

Studies in Arabic Linguistics

Perspectives on Arabic Linguistics XXXI

Edited by Amel Khalfaoui
and Youssef A. Haddad

8

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Perspectives on Arabic Linguistics XXXI

Studies in Arabic Linguistics

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Volume 8

Perspectives on Arabic Linguistics XXXI. Papers from the annual symposium on Arabic Linguistics, Norman, Oklahoma, 2017

Edited by Amel Khalfaoui and Youssef A. Haddad

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Papers from the annual symposium
on Arabic Linguistics, Norman, Oklahoma, 2017

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Acknowledgments

This volume contains ten chapters based on contributed papers and three keynote addresses that were presented at the *Thirty-First Annual Symposium on Arabic linguistics* at the University of Oklahoma in 2017. All contributed papers presented at the symposium were selected after abstract submission and anonymous peer review. After the symposium, a call for book chapters went out to all participants. Manuscripts, including those submitted by the keynote speakers, were then subject to anonymous peer-review and often went through a process of revision and resubmission. Only a subset of all submissions were accepted for publication. We are thankful to the reviewers for their assistance and to the Arabic Linguistics Society board for facilitating the process. We are especially thankful to the Office of the Senior Vice President and Provost of the University of Oklahoma, the College of International and Area Studies, the College of Arts and Sciences, the Department of International and Area Studies, and the Department of Modern Languages, Literatures and Linguistics at the University of Oklahoma. They all allocated financial resources to make the *Thirty-First Annual Symposium on Arabic Linguistics* possible.

Introduction

Amel Khalfaoui & Youssef A. Haddad

University of Oklahoma / University of Florida

This volume contains ten anonymously refereed chapters based on selected papers originally presented at the *Thirty-First Annual Symposium on Arabic Linguistics* that was held at the University of Oklahoma in 2017. The chapters are empirical, theoretical, and experimental explorations of a variety of linguistic topics and are distributed over three parts: phonetics and phonology, sociolinguistics and pragmatics, and language acquisition. They deal with a significant number of dialects, including Saudi Arabian, Syrian, Palestinian, Sudanese, Libyan, and Tunisian varieties, as spoken both at home and in diaspora.

Part I, Phonetics and Phonology, contains four chapters. The first chapter by Nancy Hall is entitled “Incomplete Phonetic Neutralization: What Arabic Can Bring to the Debate.” In this chapter, Hall addresses the complex theme of alternations in the Arabic language, which has not received enough attention in phonetic theory. Hall first gives an overview of one controversial topic in phonetic research, the incomplete phonetic neutralization of contrasts, in which evidence from Arabic has only recently begun to enter the decades-old debate. She summarizes and compares the few studies that have been done on phonetic neutralization in Arabic, exploring their implications for debates that have so far largely referenced European languages. The second goal is to point out ways in which Arabic offers potential new angles from which to examine phonetic neutralization, due to the special characteristics of its morphology, orthography, and sociolinguistic situation. Hall proposes that patterns of phonetic neutralization are affected by the root-and-pattern morphology of Arabic and may shed light on lexical organization in such systems. Incomplete neutralization results when a form that has undergone a phonological change is still lexically linked to its original timing template. The fossilization of older phonological processes leads to lexical reorganization in the form of loss of such linkages.

The second chapter was written by Abdulhamid Gadoua and Stuart Davis. This chapter discusses an uncommon topic: diminutive patterns in Arabic dialects and their comparison with one another. The authors start by providing a brief description of the diminutive in three varieties of Arabic: Classical Arabic,

Coastal Dhofari Arabic, and Moroccan Arabic, noting that the latter two dialects seem to be diachronically derivable from Classical Arabic. They then provide a detailed description of the diminutive in Asāb'ā Arabic, a rural dialect of north-west Libya. The authors note two main types of templatic diminutives in Asāb'ā Arabic: CCeeX and CCayX. Further, they document a subtype of the CCeeX diminutive that applies to base words that begin with a labial consonant followed by a long vowel, such as [faar] 'mouse.' Here, a geminate labial appears rather than the expected sequence of a labial consonant followed by [w]. This is exemplified for [faar] 'mouse,' which has the diminutive [ʔuf.feer] rather than the expected [fweer]. Gadoua and Davis suggest that this has to do with an OCP (Obligatory Contour Principle) effect between non-identical adjacent labials in which [w] may be treated like a root consonant. They also show how the Asāb'ā Arabic diminutive provides solid evidence that derived affricates in the dialect pattern as a sequence of two segments rather than one. Finally, the authors discuss the diachronic relationship between the Asāb'ā Arabic diminutive and the Classical Arabic diminutive, maintaining that for the most part the Asāb'ā Arabic forms are derivable from the Classical Arabic diminutives with rare exception.

Wafi Alshammari and Stuart Davis's contribution to this volume also belongs in Part I and is entitled "Diminutive and Augmentative Formation in Northern Najdi/Hā'ili Arabic." In this chapter, Alshammari and Davis report on the formation of the diminutive and document the existence of a unique morphological augmentative in the Hā'ili dialect (HD), a variety of northern Najdi Arabic spoken in the region of Hā'il in Saudi Arabia, mainly by the Shammar tribe. Their analysis indicates that the diminutive in HD, which has a shape that appears to be historically derivable from the Classical Arabic diminutive, is productive. Moreover, HD has a morphological augmentative parallel to the diminutive, which is exceedingly rare among Arabic dialects. The augmentative is formed by replacing the nucleus of the first syllable of the diminutive with emphatic (i.e., pharyngealized) [a:]. They also briefly discuss whether the unique Hā'ili augmentative is an innovation or a truly archaic feature. They conclude by suggesting that the augmentative is an archaic feature that goes back to the pre-Islamic era, and its survival to the present day in HD is noteworthy.

The fourth chapter in Part I is Abdel-Khalig Ali's "Post-Lexical Strata: Evidence from Phrasal Phonology in Sudanese Arabic." Building on his earlier work, Ali proposes a Stratal OT account of the interaction between syncope and resyllabification in two dialects of Sudanese Arabic. The chapter makes both a theoretical and dialectological contribution to the study of Arabi phonology. Theoretically, the account provides strong evidence for the stratification of post-lexical phonology into the phonological phrase level, the intonation phrase level, and the utterance level. The contribution to Arabic dialectology is also significant because,

while patterns of phrasal syncope and resyllabification are pervasive in contemporary dialects of Arabic, formal analysis of the domains of these phenomena and how they interact is lacking. The chapter provides a model of analysis that may be extended beyond the two dialects that Ali examines.

Part II, Sociolinguistics and Pragmatics, contains four additional chapters. The first chapter is entitled “Destabilizing Arabic Diglossia? New Media and Translingual Practice” and was written by Abdulrahman Alkhomees, Rasha Elabdali, and Keith Walters. The chapter problematizes current understandings of Arabic diglossia by demonstrating the ways in which it is clearly being reconfigured thanks to the linguistic practices of younger users of the language in the New Media. Social media data from two undergraduate students, native users of Arabic, illustrate the ways in which such practices are translingual; that is, users do not limit themselves to a single language, language variety, or script but rather employ multiple resources, including nonlinguistic ones, that they assume will be understood by their addressee(s). The authors conclude that these literate practices represent a clear break with traditional academic and lay understandings of diglossia, particularly with regard to the user-based conventionalization of writing dialectal Arabic.

The second chapter in Part II is Luca D’Anna’s contribution “Dialect Contact in the Tunisian Diaspora: Chebba Speakers in Mazara del Vallo (Sicily).” The study focuses on Tunisian speakers hailing from Chebba (in the governorate of Mahdiyya in Tunisia), whose village dialect is distinguished from the varieties spoken in both Mahdiyya and Tunis by a set of clearly recognizable isoglosses. The chapter investigates the phenomena of dialect leveling and accommodation in the close-knit Tunisian community of Mazara del Vallo (Sicily). Specifically, this study investigates the realization of the uvular /q/, the interdentals /θ, ð, ðʕ/, and the diphthongs /ay, aw/. The data analyzed in this study led to a number of conclusions: First, speakers hailing from Chebba display signs of accommodation to the dialect of Mahdiyya (the majority variety in Mazara del Vallo) with respect to the /q/ variable, realized as [g] in Chebba and [q] in Mahdiyya. The phenomenon is stronger in second-generation speakers. Accommodation to the variety of Mahdiyya, however, is only partial, since speakers from Chebba almost systematically retain their native set of interdental phonemes. Second, the urban variety of Tunis does not enjoy the prestige status that characterizes it in mainland Tunisia, a fact that can be easily explained by adopting Trudgill’s deterministic perspective on dialect contact. Finally, the situation of first- and second-generation speakers is not easily comparable with the first two stages of new-dialect formation described by Trudgill (1998, 2004), due to a number of demographic and socio-economic factors. D’Anna concludes that language erosion, however slow, is inevitably happening, as evident from the lexical impoverishment and partial phonemic loss observable in some younger speakers.

Youssef Haddad's contribution to this volume also belongs in Part II and is entitled "Speaker-Oriented Attitude Datives as Authority Indexicals: Evidence from Family Talk in the Syrian Soap Opera *ba:b l-ha:ra*." In this chapter, Haddad examines the use of optional dative pronouns, which he labels as speaker-oriented attitude datives, as they are used in family talk in Season 1 of the Syrian soap opera *ba:b l-ha:ra* 'the neighborhood gate.' He analyzes these pronouns as interpersonal pragmatic markers that serve as indexicals of hierarchical authority in interaction. Haddad provides a sociopragmatic account of speaker-oriented attitude datives, showing how they are informed by the sociocultural context in which they occur. He concludes by highlighting the importance of the study of these and similar pragmatic markers from a learnability perspective.

The fourth chapter in Part II is Amel Khalfaoui's "Generic Expressions in Tunisian Arabic: Beyond the Definite Article *al-*." In this chapter, Khalfaoui introduces a different type of generic reference expressed with the TA demonstrative *hāk* (that). Based on a corpus analysis of naturally occurring discourse, the chapter shows that this kind of generic usage is subject to a number of general and cognitive constraints. First, the generic demonstrative always occurs with an overt or covert phrase consisting of *l-nawʕ mtāʕ* 'the kind of' NP, followed by a restrictive modifier in order to denote a familiar kind set. Second, the generic demonstrative *hāk* requires that the kind set it evokes be relatively subordinate and atypical (i.e., less central) in the sense of Rosch's (1978) and Lakoff's (1987) principles of categorization. Further, this study has revealed that while most of the generics expressed with *hāk* are evaluative, evaluativity is not a restriction but a consequence of the atypicality requirement.

Part III, Language Acquisition, consists of two chapters. The first chapter is by Reem Khamis-Dakwar, May Ahmar, and Karen Froud and is entitled "Palestinian Arabic Dual Formation in Typically Developing Heritage Speakers of Palestinian Arabic." The authors conducted a study that provided preliminary data on Palestinian Arabic and English plural elicitation in Palestinian Arabic heritage speaking children in the United States. Since dual formation is present in Palestinian Arabic but not English, this kind of investigation could elucidate whether a shift from a heritage language (Arabic) to a language of environmental dominance (English) affects the ability to access L1 plural formation. The chapter contributes to the relatively sparse literature on language acquisition in this population and highlights the need to expand the study of heritage languages to include children, rather than focusing only on adult heritage speakers.

Yahya Aldholmi and Hanyong Park's is the second chapter in Part III and the last chapter in the volume. It is entitled "Interactions between Temporal Acoustics and Indexical Information in Speech Rate Perception." The chapter is an experimental study on sociophonetics. In this chapter, the authors investigate

the interactions between three factors that contribute to the perception of speech rate: pause type/length (short, long, and non-silent), actual speech rate (accelerated vs. decelerated), and utterance type (native Arabic, accented Arabic, and unfamiliar language). Their findings complement previous observations regarding the role of the three factors in speech rate perception as individual contributors. However, Aldholmi and Park note that their study contributes to the existing knowledge in the field by providing evidence of the collective role of the factors in question, including how they interact to shape our perception of speech rate. The chapter also raises some concerns about previous studies that did not control for non-silent pauses or did not provide any methodological details about how they treated non-silent pauses. The main finding is that the perceived speech rate of an utterance is the result of an interaction between its actual acoustic properties and the listener's linguistic/indexical knowledge, and that the match/mismatch between the produced rate and perceived rate can be attributed to utterance and pause types.

The ten studies presented in this volume are diverse and innovative. They contribute to our understanding not only of Arabic linguistics but of the study of human language more broadly. It is our hope that readers will enjoy and benefit from them.

PART I

Phonetics and phonology

Incomplete phonetic neutralization

What Arabic can bring to the debate

Nancy Hall

California State University Long Beach

Arabic has played a central role in the development of phonological theory, with the challenge of describing its complex and interacting alternations spurring theoretical developments from the cycle to variants of Optimality Theory. The phonetic study of these alternations, however, has attracted less attention. This chapter gives an overview of one controversial topic in phonetic research, the incomplete phonetic neutralization of contrasts, in which evidence from Arabic has only recently begun to enter the decades-old debate. Some Arabic phonological alternations, such as Levantine vowel epenthesis, are shown to be incompletely neutralizing, while others, such as Levantine vowel shortening, appear to involve complete neutralization. I propose that patterns of phonetic neutralization are affected by the root-and-pattern morphology of Arabic and may shed light on lexical organization in such systems. Incomplete neutralization results when a form that has undergone a phonological change is still lexically linked to its original timing template. The fossilization of older phonological processes leads to lexical reorganization in the form of loss of such linkages.

Keywords: incomplete neutralization, Arabic, epenthesis, vowel shortening, phonetics

1. Introduction

Arabic has played a central role in the development of phonological theory, the challenge of describing its complex and interacting alternations spurring theoretical developments from the cycle (Brame, 1974) to variants of Optimality Theory (e.g., McCarthy, 2007). The phonetic study of these Arabic alternations, however, has attracted less attention. This paper reviews one controversial topic in phonetic research, the incomplete phonetic neutralization of contrasts, in which evidence from Arabic has only recently begun to enter the decades-old debate.

This paper has two goals. The first is to summarize and compare the few studies that have been done on phonetic neutralization in Arabic, exploring their

implications for debates that have so far largely referenced European languages. The second is to point out ways in which Arabic offers potential new angles from which to examine phonetic neutralization, due to the special characteristics of its morphology, orthography, and sociolinguistic situation.

Incomplete neutralization

Incomplete neutralization is a phenomenon in which a phonological process apparently neutralizes a contrast in some position, yet subtle phonetic reflexes of the contrast survive.¹ A classic example is final obstruent devoicing, as seen in the Dutch examples below (Ernestus & Baayen, 2006):

- (1) *verwijt* ‘reproach’ /vɛrvɛɪt/ → vɛrvɛɪt
verwijd ‘widen’ /vɛrvɛɪd/ → vɛrvɛɪt
 cf. vɛrvɛɪtən ‘to reproach,’ vɛrvɛɪdən ‘to widen’

Although *verwijt* and *verwijd* are both transcribed as ending in a [t], acoustic studies find that the two [t]s are not fully identical, at least under some circumstances. Compared to *verwijt*, the [t] of *verwijd* has a slightly shorter closure and a shorter release burst, and the vowel preceding it is slightly longer. All of these differences are indicative of typical phonetic differences between voiced and voiceless stops. Similar results have been found for final devoicing in German, Afrikaans, Polish, Russian, Friulian, Catalan, and Lithuanian (see Almihamdi, 2011, p. 296 for a tabulation of dozens of studies), suggesting that this is not a language-specific quirk but a typical characteristic of the process itself.

The existence of incomplete neutralization is problematic for some approaches to phonology. As Winter and Röttger (2011, p. 57) point out, “formal theories of phonology ... generally have problems incorporating ‘in-between’ categories.” Final devoicing is literally a common textbook example of neutralization (e.g., Lass, 1984, p. 41); if it is not actually neutralizing, this may raise doubts as to whether true neutralization exists. Incomplete neutralization has been found for diverse other processes as well, such as vowel deletion in French (Fougeron and Steriade, 1997), flapping in American English (Braver, 2014) and tone sandhi in Mandarin (Peng, 2000). Yet it has not been found for every process examined. For example, Kim and Jongman (1996) argue that coda neutralizations of manner in Korean are fully neutralizing. There is as yet little agreement on why processes might differ in their levels of neutralization.

1. For extensive reviews of the incomplete neutralization literature, the reader is referred to Winter and Röttger (2011) and Almihamdi (2011).

Possible causes of incomplete neutralization

The cause of incomplete neutralization is much debated. Clearly, fine details of phonetics are being affected by something other than an abstract surface segmental representation. Among the other factors that have been proposed are:

- i. **Orthography:** If, as in Dutch, one [t] is written as *t* and another as *d*, this may activate memories of other sounds spelled *t* and *d*. Orthographic interference is particularly likely in a lab setting, where stimuli are often written.
- ii. **Second language knowledge:** Most Dutch speakers have learned English or other languages where final /d/ is pronounced [d] and written *d*. Participants in phonetics studies are typically university students, who are particularly likely to be proficient bilinguals.
- iii. **Abstract underlying forms:** In generative phonology, [verveɪt] ‘widen’ derives from underlying /verveɪd/. Perhaps phonetic realization accesses a complex representation that includes the underlying as well as surface form (Gouskova and Hall, 2009).
- iv. **Related surface forms:** In theories that do not posit abstract underlying forms, there is still the possibility of influence from other members of a word’s paradigm. In the case of *verwijd*, a [d] is pronounced in the infinitive [verveɪdən]. This influence can occur when activation spreads through a lexical network, as described below.
- v. **Sociolinguistic variants:** some phonological processes (although not Dutch final devoicing) are variable across speakers. Exposure to speakers who have different pronunciations could affect one’s own. This idea is related to the concept of ‘near-mergers’ of phonemic contrasts in some dialects (Yu, 2007).
- vi. **Other experimental conditions:** Laboratory phonetics tasks tend to be unnatural in ways that may affect phonetic details. As Winter and Röttger (2011, p. 60) note, some experiments have used very rare words, which tend to be hyperarticulated. Port and Crawford (1989, p. 260) point out that speakers might distinguish words that are usually homophonous because they are “trying to help out a non-native-speaking experimenter.” The fact that experiments typically use minimal pairs might also heighten participants’ attention to underlying distinctions. In studies using auditory stimuli, there is also the possibility of ‘phonetic convergence.’ For example, Röttger et al. (2011) presented German speakers with inflected pseudo-words such as *die Gobe* and had speaker transform them to the singular *ein Gob*; while this method avoids direct exposure to orthography, the recently heard [b] could influence production of the [p] in *Gob*.

Needless to say, these proposals are not mutually exclusive; all of the factors above could conceivably play a role in different situations.

One of the most fascinating features of incomplete neutralization is that it may well have no functional benefit. Although listeners do have some ability to use the phonetic cues to disambiguate real words (Port and O'Dell, 1985), or to decide how to conjugate novel pseudo-words (Ernestus and Baayen, 2006), their success rate is low enough, even in a lab setting with clear speech examples, to make it doubtful that the phenomenon exists primarily for this purpose. For example, discrimination accuracy in Port and O'Dell (1985) for final voiceless versus devoiced obstruents was only 60%. Moreover, as Winter and Röttger (2011, p. 58) point out, there are relatively few minimal pairs for final voicing differences in languages like German or Dutch, and most would never be ambiguous in context (try to think of a sentence in which the words 'reproach' or 'widen' would make equal sense). And not all studies find that listeners can use incomplete neutralization; in Braver (2014), American listeners could not correctly identify whether flaps in pseudo-words were intended as /t/ or /d/, despite demonstrable acoustic differences between the two.

If incomplete neutralization is not primarily a strategy to boost perceptibility, then its existence may be essentially an accidental byproduct of something in the architecture of the speech production system. This possibility is intriguing, because it means that the typology of the phenomenon can offer clues to the mental processes underlying speech production, and how they might differ across languages of different morphological and phonological types. It is this possibility that I will explore in the paper.

The spreading activation hypothesis

Specifically, I will draw on and attempt to contribute to a particular model of incomplete neutralization, the spreading activation hypothesis of Ernestus and Baayen (2006, pp. 44–46). In this model, incomplete neutralization results from co-activation of related wordforms in speech production. The mental lexicon is thought to contain detailed auditory (and visual) representations of fully inflected words. This hypothesis contrasts with the typical generative view that inflected forms are actively constructed from underlying forms and morphological rules, with only irregular inflections represented in the lexicon. However, it is supported by findings that high-frequency regular inflected forms are recognized and produced faster and more accurately than low-frequency inflected forms (e.g., Baayen et al., 2003 for Dutch plurals). In the case of Dutch, for example, the lexicon would include representations of [vɛrveɪt] 'widen,' [vɛrveɪdən] 'to widen,' and other inflected forms. These representations can also include information on phonetic variability, such as the likelihood of a particular [t] being weakly voiced. This information about variability is one way that incomplete neutralization can

be represented: speakers may simply know that partially voiced versions of a word exist and store the word that way. The idea of phonetically rich representations says nothing of how the partially voiced versions came to exist in the first place. They could presumably arise from exposure to sociolinguistic variation, or from a gradual historical sound change that has not reached completion.

However, the spreading activation account also offers a model of how incomplete neutralization could arise from what Ernestus and Baayen call “lexical analogy.” Within the lexicon, wordforms are linked to other members of their paradigm; for example, [vɛrveɪt] ‘widen’ to [vɛrveɪdən] ‘to widen,’ and [vɛrveɪt] ‘reproach’ to [vɛrveɪtən] ‘to reproach.’ When one form is activated for production, some activation spreads along these linkages to related forms. Presumably, individual segments in the related forms are also linked (where correspondents exist), so that when the speaker produces the [t] of [vɛrveɪt] ‘widen,’ the [d] of [vɛrveɪdən] is co-activated and has a slight influence on the articulatory movements.

Orthographic influences can be handled similarly. When activating [vɛrveɪt] ‘widen,’ activation spreads to the orthographic form *verwijd*. The *d* of *verwijd* in turn activates memories of other pronunciations associated with *d*, which include both [t] and [d].

In this view, incomplete neutralization is a kind of window on the organization of the mental lexicon. Its presence indicates the presence of linkages, whether between paradigmatically related forms, multiple variants of a word (such as dialectal forms), or phonetic and orthographic forms. Its absence indicates that such linkages are weak or absent, and that forms are being produced with less coactivation of apparently related forms. As noted above, incomplete neutralization has not been found for every phonological alternation examined (see Almihamdi, 2011, p. 296). Some cases may be due to low experimental power, but others may reflect genuinely different morphological organization across languages.

Research gaps

To date, phonetic neutralization has been studied only in a fairly limited set of phenomena in a limited set of languages. In a literature survey by Almihamdi (2011, pp. 296–297), 61 of 71 studies are on Indo-European languages; of those, 58 are on Germanic, Romance or Slavic languages. This limits our understanding of the phenomenon because Indo-European languages tend to be alike in many ways that relate to the factors listed in (i) through (vi) above. For example, most have a Latinate orthography, or at least an alphabet that is functionally similar. Most also have roughly similar morphological systems, based on stems and affixes, with moderate amounts of inflections and limited allomorphy. In such languages, it is highly plausible that many inflected forms are stored as wholes, as in Ernestus and

Baayen's (2006) spreading activation account. Moreover, the focus on European languages has brought disproportionate attention to types of alternations that are common in those languages, such as final devoicing (28 studies), American English flapping (9 studies), etc.

Studies of phonetic neutralization in Arabic can expand this picture in important ways. Arabic offers an orthography that differs in significant ways from European alphabets, such as its extensive allography and ligatures, the optionality of short vowels and other elements, and the unrelated representations of short and long vowels. Arabic morphology is also fundamentally non-Indo-European-like, being based on roots and patterns. And within paradigms, Arabic shows unusually extensive phonological alternations: a single verb paradigm might well contain vowel epenthesis, vowel syncope, vowel shortening, stress shifts, vowel raising, etc. The Arabic sociolinguistic world is unlike much of Europe or North America. For example, it has a high level of diglossia, with extensive differences between the pronunciation of Standard or Classical Arabic and colloquial speech. This raises the question of how knowledge of multiple registers may affect pronunciation. There is also extensive microvariation in colloquial speech within small geographic areas, and considerable cross-dialect exposure through media. It seems likely that the average Arabic speaker encounters more phonological variation than speakers of many European languages. For all of these reasons, Arabic offers a chance to look for incomplete neutralization in circumstances where it has not been studied, with the potential to challenge, confirm, or refine theories of its causes.

