speaker, such as greetings, agreeing or disagreeing, apologizing, etc. Even expressions related to classroom management can be introduced in their dialect version at the beginning of the semester and added to as the course unfolds.

Another problem is that of moving from a dialect to SA. It can be argued that learners can have difficulty learning the phonology of SA if they start with a dialect and that they will never become fluent in SA. This is true … applying, not only to foreign language learners, but also to most educated native speakers (except those whose occupations demand that they speak SA fluently). SA is a highly prescriptive language, and speaking SA (reading aloud, reporting, lecturing, etc.) includes a conscious effort regardless of who the speaker is. Thus, there is no reason why we should assume that the learner should speak it effortlessly. When it comes to SA, the learner should be expected to attain proficiency in reading comprehension, listening comprehension, and writing. It is a dialect that the learner should eventually get to speak effortlessly.

6. Conclusion

To summarize, we have seen that learners of Arabic who learn a dialect after having learnt SA form a grammar that is not only different from that of the native speaker's but also more complicated. The reason is that the learner may take SA output as the dialect input. Cairene Arabic is used to show how this is possible. The analysis is developed in the framework of Optimality Theory (Prince and Smolensky 1993) and the Optimal Paradigm Theory (McCarthy 2003).

The paper argues that a dialect should be taught side by side with (or even before) SA. To my knowledge, only two of all the universities that

offer Arabic language courses in the United States actually do this. The rest offer SA courses first; colloquial follows. The weakness of my argument, however, is that it is based on theory only; no field research has been conducted to confirm or otherwise the claims I make. The following step should be a longitudinal study that means to investigate the validity of these claims; such a study may lead to radical changes in the teaching of Arabic as a foreign language.

Besides, the idea covered here can be extended to languages that, like Arabic, have a gap between the formal standard form and the colloquial everyday form (e.g., Chinese and Tamil). Research studies can be designed to examine if such languages also impose an etymological itinerary on the learner if s/he moves from the formal/standard form to the informal/colloquial dialect. If the findings of these studies agree with the argument of this paper, this means that the suggestions listed in the previous section apply not only to Arabic but also to similar languages.

On a larger scale, this paper sheds light on the dilemma of printed material and input in second language phonology in general. Documenting a language in print is like taking a snapshot of a baby. A snapshot! One moment in time, seized for saving ... for scrutiny. It can be visited and re-visited; it may give us an idea about what the moment was like. It can probably give us a retrospective foreshadowing of the present. But it is never the present.

The difference between first language acquisition and second language acquisition (more accurately, foreign language acquisition that takes place in the milieu of the classroom) is analogous to the difference between meeting an old person and then seeing one of his teenage snapshots on the one hand, and seeing the snapshot first then meeting the old person on the other hand.

Stated differently, first language acquisition means acquiring a language synchronically (i.e., as it is used by the community at the time of acquisition), followed by formal education in case of literacy. If literacy takes place, the learner gets to acquire the standardized form of the language, or more precisely the learner acquires the language that was to a large extent frozen by being documented.

Second language acquisition, however, begins with the frozen standardized language through exposure to printed material from the outset; this exposure is accompanied with – or is more often followed by – the language as it is currently used by a particular community.

The discussion in this paper leads to two assumptions that are worth researching:

1) First language acquisition comprises one synchronic grammar or one ranking of constraints
2) Second language acquisition more often comprises two grammars:
    a. A synchronic grammar of the standardized language
    b. A diachronic grammar that derives current colloquial output from standardized input.

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