2. Studies of phonetic neutralization in Arabic

As of yet, there are only a handful of studies of phonetic neutralization in Arabic. Their findings suggest that the degree of neutralization differs across processes and across dialects. These studies are summarized below, with discussion of their implications for factors affecting neutralization.

Vowel epenthesis, and possible influence of sociolinguistic variation

A small-scale study by Gouskova and Hall (2009), and a larger one by Hall (2013), both find incomplete neutralization in vowel epenthesis for some speakers of Lebanese Arabic. Lebanese has vowel epenthesis in (among other places) word-final CC clusters. The reported quality of the epenthetic vowel varies within the Levant: it has been transcribed as [i] for Lebanese (Haddad, 1983, 1984), [e] for Palestinian (Elihay, 2004), and [ə] for Syrian (Cowell, 2005). Vowel epenthesis is a highly active process, with the characteristics of a 'postlexical' rule (Mohanan, 1982). In

many contexts it is optional, particularly in codas of falling sonority (Haddad, 1983). Words like /bint/ ‘girl’ can be pronounced [bint] or [binit], where the bold-faced vowel is epenthetic. Epenthesis occurs in sandhi contexts, including novel phrases: /dist ʒdi:d/ ‘new cauldron’ can be [distʒdi:d]. It occurs in loanwords like /litr/ [litir] ‘liter’ and /film/ [filim] ‘film.’ Finally, it often counterbleeds or counter-feeds other processes such as stress assignment (Haddad, 1984) and vowel shortening (see below).

Gouskova and Hall (2009) and Hall (2013) compare /CiCC/ nouns, which can be realized as CiCiC with an epenthetic second vowel, to /CiCiC/ verbs where both vowels are underlying. For example, [‘libis] ‘clothing’ (which can also be pronounced [‘libs]) was compared to [‘libis] ‘he wore.’ Both studies find that, on average, the epenthetic vowels are more centralized than lexical [i]. Gouskova and Hall (2009) also find epenthetic vowels to be shorter in duration. Hall (2013) additionally examines the words’ first vowels, which are both lexical /i/, and finds them to be more centralized in the /CiCC/ noun than in the /CiCiC/ verb. This suggests that the non-neutralization involves not only a single segment but the entire word.

Both studies also find considerable variation among speakers. In Hall (2013), speakers fall into three groups in their realization of epenthetic vowels, as shown in Figure 1.

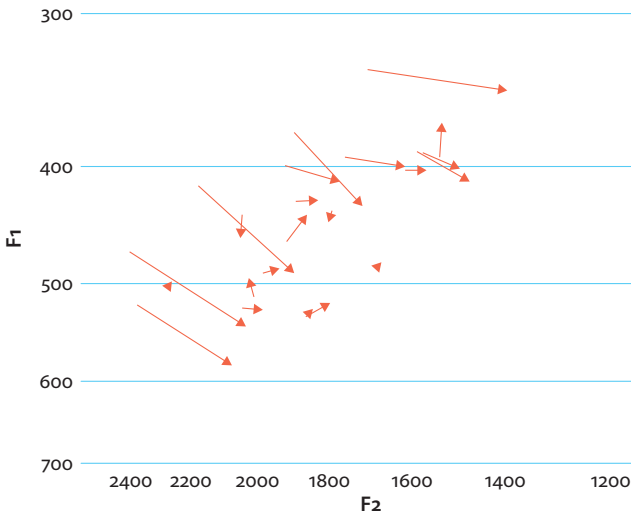


Figure 1. Each arrow points from the average lexical [i] to the average epenthetic vowel of one Lebanese speaker (from Hall, 2013)

Of 22 participants, 5 appear to have an epenthetic [ə] that is categorically distinct from their lexical [i], as represented by the longest arrows in Figure 1. The

difference is too large to be described as incomplete neutralization. For these speakers, epenthesis does not neutralize a distinction between zero and /i/ at all. It might neutralize a distinction between zero and /ə/. The study did not examine whether these speakers have a lexical /ə/, as Cowell (2005, p. 10) reports for Syrian Arabic, but they did tend to have an /i/ that was higher and more front than other speakers, suggesting that they might have more vowels in their inventory and expand their vowel space accordingly. Another 5 speakers appear to have complete neutralization; they produce no difference between lexical and epenthetic vowels. The remaining 12 speakers have what could be described as incomplete neutralization: their clouds of tokens for epenthetic and lexical [i] overlap considerably but have significantly different means. An example is shown in Figure 2. The epenthetic tokens, represented as circles, cluster more towards the center of the vowel space, but still overlap very heavily with tokens of lexical [i].

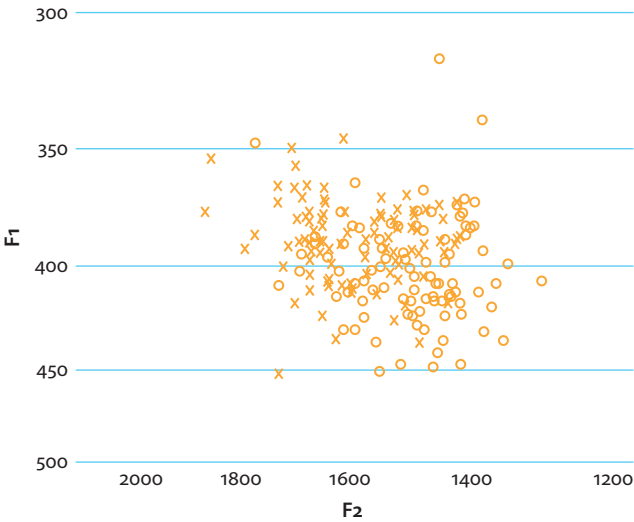


Figure 2. Vowel tokens produced by a Lebanese speaker with incomplete neutralization. o = epenthetic [i], x = lexical [i] (from Hall, 2013)

The findings on Lebanese vowel epenthesis raise an interesting possibility: could this incomplete neutralization be a result of variability of the process? Two kinds of variability were seen in the data: variation by *item* in the rate of epenthesis, and variation by *speaker* in the quality of the epenthetic vowel. Either could conceivably affect the phonetics of epenthetic vowels.

First, the same word could be produced variably with and without epenthesis, even by the same speaker in the same experiment. The lowest rate was found for /film/ ‘film,’ which was produced as [film] only 50% of the time, while several

words like /ridm/ 'debris' had epenthesis rates of 100%. Could the alternate output form [film] influence production of the epenthetic vowels in [film]? If so, we might predict less neutralization in words like [film] than in words like [ridim]. This does not seem to be the case. A series of two-way ANOVAs tested whether the independent factors of item pair and epenthetic status (i.e., epenthetic vs. lexical) affected the dependent variables of vowel duration, F1 and F2 (Hall, 2013, p. 137). Although all three measures (unsurprisingly) showed a main effect of item pair, and F2 showed a main effect of status, the ANOVAs found no interaction between item pair and epenthetic status. This means that degree of neutralization did not vary across items, although the rate of epenthesis did. It should be noted, however, that there were only two words with epenthesis rates below 85% (since the goal was to elicit epenthesis, items had been chosen specifically for their high rates). A study designed to compare epenthetic vowel quality in words with different rates of epenthesis would be useful for clarifying whether frequency of epenthesis affects its phonetic realization.

One might also point out that all /CiCC/ nouns appear in their CiCC allomorph in some contexts, namely before vowel-initial suffixes or when preceding a CC word. For example, although epenthesis is consistent in /ridm/ [ridim] 'debris,' it would never occur in /ridm-i/ [ridmi] 'my debris.' In the construct form /ridm l-be:t/, 'debris of the house,' the epenthetic vowel would typically appear between the words, [ridm il-be:t], rather than within the CC coda. But here too, it seems inevitable that there would be lexical differences in the frequency of the allomorphs: surely some words appear with possessive suffixes or in construct forms more often than others.

The second kind of variation that could be relevant, however, is sociolinguistic variation. We have seen that some Lebanese speakers have epenthetic [ə] while others have epenthetic [i]. It seems likely that this phonological variation has social correlates (geographic, religious, gender, or urban/rural), although the study was not designed to identify them. Perhaps the speakers who show incomplete neutralization are those who interact with different demographic groups using both variants. This seems to be a workable analysis for the Lebanese facts. It has the advantage of explaining how neutralizing and non-neutralizing variants of the process could co-exist: a given speaker's degree of neutralization depends on whose speech they are exposed to.

If this is the case, we might expect levels of neutralization to differ across similar epenthesis processes in different dialects, and there is some reason to think that this is the case.

Hall (2015) presented preliminary findings from a larger-scale study of epenthetic and lexical vowels in 77 speakers of Palestinian Arabic. Among the central findings are that 1) none of the Palestinian speakers has an epenthetic [ə], and 2)

while lexical and epenthetic [i] are significantly different in Palestinian, the differences are smaller than those found in Lebanese. This supports the idea that less exposure to epenthetic [ə] might lead to greater phonetic neutralization between lexical and epenthetic [i].

Almihmadi (2011) examines similar pairs of nouns and verbs in Bedouin Hijazi Arabic (BHA). Like Lebanese, this dialect has epenthetic vowels in final CC clusters, but there are several indications that the process is more lexicalized than vowel epenthesis in Levantine. Whereas the Lebanese epenthetic vowel has a consistent [i] or [ə] quality, BHA epenthetic vowels can be [i], [u], or [a]. While Almihmadi (2011, p. 71) describes the quality as predictable, the factors involved are often so specific as to raise the suspicion that the vowel qualities are sometimes lexically specified. For example, when the preceding lexical vowel is /a/, the epenthetic vowel “is [u] if the following consonant is [r] and the preceding consonant is not a guttural, or if the following consonant is [m] and the preceding consonant is an emphatic, [g], or [k].” As noted in Hall (2011, p. 1590), highly complex conditioning environments are more typical of the fossilized results of historical vowel epenthesis processes, such as vowels added during loanword adaptation, than of vowels that are clearly synchronically epenthetic. Furthermore, BHA epenthetic [a] (but not [i]) is stressable, which Lebanese epenthetic vowels in CC clusters are not. Almihmadi does not mention any sociolinguistic variability, and describes epenthetic vowels as ‘required,’ suggesting that the process is obligatory in BHA, unlike in Lebanese. All of these facts suggest that BHA epenthesis might be at a later stage in the phonological life-cycle (Bermúdez-Otero, 2015) than Lebanese epenthesis, and that at least some of the historically epenthetic vowels may have been reanalyzed as underlying.

Almihmadi’s findings are complex, but, overall, neutralization appears to be fairly complete in BHA. Differences in intensity emerge as significant for lexical vs. epenthetic [a], but not [i], in mixed ANOVAs (Almihmadi, 2011, p. 111). Under a different statistical approach, the novel ‘variability field model,’ differences in F0 emerge as significant for lexical vs. epenthetic [i], but not [a] (Almihmadi, 2011, p. 261). Differences in quality or duration are not found under either approach, in contrast to Lebanese.

Overall, then, the findings for epenthesis are consistent with at least two hypotheses: (1) that incomplete neutralization may emerge out of sociolinguistic variability, and (2) that incomplete neutralization may be more common in relatively active processes (Lebanese epenthesis) than in more fossilized processes (BHA epenthesis). In the next section we will see that the other Arabic phonological process examined thus far, vowel shortening, adds support for the latter hypothesis.

Closed syllable shortening

Hall (2017) finds complete neutralization in two kinds of vowel shortening in Palestinian Arabic, despite the fact that one process does show sociolinguistic variability. This casts some doubt on the idea that variability in itself causes incomplete neutralization.

‘Closed syllable shortening’ refers to a process shortening vowels that appear in CV:CC syllables at some point in the derivation (Abu-Salim, 1986). As illustrated below, the process occurs before the negative suffix [–ɟ] and the applicative [–l], when they are added to a base ending in CV:C, such as /ʒa:b/ ‘brought.’ Interestingly, the complex coda environment that triggers vowel shortening is usually removed by a later process anyway. In the case of the negative, vowel shortening is counterbled by optional vowel epenthesis, which breaks up the CC coda and leaves the shortened vowel in a CV syllable. In the case of the applicative /l/, the CC coda appears only at an abstract intermediate stage where /l/ has been added but the object suffix has not. Once the object suffix is added, the /l/ is resyllabified as an onset, so the shortened vowel is now in a CVC syllable. The form /ʒa:b-ni/ ‘brought me (acc.),’ by comparison, has no vowel shortening because the /ni/ is a single suffix and is added all at once.

Table 1. Application and non-application of closed syllable shortening

	a.	b.	c.
	‘brought-neg’	‘brought to me’	‘brought me’
	/ʒa:bɟ/	/ʒa:b-l-i/	/ʒa:b-ni/
Cycle 1	ʒa:b	ʒa:b	ʒa:b
Cycle 2	ʒa:b-ɟ	ʒa:b-l	ʒa:b-ni
Syllabification	ʒa:bɟ	ʒa:bl	ʒa:b.ni
V:CC Shortening	ʒabɟ	ʒabl	–
Cycle 3	–	ʒabl-i	–
Resyllabification	–	ʒab.li	–
Epenthesis (opt.)	– ~ ʒabɛɟ	–	–
	[ʒabɟ ~ ʒabɛɟ]	[ʒabli]	[ʒa:bni]

The opacity of closed syllable shortening, and the fact that it happens in few morphological contexts, makes it questionable whether speakers see it as a real phonological alternation. In the forms [ʒabɛɟ] and [ʒabli], it is unclear from the surface forms why vowel shortening has occurred; there is no apparent phonotactic need for it. It is possible that speakers do not analyze these forms as being based on [ʒa:b]. Perhaps they analyze these forms as simply based on a different timing

pattern (template) than CV:C, rather than having a CV:C pattern that is altered in a predictable way.

Hall (2017) compares underlying short vowels to vowels shortened before the negative or applicative suffixes in Palestinian and finds no difference in duration for vowel pairs in 3 pairs of words like those below.

- | | | | | |
|-----|-----------|----------|-------|----------------|
| (2) | Shortened | /fa:q-f/ | faqef | 'did not wake' |
| | Short | /naqf/ | naqef | 'engraving' |

Vowel shortening in this context appears to be completely neutralizing.

For vowels before the applicative, the results were complicated by the fact that some speakers turned out not to have shortening in this context. Items consisted of the triplet shown below:

- | | | | | |
|-----|-----------|-------------|--------|------------------|
| (3) | Shortened | /ʒa:b-l-ak/ | ʒablak | 'brought to you' |
| | Short | /ʒabha/ | ʒabha | 'front forehead' |
| | Long | /ʒa:b-ha/ | ʒa:bha | 'brought her' |

Out of 72 speakers, 14 (disproportionately from the Jerusalem and Little Triangle areas) produced [ʒa:blak] rather than the expected [ʒablak], with a vowel length comparable to that of [ʒa:bha]. When these speakers were removed, the remaining 58 speakers showed complete neutralization of the underlying vowel length contrast.

The results for vowel shortening, then, contrast with those for vowel epenthesis, where robust incomplete neutralization was found under a very similar experimental paradigm. As noted before, the results for epenthesis seemed compatible with two hypotheses: (1) that incomplete neutralization may emerge out of sociolinguistic variability, and (2) that incomplete neutralization may be more common in relatively active processes. The finding of complete neutralization in vowels shortening can help distinguish between these.

For vowel shortening, an unexpected sociolinguistic variation was found in vowels preceding the applicative: the pronunciations [ʒa:blak] and [ʒablak] both exist in the same regions, and some speakers would likely hear both, similar to how some Lebanese speakers would hear epenthesis of both [i] and [ə]. If exposure to variants in itself produces incomplete neutralization, we should expect some speakers to have an incompletely shortened vowel in [ʒablak]. This was not found.

However, we should bear in mind that the sociolinguistic data on both processes is limited. I am not aware of any studies describing the general prevalence and social distribution of different epenthetic vowel qualities, nor of closed syllable shortening. It would be useful to have more fine-grained data on this, particularly studies of natural speech. It is possible that the nature of sociolinguistic variability for epenthesis and shortening differs in ways that could not be discerned from

laboratory data. For this reason, I do not consider the sociolinguistic hypothesis disproven by the vowel shortening data, only challenged.

Regardless, the lack of incomplete neutralization in vowel shortening remains highly compatible with the other hypothesis: that neutralization is more complete in less active processes. Closed syllable shortening has characteristics typical of an old, fossilized process: it happens only within words, only in specific morphological contexts, is obligatory where it does occur, and its phonological conditioning environment is usually opaque. The fact that some speakers are ceasing to apply the process supports the idea that it is synchronically inactive. By choosing the form [ʒa:blak] for 'brought to you,' speakers are leveling the paradigm to increase similarity with the unaffixed form [ʒa:b] 'brought.'

Unstressed vowel shortening

I will briefly describe a possible case of incomplete neutralization in a different vowel shortening process, which emerged from a recent (unpublished) study I conducted in Palestinian Arabic. This study was not intended to examine neutralization, but rather to measure the realization of vowel quantity in unstressed syllables. The items were three pairs of Form I vs. Form III verbs, like [sa'baqna] 'we preceded' versus [sa:'baqna] 'we raced.' These data were recorded together with the data for the experiments reported in Hall (2015) and Hall (2017), with the same methods and speakers. To my surprise, it turned out that some speakers apparently apply a vowel shortening process in this context. Figure 3 shows the distribution of 77 speakers' individual ratios between the durations of long and short vowels. The ratios form a bimodal distribution, as can be seen in the left-hand panel. The right-hand panel shows a model of this distribution fitted using the *normalmixEM* procedure for fitting normal mixture densities. This model finds two populations: 72% of speakers form a distribution centered around a mean ratio of 1.67 (a very typical long/short duration ratio for Arabic), while the other 28% form a distribution centered around a mean ratio of 1.15.

The relevant finding here is that the mean V:/V duration ratio for those who shorten vowels is estimated 1.15, rather than 1. If this is accurate, then their vowel shortening process can reasonably be described as an incomplete neutralization of vowel quantity. This result should be seen as very tentative and needs to be tested in a more focused study (which would start by verifying which speakers have the vowel shortening process, rather than trying to identify them post-hoc). Nevertheless, it fits with the emerging pattern that incomplete neutralization is stronger in historically younger, more active processes. Vowel shortening in words like /sa'baqna/ has not been described to my knowledge, and may be a recent innovation.

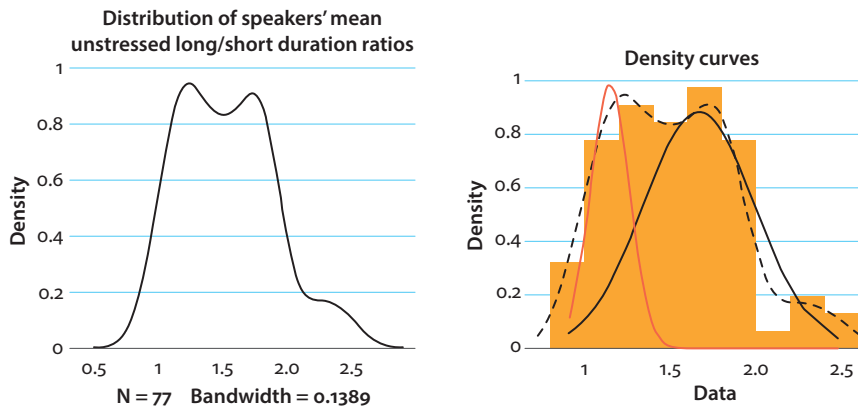


Figure 3. Kernel density graph of 77 speakers' individual mean duration ratios between underlyingly long and short unstressed vowels

No effect of orthography

As noted in Section 1, discussion of incomplete neutralization in European languages has focused heavily on the question of whether the phenomenon is an artefact of lab conditions, especially the use of orthographic stimuli. There is little doubt that orthography does play some role. In Dutch, Warner et al. (2004, pp. 270–273) find slight durational differences corresponding to a difference that is primarily orthographic: *kleden* 'to dress/dress (pl.)' and *kleedden* 'dressed (pl.)' are both segmentally /kledən/, but the latter has a longer closure duration for the [d], apparently caused by the doubled letter *d*. (Warner et al., 2006 address a possible morphological confound.) Ernestus and Baayen, 2006 found that when reading pseudo-verbs, a speaker produced final [p] and [t] with longer release noises when they were written as *b* and *d* than when they were written as *p* and *t*. Since the speaker had never heard the words, the incomplete neutralization could not be based on auditory memories. Spelling must have affected her pronunciation, whether directly or by causing her to posit underlying representations with final voiced obstruents.

In the matter of orthographic effects on phonetics, Arabic raises different issues than most European languages. The first is that most Arabic writing is in the Standard or Classical registers, which are at least as different from colloquial dialects as Shakespearean English from modern American. It is relatively rare to write a colloquial dialect, although this is changing with the rise of social media. The association of writing and high register is an issue when using orthographic stimuli to elicit a colloquial phonological process like epenthesis: since Standard Arabic lacks epenthetic vowels in words like [libs] 'clothing' (colloquial [libis]), speakers tend to suppress epenthesis when reading aloud. Where orthographic stimuli are necessary, the pull towards Standard pronunciations can be counteracted by

methods such as using distinctively colloquial frame sentences, colloquial target words, and colloquial spellings. In Hall (2013) and Hall (2017), I also had speakers listen to a colloquial “context sentence,” in which the target word was replaced by white noise. Hearing colloquial speech throughout the experiment helped speakers to stay in the same register.

A second issue, and methodological opportunity, comes from the fact that most Arabic writing is not “vocalized,” meaning that it does not indicate the location or quality of most short vowels. Vocalized script is used in a few contexts, particularly religious texts, but not in newspapers, novels, social media, etc. The example below shows the difference between vocalized and non-vocalized script for words used in Hall (2013). A fully vocalized script would include diacritics to show whether each consonant is followed by [i] or no vowel (the pronunciation written is without epenthesis). But in the unvocalized script used in most familiar writing, short vowels are not written.

(4)	/libis/	/libs/
	[libis] ‘wore’	[libs] ‘clothing’
Fully vocalized	لِيسِنْ	لِئْسِنْ
Unvocalized	لبس	لبس

For the vowel epenthesis studies (Gouskova and Hall, 2009; Hall, 2013), stimuli were presented in unvocalized script, so that /libis/ and /libs/ were identical. The difference between nouns (with epenthetic vowels) and verbs (with lexical vowels) was established either by presenting words in part of speech blocks, or with context sentences. Since speakers did not see any orthographic differences between words with lexical vowels and words with epenthetic vowels, it is unlikely that the robust phonetic differences some speakers produced between lexical and epenthetic vowels had any orthographic origin. At most, they could have activated memories of the fully vocalized versions of the words as shown above, but such forms would probably be a small minority of visual memories of the words. Vowel epenthesis in Lebanese Arabic, then, stands as a case of incomplete neutralization *without* orthographic conditioning.

Vowel shortening is exactly the opposite. In Hall (2017), words with underlying long vowels, like [ʒablak], were written with the letter ٰ for long [a:], while short vowels were omitted as usual, as shown below.

(5)	/a:/	/a/
	[ʒablak] جابلڪ	[ʒabha] جبهة
	[faqeʃ] فاقش	[naqeʃ] نقش

Speakers thus had a clear orthographic indication of the underlying quantity contrast between the vowels, yet they produced the vowels with identical duration. This result, too, goes against the idea that orthography determines the level of phonetic neutralization.

It is worth noting, however, that these studies were done with Arabic speakers who probably read more in other languages than in Arabic. Gouskova and Hall (2009) and Hall (2013) worked with Lebanese speakers living in Britain and the U.S., who spoke Lebanese frequently but whose jobs or studies would involve reading primarily in English. Hall (2017) worked with Palestinian students at Israeli universities, where most reading would be in English or Hebrew. For exploring the effects of Arabic orthography, the ideal participants would be university students studying in Arabic.

The non-representation of short vowels could be useful to researchers studying other phonological processes as well, such as the short vowel raising found in some dialects (Almihmadi, 2011, p. 16 notes that [gidir] in Bedouin Hijazi Arabic can be the output of either /gidr/ 'pot' or /gadir/ 'managed/overpowered'), or the syncope of unstressed short vowels in Levantine (/libis-na/ → [lbisna] 'we wore'). Neither would be reflected in unvocalized script.

As a final note, in some regions the older generations of Arabic speakers include significant numbers who were not taught to read, and this creates the opportunity of testing speakers who are truly unaffected by orthography. The only researcher I am aware of who has done this is Alimihmadi (2011), who compared 2 illiterate speakers, aged 55 and 60, to 5 younger speakers who were literate. She found no significant differences in levels of phonetic neutralization between the two groups, adding to the evidence that orthography is not a large factor. Further studies with non-readers would be a particularly valuable contribution to the literature on incomplete neutralization.

In short, the results from Arabic do not so far support the findings from European languages that orthography significantly affects phonetic neutralization. The reasons for this difference between languages (or between orthographies?) are unclear. It would be interesting to compare Arabic speakers' pronunciations of the same words under tasks that make more or less use of orthography, as Port and Crawford (1989) did with German. In addition to comparing oral vs. written stimuli, studies on Arabic could potentially compare the effect of fully vocalized, partially vocalized and unvocalized stimuli, varying the amount of phonological information conveyed by the orthography. This is a manipulation that would not be possible in, for example, Latinate or Cyrillic orthographies.

Does incomplete neutralization have a functional role?

As noted in 1.1, there is no consensus as to whether incomplete neutralization plays a functional role in communication. On the one hand, some studies find that listeners can use fine phonetic details to disambiguate words, with better than chance (but still not very high) accuracy. Port and Crawford (1989) find that German speakers actively reduce neutralization when trying to clarify a contrast,

as when reading a sentence like *Ich habe "Rat," wie Ratschlag, gesagt; nicht "Rad," wie Fahrrad*. ('I said *Rat*, as in 'a bit of advice,' not *Rad*, as in 'bicycle'). On the other, Winter and Röttger (2011) point out that underlying final voicing contrasts play very little actual functional load in German.

In Arabic, the underlying contrast between /CVCC/ versus /CVCVC/ has if anything even less functional load than the underlying voicing contrast in German obstruents. There are only a few minimal pairs, such as /libs/ [libis] 'clothing' vs. /libis/ [libis] 'wore.' These pairs are always the same root appearing in different parts of speech, which means that they would almost never be ambiguous in a sentential context.

3. Towards a spreading activation analysis for Arabic

I have argued in the preceding section that the levels of phonetic neutralization in Arabic do not seem to be determined by sociolinguistic variation, nor by the way that process is represented orthographically. On the other hand, incomplete neutralization does seem to be more common in processes that are more synchronically active: it is strongest in the highly 'postlexical' process of Lebanese vowel epenthesis, weaker or non-existent in the more lexicalized Bedouin Hijazi vowel epenthesis, and non-existent in the heavily fossilized, possibly disappearing process of Palestinian closed syllable shortening. In this section, I will sketch how the difference between more and less active alternations might be implemented in the spreading activation approach proposed by Ernestus and Baayen, incorporating insights from the lexical priming literature on how the mental lexicon is organized in Arabic.

The ideas presented here are highly speculative. My goal is to provide a framework for theorizing about how phonetic co-activation of morphologically related forms might work in Arabic, generating hypotheses about where incomplete neutralization will and will not be found.

Arabic morphology and the mental lexicon

As is well-known, Arabic has a 'root-and-pattern' morphology. Lexical meaning is carried primarily by roots, which typically consist of three consonants. Grammatical information is conveyed by a 'pattern' that determines the location of the root consonants (as well as whether they are geminate), as well as the location and length, and possibly quality, of the vowels.

Much of our knowledge of the Arabic mental lexicon comes from a series of perceptual priming studies by Boudelaa and Marslen-Wilson with Tunisian speakers, using mostly Standard Arabic and occasionally colloquial Tunisian Arabic

(see, for example, Boudelaa & Marslen-Wilson, 2015 and references therein). Perceptual priming, like incomplete neutralization, is believed to reflect linkages in the mental lexicon: when a lexical entry is activated in perception, activation spreads to related words (see Section 3), and these words are subsequently recognized more quickly because they are already partially activated.

Boudelaa and Marslen-Wilson find that Arabic shows two distinct kinds of morphological priming, which occur over different timecourses (Boudelaa and Marslen-Wilson, 2005). The first is root priming: a word based on a given root, such as k-t-b, primes other words with the same root, even if they are semantically unrelated. For example, [kataba] ‘wrote’ primes [kati:batun] ‘battalion.’ The second is pattern priming. For example, there is priming between verbs with the CVVCVCV pattern, like [fu:ʒiʔa] ‘was surprised’ and [ʃa:raka] ‘participated,’ even though they do not share a root and are semantically unrelated. This suggests that words are decomposed into roots and patterns during perception, and that linkages between inflected forms are mediated by abstract roots and patterns. A diagram of such an organization is shown in Figure 4.

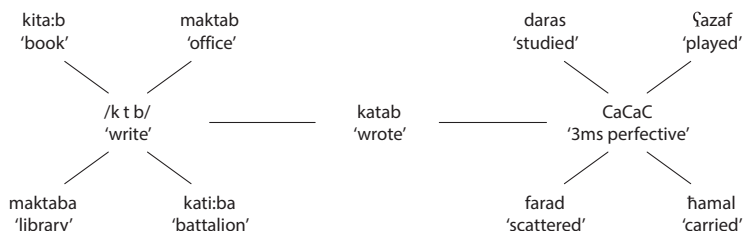


Figure 4. Hypothetical organization of morphologically related words in Arabic

Incomplete neutralization, however, depends not only on linkages between words but linkages between specific segments. Here, Arabic poses a challenge. When comparing forms like Dutch [vɛrvɛɪdən] and [vɛrvɛɪt], it is easy to see that the segments in the identical [vɛrvɛɪ] strings must correspond to one another, as must the alternating [d] and [t], and that the final [ən] of the infinitive has no correspondent in the other word. Therefore, it is easy to make predictions about where phonetic cross-influences might occur: the [ɛɪ] of [vɛrvɛɪdən] may cause the [ɛɪ] of [vɛrvɛɪt] to lengthen slightly, in the direction of how vowels are realized before voiced obstruents; the [d] of [vɛrvɛɪdən] may impart voicing characteristics to the [t] of [vɛrvɛɪt]. But in Arabic’s complex, alternation-rich paradigms, where consonants and vowels belonging to different morphemes are interleaved, it is not always obvious which segments in related forms should be considered to have a correspondence relation.

The simplest case is of words sharing a CCC root, where we can reasonably hypothesize that, for example, the [k] in [katab] ‘wrote’ is in correspondence with the [k]s in [maktaba] ‘office,’ [kita:b] ‘book,’ etc. If these [k]s are co-activated in production, there could be subtle phonetic effects. For example, consider that in all the k-t-b words, [k] is voiceless, while in roots in k-z-b ‘lie,’ /k/ would undergo gradient voicing assimilation in forms where it is adjacent to /z/ (i.e., /jikzib/ ‘he will lie’ can be pronounced something like [jigzib]). We could test for different levels of voicelessness in the [k]s of [katab] vs. [kazab], where only the second has correspondence with a phonetic [g].

It seems less likely that there would be connections between the consonants of words that share a timing pattern but not a root. Within the CaCaC pattern, for example, almost every consonant of the language occurs in C1 position; Figure 4 shows examples of [d], [f], [ʕ] and [ħ]. It is hard to imagine what it would mean to phonetically coactivate all these diverse consonants when producing the [k] of [katab].

Conjecture 1: Root consonants in morphologically related forms are co-activated in production only if those forms share a root.

By a similar logic, I hypothesize that vowels are linked only in forms that share a timing pattern, since it is the timing pattern that determines the location and quantity (and possibly the quality) of the vowels. So, for example, the first [a] of [katab] would be linked to the first [a]s of [ʕazaf], [farad], etc., in Figure 1, but not to any vowel of [maktaba], [kita:b], or other forms that are connected to [katab] only through a shared consonantal root. Again, it is difficult to see how speakers would even decide which vowels to link in words that share only a root, given that the number of vowels, their locations, their lengths, and their qualities all differ.

Conjecture 2: Vowels in morphologically related forms are coactivated in production only if those forms share a timing pattern.

Since all studies of phonetic neutralization in Arabic have involved vowel alternations (epenthesis and shortening), it is pattern linkage that we need to understand.

Which words share timing patterns?

I have suggested that mutual effects among vowels occur when forms share a timing pattern. However, while it is generally straightforward to decide whether two forms share a root, it is not always clear which forms should be considered to share a pattern, given that affixation triggers many phonological processes that alter surface timing patterns.

A typical verb paradigm contains many vowel alternations. For example, examine the paradigm of 3-j-b ‘bring’ below. The vowel after the initial [ʒ] can be stressed or unstressed [a:], [i:], [a], or [i].

- (6)
- | | | |
|----------------|--------------------|---------------|
| 'ʒa:b | ‘he brought’ | (Palestinian) |
| 'ʒabf ~ ʒabef | ‘he did not bring’ | |
| i'ʒi:b | ‘he will bring’ | |
| 'ʒibt ~ 'ʒibet | ‘I brought’ | |
| 'ʒa:jeb | ‘bringing’ | |
| ʒa'bu:na | ‘they brought us’ | |

Some of these vowels, such as the [a:] of ['ʒa:b] and [i:] of [i'ʒi:b], clearly must be considered to belong to different morphemes. The [i:] occurs throughout the imperfective series, in forms like those below. Presumably the imperfective forms all share a Ci:C pattern that is different from the perfective Ca:C pattern of ['ʒa:b], and hence we would not expect speakers to draw segment-level linkages between the vowels of ['ʒa:b] and [i'ʒi:b].

- (7)
- | | |
|---------------|---------------------|
| ʔa'ʒi:b (1s) | |
| t'ʒi:bi (2fs) | Ci:C (imperfective) |
| i'ʒi:bu (3p) | |
| 'ʒa:b | Ca:C (perfective) |

But what about vowels that alternate within the perfective series? Perfective vowels in this paradigm can be [a:] or [i], as shown below.

- (8) Perfective
- | | |
|--------------------------|---------------|
| [i] forms | [a:] forms |
| 'ʒibt ~ 'ʒibet (1s, 2ms) | 'ʒa:b (3ms) |
| 'ʒibti (2fs) | 'ʒa:bat (3fs) |
| 'ʒibna (1p) | 'ʒa:bu (3p) |
| 'ʒibtu (2p) | |

The distribution of [i] and [a:] appear to be phonologically governed, with CiC preceding consonants (before the vowel epenthesis in [ʒibet]) and Ca:C elsewhere. So one approach is to regard all these forms as sharing a Ca:C pattern, with a phonological process of vowel raising and shortening that applies in the context /_CC. The process would have to apply in a very morphologically limited way, since [a:CCV] sequences do occur in other morphological contexts (for example, [ʒa:bni] ‘brought me (acc.)’, [fa:ʒli] ‘unsuccessful’, [fa:sʕli] ‘comma’). This morphological limitation might well cause speakers to analyze the paradigm differently: they might posit two perfective patterns, a Ca:C pattern for third person and a CiC pattern for first and second person. If this is the case, then we would not expect

mutual influence between the [i] and [a:], since they would belong to different morphemes.

Another question is how speakers analyze alternations triggered when suffixes are added to the base form for a given person / gender / number, like the addition of object, applicative, and negative suffixes to [ʒa:b] as shown below.

- | | | |
|-----|------------------------|------------------------------|
| (9) | 'ʒa:b | 'he brought' |
| | (ma)'ʒabʃ ~ (ma)'ʒabɛʃ | 'he did not bring' |
| | 'ʒa:bni | 'he brought me (acc.)' |
| | (ma) ʒab'ni:ʃ | 'he did not bring me (acc.)' |
| | 'ʒabli | 'he brought to me' |
| | (ma) ʒab'li:ʃ | 'he did not bring to me' |

Within this paradigm, we see alternations of vowel length and stress. To a phonologist, it is easy to analyze these alternations as phonologically governed: the short vowels in [ʒabli] and [ʒabʃ~ʒabɛʃ] derive from Closed Syllable Shortening (see Table 1); the short vowel in [ʒab'ni:ʃ] reflects another process shortening unstressed vowels, and the stress shifts themselves follow the predictable Arabic stress pattern. We would expect, then, that all these words do share a Ca:C timing template, and the alternating vowels (stressed [a], unstressed [a], [a:]) should be linked to one another in the same way as [d] and devoiced [t] are linked in Dutch. Again, however, we cannot be sure that speakers actually analyze the alternating forms the same way that phonologists do.

Representation of alternations: Evidence from priming

The priming literature contains a few examinations of phonological alternations, and the findings suggest that there may indeed be a difference in the way linguists and speakers analyze alternations. Both in Arabic and Hebrew (which has a similar root-and-pattern morphology), some alternations appear to disrupt pattern-based priming.

Boudelaa and Marslen-Wilson (2004) compare priming in two types of allomorphy: that which alters a root consonant without changing the timing pattern, and that which disrupts the timing pattern through consonant deletion. The experimental paradigm was cross-modal priming, in which participants heard a spoken prime and immediately afterwards performed a lexical decision on a visual target (both in Standard Arabic).

They found that root priming occurred even if one of the root consonants underwent assimilation, as in Table 2. In each pair, the root /w/ has assimilated to [t] in the prime, yet successfully primes forms where the [w] has not assimilated.

This suggests that the linkage of the forms to the abstract root is not broken by consonant assimilation.

Table 2. Root priming with root consonant alternations
(Boudelaa & Marslen-Wilson, 2004)

Shared root	Prime	Target
w-f-q	ʔittifa:qun ‘agreement’	wa:faqa ‘agree’
w-ʒ-h	ʔittiza:hun ‘destination’	wa:ʒaha ‘confront’

Consonant assimilation also does not disrupt pattern priming. In a pair like that in Table 3, where again the prime shows assimilation of /w/ to [t], other words of the same pattern without assimilation are still primed.

Table 3. Pattern priming with root consonant alternations
(Boudelaa & Marslen-Wilson, 2004)

Shared pattern	Prime	Target
ʔiCtaCaCa	ʔittahada ‘unite’ root: w-h-d	ʔibtasama ‘smile’ root: b-s-m

Yet, surprisingly, pattern priming is disrupted by another phonological alternation: the deletion of one of the root consonants in so-called “weak roots.” In the pair in Table 4, both words have undergone deletion of a final root /j/. Although the words are considered to share an underlying timing pattern, and also have an identical timing pattern on the surface, they do not prime one another. It is as if the weak roots, rather than maintaining a connection to their historical pattern or forming a new pattern group by themselves, somehow exist outside the pattern system.

Table 4. No pattern priming in ‘weak’ roots with consonant deletion (Boudelaa & Marslen-Wilson, 2004)

Shared pattern	Prime	Target
(a) ʔaCCaCa	ʔaθna: ‘praise’ root: θ-n-j	ʔalya: ‘cancel’ root: l-y-j
(b) CaCaCa	da:ra ‘turn around’ root: d-w-r	qa:la ‘say’ root: q-w-l

Frost et al. (2000) find similar results for Hebrew. In a visual masked priming experiment, words like [hispi:k] ‘managed’ prime other words of the hiCCiC

pattern, such as [hisrit] 'filmed.' But they neither prime nor are primed by a 'weak root' word like /hinpil/ [hipil] 'overthrew,' which underlyingly shares the hiCCiC pattern but has different timing on the surface due to deletion of a root consonant. Nor do two words with weak roots, like [hipil] and /hingif/ [higiʃ] 'served,' prime one another.

There are at least two conclusions we can draw from the priming results. The first is that speakers may be more reluctant than linguists to draw pattern-based linkages between words whose timing is not surface-identical. In other words, timing alternations that could straightforwardly be analyzed as phonological may be treated by the speaker as involving a kind of morphological suppletion. Both of the priming experiments above concerned alternations between presence and absence of a consonant, but the same could be true of alternations between presence and absence of a vowel, as in vowel epenthesis, or between long and short vowels, as in closed syllable shortening. Both of these are pattern-altering processes.

The second conclusion is that when a class of words, such as weak-root verbs, undergo pattern-altering phonological processes, they do not necessarily form a new pattern, but may be disconnected from the usual system of organization via pattern. This seems quite surprising, but it is striking that such results have held for weak roots in two languages.

Representing vowel alternations in the lexicon

I suggest that the lack of incomplete neutralization in closed syllable shortening reflects a lexical organization in which apparently alternating long and short vowels are not linked to the same timing pattern. I will sketch two ways that they could be organized instead.

The first possibility is that the word [ʒa:b] 'bring' may not participate in pattern-based linkages at all. [ʒa:b] comes from the weak root /ʒ-j-b/, with the [j] surfacing in the active participle [ʒa:jeb] 'bringing.' In terms of pattern, it is similar to Standard Arabic [qa:la] and [da:ra] in (15b), which are also weak roots although their medial root consonant is /w/. Those words failed to participate in pattern-based priming, suggesting they do not synchronically link to an abstract pattern. If [ʒa:b] also does not link to a pattern, and if mutual phonetic influence between vowels occurs through pattern linkages, then the lack of influence between the first vowels of [ʒa:b] and [ʒablak] is expected.

A second possibility is even if [ʒa:b] does have a timing pattern (for example, suppose that speakers have innovated a Ca:C pattern for historically weak roots), related forms like [ʒablak] and [ʒabefʃ] may not share that pattern. Rather than the organization in Figure 5a, where forms with long and short vowels all link to the basic Ca:C pattern as well as to their shared root, speakers are adopting the organization in Figure 5, where these forms share a root but do not share a pattern.

(I make no guess as to whether forms like [ʒablak] and [ʒabɛf] share a different, CaC pattern.)

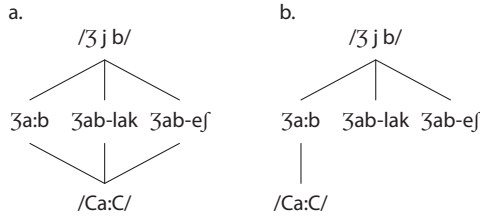


Figure 5. Two hypothetical organizations of forms of 'bring,' with and without pattern linkage.

As for the reason that speakers might adopt this organization, it could relate to the point made in Section 2: this particular kind of vowel shortening is relatively phonologically opaque. Speakers see vowel shortening in [ʒabli] 'brought to me' that does not occur in very similar forms like [ʒa:bni] 'brought me'; rather than attributing the difference to cyclic application of morphological and phonological rules, they may decide that the length of the vowel is simply morphologically determined. Hence, [ʒabli] and [ʒa:bni] must not share a timing morpheme.

A different organization must underlie the production of Lebanese vowel epenthesis for those speakers who show incomplete neutralization. Two possible linkages patterns for words with epenthesis are shown in Figure 6. Since /libis/ has two established pronunciations, both are represented.

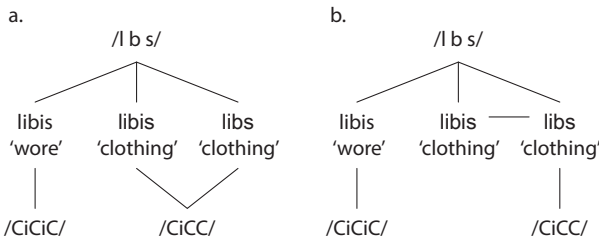


Figure 6. Two hypothetical organizations of forms of 'clothing.'

In the arrangement in (a), forms with and without epenthesis are both linked to a CiCC timing pattern, and hence will be influenced by one another. The first [i] of [libis], which is in an open syllable, corresponds to the first [i]s of [libs] and other CiCC words, which are in doubly-closed syllables. Hence, it will show the phonetic reduction typical of vowels in closed syllables, as Hall (2013) found. Similarly, the epenthetic [i] in [libis] corresponds to an empty slot, an absence of

vowel, in [libs], and this may weaken its production, producing the centralization and/or shortening found by Gouskova and Hall (2009) and Hall (2013).

In (b), by contrast, the link between [libis] and the CiCC pattern has been lost. The forms [libis] and [libs] are related only through their shared root, which, by conjecture (1), does not result in linkages between their vowels. Nor is [libis] linked by pattern to other [CiCC] surface forms. Therefore, the production of its first vowel will not be influenced by the closed-syllable realization of [i], and the production of its vowel will be uninfluenced by the absence of a vowel in [libs]. This describes the productions of those speakers who showed complete neutralization in Hall (2013).

We might expect that the representation of Figure 5 is more typical of speakers who are moving towards lexicalization of epenthetic vowels. Disconnection between [libis] and its original CiCC pattern could be a step towards the sort of fossilized epenthesis system Almihamdi (2011) describes for Bedouin Hijazi Arabic, in which historically epenthetic vowels have several qualities and are starting to bear stress.

It should again be emphasized that the lexical organizations proposed here are highly speculative. We have only a handful of studies on incomplete neutralization in Arabic, fewer on priming relations between allomorphs in Arabic, and no examples of a process that has been studied by both methods. The goal of this section has been to lay out and attempt to disentangle some of the issues that need to be addressed in order for the spreading activation account to be extended to Arabic and other Semitic languages: particularly (1) the general representation of root and pattern morphology; (2) the representation of specific alternations that disrupt timing patterns; (3) the representation of optional processes like vowel epenthesis, and (4) the type and degree of relatedness among inflected forms within large paradigms.

4. Conclusion and future directions

Replication of previous studies would be useful. In well-studied languages, it has been common for results to differ across studies: Jongman et al. (1992) and Baumann (1995) did not find incomplete neutralization for Dutch final devoicing, while later studies did.

The study of incomplete neutralization in Arabic would benefit from collaboration between phoneticians, phonologists, psycholinguists, and sociolinguists. As noted in Section 2, it seems possible that sociolinguistic variation in the application of rules like epenthesis could, in principle, produce incomplete neutralization: for

example, a speaker who hears both epenthetic [i] and epenthetic schwa might produce an epenthetic vowel that is somewhere in between. Yet the same effect does not obtain in vowel shortening, where sociolinguistic variation also seems to exist. A difficulty in evaluating this idea is that very little sociolinguistic data is available on the distribution and frequency of processes like these. Variationist studies of Arabic phonology tend to focus on variables such as the reflex of Classical *q ([q], [g], [ʔ]), which is not much involved in alternations and therefore of limited relevance to incomplete neutralization (although the merger of *q, *ʔ could potentially be incomplete). A detailed geographic and demographic map of epenthetic vowel qualities, for example, would be useful, as would studies of variability in the frequency of vowel epenthesis across words and across speakers. The same is true for other processes such as closed syllable shortening. Without knowing what kinds of variability exist in phonological alternations, we can only guess what kinds of auditory memories speakers might carry.

Attempts to explain incomplete neutralization through lexical organization would also benefit from more psycholinguistic study of phonological alternations in Arabic. As discussed above, it is largely unknown how speakers represent the ‘pattern’ morpheme in paradigms where regular phonological processes disrupt the pattern. A better understanding of mental representations would help answer the question of whether the presence or absence of pattern-based linkages is a determinant of the level of phonetic neutralization.

In turn, a better understanding of incomplete neutralization in Arabic has the potential to significantly extend the insights into the phenomenon that have been gained through studies on European languages. Arabic offers a wealth of diverse phonological processes that have never been studied phonetically. One hopes that findings on Arabic phonetic neutralization will one day be cited as evidence as often as studies of final devoicing.

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Diminutive formation in a Libyan dialect with some phonological implications

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Detailed studies of diminutives in Arabic dialects are uncommon. In this article, after discussing the diminutive in Classical Arabic, Coastal Dhofari Arabic, and Moroccan Arabic, we present a detailed description of diminutives in Asāb'ā Arabic, a rural Libyan dialect. We note two diminutive templates in Asāb'ā Arabic: CCeeC and CCayX. Further, we document a subtype of the CCeeX template applicable to base words that begin with a labial consonant followed by a long vowel, e.g. [faar] 'mouse', which has the diminutive [ʔuf.feer] rather than [fweer]. We suggest that this is an OCP effect influencing (non-identical) adjacent labials. We also discuss other implications of the diminutive in Asāb'ā Arabic, including the nature of its diachronic relationship with the Classical Arabic diminutive.

Keywords: diminutive, classical Arabic, Libyan Arabic, Moroccan Arabic, Coastal Dhofari Arabic, affricates

1. Introduction

One of the hallmark characteristics of Arabic is its templatic morphology. While in the past several decades, starting from McCarthy (1979, 1981), research has focused on the description and analysis of the templatic morphology of Classical Arabic that would include its verbal forms, broken plural patterns, and the diminutive (e.g. McCarthy & Prince, 1990), more recent work has focused on the templatic morphology of Arabic dialects. We would include here work on hypocoristic patterns (Abu-Mansour, 2019; Davis & Zawaydeh, 2001; Zawaydeh & Davis, 1999) and on the Arabic templatic comparative (Davis, 2017), as well as the substantial work of Heath (1987) on a dialect of Moroccan Arabic. One intriguing construction that is often not detailed in the study of contemporary dialects is the templatic diminutive of nouns (though see Heath, 1987 and Lahrouchi & Ridouane, 2016 for Moroccan Arabic and the overview and references in Zewi, 2011). One reason for this, as noted by Watson (2006), is that there are probably

many dialects like Sanʿani Arabic and Cairene Arabic where the diminutive is no longer productive on nouns (though some adjectival words with diminutive form occur such as Cairene [rufayyaʕ] ‘thin’). We suspect that the productive diminutive may be more common in rural dialects than in urban ones. In this paper, after first briefly describing the diminutive formation in Classical Arabic and in two modern dialects in Section 2, we focus in Section 3 on the details of diminutive formation in a northwest rural dialect of Libyan Arabic (Asābʿā dialect), the native variety of the first author, which has not been previously described. The diminutive in the dialect is very productive, even applying to loanwords such as [gaaraaz] – [gweeriiʒ] ‘garage,’ and may have some unique characteristics. The dialectal diminutive has many subpatterns, and our goal in the section is to describe the patterns as opposed to analyzing them theoretically. In Section 4, we show how the Libyan Arabic diminutive has a bearing on issues of phonological analysis in the dialect and on the diachronic development of diminutives. In Section 5, we conclude the paper.

2. Brief description of the diminutive in Classical Arabic and two other varieties

In this section, we briefly describe the diminutive in Classical Arabic, Coastal Dhofari Arabic (Davey, 2016), and in a Moroccan Arabic dialect (Heath, 1987). As far as we are aware, the modern dialects that maintain a productive diminutive have diminutive forms that can be derived in terms of their phonological shape from the Classical Arabic diminutive. Coastal Dhofari Arabic seems to diverge only minimally from the Classical Arabic diminutive, while Moroccan Arabic diverges more radically. The description of these three varieties will help to frame our presentation of the Libyan variety in Section 3.

The diminutive in Classical Arabic

Classical Arabic (CA) has a productive diminutive where most any noun can be made into a diminutive. While the CA diminutive has been described by contemporary researchers such as McCarthy and Prince (1990), Ratcliffe (1997), and Watson (2006), it was also described by the Classical Arabic grammarians, as shown in the following translation from Ibn Jinnī in the 10th century:

The patterns of diminutive formation are three: fuʿayl, fuʿayʿil, and fuʿayʿil. The first of which is used for the trilateral noun such as kaʿb: kuʿayb as well as farkh: furaykh; the second is used for the quadrilateral noun such as Jaʿfar: Juʿayfir as well as jadwal: judaywil; and the third is used for the quinqueliteral noun the fourth of

which is either *ā*, *ī* or *ū*, none of them is radical, such as *miftāḥ*: *mufaytiḥ*, *qindil*: *qunaydil*, as well as *‘uṣfūr*: *‘uṣayfir*.

(*Kitāb al-Luma’*. Translated in Al-Ani and Gadoua (to appear))

In early generative phonology, Brame (1970, p. 429) described the CA diminutive as being formed on a stem (or base word) by substituting [u] between the first and second radicals of the stem, [ay] between the second and third radicals, and [i] between the third and fourth if the stem has a fourth radical. All of these descriptions cover the CA diminutive forms shown in (a–d) in Table 1 where the data are categorized by the shape of the base word. (In our transcription [y] indicates the palatal glide. A period indicates a syllable boundary.)

Table 1. Classical Arabic diminutives

Word shape	Base word	Diminutive	Gloss
a. CVC(C)	dam	dumay	blood
	nafs	nufays-ah	soul
	ḥukm	ḥukaym	judgment
	muxx	muxayx	brain
b. CV.CVC	ṣinab	ṣunayb	grape
	malik	mulayk	king
c. CVC.CVC	ḍundub	ḍunaydib	locust
	maktab	mukaytib	office
d. CVC.CVVC	sult ^a aan	sulayt ^a iin	sultan
	miftaah	mufaytiih	key
e. CV.CVVC	kitaab	kutayyib	book
	ḍazāiir-ah	ḍuzayyir	island
	saḥaab-ah	suḥayyib	cloud
f. CVV.C(VC)	baab	buwayb	door
	faakih-ah	fuwaykih	fruit
	xaatam	xuwaytim	signet ring
g. CVV.CVVC	qaamuus	quwaymiis	dictionary

However, further elaboration is needed to describe the diminutives in (e–g) in Table 1. In (e), a geminate-[y] occurs between the second and third consonant when the base noun consists of a light (CV) first syllable and a long vowel in the second syllable. The data in (f–g) in Table 1 show that when there is a long vowel in the initial syllable of the base word, the second consonant of the diminutive is always the glide [w], which is referred to as a default consonant by McCarthy and Prince (1990). Moreover, in examining the diminutive forms in Table 1, we observe that sometimes the last syllable has the long vowel [ii], as in (d) and (g). The presence of the long vowel in the diminutive reflects a transfer effect from

the base. Namely, if the second syllable of the base noun contains a long vowel and the first syllable is heavy, then the final syllable of the diminutive will also have a long vowel. In this way, the diminutive in Arabic is word-based since its output is partially dependent on the prosodic characteristics of the base noun. Nonetheless, as McCarthy and Prince (1990) have observed, the Classical Arabic diminutive is templatic in the sense that it always begins with the iambic sequence: **Cu.Cay** (where the first syllable is light and the second is heavy). The structure of the diminutive word as a whole can be represented as **Cu.CayX** where X indicates the remainder of the word and can consist of zero or more phonemes. What constitutes this remainder is dependent on the phonological form of the base noun, although we do not detail this. It is the iambic sequence **Cu.Cay** that constitutes the morphological exponence of the Classical Arabic diminutive.

The diminutive in contemporary Arabic dialects

In contemporary Arabic dialects that maintain a productive diminutive, the diminutive forms may vary from that shown in Classical Arabic in Table 1, but they almost always seem to be derivable from or based on the Classical Arabic form in predictable ways. Consequently, one can make the assumptions that the Classical Arabic diminutive is the historical precursor of the dialectal diminutive. In some dialects there may be very minimal deviation from what is found in Classical Arabic while in other dialects the diachronic changes are more substantial. To illustrate this, in the following two subsections we will briefly consider the diminutive in the conservative variety of Coastal Dhofari Arabic, where there is little deviation from Classical Arabic, and in a more divergent variety of Moroccan Arabic. We will describe how the diminutive is formed in these dialects but will not offer any theoretical analysis of the patterns as done, for example, by McCarthy and Prince (1990) for Classical Arabic or by Lahrouchi and Ridouane (2016) for a Moroccan variety. Our description will serve as background for situating the diminutive in the Libyan Arabic variety to be detailed in Section 3.

The diminutive in Coastal Dhofari Arabic

Coastal Dhofari Arabic (CDA) is a dialect spoken on the southern coast of Oman and has recently been described by Davey (2016). Davey includes a brief description of the diminutive in CDA (p. 109) that is somewhat incomplete in terms of the range of forms provided, but its conservative nature is nonetheless clear. Before presenting the diminutive forms, we briefly mention some aspects of CDA phonology that are important for the understanding of the diminutive data. As described by Davey (2016, p. 62), CDA witnesses frequent syncope of unstressed vowels in word-initial CV syllables resulting in initial consonant clusters. Examples include

[kliib] ‘dogs’ and [hmaar] ‘donkey’, both of which historically have a vowel between the first two consonants. Moreover, there is a strong tendency (not absolute) for words to have iambic (i.e. final) stress and to lengthen the vowel of the final syllable if it is not already long. This could occur along with initial syllable syncope as in [qmáar] ‘moon’, which historically has the trochaic pattern [qáamar]. The iambic pattern can also occur without vowel deletion, as in the two examples [maktáab] ‘office’ and [muxtaliif] ‘different’ (where the penultimate vowel in each of these words has a reduced schwa-like quality); the related forms in many other dialects would be [máktab] and [múxtaliif] without final stress or lengthening. Because of the tendency for final stress and syllable-final vowel lengthening, words of the pattern CVC.CVC seem rare in CDA, unlike Classical Arabic.

Given the phonological preliminaries just discussed, let us consider the diminutive in CDA. In Table 2, we present some of the examples gleaned from Davey’s work, which we organize according to shape of the base word.

Table 2. Coastal Dhofari diminutives (Davey, 2016, p. 109)

Word shape	Base word	Diminutive	Gloss
a. CVCC	kelb	kuleeb	dog
b. CCVVC	qmaar	qumeer	moon
c. CV(C).CV(CV)	mara	mureey-a	woman
	kibda	kubeed-a	liver/little one
	s ^ʕ ahan	s ^ʕ uheen	plate
	baqara	buqeer-a	cow
d. CVVC	baab	buweeb	door
	kuub	kuweeb	cup
e. CVC.CVVC	fingaan	funeegiin	cup
	sikkiin	sukeekiin	knife
	sinnaara	suneeniir-a	cat
f. CV.CVVC	hat ^ʕ iit ^ʕ	hut ^ʕ eevit ^ʕ	thin
	ʕariid ^ʕ	ʕureeyid ^ʕ	wide

Davey (2016, p. 109), in considering the forms in (a–e) in Table 2, posits two different templates for capturing the diminutive pattern. Forms in (a–d) with two or three consonants all have the template $C_1uC_2eeC_3(-a)$ but the forms in (e) with four consonants (where a geminate is counted as two consonants) have the templatic structure $C_1uC_2eeC_3iiC_4(-a)$. A more generalized diminutive template would be: $Cu.CeeX(-a)$ (in which the first syllable is light and the second is heavy). The X in the template $Cu.CeeX$ indicates the remainder of the diminutive word form, which is predictable given the phonological form of the base noun, although we do not detail this. There is a third pattern in (f) in Table 2 that is not formally

discussed by Davey. This pattern occurs when the first syllable is light and the second one has a long vowel. Here, the template takes the shape of $C_1uC_2eeyiC_3$. However, this also can be captured by the more general template $Cu.CeeX$.

One can consider Diminutive formation in Coastal Dhofari Arabic to be very similar to that of Classical Arabic shown in Table 1, with the main difference being that the diphthong [ay] monophthongizes to [ee]. That is, one can take the CDA diminutive forms in Table 2 and diachronically derive them from their Classical Arabic counterparts simply by replacing the diphthong [ay] with the long vowel [ee]. What is interesting about this is that it even applies to the forms in (f) in Table 2 where, for example, the Classical Arabic version of the CDA diminutive [ħutʕeeyitʕ] ‘thin’ would be [ħutʕayyitʕ]. Diachronically, this means that monophthongization of /ay/ occurred even when the /y/ of the diphthong was the first part of a geminate. Youssef (2013) points out that in dialects in which diphthongs undergo monophthongization there is resistance to monophthongization when the /y/ of the diphthong is the first part of the geminate. This can be seen in Cairene Arabic with the comparison of [beet] ‘house’ from /bayt/ and [bayyit] ‘to spend the night’ where the geminate structure blocks monophthongization; or in the Cairene Arabic (historical) diminutive form [rufayyaʕ] ‘thin’, which fails to undergo monophthongization. While Davey (2016, p. 55) specifically notes that CDA has monophthongization like Cairene Arabic, the geminate-y of a diminutive like /ħutʕayyitʕ/ ‘thin’ nonetheless undergoes monophthongization, resulting in the CDA form [ħutʕeeyitʕ]. A second observation regarding the CDA diminutive that reflects its conservative nature is that the vowel /u/ in the initial syllable does not undergo syncope despite the fact that syncope is historically common. For example, [qmaar] ‘moon’ in (b) in Table 2 has diachronically lost the short vowel after the first consonant (Classical Arabic [qamar]), but the diminutive form still preserves the diachronic short vowel, as in [qumeer]. Thus, based on the data in Davey (2016), one can maintain that the CDA diminutive is conservative, only differing from the Classical Arabic in the monophthongization of /ay/ to [ee].

The diminutive in Moroccan Arabic

Data on the Moroccan Arabic diminutive can be found in Heath (1987, pp. 114–115) and in Lahrouchi and Ridouane (2016), as well as in various other sources on the Moroccan variety. The dialect described by Heath is based on Fes/Meknes region (central plains), including subvarieties with respect to the diminutive and in certain ways is somewhat different from the Moroccan dialect described by Lahrouchi and Ridouane. The data presented in this section reflect that in Heath (1987) and the cited forms reflect his transcriptions. In considering phonological preliminaries to the presentation of the Moroccan diminutive data, we note

that Moroccan Arabic words can have clusters of two or more consonants. This is because many of the historical short vowels have been lost, resulting in more cluster possibilities than in other dialects. Moreover, the full vowels of Moroccan Arabic are often cognate with long vowels in other varieties. (See Lowenstamm (1991) for a theoretical account on the connection between the Classical Arabic vowel system and that of Moroccan Arabic.)

Given the background on Moroccan Arabic just discussed, let us consider the diminutive form. In Table 3, we present some examples in Heath (1987), where we organize the data according to the initial phonemic sequence of the base word. (The diminutive forms of base nouns of the shape CV as in [xu] ‘brother’, CC as in [x^wt] ‘sister’, and CCV as in [dlu] ‘bucket’ are not discussed here, given their variation and exceptionality, but see Heath (1987) for discussion.)

Table 3. Moroccan Arabic diminutives (Heath, 1987, pp. 114–115; note that our transcriptions follow Heath except that we incorporate IPA symbols to represent the emphatics and palatoalveolars. Also, for some of the forms below Heath gives more than one variant, which we do not always indicate.)

Base word	Diminutive	Gloss
a. hanut	hwinit-a	shop
b. sarut	swirit	key
c. gaʒu	gwiʒu	lawn
d. kambu	kwimbu	hick
e. d ^ʕ ar ^ʕ	d ^ʕ wir ^ʕ -a	house
f. bir	bwiyər	well
g. bab	bwib-a	door
h. s ^ʕ and ^ʕ al	s ^ʕ wind ^ʕ il-a / s ^ʕ nid ^ʕ il-a	sandals
i. klib-a	klib-a / k ^w lib-a	dog
j. frdi	fridi	pistol
k. srwal	sriwil	pants
l. kr ^ʕ mus ^ʕ -a	kr ^ʕ imis ^ʕ -a / k ^w r ^ʕ imis ^ʕ -a	fig
m. t ^ʕ r ^ʕ iq	t ^ʕ r ^ʕ iyq-a	road
n. fr ^ʕ ank	fr ^ʕ inək	centime
o. blas ^ʕ -a	bliys ^ʕ -a	place
p. bənt	bnit-a	girl/daughter

The Moroccan diminutive data in Table 3 can be divided into two groups. The data in (a–h) all have base words that begin with a CV sequence containing a full vowel, whereas the data in (i–p) show words that either begin with a consonant

cluster (i–o) or CV where the vowel is reduced as in (p). (Following Heath (1987) our transcriptions do not indicate a possible phonetic schwa in the triconsonantal clusters of the base word in (i–l).) Several observations can be made about the formation of the Moroccan diminutive. First, if the base noun begins with CV (where V is a full vowel), as in (a–h) in Table 3, then the diminutive begins with the sequence Cw (although note the variation in (h) which we do not discuss). Second, if the base noun begins with two consonants, then those same two consonants will begin the diminutive form, as in (i–o). This second pattern also holds for words that begin with a consonant followed by a reduced vowel, as shown by the word [bənt] in (p). This suggests that the reduced vowel may be epenthetic (Heath, 1987, p. 28), so words like [bənt] would phonologically begin with a consonant cluster like the other words in the second group in Table 3. In terms of a general template that captures the diminutive pattern, we note that all the diminutives begin with the sequence CCi and so can be expressed as CCiX. The part of the diminutive after the initial CCi sequence is largely predictable based on the phonemes and syllable structure of the base noun, but we do not detail this here.

Diachronically, the Moroccan diminutive can be analyzed as developing from the Classical Arabic diminutive as in Table 1, but with a more extreme departure from it than what we saw for Coastal Dhofari Arabic. First, the [u] of the first syllable of the Classical Arabic diminutive has been deleted in its development into Moroccan Arabic, but this just reflects the general loss of historic short vowels in Moroccan. (As pointed out by an anonymous reviewer and by the variant transcriptions from Heath shown for (i) and (l) in Table 3, the /u/ of Classical Arabic may not be completely lost but can surface as secondary labialization on a preceding velar consonant.) Second, the presence of [w] as the second consonant in the diminutives in (a–h) in Table 3, where the Moroccan base words begin with a CV sequence, can be understood as reflecting the historical vowel length since, as observed in (f–g) in Table 1, Classical Arabic words with a long vowel in the initial syllable typically have [w] as the second consonant of the corresponding diminutive. Finally, the diphthong /ay/ found in the second syllable of the Classical Arabic diminutive as in Table 1 appears as the full vowel [i] (and occasionally as [iy]) in the Moroccan diminutive. This monophthongization is different from CDA Arabic discussed in the previous section where /ay/ diphthongized to [ee]. The resulting monophthongization to [i] in Moroccan rather than [ee] (or [e]) can be understood through the diachronic loss of long vowels and the absence of /e/ as a phoneme in Moroccan. While we do not detail and argue for our specific hypothesized diachronic derivation of the Moroccan diminutive from the Classical Arabic one, we note that the Moroccan Arabic diminutive reflects a more extreme departure from the Classical Arabic diminutive than that found in most dialects that maintain a productive diminutive.

3. Diminutive in the rural Asāb'ā dialect of northwest Libya

In this section we offer a description of the diminutive in Asāb'ā Arabic (AA), a rural dialect of northwest Libya that is the native variety of the first author. As far as we are aware, there is no linguistic description of this dialect, let alone its diminutive pattern. The diminutive has some characteristics of both CDA and Moroccan Arabic and can be viewed as less conservative in its relation to the Classical Arabic diminutive than CDA but not as extreme in its departure as Moroccan Arabic. Moreover, the dialectal diminutive seems to have some features that we do not think have been formally discussed in descriptions on Arabic diminutives. In Table 4 and Table 5, we detail the different subpatterns of the AA diminutive organized by the prosodic shape of the base nouns. The diminutive is very productive and readily applies to borrowed nouns such as *garage* in (f) and *jacket* in (g) in Table 4. A note on the phonology is that AA, unlike Moroccan Arabic, maintains the traditional vowel length distinction between long and short vowels, but short vowels in initial open syllables tend to have been historically deleted or reduced, as exemplified by [ktaab] 'book' from historical /kitaab/, [gmar] 'moon' from historical /qamar/, and [məṭʕár] 'rain' from historical /matʕar/. The latter two examples reflect a tendency in the dialect for iambic stress on words that are trochaic in other dialects. This sometimes can result in a lengthened final vowel, as in [sənáa] 'year', which would have a trochaic stress pattern and a final short vowel in many other dialects. We present most of the AA diminutive patterns below in Table 4.

Descriptively, the data in Table 4 show two different templates for the Libyan dialect diminutive, namely CCeeX in (a–f) and CCayX in (g–l). Additionally, a variation on the CCeeX template is reflected in Table 5, to be discussed later, for base words beginning with a labial consonant followed by a long vowel. (We do not discuss the observation that some diminutives, such as the last three examples in (b) in Table 4, are required to surface with a feminine suffix. An anonymous reviewer points out that there are many other languages that use a feminine suffix in forming a diminutive, such as the French suffix *-ette*.)

For the base nouns of the patterns shown in (a–f) in Table 4, the diminutive template is CCeeX, where X in the template indicates the remainder of the diminutive word form; X is predictable given the phonological shape of the base noun, although we do not detail this. In the words in Table 4 (a–d), the first two consonants of the diminutive correspond to the first two consonants of the base word. The words in (e–f) are somewhat different in that the second consonant of the diminutive is [w]. The base nouns in (e–f) start with a single consonant followed by a long vowel. This is similar to the Classical Arabic pattern shown in (f–g) in Table 1, where the second consonant of the diminutive is also [w] if the base word begins with a single consonant followed by a long vowel. In Classical Arabic the

Table 4. Asāb'ā Arabic (AA) diminutives (Note: a period indicates a syllable boundary)

Word shape	Base word	Diminutive	Gloss
a. CVCC	kalb	klee b	dog
	dalw	dlee w	bucket
	s ^ʕ ur.r-a	s ^ʕ ree.r-a	pack
	z ^ʕ abb	z ^ʕ beeb	lizard
	z ^ʕ ill	z ^ʕ leel	shade
b. C(ʔ)CVC	glam	gleem	pen
	ʒbal	ʒbeel	mountain
	məlik	mleek	property
	gmar	gmee.r-a	moon
	mət ^ʕ ar	mt ^ʕ ee.r-a	rain
	ləban	lbee.n-a	milk
c. CVC.CVC	mak.tab	mkee.təb	office
	bak.raʒ	bkee.rəʒ	coffee pot
	kun.da.r-a	knee.dr-a	shoes
	t ^ʕ an.ʒa.r-a	t ^ʕ nee.ʒr-a	pot
d. CVC.CVVC	gat ^ʕ t ^ʕ uus	gt ^ʕ ee.t ^ʕ iis	cat
	sarwaal	sree.wiil	pants
	kursii	kree.sii	chair
	barnaamiʒ	bree.nii.miʒ	program
e. CVVC	raas	rwees	head
	t ^ʕ eer	t ^ʕ weer	bird
	daar	dwee.r-a	room
f. CVV.CV(V)C	ruu.ʃan	rwee.ʃən	window
	kaa.ʃiik	kwee.ʃiik	spoon
	gaa.raaʒ	gwee.riiʒ	garage
	z ^ʕ aa.rii.b-a	z ^ʕ wee.rii.b-a	tax, tariff
g. CCVVC	ktaab	ktay.yib	book
	bt ^ʕ aan	bt ^ʕ ay.yin	pad
	dʒaa.ʒ-a	dʒay.ʒ-a	chicken
	dʒaa.k-a	dʒay.k-a	jacket
h. CVC	dam	dmay	blood
	yad	yday.y-a	hand
i. CVCy	deħy	dħay.y-a	egg
	ʒady	ʒday	kid (young male goat)
j. CV.CVVC	rə.biiʕ	rbay.yiʕ	spring
	ʒə.miil	ʒmay.yil	handsome
	sə.liim	slay.yim	sound (i.e. lack of defect)
	sa.fii.n-a	sfay.n-a	boat (maybe reduced from /sfay.yi.n-a/)
k. CV.CVC	ma.lik	mlay.yik	king
l. wVV.CVC	waa.hid	whay.yid (*wweehəd)	one
	waa.lid	wlay.yid (*wweeləd)	father
	waa.riθ	wray.yiθ (*wweerəθ)	inheritor

first two consonants of the diminutive are separated by the short vowel [u], but this has undergone diachronic deletion in AA. Further, as shown by the data in (d) and (f) in Table 4, if the first syllable is heavy and the second vowel of the base word is long then the second syllable of the diminutive will also have a long vowel. This can be considered a transfer effect similar to what was discussed in Section 2 for Classical Arabic. Finally, the data in Table 4 (a–f) all witness the diachronic monophthongization of the Classical Arabic diphthong /ay/. Consequently, the AA diminutive template **CCeeX** in (a–f) can be historically derivable from the Classical Arabic diminutive template **Cu.CayX** by the deletion of the initial /u/ and the monophthongization of the diphthong /ay/.

For the base nouns of the patterns shown in (g–l) in Table 4, the diminutive template is **CCayX**, where X in the template indicates the remainder of the diminutive word form; X is predictable given the phonological form of the base noun and may be null as in [dmay] ‘blood (dim.)’, although we do not detail this. With respect to the specifics of the diachronic relationship between these forms and corresponding forms in Classical Arabic, we first consider (g) and (j) in Table 4. These words are similar in that their Classical Arabic cognates are comprised of a light first syllable followed by a second syllable with a long vowel. While this is still the pattern for the base words in (j), the words in (g) have all witnessed the deletion of the historic short vowel in the initial syllable. The diminutive forms of these words reflect the historical Classical Arabic diminutive template **Cu.CayX** discussed in Section 2, but with the first vowel deleted. Compare, for example, the Classical Arabic diminutive [ku.tay.yib] ‘book (dim.)’ in (e) in Table 1 with its AA cognate [ktay.yib] in Table 4 (g). This shows that the historical geminate-y of diminutive words, like those in (g) and (j) in Table 4, resists monophthongization and is thus consistent with Youssef’s (2013) observation that diphthongs where the off-glide is the first part of a geminate do not undergo monophthongization.

The words in Table 4 (h–i) also have the templatic shape **CCayX**, but for different reasons. The two words in (h) are words having only two consonants (which are not common in Arabic dialects). Diminutive words need to surface with at least three consonants. Monophthongization in the diminutive of /dam/ ‘blood’ [dmay] in (h) would result in *[dmee] with only two consonants. Consequently, monophthongization is blocked. Another similar example that is not shown in (h) is the word [sənáa] ‘year’, which has the diminutive form [snayya]. An additional word that may be of this pattern is the diminutive of the subminimal word [ʔax] ‘brother’ whose diminutive form is [ʔuxxay]. The analysis of this word is unclear, and we leave the matter of its diminutive (and the diminutive of similar words like those meaning ‘sister’, ‘father’, and ‘mother’) for future research. The data items in Table 4 (i) are similar to (h) except here the final root consonant is [y]. Monophthongization in a form like [ʒday] would result in a diminutive word with only two consonants.

Base nouns of the pattern CV.CVC in Table 4 (k), where both vowels are present as such in the underlying representation (i.e. neither vowel is epenthetic or reduced), are uncommon in AA because of the tendency for iambic stress with the concomitant reduction or deletion of the first vowel as seen in Table 4 (b). However, the example of [malik] 'king' takes the pattern CCayyiC as shown by [mlayyik] in Table 4 (k). We note that this is diachronically unexpected given that the Classical Arabic diminutive form would be [mulayk] as in (b) in Table 1, where the expected diachronic development should result in [mleek] in AA. While we offer no explanation for this unexpected development (other than the possible homophony with the diminutive for [məlik] 'property' in (b) in Table 4), we do note that [mlayyik] as the diminutive for [malik] 'king' also occurs in Tunis Arabic (Stephan Procházka, personal communication to the second author). While bisyllabic (trochaic) nouns of the pattern CV.CVC are relatively rare, the issue of their diminutives needs to be investigated in more detail, since contrasting with [malik]-[mlayyik] 'king/king (dim.)' is [wəlad] 'boy', which has the diachronically expected diminutive [wleed]. Note that if [wəlad] 'boy' were to take a diminutive using the templatic pattern CCayyiC, the diminutive [wlayyid] would be identical to the diminutive of [waalid] 'father' in (l) in Table 4. We suspect that the issue of homophony avoidance may factor into cases where a diminutive is diachronically unexpected. Nonetheless, with the exception of (k) in Table 4, the AA diminutive can be seen as reflecting a source that is either Classical Arabic or very similar to it.

Finally, we observe that the words in (l) in Table 4 also have the diminutive template CCayX, even though their base words are like the pattern shown in (f) in the same table and so are expected to take the diminutive template CCeeX. The base words in (f) begin with a single consonant followed by a long vowel and so the diminutive will have [w] as the second consonant. However, the base words in (l) begin with [w] followed by a long vowel; this means that if they follow the expected pattern, as in (f), the diminutive would start with a word-initial geminate-w as shown in the parentheses in (l). For example, the expected diminutive form of [waa.hid] 'one' would be [wweehəd], or perhaps [ʔuwweehəd] given the data in Table 5, but these forms with word-initial geminate-w (or geminate-w after [u]) seem phonotactically unacceptable in AA.

Consequently, in order to avoid an output form with a geminate-w, the diminutive of words that begin with [w] followed by a long vowel takes the template CCayX (as in [whay.yid]), where the first two C-slots reflect the first two consonants of the base word.

In addition to the templatic diminutives CCeeX and CCayX discussed above, AA witnesses a third templatic diminutive form that we do not believe has been formally discussed in the literature on dialectal diminutives. These are the diminutives that we show below in Table 5 where the base nouns begin with a labial

consonant followed by a long vowel. These data are somewhat different from the Examples in (l) in Table 4 that only pertain to words that begin with the labial glide [w]. For the words in Table 5, the diminutive has the templatic shape (ʔu) C_LC_LeeCX where the first consonant sequence is a geminate labial (indicated by the subscript-L). This can be viewed as a subpattern of the CCeeX diminutive template.

Table 5. Asāb'ā Arabic (AA) diminutives of words beginning with a labial followed by a long vowel. Word Shape: Labial VV

Base word	Expected diminutive	Actual diminutive	Gloss
faar	*fweer	(ʔu)f.feer	mouse
baab	*bweeb	(ʔu)b.beeb	door (MA: bwib-a (Table 3 g)
muu.ðiir	*mweeðiir	(ʔu)m.mee.ðiir	manager
faa.nii.lya	*fweeniily+a	(ʔu)f.fee.nii.lya	sweater
biir	*bweer	(ʔu)b.beer	well (MA: bwiyer (Table 3 f)
baa.nii.n-a	*bweeniin-a	(ʔu)b.bee.nii.n-a	small round bread

The pattern in Table 5 is inclusive of diminutives whose base-initial consonant is a labial immediately followed by a long vowel. In Table 5, we show in the second column what the expected diminutive would be, which should have the pattern displayed in (e) and (f) in Table 4 for words that begin with a CVV sequence. In such sequences, the second consonant of the diminutive template CCeeX is [w] since there is a long vowel after the initial consonant in the base noun. Just as the diminutive for [raas] 'head' in (e) in Table 4 is [rwees], the expected diminutive for [faar] 'mouse' in Table 5 is [fweer]. But this does not occur; [(ʔu)f.feer] surfaces instead. The data in Table 5 indicate that there is a systematic avoidance in the diminutive of an initial cluster comprising a labial consonant followed by the labial glide [w]. This can be understood as an avoidance of two different labial consonants that are adjacent (i.e. an OCP effect, McCarthy, 1986). All of the examples shown in Table 5 are words that begin with a labial consonant that includes /b/ and /m/ in addition to /f/. As can be seen in Table 5, total progressive assimilation of the /w/ to the adjacent labial consonant occurs so as to avoid two different labial consonants being adjacent. Consequently, the diminutive forms in Table 5 should start with an initial geminate, such as /bbeeb/ 'door (dim.)' and /ffeer/ 'mouse (dim.)' and, in fact, this is the case when the preceding word in the phrase ends in a vowel. However, in phrase-initial position (including when elicited in isolation), or after a consonant-final word, an epenthetic [ʔu] is inserted to avoid having a prosodic word beginning with a geminate. In this way, the data in Table 5 can be viewed as reflecting a subpattern of the CCeeX diminutive template.

A question comes up as to whether the special diminutive form with the labial-initial words in Table 5 is unique to the AA Libyan dialect or found elsewhere. We believe that this pattern may be fairly widespread in North African varieties, but we are unaware of any discussion of it. As two examples, for the Arabic dialect of Tunis, Procházka and Ritt-Benmimoun (2017) list *ʔffayim* as the diminutive of *fumm* ‘mouth’ derived from intermediate *fwayyim*. For Moroccan Arabic, Lahrouchi and Ridouane (2016) provide examples like *bb^wiyyət* for the diminutive of *bit* ‘room’ where they indicate without discussion that the pattern applies to words that begin with a labial consonant followed by a full vowel. This pattern is different from what Heath (1987) reports for Moroccan Arabic in which the diminutive of a labial-initial word like *bab* ‘door’ in Table 3 (g) is *bwib*-a where the initial labial sequence [bw] is not avoided. We leave the geographical range and the specific descriptive details of this diminutive pattern reflected by the data in Table 5 for future research, but we do not think these have been previously discussed systematically in the literature. (An anonymous reviewer suggests that the pattern is fairly common in Moroccan varieties, although it does not seem to be indicated in Heath (1987).)

In this section, we have offered a detailed presentation and description of the diminutive in the AA dialect of Libyan Arabic. In the following section, we will discuss some of the phonological implications that the data bear on.

4. Some phonological issues

In this section, we will briefly touch upon three phonological issues that the diminutive pattern in Asāb’ā Arabic relates to. These issues include the nature of the OCP as applied to Arabic, the patterning of affricates as a single segment or cluster, and the diachronic phonology of the Arabic diminutive.

The data in Table 5 demonstrating the avoidance in AA of diminutives beginning with two consecutive labials, where unexpectedly *[fweer] is not the diminutive of [faar] ‘mouse’, seem to reflect the obligatory contour principle (OCP, McCarthy, 1986), which militates against adjacent identical elements (here two different [labial] features being adjacent). In Arabic, the OCP usually holds for root consonants. For example, as originally documented by Greenberg (1950), it is very unusual for an Arabic root to begin with two labial consonants, two velar consonants, or two pharyngeal consonants. (In the application of the OCP to roots that begin with coronals, one needs to distinguish coronal obstruents from coronal sonorants as separate categories; the details of this are beyond the scope of the present paper.) On the other hand, if a morpheme boundary intervenes between the first two consonants of an Arabic word, then the OCP can be readily violated

as in words like [mabna] 'structure' and [mabruuk] 'blessing', where the [m] in both words is part of a prefix. With respect to the diminutive in AA, in base words that begin with a consonant followed by a long vowel as in Table 4 (e) and (f), a [w] occurs immediately after the initial consonant in the diminutive. However, as shown in Table 5, if that initial consonant is a labial, the OCP applies, preventing the surfacing of the [w] after the initial labial. Instead, the initial labial is geminated. This is shown by the expected but non-occurring forms in Table 5. Thus, the diminutive of [faar] 'mouse', [ʔuf.feer], avoids the adjacency of [fw] in the non-occurring but expected form *fweer* by the complete assimilation of the /w/ to the preceding labial consonant resulting in a geminate.

An interesting question regarding the avoidance of [w] after a labial is its application beyond the diminutive in AA. While we have not systematically examined this, we do note that in AA there seem to be instances of the broken plural where an expected [w] fully assimilates to the preceding labial. One example is the plural of [muu.ðiir] 'manager' in Table 5, which is [ʔum.maa.ðiir] where [ʔum.waa.ðiir] might be expected. A second example is [famm] 'mouth', the plural being [ʔaffaam] in AA rather than [ʔafwaam]. The diminutive data in Table 5 and the broken plural forms like [ʔum.maa.ðiir] 'managers' and [ʔaffaam] 'mouths' raise the question of the morphological status of the [w] in diminutives and the broken plural since, from a certain perspective, it seems to be treated like a root-internal consonant. We leave the elaboration of this issue for further research.

A second phonological issue that the AA diminutive data bears on is the patterning of derived affricates in Arabic dialects as discussed by Abu Elhija and Davis (2016). A derived affricate occurs when, for example, the phonemes /t/ and /ʃ/ come together over a morpheme boundary or through vowel deletion. Abu Elhija and Davis (2016) show that Arabic dialects vary as to whether they treat such derived affricates as a single segment or as two segments. One of their findings is that if an Arabic dialect does not have any affricates in its phonemic inventory they will treat derived affricates as a sequence of two segments, not as a single segment. They detail this with data from Cairene Arabic, a dialect that lacks affricates, though the derived affricate [tʃ] commonly occurs over morpheme boundaries or through syncope. They show that in Cairene Arabic derived [tʃ] always patterns as a sequence. Asāb'ā Arabic is another dialect that lacks any affricates in its phonemic inventory. In this dialect, the Classical Arabic /ḏ/ has the cognate /z/. An interesting word is the dialectal word for 'chicken' in (4g) transcribed as *dʒaaʒ-a*. The affricate in this word is historically derived phonologically through the diachronic loss of a short vowel between the first two consonants. Is the derived affricate at the beginning of the word a single affricated sound (in which case the word could be transcribed as [ḏʒaaʒa]) or a sequence of [d + ʒ] (in which case the word should be transcribed as [dʒaaʒa])? The diminutive

provides evidence that the derived affricate at the beginning of *dʒaaʒ-a* ‘chicken’ is a sequence of two segments. If this word began with a single affricate segment the diminutive of [*ḍʒaaʒa*] ‘chicken’ would be predicted to be *[**ḍʒweeʒ-a*] similar to (f-g) in Table 4 that show the pattern of AA diminutives for base words that begin with a single consonant followed by a long vowel. The fact that the diminutive is actually [*dʒayʒ-a*], reflecting a subpattern that is like the other base words that begin with two consonants, provides strong evidence that the initial consonant sequence is a cluster and not an affricate. Relatedly, the last data item in Table 4 (g), the borrowed word [*dʒaak-a*] ‘jacket’, is revealing. The initial sequence in the source language is arguably a single-segment affricate, but the diminutive pattern [*dʒayk-a*] (rather than *[**ʒweek-a*] or *[**ḍʒweek-a*]) makes clear that speakers even treat a borrowed affricate as a sequence.

A final issue concerns the phonological relationship of the AA dialectal diminutive to Classical Arabic. In sections 2 and 3 of this paper, we tried to maintain that the dialectal diminutives of Coastal Dhofari Arabic (Davey, 2016) and Moroccan Arabic (Heath, 1987) are diachronically derivable from Classical Arabic (or a form of the language very similar to Classical Arabic) by predictable diachronic phonological processes. We maintain that this is also the case for the most part for AA. For example, as shown in Table 4 (a), the diminutive of [*kalb*] ‘dog’ is [*kleeʔ*]. In Classical Arabic, the diminutive is [*kulayb*]. The form [*kleeʔ*] in AA is diachronically derivable from Classical Arabic by the loss of the short vowel in the initial open syllable and the monophthongization of the diphthong /ay/ to [ee]. As another example, the AA diminutive for [*kitaab*] ‘book’ in Table 4 (g) is [*ktayyib*] where the only difference from the Classical Arabic diminutive [*kutayyib*] is the loss of the initial short vowel. There is no monophthongization since in [*kutayyib*] the off-glide [y] of the diphthong is part of a geminate structure, which resists monophthongization. An interesting example in this regard is the AA diminutive for [*safiin-a*] ‘boat’ in (j) in Table 4, which is realized as [*sfayn-a*]. Note that the form is not *[**sfeen-a*] with monophthongization. This suggests an ordering of diachronic processes along the lines posited by the diachronic “derivation” in (1), where the historical source is posited to be the Classical Arabic diminutive *sufayyin-a*.

- (1) (Diachronic derivation of AA diminutive [*sfayn-a*] ‘boat (dim.)’)

Classical Arabic diminutive: /*sufayyin-a*/

- a. monophthongization ay → ee:
(does not apply to geminate-y)
- b. initial syllable syncope: *sfayyina*
- c. unstressed high vowel deletion: *sfayyna*
- d. degemination (before C): *sfayna*
- AA phonetic form: [*sfayna*]

What is crucial in (1) is the diachronic ordering of the processes, namely that monophthongization was early in the formation of the dialectal diminutive; otherwise, it would apply to [sfayna], resulting in the unattested [sfeena]. While we claim that the diminutives in AA (and probably in most Arabic dialects) are diachronically derivable from the Classical Arabic diminutive, there may be a few examples that are problematic, such as the AA diminutive of [malik] 'king', namely [mlayyik] discussed in Section 3, which is unexpected given that the Classical Arabic diminutive is [mulayk]. The expected AA form *mleek* is avoided, perhaps due to the homophony it would have with the diminutive of [mələik] 'property' in (b) in Table 4 whose diminutive is [mleek], but we leave the details of this for future research.

5. Conclusion

Detailed studies of diminutive patterns in Arabic dialects and their comparison with one another are not common, though we note the recent work of Procházka and Ritt-Benmimoun (2017) on Tunisian Arabic and Lahrouchi and Ridouane (2016) on Moroccan Arabic. In the current paper, we first presented brief descriptions of the diminutive in three varieties of Arabic: Classical Arabic, Coastal Dhofari Arabic, and Moroccan Arabic--noting that the latter two dialects seem to be diachronically derivable from Classical Arabic. We then turned our attention to a detailed description of the diminutive in Asāb'ā Arabic, a rural dialect of northwest Libya. We noted two main types of templatic diminutives in AA: CCeeC and CCayX. Further, we documented a subtype of the CCeeX diminutive that applies to base words that begin with a labial consonant followed by a long vowel, such as [faar] 'mouse'. Here a geminate labial appears rather than the expected sequence of a labial consonant followed by [w]. This is exemplified for [faar] 'mouse', which has the diminutive [ʔuf.feer] rather than the expected [fweer]. We suggested that this has to do with an OCP effect between non-identical adjacent labials in which [w] may be treated like a root consonant. We also showed how the AA diminutive provides solid evidence that derived affricates in the dialect pattern as a sequence of two segments rather than one, thus supporting Abu Elhija's and Davis's (2016) contention that derived affricates always pattern as a sequence in dialects that lack affricate phonemes. Finally, we discussed the diachronic relationship between the AA diminutive and the Classical Arabic diminutive, maintaining that for the most part the AA forms are derivable from the Classical Arabic diminutives with some exceptions. We hope that our paper will encourage others to examine the diminutive in specific in dialects and the comparison across dialects.

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Diminutive and augmentative formation in northern Najdi/Hā'ili Arabic

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The main goal of this paper is to make known an unusual, if not unique, morphological augmentative found in one variety of northern Najdi (Saudi) Arabic, specifically the Hā'ili variety as mainly spoken by members of the Shammar tribe. A brief description of the pattern can be found in Assuwaïda (1997). Our paper expands on his original work, illustrating more subpatterns of the augmentative. We conclude by briefly discussing whether the unique Hā'ili augmentative is an innovation or a truly archaic feature.

Keywords: diminutive, augmentative, morphology, northern Najdi Arabic, Hā'ili dialect

1. Introduction

While various aspects of Arabic phonology and morphology have been scrutinized, the study of diminutives has largely been marginalized. This is due to the fact that many Arabic dialects have no productive morphological diminutive. This chapter reports on the formation of the diminutive and documents the existence of a unique morphological augmentative in the Hā'ili dialect (HD), a variety of northern Najdi Arabic spoken in the region of Hā'il (Saudi Arabia), mainly by the Shammar tribe. Najdi Arabic, which has long been described as a very conservative variety, retains a number of archaic features, including the diminutive, the presence of the internal passive, and the /-in/ ending reminiscent of the Classical Arabic (CA) *tanween*, among others (Abboud, 1979; Al-Sweel, 1987; Ingham, 1994, 2009). Ingham (2009) believes that this peculiarity of Najdi Arabic is due to the fact that the area of Najd was isolated and inaccessible during the last century, and that no foreign immigration was attested. Al-Sharkawi (2014) declares that Najdi dialects have existed since the pre-Islamic era and did not undergo "the leveling and regularization of koineization or the saliency of foreigner talk" (p. 91).

With respect to the Arabic diminutive, McCarthy and Prince (1990) analyze the morphological diminutive of CA as having a pattern that reflects a stem-initial

iambic template. The diminutive in HD, which has a shape that appears to be historically derivable from the CA diminutive, is productive. Moreover, HD has a morphological augmentative parallel to the diminutive, which is exceedingly rare among Arabic dialects. The augmentative is formed by replacing the nucleus of the first syllable of the diminutive with emphatic (i.e., pharyngealized) [a:], where bolding indicates emphatic pronunciation.

This paper is structured as follows. Section 2 provides a brief background on Najdi Arabic. In Section 3, we discuss the diminutive and augmentative in Arabic more generally, noting that CA has a productive morphological (templatic) diminutive, while the augmentative is expressed periphrastically. In Section 4, we briefly illustrate some uses of the augmentative in HD. Section 5 discusses and documents the morphological augmentative in HD by showing first the dialectal diminutive formation and then the augmentative. Section 6 concludes the paper.

2. Background on Najdi Arabic

Given the focus of this article on the Hā'ili dialect of Najdi Arabic as mainly spoken by the members of the Shammar tribe, we briefly provide some background on Najdi Arabic. Johnstone (1967) situates Najdi Arabic as belonging to the North Arabian dialects, spoken in the Arabian Peninsula. It is associated with the area of Najd, in the central part of Saudi Arabia in which Riyadh, the capital city, is located. As reported by *Ethnologue Languages of the World* in 2016, the number of Najdi Arabic speakers was about 9,670,000, with 8,000,000 of them living in Saudi Arabia; 900,000 in Iraq; 50,000 in Jordan; and 500,000 in Syria. From the perspective of Saudi Arabic more generally, Prochazka (1988) divides Saudi Arabian dialects into two types: (1) the dialects of the Southern Hijaz and Tihamah, and (2) the Najdi and Eastern Arabian dialects. He bases his division on the way in which the two Classical Arabic patterns, (a) *faʕal(a)* and (b) *faʕalat/h*, are realized. Specifically, the group (1) dialects of Southern Hijaz and Tihamah realize the pattern in (a) as *faʕal*, whereas the group (2) dialects of Najdi and Eastern Arabia realize it as *fīʕal* under certain conditions. Further, the group (1) dialects realize the pattern in (b) as *faʕalat/n/h* or *faʕlat/h*, whereas group (2) realizes it as *fīʕi/alat/h* or *fīʕlat/h*.¹ Prochazka (1988) points out that the Shammari dialects of the north stand out as a subgroup among Najdi dialects due to the presence of

1. It should be noted that we differ from Prochazka (1988) in expressing the template traditionally as *faʕal* rather than as C_1aC_2aC .

the suffix pronouns [-uh] for the 3rd person masculine singular, [-ah] for the 3rd person feminine singular, and [-an] for the accusative 1st person singular.

Ingham (1994, p. 4) considers geographically vast but culturally homogeneous groups in the area of Najd as having the following three groups of speakers:

- i. "The speech of the sedentary population of the areas of Central Najdi (i.e., the districts of al-Ārid, al-Washm and Sudair), of Qasim and Jabal Shammar to the north and Najran and Bisha to the south."
- ii. "The speech of the main bedouin tribes of those regions, i.e. 'Anaizah, 'Utaiba, Subai', Suhūl, Bugūm, Dawāsir, Harb, Mutair, 'Awāzim, Rashāyidah in the center, Shammar and Dhafir in the north and Ghatān, Al Murra and 'Ajmān in the south and east."
- iii. "The speech of the emigre bedouin tribes of the Syrian desert and the Jazirah of Iraq of 'Anizah and Shammar extraction."

Based on phonological and morphological similarities, Ingham (1994, p. 5) then divides Najdi Arabic into four sub-dialects and suggests that mutual intelligibility is total among these varieties. See Figure 1 for a map of Saudi Arabia showing where Hail city is located.



Figure 1. Map of Saudi Arabia. Retrieved December, 11, 2017, from <http://www.the-saudi.net/saudi-arabia/images/map.JPG>

- i. "Central Najdi: The dialects of central Najd as described above and the central bedouin tribes also the 'Anizah of the Syrian desert."
- ii. "Northern Najdi. The dialect of Jabal Shammar tribes and of the Shammar tribes of Northern Najd and the Aljazirah."
- iii. "Mixed Northern-Central: The dialect of Qasīm and of the Dhafir tribe."
- iv. "Southern: The dialect of Najrān and the Ghatān tribe of the south and of the Āl Murrah and 'Ājmān tribes to the east."

3. Diminutive and augmentative in Arabic

The few studies on the Arabic diminutive may be divided into three groups based on approach: first, studies that focus on the morphological perspective and its analysis, such as McCarthy and Prince (1990) on Classical Arabic, Watson (2006) on Saḥānī Arabic, Masliyah (1997) on Iraqi Arabic, and Heath (1987) and Lahrouchi and Ridouane (2016) on Moroccan Arabic; second, studies that focus on a usage-based approach, such as Al-Rojie (2012) on Najdi Arabic and Badarneh (2010) on Jordanian Arabic; third, studies that combine both perspectives, such as Procházka and Ritt-Benmimoun (2017) on Tunisian Arabic and Zewi's (2005) broad overview. The relative rarity of these studies may be because of the loss of the diminutive forms in some of the major dialects (perhaps mainly urban) such as Cairene Arabic (Gadalla, 2000; Watson, 2006), Saḥānī Arabic (Watson, 2006) and Hijazi Arabic (Nakshabandi, 1996). In these dialects, the morphological diminutive is no longer productive on nouns; diminutives are expressed periphrastically, although there may be some adjectival forms that preserve a historical diminutive in their prosodic shape, such as [rufajjaʃ] 'thin' in Cairene Arabic.

In contemporary Arabic dialects that preserve the historical diminutive, the morphological form of the diminutive can almost always be derived from the CA diminutive, although we will not discuss the issue as to whether the dialects and CA derive from a common older Arabic. Here we briefly discuss the formation of the CA diminutive, but we will discuss this further when we present the data from HD. In CA, diminutive forms of nouns are realized through infixation, a process which is not random, but follows some fixed patterns. Broadly speaking, there are four patterns of forming diminutive in CA: (i) *fuʃajl* for nouns with three consonants, e.g. *jabal* 'mountain' > *jubajl*; (ii) *fuʃajjil* for nouns with three consonants where there is a long vowel in the second syllable, e.g. *kita:b* 'book' > *kutajjib*; (iii) *fuʃajʃil* for nouns with four consonants where the last syllable has a short vowel, e.g. *ʕaqrab* 'scorpion' > *ʕuqajrib*, and (iv) *fuʃajʃi:l* for those with four consonants where the last syllable has a long vowel, e.g. *ʕusʕfu:r* 'sparrow' > *ʕusʕajfi:r* (Hamid & Faiq, 2009). Generally speaking, the diminutive can be described as being formed

by inserting the short vowel [u] after the initial consonant, the diphthongized [aj] after the second consonant, and the vowel [i] or [i:] after the third if the word has four consonants with the vowel length of the /i/ being dependent on the vowel length of the last syllable of the base noun (see McCarthy and Prince (1990) and Ratcliffe (1998)). With respect to diminutive forms of nouns with only two root consonants, Zewi (2005) indicates that a glide is added to fit the triconsonantal pattern, as exemplified by CA [*dam*] 'blood' whose diminutive form is [*dumajj*], according to him. Longer words with more than four consonants, however, can be adjusted by consonant omission, e.g. *ʕankabu:t* 'spider' > *ʕunajkib*. A further observation about the diminutive is that there is a subpattern in which the base noun has a long vowel in the first syllable; the diminutive of such words always has [w] as the second consonant. Examples include *xa:tam* 'signet ring' > *xuwajtim* and *ba:b* 'door' > *buwajb*.

McCarthy and Prince (1990, p. 246) interpret the [u-aj] vocalization as part of a word-initial iambic foot template that marks diminutive formation. In their technical analysis, McCarthy and Prince show that the initial trochaic sequence of the base word maps onto the iambic foot template. If the initial trochaic sequence consists of a CVV syllable, then the second consonant of the iambic template is realized as [w], as shown in the example *xa:tam* 'signet ring' > *xuwajtim*, mentioned above. The potential third vowel in the diminutive, [i], would occur in the third syllable of a diminutive if it has more than three consonants where the length of the vowel reflects the vowel length of the last syllable of the base noun. While we do not detail the morphological diminutive in the modern dialects more generally, an informal observation is that dialectal diminutives always seem to be based on the CA diminutive with some phonological reduction that may include the loss of the [u] and the monophthongization of [aj] with the specific details depending on the dialect. (As mentioned above, we leave aside the issue as to whether in actuality the dialectal diminutives historically derive from the CA diminutive, as opposed to all being derived from a single common source.)

Augmentatives in Arabic are rarely discussed. This is because CA and virtually all of the modern dialects do not have a morphological augmentative. In such varieties, an augmentative of a noun is expressed periphrastically by a phrase consisting of two or more words, e.g. *bajt kabi:r* 'a big house'.² The only dialect that we are aware of that has a morphological augmentative is the Hā'ili dialect of northern Najdi Arabic as mainly spoken by the members of the Shammar tribe. As an example, in HD the morphological augmentative of [bejt] 'house' is [bwa:t] 'house,

2. This would be *bejt kibi:r* 'a big house' in some Najdi Arabic dialects, including HD.

aug.³ The only source of which we are aware that discusses this phenomenon is Assuwaida (1997). In his work, Assuwaida relates the formation of the augmentative to the older dialect of *Tayy*, which goes back to the pre-Islamic era. He gives some poetry evidence where some place names were used in the augmentative forms. These names, still until today, preserve an archaic augmentative form.⁴ For example, he suggests that the name *ʕuwa:riðʕ* comes from the base word *ʕa:riðʕ* “hindrance/beam” and *tuwa:rin* comes from *ta:rin*.^{5,6} Assuwaida (1997) indicates that *ʕwa:riðʕ* is a name of a free-standing mountain, located in front of *twa:rin*, which is a castle in the *Aja* mountains in *Tayy*, and a valley containing palm trees (Ḥā’il region, Saudi Arabia, now).^{7,8} It should be noted that some Arabic personal names seem to reflect the augmentative form, especially names of Prophet Mohammad’s companions. Such names include *ʕuba:dah*, which comes from the base word *ʕabdah* and has the diminutive form *ʕubajdah*; *ʕuka:fah* comes from the base word *ʕakfah*, *quḥa:fah* comes from the base word *qahfah/quḥfah*, and *ḥuḍa:fah* comes from *ḥaḍfah* with the diminutive *ḥuḍajfah*.^{9,10} The conservative

3. *Aug.* refers to *augmentative*.

4. The difference lies only in the pronunciation of these words where the [u] in the augmentative is deleted, i.e. *ʕuwa:riðʕ* is pronounced as *ʕwa:riðʕ* and *tuwa:rin* as *twa:rin*.

5. Abdul Rahman Assuwaida (1997) writes the first letters of these words with a *damma* diacritic ‘, which corresponds to the short [u] in transcription. In *ðʕuba:ʕah*, the augmentative form is similar to the diminutive in that there is an intervening [u] between the first and second consonants. The base word of the augmentative *tuwa:rin*, contains a long vowel in the first syllable *ta:rin* that is realized as [w], similar to the diminutive.

6. There is no known meaning for the base word *ta:rin*. The augmentative form *tuwa:rin*, however, is a name of a castle in the *Aja* mountains in *Tayy* and a valley containing palm trees.

7. We delete the [u] between the first two consonants in both words as we refer to the current place names in Ḥā’il now, and not the CA words.

8. It should be noted that *Aja* is a name of a neighborhood in Hail city now, which comes from the name of the mountain *Aja*.

9. Both *ʕuba:dah* and *ʕubajdah* are names of two companions of the prophet Mohammad, *ʕuba:dah bin aṣṣʕa:mit* and *abu ʕubajdah ʕa:mir bin aldzarra:h*. Also, *ʕabdulla:h bin ḥuḍa:fah* and *ḥuḍajfah bin aljama:n* are companions of the prophet Mohammad (peace be upon him).

10. *ʕabdah* refers to a female slave or a black woman, *ʕakfah* is taken from *ʕakf* which refers to curly hair or a tree which has a lot of branches, *qahfah/quḥfah* comes from *qihf* which is a lobe/segment, a bone above the brain, or a scale, *ḥaḍfah* refers the omission of a piece of something, whereas *ḥuḍa:fah* mean the remnant of something. It should be noted that only the first word does exist in HD. ([https://www.almaany.com/appendix.php?language=arabic&category=\(مختار+الصحاح\)](https://www.almaany.com/appendix.php?language=arabic&category=(مختار+الصحاح))).

nature of place and person names seems to be common in Arabia and the Middle East more generally.

The Tayy tribe discussed by Assuwaida (1997) inhabited the area of *Jabal Tayy* “mountain of *Tayy*”, known as *Jabal Shammar*, now the Ḥā'il region of Saudi Arabia (Alfozan, 1989; Ingham, 2009; Rabin, 1951). Moreover, the members of the Shammar tribe (who currently speak HD) descend from the ancient Arab Tayy tribe (Al Rasheed, 1991; Fattah and Caso, 2009) who had lived in the same area. This suggests that the existence of a morphological augmentative in HD is truly an archaic feature that goes back to the pre-Islamic era. Consequently, it would not be surprising if such proper nouns preserve an archaic grammatical feature.

4. Some connotations of the augmentative in the HD

In this section, we briefly discuss some of the connotations of the augmentative in HD. In Section 5, we detail its morphophonological description.

Cross-linguistically, the augmentative is not only viewed to denote dimensional largeness, but also to connote socially motivated meanings including some pragmatic functions, such as awkwardness, and even contempt (Sifianou, 1992). For example, in Slovak, it is used to indicate negative evaluation such as inappropriate, excessive or unpleasant size, as well as positive evaluation such as appreciation (Böhmerová, 2011).

Along these lines, augmentatives in HD are used to express largeness or awkwardness. When largeness is a good characteristic, it denotes a positive meaning. Contrariwise, when largeness or intensification denotes a disparaging force, it carries a negative meaning. Thus, augmentative may be used in a positive or negative context, depending on the pragmatic force and the speaker-interlocutor relationship. Below we list some examples of augmentative forms in HD and their interpretations.

- (1) *kla:b* ‘dog, aug.’ Could mean:
 - a. A big dog or an old dog, when referring to a dog ‘animal’
 - b. Used with people for contempt, e.g. *ṣaḥmad kla:b*, indicates that Ahmed is very strict, behaves badly, he knows that he behaves badly, but does not care, etc.
- (2) *mra:jah* ‘woman, aug.’ Could mean:
 - a. A big woman, a strong woman (or even a beautiful woman ‘body’)
 - b. A woman who behaves or speaks like a man

- (3) *sna:.jah/sna:.jah* ‘year, aug.’ Could mean:
A long year because of poverty (metaphorically).
- (4) *fwa:.ʕir* ‘poet, aug.’ Could mean:
A good poet who says strong poems

We leave discussion of the semantics and pragmatics of the augmentative in HD to future research.

5. Morphological diminutive and augmentative in Ḥāʿili dialect

In this section, we document the morphological augmentative in HD, building on Assuwaïda (1997) and making use of the native intuitions of the first author, a linguist and native speaker of the Ḥāʿili dialect. Because we make the assumption that the diminutive serves as the base of the augmentative in HD, we will first discuss the diminutive in HD before examining the augmentative.

The diminutive in HD and CA

As discussed in Section 3, all nominal diminutives in CA begin with the sequence of the pattern CuCaj where the first two consonants are separated by a high vowel [u] and followed by [aj] after the second consonant. The diminutive in HD varies systematically from CA in lacking the initial [u] and with a different second vowel in many of the forms. This is shown in Table 1.

Table 1. Diminutives in CA and HD

Base word in CA	CA diminutive	HD diminutive	Gloss
a. nahr	nuhajt	nhejt	river
b. kita:b	kutajjib	ktajjib	book
c. ʕizb	ʕutajjb	ʕwejb	wolf
d. fa:nu:s	fuwajni:s	fwejni:s	lantern

Following McCarthy and Prince (1990), we observe that the CA examples above show the role of the trochee in diminutive formation; i.e., the initial trochaic foot is parsed out from the base and mapped onto an iambic foot. In comparing the CA diminutive with that in HD, we observe that the [u] after the initial consonant in CA does not occur in HD. This reflects the fact that words in HD, unlike in CA, can begin with consonant clusters. Another difference between the CA and the HD diminutive is the vowel quality where the CA diphthong [aj] changes into [ej].

The vocalic melody of the diminutive is *u-aj* in CA, however, HD has *0-ej*, where *0* indicates the absence of a corresponding vowel. The lack of [u] after the initial consonant in the HD diminutive can be understood as reflecting a phonological constraint that disfavors unstressed non-final short vowels. Note that the vocalic melody of the HD diminutive is *0-aj* when the [j] is part of a geminate structure as in the example of [ktajjib] in Table 1 (b). We might expect that the HD diminutive form in Table 1 (c) would be *ðəejb* 'wolf' given the CA base form. However, the actual base word of the diminutive *ðwejb* is *ði:b* in HD where the historical glottal stop [ʔ] as reflected in CA has been deleted, resulting in a lengthened vowel in HD. Other similar examples are given in Table 2.

Table 2. The glottal stop in CA and HD

Base word in CA	Base word HD	Gloss
a. raʔs	ra:s	head
b. raʔj	ra:j	opinion
c. kaʔs	ka:s	cup
d. faʔs	fa:s	hatchet

However, the glottal stop can be maintained word internally between vowels as in *saʔal* 'he asked' and *suʔa:l* 'question'. This is similar to other dialects. Other environments where the glottal stop [ʔ] available in CA is not realized in HD include the broken plural forms, as in Table 3.

Table 3. The glottal stop in the broken plural forms in CA and HD

Base word in CA	Base word HD	Gloss
a. maka:ʔin	mika:jin	machines
b. xasa:ʔir	xasa:jir	losses
c. ʕaḍʕa:ʔib	ʕaḍʕa:jib	wonders

A fuller discussion of the phonology of the glottal stop in HD is beyond the scope of the current paper.

Diminutive and augmentative forms in HD

With the previous discussion as background, we turn to the formation of both diminutive and augmentative forms in HD. We start by describing the formation of the diminutive and, then, its parallel augmentative. There are two infixal vowels

in the diminutive in HD: [ej], e.g. *kalb* ‘dog’ > *klejb* ‘dog, dim.’ and [aj], e.g. *ki.ta:b* ‘book’ > *ktaj.jib* ‘book, dim.’, where the latter is used when the base noun has a long vowel in the second syllable. The augmentative is formed by infixing a long low-back vowel [a:], with an emphatic (i.e., pharyngealized) quality [a:], but can be realized as a plain [a:] in certain environments, e.g. *kalb* ‘dog’ > *kla:b* ‘dog, aug.’, *kita:b* ‘book’ > *kta:.jib* and both a plain and emphatic [a:], e.g. *sana:h* ‘year’ > *sna:.jah/sna:.jah* ‘year, aug.’ where bolding indicates emphatic pronunciation. In the subsections below, we explicate in detail the diminutive and augmentative in HD where the organization of the data reflects the number of syllables and syllable structure of the base noun in HD, although it is worth noting that the structures that we present are not exhaustive. To be clear, our focus in this section is on description. We do not offer a prosodic analysis along the lines of McCarthy and Prince (1990) or Watson (2006) for the CA diminutive.

Monosyllabic base words

We first consider diminutive and augmentative data from HD where the base noun is monosyllabic. In Table 4 we show monosyllabic base words that comprise a CVCC syllable. (Bolding indicates emphatic quality, i.e., pharyngealization.)

Table 4. Monosyllabic CVCC syllable structure

Base word	Diminutive	Augmentative	Gloss
a. <i>kalb</i>	<i>klejb</i>	<i>kla:b</i>	dog
b. <i>sejf</i>	<i>swejf</i>	<i>swa:f</i>	sword
c. <i>wad3h</i>	<i>wd3ejh</i>	<i>wd3a:h/wd3a:h</i>	face

The diminutive form of base words having CVCC syllable structure, as shown in Table 4 above, is formed by inserting the infix [ej] between the second and third consonants and deleting the first vowel of the base. The augmentative, on the other hand, can be viewed as being formed by replacing the diminutive infix [ej] with the emphatic augmentative infix [a:]. Yet, one could reasonably argue that both the diminutive and the augmentative forms are derived directly from the base word. However, the data to be discussed later in Table 14 is suggestive of the augmentative being based on the diminutive. Nonetheless, while we present the augmentative as being based on the diminutive in our exposition, we are not theoretically committed to this position. Additionally, we observe that the emphatic quality of the augmentative infix affects the quality of neighboring sounds, although the specific analysis of emphasis spread in HD is beyond the scope of this paper. We do note, however, that impressionistically the initial velar stop [k] and the sibilant [s] in

Table 4 (a) and (b), respectively, do not seem to be affected by the emphatic quality of the vowel. The word *sejf* in (b) is interesting. We would expect the diminutive to be **sjejf* and the augmentative be **sja:f*. Surprisingly, the second consonantal root in the base word (i.e., the palatal [j]) is substituted by [w]. This might be due to the *Obligatory Contour Principle* that militates against adjacent elements with the same place feature(s). Note that a form like **sjejf* would have three adjacent non-low front vocoids. Alternatively, it could be that the [j] of the sequence [ej] in [sejf] is interpreted as a long vowel and not as a consonant, resulting in the insertion of [w] in the diminutive. In Table 4 (c), both augmentative infixes (i.e., the emphatic [a:] and the plain [a:]) may be used in free variation. We believe that the emphatic quality of the vowel in the augmentative is basic because one may always pharyngealize the vowel in the augmentative, but one may not always depharyngealize it. We leave for future research the determination of the specific environments in which the emphatic [a:] vowel of the augmentative may be depharyngealized, but it seems to typically occur in the environment of a palatal-type consonants or when the feminine suffix occurs.

In Table 5, we present base monosyllabic words having similar syllable structure to that in Table 4, CVCC, but differ in that the final CC is a geminate (i.e., CVGG).¹¹

Table 5. Monosyllabic CVGG syllable structure

Base word	Diminutive	Augmentative	Gloss
a. sinn	snejn(ah)	sna:n(ah)/sna:n(ah)	teeth
b. xadd	xdejd	xda:d	cheek
c. ḥagg	ḥgejg	ḥga:g	right
d. jad(d)	jdaj.jah	jda:.jah	hand

The examples in Table 5 show base words with monosyllabic triconsonantal CVGG syllable structure. Examples in Table 5 (a–c) involve final geminates where the last two root consonants are identical. The output for the diminutive and augmentative is formed by the vocalic infixes occurring between the last two root consonants, that is, the infix [ej] for the diminutive and the pharyngealized [a:] for the augmentative. In the augmentative form of Table 5 (a), both the pharyngealized or plain infix [a] are possible. If we consider the final coda in the base word of Table 5 (d) as geminate, we expect to get *jdej.d-ah* and *jda:.d-ah* for the diminutive and augmentative, respectively. However, this is not the case. The judgment on

11. CVGG refers to a CVCC syllable structure with a geminate coda.

whether the example in Table 5 (d) contains a geminate or a singleton coda in the base word seems problematic. When a suffix is added, such as the dual [ejn] or the 1st person singular possessive pronoun [-i], we find variation in how HD speakers would pronounce the resulting form, as shown in Table 6.¹²

Table 6. Variation in the realization of some CVC(C) syllable structures

Base word	Dual	Gloss	1st singular poss. pro.	Gloss
a. jad(d)	jidejn	two hands	jidi	my hand
b. jadd*	jadde:n	two hands	jaddi	my hand

*Speakers of the Eastern part of Saudi Arabia and some Hijazi Arabic dialects seem to prefer the example in Table 6 (b). This might have influenced HD recently due to dialect contact/propagation since older people mostly use the example in Table 6 (a). We leave this matter for further investigation and analysis.

But this variation may reflect dialect contact since the forms in Table 6 (b) are mostly used by people who speak Eastern dialects (the Eastern region of Saudi Arabia) and speakers of HD who have a lot of contact with Eastern dialects. Thus, *jad(d)* in Table 6 (a) can be understood as ending in just a single consonant phonologically in HD and, therefore, differs from the base forms in Table 5 (a–c) that end in phonological geminates.

In Table 7, we present monosyllabic base words having CVVC syllable structure.

Table 7. Monosyllabic CVVC syllable structure

Base word	Diminutive	Augmentative	Gloss
a. ba:b	bwej b	bwa:b	door
b. na:r	nwej r -ah	nwa:r-ah	fire
c. da:r	dwej r -ah	dwa:r-ah	house*

*This word is archaic as it is used mostly by older people. It can also refer to an old house built from clay.

The examples in Table 7 (a–c) are similar to the example in Table 1 (c) and the HD base words in Table 2 (a–d) in that the base words of the HD diminutive and augmentative forms in Table 7 contain a long vowel in the first syllable. Thus, a [w] is inserted to fill out the second consonant slot. We again see that the augmentative is formed by replacing the diminutive infix [ej] with the augmentative infix [a:].

12. Some Najdi Arabic dialects have [e:n] as a dual suffix. HD speakers seem to diphthongize it. This might be a rural vs. urban dialectal dichotomy.

The presence of the augmentative [a:] results in the existence of minimal pairs contrasting just in emphasis, as shown in the Examples in (5).

(5) Minimal pairs contrasting in emphasis

- | | | |
|----------------------------------|---|--|
| a. kla:b 'dog, aug.' | } | base word: kalb |
| b. kla:b 'dogs, pl.' | | |
| c. mra:.jah 'woman, aug.' | | base word: marah |
| d. mra:.jah 'mirror' | | base word: mra:jah/mra:h (MSA: mirʔa:h) |

As we see in (5a) and (5c), the augmentative can be characterized by pharyngealization, whereas the non-augmentative forms in (5b) and (5d) lack pharyngealization even though their phonetic sequence is the same as the related augmentative words. This shows that pharyngealization is an underlying/basic feature of the augmentative. Moreover, sometimes we find homophones between augmentative and non-augmentative when the non-augmentative has an emphatic consonant. Examples are shown in (6) and (7).

- (6) a. **ʕḏʕa:m** 'bones, pl.'
 b. **ʕḏʕa:m** 'bone, aug.' base word: **ʕa.ḏʕum** 'bone'
- (7) a. **gra:d** 'tick' base word: **gra:d**
 b. **gra:d** 'monkey, aug.' base word: **gird**

In (6a), the broken plural of [ʕa.ḏʕum] 'bone' displays pharyngealization because of the emphatic [ḏʕ] and thus is homophonous with the augmentative [ʕḏʕa:m]. In (7a) the [r] is the source of the pharyngealization in [gra:d] 'tick', making it homophonous with the augmentative in (7b) whose base word is [gird] (with no emphatic [r]).

Disyllabic base words

In Table 8, we present the diminutive and augmentative of bisyllabic base words with the structure CV.CVC; and in Table 9, we present CVV.CVC base structures in which the initial vowel is long.

Table 8. Disyllabic CV.CVC syllable structure

Base word	Diminutive	Augmentative	Gloss
a. ga.lam	glejm	gla:m*	pen
b. ʕi.dʒil	ʕdʒejl	ʕdʒa:l/ʕdʒa:l	calf

*The broken plural form of **ga.lam** in HD is **ʔag.la:m**.

The diminutive for base words with the CV.CVC syllable structure, as shown in Table 8, is formed by inserting the diminutive infix [ej] between the second and third consonants and deleting the first vowel. For the formation of the augmentative, the diminutive infix is replaced with the augmentative infix [a:]. Pharyngealization is optional in the augmentative form in Table 8 (b), perhaps because of the presence of the palatal consonant.

In Table 9 are base words with CVV.CVC disyllabic structure.

Table 9. Disyllabic CVV.CVC syllable structure

Base word	Diminutive	Augmentative	Gloss
a. ja:.ʕir	ʃwej.ʕir	ʃwa:.ʕir	poet
b. na:.g-ah	nwej.gah/nwej.ḏzah	nwa:.gah/*nwa:.ḏzah	female camel

The examples in Table 9 show that the phoneme [w] is inserted in the second consonant slot in the diminutive and augmentative forms. This is similar to the examples in Table 1 (d) and Table 7 (a–c).¹³ That is, if the base form contains a long vowel in the first syllable, the phoneme [w] is inserted to fill out the second consonant slot with the diminutive or augmentative infix appearing after the inserted [w]. Furthermore, the diminutive form in Table 9 (b) is of interest because it reflects optional affrication of the velar stops /k/ and /g/ into [tʃ] and [dʒ], respectively. What is noteworthy is that while the velar stop [g] in the diminutive form in Table 9 (b) can be affricated, it cannot be affricated in the augmentative form in (b). More examples of this are shown in Table 10.

Table 10. Disyllabic CV.CVVC syllable structure

Base word	Diminutive	Augmentative	Gloss
a. ki.bi:r/ ʔsi.bi:r	kbaʃ.jir/ ʔsbaʃ.jir	kba:.jir/ *ʔsba:.jir	big
b. wri.gah/ *wri.ḏzah	wrej.gah/ wrej.ḏzah	wra:.gah/ *wra:.ḏzah	paper
c. na:.gah/ *na:.ḏzah	nwej.gah/ nwej.ḏzah	nwa:.gah/ *nwa:.ḏzah	female camel

13. An additional example is the word *ba:l^ʕu/ba:l^ʕi* ‘jacket’ where the diminutive is *bwej.l^ʕi* and the augmentative is *bwa:l^ʕi*. This word is borrowed from the French *paletot* ‘an old-fashioned coat/over coat/jacket’. This indicates that diminutive and augmentative formation also applies to borrowed words.

The examples in Table 10 show that the velar stops [k] and [g] can be affricated in the diminutive, but not in the augmentative forms. The affrication occurs in the diminutives in Table 10 (b) and (c) even though no affrication can occur in their base words. The word forms where affrication is blocked typically contain emphatic sounds; for example, the augmentative infix [a:] is emphatic, and the base word in Table 10 (b) contains an emphatic [r]. In the base word in Table 10 (c), however, there is no emphatic sound to block affrication, but affrication still does not occur. To account for this, we note that affrication typically occurs before a high front vowel and may also occur before non-high vowels if the word is in a paradigm relation with a word having a high front vowel (diffusion). This does not seem to be the case with the base word in Table 10 (c). The diminutive, however, seems to promote affrication as an independent property. Needless to say, a detailed account of affrication in HD requires further study, which is beyond the scope of this paper.

Next, we consider the data in Table 11, in which the base word has the disyllabic structure CVC.CVVC, with four consonants where the second syllable contains a long vowel.

Table 11. Disyllabic CVC.CVVC syllable structure

Base word	Diminutive	Augmentative	Gloss
a. sir.wa:l	srej.wi:l	sra:.wi:l	pants
b. s ^ʕ il.t ^ʕ a:n	s ^ʕ lej.t ^ʕ i:n	s ^ʕ la:.t ^ʕ i:n	Sultan (name)
c. xab.ba:z	xbej.bi:z	xba:.bi:z	baker
d. maḏʒ.nu:n	mḏʒej.ni:n	mḏʒa:.ni:n/mḏʒa:.ni:n	crazy
e. mis.ki:n	msej.ki:n	msa:.ki:n/msa:.ki:n	poor

The diminutive and augmentative forms in Table 11 are formed by deleting the first vowel in the first syllable of the base word, inserting the diminutive or augmentative infixes immediately after the second consonant, and neutralizing the long vowel in the second syllable of the base word to [i:]. Alternatively, we could state that the diminutive infix [ej] comes after the second consonant of the base word and the long [i:] comes after the third consonant for base words with four consonants. The emphatic augmentative infix is [a:] in Table 11 (a–e), but there is optional depharyngealization in Table 11 (d) in the environment of a palatal consonant as well as in (e). In the augmentative form with [a:], the emphasis spreads to adjacent sounds. However, it does not cross syllable boundaries. While this limited data set entails that emphasis spread is syllable-based in HD, more data are needed in order to decide on how emphatics behave and to what extent spreading is bi-directional in HD. We leave the details of this for future research.

A disyllabic structure similar to that in Table 11, but differing in that the second syllable contains a short vowel (i.e., CVC.CVC), is shown in Table 12.

Table 12. Disyllabic CVC.CVC syllable structure

Base word	Diminutive	Augmentative	Gloss
a. <i>dir.ham</i>	<i>drej.him</i>	<i>dra:.him</i>	dirham
b. <i>ʕan.bar</i>	<i>ʕnej.bir</i>	<i>ʕna:.bir/ʕna:.bir</i>	dungeon
c. <i>war.d-ah</i>	<i>wrej.d-ah</i>	<i>wra:.d-ah</i>	flower
d. <i>ʕil.b-ah</i>	<i>ʕlej.b-ah</i>	<i>ʕla:.b-ah</i>	can

Unlike the data in Table 11, the data in Table 12 (a–d) contain a short vowel [a] in the second syllable. This short vowel is neutralized to [i] in the diminutive and augmentative forms in Table 12 (a) and (b). However, this last vowel [a] remains the same in the diminutive and augmentative forms in (c) and (d) because it is part of the feminine singular suffix [-ah] and not part of the root. We leave the details of base words ending with the feminine singular suffix [-ah] until later when we consider the diminutives in Table 18. Next, in Table 13, we show base words with CCV.CVC syllable structure where there is a word-initial consonant cluster.

Table 13. Disyllabic CCV.CVC syllable structure

Base word	Diminutive	Augmentative	Gloss
a. <i>wri.g-ah</i>	<i>wrej.g-ah/ wrej.dz-ah</i>	<i>wra:.g-ah/ *wra:.dz-ah</i>	paper
b. <i>nxal.l-ah</i>	<i>nxej.l-ah</i>	<i>nxal.l-ah</i>	palm tree

In Table 13, the first syllable of the base word is an open syllable where the vowel is deleted and the diminutive and augmentative infixes, [ej] and [a:], respectively, are inserted, as shown in the diminutive and augmentative forms in Table 13. The potential affrication of the velar [g] in (a) is blocked in the augmentative due to the presence of the pharyngealized [a:]. In (b), we observe that emphasis occurs on both syllables of the augmentative. This is similar to the base word. In the diminutive form in (b), we would expect the diminutive be *nxej.lah* (i.e., with pharyngealization); however, we observe that the word is depharyngealized. Depharyngealization occurs in the environment of certain high consonants, such as the palatal [j]. Here, the depharyngealization of [l] in *nxej.lah* supports Youssef's (2015) view on Cairene Arabic that secondary emphatic consonants (such as the emphatic [l] here) are depharyngealized in the environment of the palatal [j].

Trisyllabic base words

In Table 14, we consider trisyllabic base words with the structure CVC.CVV.C(ah).

Table 14. Trisyllabic CVC.CVV.C(ah) syllable structure

Base word	Diminutive	Augmentative	Gloss
a. ʃay.ya:.lah	ʃɛj.yi:.lah ʃwej.yi:.lah ʃɛj.li:.lah	ʃya:.yi:.lah ʃwa:.yi:.lah ʃya:.li:.lah	housemaid
b. sij.ja:.rah	swej.ri:.rah swej.wi:.rah*	swa:.ri:.rah swa:.wi:.rah	car
c. naḍʒ.ḍʒa:r	nḍʒej. ḍʒi:r nwej.ḍʒi:r	nḍʒa(:).ḍʒi:r nwa(:).ḍʒi:r	carpenter
d. tʰab.ba:x	tʰbej.bi:x tʰwej.bi:x	tʰba(:).bi:x tʰwa(:).bi:x	cook
e. mir.ḍʒe:.hah**	mrej.ḍʒi:.hah	mra(:).ḍʒi:.hah	swing

*Another variant spoken in other Najdi dialects around the capital city, Riyadh, Saudi Arabia, is *ʃajjrah*. Here, the second type of infix [ajj]; a similar process will be introduced in Table 17, is used in HD.

**Another variant would be to diphthongize the vowel, i.e. *mir.ḍʒei.hah*.

In Table 14 (a–d), the second and third consonants of the base word are identical constituting geminates. We observe that there is variation in the formation of the diminutive for these words, as shown in Table 14.¹⁴ We further observe that there is parallel variation in the augmentative forms where the diminutive infix [ej] is replaced with the augmentative infix [a:]. This correspondence in the variation between the augmentative and diminutive forms strongly suggests that the augmentative is derived from the diminutive and not from the base word. Specifically, the inherent characteristics in each diminutive variant appears in its corresponding augmentative form. For instance, when the first variant of the diminutive in Table 14 (a–d) is formed by deleting the first vowel, inserting the diminutive infix [ej] to separate the geminate, and changing the quality of the second vowel from [a:] to [i:], the corresponding augmentative form just replaces the diminutive infix [ej] with the augmentative [a:]. The specific variation that is seen in the diminutive and augmentative forms in Table 14 (a–d) might be due to whether the medial geminate is being analyzed as one unit or a cluster.¹⁵

14. We believe that the first variants are the most-frequently-used forms in HD, followed by the second variants, etc.

15. We leave the details of this for future research.

With respect to the appearance of [w] in the second option of the diminutive/augmentative shown in Table 14 (a–d), we suggest, following McCarthy and Prince (1990), that the [w] emerges as a default consonant when the first syllable contains a long vowel, as evident in Table 7 and Table 9 above, or when the second consonantal root of the base word is a palatal [j], as shown in Table 4 (b). The examples in Table 15 show the appearance of the default [w] in monosyllabic base words of the shape CVVC. The augmentative form of these words parallels the diminutive by replacing the diminutive infix [ej] with the augmentative [a:].

Table 15. Monosyllabic CVVC syllable structure

Base word	Diminutive	Augmentative	Gloss
a. ra:s	rwejs	rwa:s	head
b. ka:s	kwejs	kwa:s	cup
c. fa:s	fwejs	fwa:s	hatchet

Base words with more than four root consonants

In Table 16, we consider base words having more than four root consonants; these include CVC.CV.CVVC, as in (a) and (b), and CVC.CVV.CVC, as in (c).

Table 16. Trisyllabic CVC.CV(V).CV(V)C syllable structure

Base word	Diminutive	Augmentative	Gloss
a. ʕan.kə.bu:t	ʕnej.ki(:)b	ʕna:.ki(:)b/ʕna:.ki(:)b	spider*
b. bin.tʕə.lo:n	bnej.tʕi:l	bna:.tʕi:l/bna:.tʕi:l	pants
c. bar.na:.midʒ**	brej.ni:.midʒ	bra:.ni:.midʒ	program

*In the bedouin dialect of Tunisia discussed by Procházka and Ritt-Benmimoun (2017), all of the consonants are retained in the diminutive word, e.g. ʕankʕbo:ta ‘spider’ > ʕne:ke:be:ta.

**Another variant is to depharyngealize the first syllable, i.e. bar.na:.midʒ, but it is impossible to depharyngealize the diminutive or augmentative.

To form the diminutive in HD with a base word having more than four root consonants, as in Table 16, the first vowel of the base word is deleted, the diminutive infix [ej] is inserted after the second consonant to stand as a nucleus for the first syllable, the second vowel in the second syllable of the base is neutralized to [i:] (or [i] as another variant for (a)), while the final consonant in a CVC.CV.CVVC base form is deleted, as in (a) and (b). The augmentative is formed by replacing the diminutive infix [ej] with the emphatic augmentative infix [a:], which can depharyngealize in the augmentative forms of (a) and (b). The length of the vowel in the

final syllable depends on the length of the vowel in the final syllable of the base word (see McCarthy and Prince, 1990). Notice that in Table 16 (c) the final consonant in the base word does not delete in the diminutive; similarly, it fails to delete in the augmentative.

The Diminutive with [aj] infix and its augmentative form

In Table 17, we introduce data that shows a second infixal vowel of the diminutive, namely, [aj] instead of [ej].

Table 17. The diminutive [aj] and its corresponding augmentative

Base word	Diminutive	Augmentative	Gloss
a. ki.bi:r	kbaj.jir	kba:.jir/*tsba:.jir	big
b. bi.ʕi:d	bʕaj.jid	bʕa:.jid/bʕa:.jid	far
c. s ^ʕ i.yi:r	s ^ʕ yaj.jir	–	small
d. ha.nu:n	hnaj.jin	–	kind
e. ki.ta:b	ktaj.jib	kta:.jib/kta:.jib	book

The base words in Table 17 are disyllabic of the form CV.CVVC, whereby the second syllable contains a long vowel. The long vowel in the base word neutralizes to [i] in the diminutive, as seen in the last syllable in the diminutive forms in (a–e) and in the augmentative forms of (a), (b), and (e). Since Arabic does not allow for onsetless syllables (Watson, 2002; Alqahtani, 2014), the palatal [j] is inserted in the onset position of the second syllable in the diminutive and augmentative forms in Table 17 to help avoid onsetless syllables in HD. Affrication is blocked in the augmentative form in (a) due to the presence of the emphatic infix [a:]. In the augmentative form in (b) and (e), there are two variants of the augmentative: one with pharyngealization and one without. There are no augmentative forms (c) and (d), which may be due to semantic restrictions that are in need of further study. Formally, if one posits that the diminutive serves as the base of the augmentative, then, in Table 17, the augmentative infix [a:] replaces the diminutive [aj].

Furthermore, as shown in Table 18, some words ending with the feminine suffix [-ah] also have the [aj] infix in the diminutive.

Table 18. Disyllabic CV.C[-ah] syllable structure (feminine forms)

Base word	Diminutive	Augmentative	Gloss
a. sa.n-ah	snaj.j-ah	sna:.j-ah/sna:.j-ah	year
b. ma.r-ah	mrāj.j-ah	mra:.j-ah	woman

In (a) and (b) of Table 18, the base words contain CV.CVC where the final VC (i.e., [-ah]) is the feminine singular suffix. Similar to the diminutive and augmentative forms in Table 17, the palatal [j] is inserted in the onset position of the second syllable in the diminutive and augmentative forms in Table 18 (a–b) to help avoid onsetless syllables in HD.¹⁶

Finally, the forms in Table 19 raise some issues of irregularities.

Table 19. Some issues of irregularities

Base word	Diminutive	Augmentative	Gloss
a. ʔax(x)/ʔaxu	xajj/ʔəxejw	axa:j	brother
b. ʔixt	xajjah	ʔaxa:jah	sister

The base word of the first variant in Table 19 (a) seems to contain three root consonants where the second and third consonants are a geminate. If this is the case, then we would expect the diminutive to behave like the examples in Table 5. That is, the diminutive becomes ʔxejx; however, this is not the output we have. If we consider the example in Table 19 (a) as having only two consonants, we would expect the diminutive to behave like the examples in Table 18 (a) and (b) – that is, ʔxaj (ignoring the second syllable in Table 18 (a) and (b) since there is no feminine singular suffix in the example in Table 19 (a)). However, the glottal stop [ʔ] is not allowed to be the first consonant in a word-initial cluster. The diminutive ʔəxejw in Table 19 (a) seems to be derived from the base word ʔaxu, whereas the diminutive xajj seems to be derived from the feminine diminutive xajjah. The CA/MSA diminutives ʔuxajj and ʔuxajjah do not exist in HD; nevertheless, the masculine and feminine augmentatives ʔaxa:j and ʔaxa:jah, respectively, seem to be derived from them. A similar issue arises in the analysis of the example in Table 19 (b).

Summary

The Ḥāʾili dialect, a variety of northern Najdi (Saudi) Arabic mainly spoken by members of the Shammar tribe, is a very conservative variety that retains diminutives. It appears that there is a link between the CA diminutives and HD diminutives with some historical change. HD also has a parallel morphological augmentative.

16. It is interesting to note that the diminutive of *bint* ‘girl’ is *bnaj.-jah* with the augmentative *bnaj.-jah/bna:j-ah*. These forms are unexpected. Given the CVCC base words in Table 4, one would expect that the diminutive and augmentative of *bint* to be *bnejt* and *bna:t*, respectively. The actual forms, however, suggest that the final [t] of *bint* is being analyzed as a feminine suffix.

One goal of this section has been to describe this unique augmentative available in HD, expanding on Assuwaïda's (1997) work by means of illustrating more subpatterns of the augmentative.

We have suggested that the augmentative formation is based on the diminutive. The diminutive has two allomorphic infixes, [ej] and [aj], where the distinction is subject to word shape as expressed through syllable type. The augmentative is formed by replacing the diminutive infix(es) with a long low-back vowel [ɑ:], that has an emphatic (i.e., pharyngealized) quality [ɑː], but can be realized as a plain [ɑ:] in certain environments. We believe that the emphatic quality of the vowel in the augmentative is basic, because the infixal augmentative vowel can always be pharyngealized, but it cannot always be depharyngealized. The augmentative is derived by replacing the nucleus of the first syllable of the diminutive with [ɑ:]. Support for this comes from (1) the observation that when there is variation in the diminutive, there is parallel variation in the augmentative, and (2) there are some diminutives that do not have augmentative counterparts, but there do not seem to be augmentatives without a diminutive counterpart. Although we have maintained that the augmentative is based on the diminutive, we are not committed to this view, which should be scrutinized in future research.

We also have observed that HD allows for onset clusters. When the first syllable of the base begins with a CVC structure, the first vowel of the base deletes in forming the diminutive. Thus, all diminutives and augmentatives begin with a consonant cluster (with the two exceptions in Table 19). When the first syllable of the base word contains a long vowel, the [w] is inserted in both the diminutive and augmentative to fill out the second-consonant slot. The emphatic quality of the augmentative infix has the effect of blocking the optional affrication of the velar stop that normally occurs in HD.

One matter that we have not pursued in Section 5 is a templatic analysis of the diminutive and augmentative in HD along the lines proposed by McCarthy and Prince (1990) for CA. Such an analysis would entail templatic allomorphy, given the range of data that we have considered, and we leave this for future research.

6. Conclusion

This chapter has documented the occurrence of a morphological augmentative in the Hā'ili variety of northern Najdi Arabic. We are aware that a morphological augmentative is exceedingly rare in Arabic. To the best of our knowledge, the Arabic morphological augmentative has not been previously addressed by researchers in the West nor in the Arab World outside of Assuwaïda's (1997) work. We do not even know to what extent the augmentative exists in other varieties of Najdi

dialect or whether it is truly unique to HD. Given Assuwaida's documentation of place names that reflect a morphological augmentative, we are inclined to believe that the augmentative is an archaic feature that goes back to the pre-Islamic era, and its survival to the present day in HD is noteworthy.

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Post-lexical strata

Evidence from phrasal phonology in Sudanese Arabic

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Building on Ali (2014, 2017), this paper proposes a Stratal OT account of the interaction between phrasal syncope and resyllabification in two dialects of Sudanese Arabic. The account expresses the connection between the two phenomena in terms of the interaction between the syncope constraint and the constraint requiring faithful mapping of input syllables. The patterns of syncope attested in the dialects indicate that these constraints have different rankings at the prosodic levels of word, φ -Phrase, ι -Phrase, and Utterance. This is evidence that the organization of post-lexical phonology is similar to that of lexical phonology; the former also consists of distinct, serially related constraint systems. The paper provides further evidence for the post-lexical stratification based on the patterns of realization of word-final clusters.

Keywords: syncope, syllabification, stratal OT, Sudanese Arabic

1. Introduction

Ali (2014) proposes a prosodic account of syncope in three dialects of Sudanese Arabic: Urban Central Sudanese Arabic (UCSA), Shukriiya, and Hamar (pronounced *hámar*).¹ The account shows that Shukriiya and Hamar exhibit the same pattern and that this pattern differs from the one attested in UCSA with respect to the phrasal domain of syncope. This variation is argued to correlate with the degree of restriction that the dialects place on resyllabification. Specifically, the

1. UCSA is spoken primarily in urban areas in the central region of Sudan. Roughly defined, this region includes the capital, Khartoum, and its surroundings, and extends southward to Sennar on the Blue Nile and Kosti on the White Nile. Like most dialects of Sudanese Arabic, Shukriiya and Hamar are named after the groups who speak them. The Shukriiya tribe inhabits the Butana region (pronounced *but^há:na*) east of the Blue Nile in central Sudan. The Hamar tribe inhabits the western part of the Kordofan region in western Sudan.

restriction on the phrasal domain of syncope is shown to be a reflex of the degree of restriction that the dialects place on the domain of resyllabification.

Building on this insight, the current paper proposes an account of the interaction between syncope and resyllabification in UCSA and Shukriiya within Stratal OT (Kiparsky, 2003, 2015, to appear).² The account formally expresses the connection between the two phenomena in terms of the interaction between the syncope constraint and the constraint requiring faithful mapping of input syllables. The patterns of syncope attested in the dialects under consideration indicate that these constraints have different rankings at the prosodic levels of word, φ -Phrase, ι -Phrase, and Utterance. Structure preservation is argued to motivate the different rankings. Specifically, the relative ranking of the syncope constraint and the faithfulness constraint ensures that syllables in an already formed domain are preserved in the output. At the levels of φ -Phrase and ι -Phrase, the relative ranking of these constraints favors outputs with minimal alteration to well-formed syllables in previous levels over outputs that obliterate such syllables or render them illicit. At the utterance level, the faithfulness constraint is promoted to undominated status, resulting in a categorical ban on alteration to syllable structure. This constraint interaction is shown to explain the attested patterns of syncope in a straightforward manner.

The account shows that the interaction between syncope and resyllabification provides strong evidence that post-lexical phonology has a similar organization to that of lexical phonology. The different constraint rankings indicate that the prosodic levels constitute distinct constraint systems. Similar to the lexical levels of stem and word, the post-lexical levels are serially connected. Further evidence for the post-lexical stratification is provided by the patterns of realization of word-final clusters in UCSA and Shukriiya.

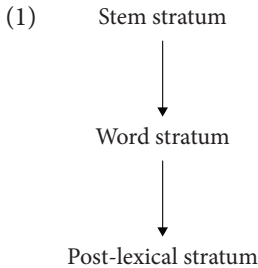
The paper is organized as follows. Section 2 introduces the relevant theoretical background. Section 3 begins by situating the syncope patterns attested in UCSA and Shukriiya in the context of other dialects of Arabic. Then, it provides a synopsis of Ali's (2014) findings, which the current analysis builds on, and a brief review of Abu-Mansour's (2011) account of syncope in Makkan. The latter deals with patterns similar to those in UCSA. Section 4 provides a Stratal OT account of the interaction between syncope and resyllabification in UCSA and Shukriiya. Section 5 examines the patterns of realization of word-final clusters in UCSA and Shukriiya. Section 6 contains concluding remarks.

2. Note that the account proposed for the patterns of syncope in Shukriiya also applies to Hamar. For space considerations, I limit my discussion to the former dialect.

2. Theoretical background

Retaining the architecture of Kiparsky's (1982) Lexical Phonology and Morphology (LPM), Stratal OT is a constraint-based approach to the phonology/phonology and phonology/morphology interactions. Kiparsky (2015, p. 4) describes it as a theory that "combines mutually compatible aspects of" classical OT (Prince and Smolensky, 1993) and LPM.

Stratal OT assumes that phonology and morphology consist minimally of the three hierarchically ordered strata depicted in (1).



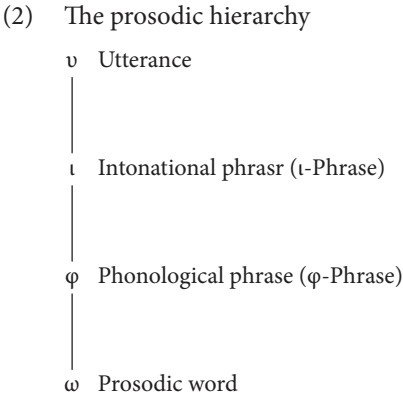
Each stratum constitutes a parallel constraint system consisting of only "the well-understood markedness and faithfulness families of constraints regimented by Correspondence Theory" (Kiparsky, 2015, p. 2). The three strata interface serially with the output of one stratum forming the input to the next. The ranking of constraints at each stratum determines the properties of the input that will be retained in the output, with the requirement that stems and words satisfy the relevant stem and word constraints at all levels. The phonological cycle effect, which involves retention of properties of bases in derived forms, is viewed as an input/output faithfulness effect. In addition, the intrinsic serialism of the strata allows for different constraint rankings at different levels, which in turn accounts for opacity in phonology. Explaining cyclic effects and opacity, while eliminating the need for derivational and transderivational constraints, is the main advantage of the theory.³

Kiparsky (2015, p. 7) argues that "the three strata *stem*, *word*, and *phrase* are likely to be universal [because] these are the three universal cross-categorical morphosyntactic units" (*italics in original*). A theory that conflates the stem and word levels, retaining a lexical and a post-lexical stratum, would have to include

3. Kiparsky uses these terms to denote constraints that refer to forms other than those under evaluation. They include output/output constraints, paradigm uniformity constraints, and sympathy constraints, among others. In parallel OT, they are typically invoked to account for opacity and cyclic effects.

transderivational constraints in order to account for the full range of cyclic effects and opacity. In contrast, a theory that enriches the set of strata by further articulating the post-lexical phonology into a phrase level and an utterance level would retain the essential advantages of Stratal OT.⁴ Kiparsky points out that evidence suggestive of such a stratified post-lexical phonology is provided by Kaisse (1985, 1990), Kiparsky (1985), Clark (1990), McHugh (1990), Mutaka (1994), Koontz-Garboden (2001), Pak (2005), and Pak and Friesner (2006). “Cyclicity and opacity *within* post-lexical phonology would not only be consistent with such a [stratified] post-lexical phonology, but predicted by the theory” (Kiparsky, 2015, p. 7; italics in original).⁵

The account proposed in this paper provides strong evidence for a stratified post-lexical phonology based on the interaction between syncope and resyllabification in UCSA and Shukriiya. The phrasal domains relevant to the interaction between these phenomena are the constituents of the prosodic hierarchy given in (2).



The account demonstrates that these prosodic levels, similar to the lexical levels of stem and word, constitute distinct constraint systems that interface serially. That is, the output of the prosodic word forms the input to the φ-Phrase, and the output of the φ-Phrase forms the input to the ι-Phrase whose output forms the input to the Utterance level.

4. Such a theory would also permit language-specific strata at the lexical and post-lexical levels if warranted.

5. The idea that lexical and post-lexical phonology are subject to the same principles is not new. For a detailed discussion and proposal to extend principles governing rule application in lexical phonology to post-lexical phonology, see Rice (1990).

3. The interaction between syncope and resyllabification

Overview

Syncope is among the most prevalent phenomena in the different dialects of Arabic. It has two features that seem to be present in all dialects. Its target is invariably a non-final short unstressed vowel that is in an open syllable and that is not part of an inflectional ending. Otherwise, dialects exhibit different patterns with respect to the context of deletion and place feature of the target vowel.

With respect to the context of deletion, syncope tends to be context-free in dialects that allow complex syllable margins. Examples of these dialects include Lebanese (Haddad, 1984), Tripoli Libyan (Al-Ageli, 1995), Syrian (Cowell, 1964; Adra, 1999), San'ani (Watson, 2002), Jordanian (Abu-Abbas, 2003), and Hadhrami (Bamakhramah, 2009). In dialects that do not allow complex margins, syncope occurs when the potentially syncopated vowel is preceded by an open syllable. This group includes Cairene (Broselow, 1976, 1992; Kenstowicz, 1980; Watson, 2002); Sudanese (Hamid, 1984); Makkan (Abu-Mansour, 1987, 2011; Gouskova, 2003; Kabrah, 2004, 2014; Bamakhramah, 2009); and UCSA, Shukriyya, and Hamar (Ali, 2014). All things being equal, the difference between the two groups amounts to reversing the relative ranking of the syncope constraint and the constraint prohibiting complex margins.⁶

With respect to the place specification of the target vowel, dialects also fall into two groups. To my knowledge, Cantineau (1936, p. 49) is the first to designate this distinction in his description of Lebanese Arabic. He uses the term “les parlers non différentiels” (non-differential dialects) to refer to varieties that syncopate low as well as high vowels and the term “les parlers différentiels” (differential dialects) to refer to those syncopating only high vowels. Examples of the two groups are the varieties he labels “Centre-Nord” (North Central) and “Centre-Sud” (South Central), respectively.⁷ This distinction has become fairly common in the literature on syncope in contemporary dialects of Arabic.⁸ Examples of non-differential dialects include Syrian (Cowell, 1964; Adra, 1999), Iraqi (Odden, 1978), Tripoli Libyan (Al-Ageli, 1995), San'ani (Watson, 2002), and Hadhrami (Bamakhramah, 2009).

6. For proposals linking syncope patterns to syllable typology in Arabic dialects, the reader is referred to works such as Broselow (1992), Kiparsky (2003), Watson (2007), and Farwanah (2009).

7. Fleisch (1974) provides a detailed description of the features of these varieties accompanied with a meticulous body of data.

8. It is worth noting that when the terms *non-differential* and *differential* are used explicitly, they are commonly attributed inaccurately to Cantineau (1939) instead of Cantineau (1936).

Examples of differential dialects include Cairene (Broselow, 1976, 1992; Kenstowicz, 1980; Watson, 2002); Makkan, which further restricts syncope to the front vowel *i* (Bakalla, 1979; Gouskova, 2003; Kabrah, 2004; Abu-Mansour, 2011); Lebanese (Haddad, 1984); Sudanese (Hamid, 1984); Jordanian (Abu-Abbas, 2003); and UCSA, Shukriyya and Hamar (Ali, 2014).

In the context described above, UCSA and Shukriyya are differential dialects that do not allow complex margins. That is, in both dialects, syncope targets an unstressed high vowel in an open syllable when preceded by an open syllable. At the phrase level, syncope occurs when its context is met across two words. Hamid (1984) provides the first description of this pattern in Sudanese Colloquial Arabic (SCA).⁹ He refers to it as Left-Hand-Syncope (LHS) when the target vowel is in the first word (VC_C(#)V) and Right-Hand-Syncope (RHS) when the target is in the second word (CV(#)C_CV). He further notes that RHS applies whenever its segmental context is met, while LHS applies only when the first word syntactically governs the second.

Ali (2014) proposes a prosodic account of the patterns of LHS and RHS attested in UCSA and Shukriyya. In the next section, I give a summary of the findings of this account, which the current analysis builds on.

Ali's (2014) account of phrasal syncope in UCSA and Shukriyya

Ali (2014) identifies the prosodic domains of syncope in UCSA and Shukriyya and establishes a link between these domains and the domain of resyllabification. The domain of syncope in UCSA is asymmetric, with LHS applying within the ϕ -Phrase and RHS applying within the ι -Phrases. The ϕ -Phrase is mapped with reference to the right edge of the maximal projections of lexical heads (Lex^{max}). This pattern of LHS is illustrated by the Examples in (3) and (4). The intermediate level in these examples represents the output of word-level syllabification and syllable boundary is indicated by a dot.

- (3) LHS applies within the ϕ -Phrase in UCSA:

<i>símiʕ</i>	<i>al-xábar</i>	V	NP
heard(3MS)	the-news	→	(<i>sí.miʕ.</i>) _ω (<i>al.xá.bar</i>) _ω
'He heard	the news.'	→	((<i>sím.ʕ</i>) _ω (<i>al.xábar</i>) _ω) _φ

9. To my knowledge, Hamid (1984: 114–131) provides the first attempt to formally identify the phrasal domain of syncope in a contemporary dialect of Arabic. For a review of his account, see Ali (2014, pp. 15–18).

- (4) LHS blocked above the φ -Phrase in UCSA:

<i>al-ká:tīb</i>	<i>iʃtáraʃ</i>	NP	VP
the-writer	confessed(3MS)	$\rightarrow (al.ká:.tīb.)_\omega$	$(iʃ.tá.raʃ)_\omega$
'The writer	confessed.'	$\rightarrow (((\varphi al.ká:.tīb.)_\omega)_\varphi)$	$((iʃ.tá.raʃ)_\omega)_\varphi$

LHS applies in (3), where the two words are parsed into one φ -Phrase. Note that the coda of the deleted vowel is resyllabified across the word boundary into the onset position of the initial syllable of the following word. Similarly, the onset of the deleted vowel is resyllabified as coda of the preceding syllable. In (4), where the two words are parsed in separate φ -Phrases, LHS is blocked even though the coda of the potential target of syncope is resyllabified across the φ -Phrase boundary into the onset position of the initial syllable of the following word.¹⁰

The Examples in (5) and (6) illustrate the application of RHS within the ι -Phrase in UCSA.

- (5) RHS does not exhibit edge effect in UCSA:

<i>bufá:ra</i>	<i>ʃiríf-a</i>	NP	VP
Bushara	recognized-3FS	$\rightarrow (bu.fá:.ra.)_\omega$	$(ʃi.rí.ʃa)_\omega$
'Bushara	recognized her.'	$\rightarrow (((bu.fá:.ra.)_\omega)_\varphi)$	$((ʃi.rí.ʃa)_\omega)_\varphi$

- (6) RHS blocked above the ι -Phrase in UCSA:

<i>ʔáwwalma:</i>	<i>ʃáli</i>	<i>lihíg-na</i>	<i>rikib-na</i>	<i>ʃarabí:t-u</i>
as soon as	Ali	caught up-1PL	rode-1PL	car-3MSG
'As soon as Ali caught up with us, we drove his car.'				

- a. Fast rate:

$((ʔáwwalma: ʃáli l.hígna r.kíbna ʃarabí:tu)_\iota)_\omega$

- b. Normal rate:

$((ʔáwwalma: ʃáli l.hígna)_\iota (r.kíbna ʃarabí:tu)_\iota)_\omega$

The high vowel deletes in (5), indicating that RHS is insensitive to the edges of Lex^{max} . The utterance in (6) consists of two potential targets of RHS. In fast speech, the utterance forms the domain of one intonation contour and is parsed into one ι -Phrase accordingly. This is shown in (6a). At a normal rate of speech, the utterance constitutes the domain of two distinct intonation contours. Accordingly, it is parsed into two ι -Phrases in (6b). Both vowels delete in (6a), where the words relevant to the segmental context of RHS are parsed in the same ι -Phrase. In (6b),

10. The blocking of LHS in this context illustrates the connection between syncope and resyllabification. Ali (2014) argues that reassigning the onset of the potential target of LHS to the coda position of the preceding syllable is disallowed, blocking syncope in effect.

where the two words relevant to the context of the second vowel are parsed in separate ι -Phrases, RHS is blocked.¹¹

Shukriiya exhibits a slightly different pattern where both LHS and RHS apply within the ι -Phrase. This is illustrated by the Examples in (7) and (8), respectively. The former consists of two potential targets of LHS, and the latter consists of three potential targets of RHS.

- (7) *ʔin baʕát-l-u tʕá:līb asʕ-sʕúlūh*
 if sent-to-3MSG seeking[3MSG] the- reconciliation
ab-sínn bi-ʕafi:-hu
 Ab-Sin FUT-forgive-3MSG
 ‘If he sends to him seeking reconciliation, Ab-Sin will forgive him.’
- a. Normal rate:
 ((*ʔin baʕátlu tʕá:l.b asʕ.sʕúl.h ab.sín biʕafi:hu*))_v
- b. Narrative rate:¹²
 ((*ʔin baʕátlu tʕá:l.b asʕ.sʕúl.ūh.*)_i (*ʔab.sín biʕafi:hu*))_v
- (8) *wé:nma: rǝjá:l-u jǝ-gábbil-u sǝjǝ:f-na ʕa:rǝj-á:-hun*
 wherever men-3MSG 3M-turn-PL swords-1PL waiting-FSG-3MPL
 ‘Wherever his men turn, our swords await them.’
- a. Normal rate:
 ((*wé:nma: rǝj:lu j.gáb.bilu s.jǝ:f.na ʕa:rǝj:hun*))_v
- b. Narrative rate:
 ((*wé:nma: rǝj:lu j.gáb.bilu.*)_i (*sǝjǝ:f.na ʕa:rǝj:hun*))_v

In (7a) and (8a), where the words containing the segmental context of syncope are parsed in the same ι -Phrase, all vowels delete. LHS is blocked in (7b) and RHS is

11. An anonymous reviewer has commented that the pattern of RHS in (6a) and (6b) raises the question of whether phrasal syncope is optional in these dialects. Neither is syncope optional, nor do speakers exhibit variation with respect to the patterns attested in their respective dialects. The crucial question that concerns us here is the domain of application of syncope. RHS applies categorically whenever its segmental context is contained within one ι -Phrase and is blocked categorically whenever the segmental context straddles the ι -Phrase boundary. Similarly, LHS applies categorically whenever its segmental context is contained within one ϕ -Phrase and is blocked categorically whenever the segmental context straddles the ϕ -Phrase boundary. The latter domain is mapped with reference to syntactic constituency and the former is mapped with reference to intonation contours. For more information on the phrasal domains and the different phonological phenomena active within them in UCSA and Shukriiya, see Ali (2014, pp. 5–8, 15–40, 54–66, 121–168).

12. Narrative rate is relatively slow and is typically used in story telling.

blocked in (8b), where the words relevant to their respective contexts are parsed in separate ι -Phrases.

Ali (2014) argues that the restriction on the phrasal domain of syncope in these dialects is a reflex of the degree of restriction on the domain of resyllabification; the blocking of syncope is a by-product of banning resyllabification in certain contexts. In UCSA, resyllabification is prohibited above the φ -Phrase when its entire context is contained within an already formed φ -Phrase. It is permitted within the ι -Phrase only when its context includes a new environment, an environment that becomes visible to phrase-level phonology after the φ -Phrase level. The asymmetry in the domain of syncope follows from this restriction on the domain of resyllabification. LHS is blocked above the φ -Phrase in (4), while RHS applies in the same context in (5), because resyllabification is permitted only when its context includes a new environment. This is sketched in (9), where the potential target of syncope is the underlined vowel (V).

- (9) The interaction between syncope and resyllabification above the φ -Phrase:

	Input	Output
a.	RHS (CV) _{φ} (C <u>V</u> .CV) _{φ}	$\rightarrow$ (CV) _{φ} (C.CV) _{φ}
b.	LHS (CV.C <u>V</u> C.) _{φ} (V) _{φ}	$\rightarrow$ (CV.C <u>V</u> .C) _{φ} (V) _{φ}

In (9a), RHS applies and the onset of the deleted vowel is resyllabified as a coda of the preceding syllable. Resyllabification across the φ -Phrase boundary is permitted because its context includes a new environment. Similarly, reassigning the coda of the potential target of LHS in (9b) to the onset position of the initial syllable of the following word is permitted because the context of resyllabification includes the second φ -Phrase. In contrast, reassigning the onset of the potential target of LHS in (9b) to the coda position of the preceding syllable is not permitted because the context of resyllabification, if it were to occur, would be entirely within the already formed φ -Phrase.¹³ In effect, LHS is blocked above the φ -Phrase, while RHS is not.

Although the account establishes a clear connection between the domain of syncope and the domain of resyllabification, it does not adequately characterize

13. This is an example of the cycle effect in post-lexical phonology. It is reminiscent of Kiparsky's (1982) Strict Cycle Condition (SCC). The basic idea is that, in any given cycle, a rule is blocked from applying to a substring of the input that is entirely contained in a previous cycle. A rule applies once its structural description is met in "a derived environment" resulting from (1) the application of rules or (2) morpheme concatenation. Applied to post-lexical phonology, this view extends the notion of "cycle" to include a formed prosodic constituent and the notion of "derived environment" to include contexts resulting from concatenation of prosodic constituents. Resyllabification into coda is blocked in (9b) because its context is entirely contained in the previous cycle.

the nature of the restriction on the latter. The requirement that the context of resyllabification include a new environment does not explain why it is blocked above the ι -Phrase level, in effect blocking RHS in UCSA and both LHS and RHS in Shukriiya. This is sketched in (10).

- (10) The interaction between syncope and resyllabification above the ι -Phrase

	Input	Output
a.	RHS (CV.) _{ι} (CV.CV) _{ι}	$\rightarrow$ (CV.) _{ι} (CV.CV) _{ι}
b.	LHS (CV.CV.CV.) _{ι} (V) _{ι}	$\rightarrow$ (CV.CV.CV.) _{ι} (?V) _{ι}

Both contexts of resyllabification would include new environments across the ι -Phrase boundary. Still, the onset of the potential target of RHS in (10a) fails to resyllabify as a coda, and the coda of the potential target of LHS in (10b) fails to resyllabify as an onset. Evidently, the new environment requirement does not explain the blocking of resyllabification in this context. In section four, I argue that the connection between the phrasal domains of syncope and resyllabification is better characterized in terms of the interaction between the syncope constraint and a faithfulness constraint against altering syllable structure.

At this juncture, it is necessary to review Abu-Mansour (2011) on phrasal syncope in Makkan. Because the analysis deals with patterns similar to those attested in UCSA, we need to establish why it cannot be extended to account for patterns in this dialect.

Abu-Mansour's (2011) account of phrasal syncope in Makkan

Abu-Mansour (2011) describes phrasal patterns of syncope that are identical to those reported by Hamid (1984) for SCA. The Examples in (11) and (12) are representative of those Abu-Mansour uses to illustrate the Makkan patterns (Abu-Mansur, 2011, pp. 38–40).¹⁴

- (11) LHS sensitive to the right edge of Lex^{max} :

a.	<i>firib</i>	<i>al-mo:ya</i>	V	NP
	drank	the-water	$\rightarrow$ <i>firb</i>	<i>al-mo:ya</i>
	'He drank the water.'			
b.	<i>al-ka:tib</i>	<i>antahar</i>	NP	VP
	the-writer	committed suicide	$\rightarrow$ <i>al-ka:tib</i>	<i>antahar</i>
	'The male writer committed suicide.' cf. * <i>al-ka:tb antahar</i>			

14. I limit my discussion here to the points relevant to the topic at hand. For a detailed review of Abu-Mansour's (2011) account and a comparison to Hamid (1984), the reader is referred to Ali (2014, pp. 40–54).

- (12) RHS does not exhibit edge effect:
- a. *katab-u kīta:b* V NP
wrote-they book → *katab-u kta:b*
'They wrote a book.'
 - b. *sa:mi šimiš-na* NP VP
Sami heard-us → *sa:mi smiš-na*
'Sami heard us.'

Abu-Mansour concludes that RHS applies whenever its segmental context is met and LHS is sensitive to syntactic constituency. She identifies the domain of LHS as the φ -Phrase, which is delimited by the right edge of Lex^{max} . Then, she proposes an account of these patterns that draws on OT (McCarthy and Prince, 1993a), Correspondence Theory (McCarthy and Prince, 1995), and the Alignment Theory of the syntax-phonology interface (Selkirk, 1996).¹⁵

Abu-Mansour introduces the constraints given in (13–16) to account for the blocking of LHS in (11b). Following Gouskova (2003) and Kabrah (2004), she assumes that syncope is due to the dominance of the markedness constraint *NUC_{i,u} over the faithfulness constraint MAX-(V). The former penalizes syllables with less harmonic nuclei, and the latter bans deletion of vowels. Following Selkirk (1996), Abu-Mansour assumes that the syntax-prosody mapping is achieved through the alignment constraints in (15). These constraints require that the left edge of the maximal projection of a lexical head be aligned with the left edge of a φ -Phrase and the right edge of the maximal projection of a lexical head be aligned with the right edge of a φ -Phrase.

- (13) *NUC_{i,u} (Gouskova, 2003)
The high vowels *i* and *u* are prohibited as syllable peaks.
- (14) MAX-IO (V) (McCarthy and Prince, 1995)
No deletion of vowels.
- (15) ALIGN (Lex^{max} , L/R; φ -Phrase, L/R) (Selkirk, 1996)
Align the left/right edge of a maximal phrasal projection
with the left/right edge of a phonological phrase.
- (16) ONSET (Prince and Smolensky, 1993)
All syllables must have onsets.

Abu-Mansour argues that the ranking in (17) accounts for the blocking of LHS across the right edge of Lex^{max} in (11b). This is illustrated in tableau (18).

15. The latter is an extension of the Generalized Alignment constraint format of McCarthy and Prince (1993b).

- (17) Under-application of LHS across the right edge of $\text{Lex}^{\max}$
 ONSET » ALIGN ($\text{Lex}^{\max}$, R; $\varnothing$ -Phrase, R) » *NUC/i,u » ALIGN
 ($\text{Lex}^{\max}$, L; $\varnothing$ -Phrase, L) » MAX-IO (V)
- (18) Input /al-ka:tib#antahar/¹⁶ ‘The writer committed suicide.’

Candidates	ONSET	ALIGN (R)	*NUC i,u	ALIGN (L)	MAX- (V)
a. al.ka:tib.) _{$\varnothing$} (an.ta.ħar	*!		*		
b. al.ka:t.b) _{$\varnothing$} (an.ta.ħar		*!		*	*
c. $\varnothing$ al.ka:.tj.b) _{$\varnothing$} (an.ta.ħar		*	*	*	

Candidate (18a) is eliminated for violating the undominated constraint ONSET. Candidate (18b) satisfies *NUCi,u but loses for incurring two violations of ALIGN (R). One violation “is incurred through the deletion of the high vowel and the other through syllabification of the *b* as an onset [of the following syllable]” (Abu-Mansour, 2011, p. 52). The winning candidate (18c) incurs only one violation of ALIGN (R) through syllabification of the *b*. Each of the latter candidates also incurs one violation of the lower-ranking constraint ALIGN (L) through the same syllabification.

The ranking of *NUC/i,u over ALIGN (L) is also argued to account for the application of LHS and RHS across the left edge of $\text{Lex}^{\max}$ in (11a) and (12a), respectively. Because neither of these involves the higher-ranking constraint ALIGN (R), Abu-Mansour concludes that the winning candidates violate the lower ranking constraint ALIGN (L) to satisfy the syncope constraint (Abu-Mansour, 2011, pp. 49–51).¹⁷

Two points are in order with respect to Abu-Mansour’s account. First, explaining the phrasal domain of syncope in terms of the interaction between the syncope constraint, on the one hand, and the alignment constraints, on the other, is problematic. Second, the analysis makes the wrong prediction with respect to the domain of RHS. I address these points below.

16. Abu-Mansour uses the number sign (#) in examples like this one to indicate the edge of the $\varnothing$ -Phrase. For ease of exposition, I include parentheses to mark the edges of the $\varnothing$ -Phrases corresponding to the two maximal projections (NP VP) in the input.

17. It is important to note that the application of LHS and RHS across the left edge of $\text{Lex}^{\max}$ is not evidence for a direct interaction between *NUC/i,e and ALIGN (L). Violation of ALIGN (L) is incurred through resyllabification of the onset of the deleted vowel in (11a) and the coda of the deleted vowel in (12a). In both cases, resyllabification occurs across the left edge of the $\varnothing$ -Phrase because neither segment can be properly parsed within the same $\varnothing$ -Phrase. This is evidence for the ranking of *COMPLEX over ALIGN (L) rather than the ranking of *NUC/i,e over ALIGN (L).

The ranking of ALIGN (R) over *NUC/i,u, is crucial for Abu-Mansour's account of the pattern of LHS. However, it is not obvious how the relative ranking of these constraints is established. To illustrate this point, let us consider the constraint interaction in tableau (18) whose input consists of two maximal projections (NP VP). An output that satisfies both ALIGN (R) and ALIGN (L) must contain no instances of syllabification across the φ -Phrase boundary. This is shown in (19).

$$(19) \quad \begin{array}{cc} \text{NP}[al.ka:.t\bar{i}b.]_{\text{NP}} & \text{VP}[an.ta.h\bar{a}r]_{\text{VP}} \\ \varphi(al.ka:.t\bar{i}b.)_{\varphi} & \varphi(an.ta.h\bar{a}r)_{\varphi} \end{array}$$

Candidate (18b) $\varphi(al.ka:.t\bar{i}b.)_{\varphi} \varphi(an.ta.h\bar{a}r)_{\varphi}$ incurs only one violation of ALIGN(R) through syllabification of the *b* across the first φ -Phrase boundary. Given the fact that the account assumes Correspondence Theory, Abu-Mansour's statement that this candidate incurs a second violation of ALIGN (R) through the deletion of the high vowel is unfounded. Indeed, it is not obvious how a direct interaction between *NUC/i,u and either of the alignment constraints could be justified. Accordingly, candidate (18b) and candidate (18c) $\varphi(al.ka:.t\bar{i}.b)_{\varphi} \varphi(an.ta.h\bar{a}r)_{\varphi}$ incur one violation each of ALIGN (R) through resyllabification of the *b* cross the first φ -Phrase boundary. They also incur one violation each of ALIGN (L) through resyllabification of the same segment across the second φ -Phrase boundary. Evidently, the winning candidate cannot be determined based on the constraint interaction in tableau (18).

Turning to the second point, Abu-Mansour's analysis deals with two of the three attested patterns of syncope in Makkan, namely, the application of both LHS and RHS across the left edge of Lex^{max} and the under-application of LHS across the right edge of Lex^{max} . This leaves the application of RHS across the right edge of Lex^{max} unaccounted for. It may be the case that Abu-Mansour has excluded this pattern based on her assumption of the phrasing of multiple complements in Makkan. I explain this point below.

Abu-Mansour does consider one example of RHS applying across the right edge of Lex^{max} . In her discussion of the phrasing of syntactic structures consisting of multiple complements, she gives the Examples in (20), where each verb has two complements (Abu-Mansour, 2011, p. 44).

(20) Multiple complements phrasing in Makkan

- a. $\begin{array}{ccccc} \text{ʔadee-t} & \text{walad-u} & \text{k\bar{i}taab} & \text{V} & \text{NP} & \text{NP} \\ \text{gave-I} & \text{son-his} & \text{book} & \rightarrow & (\text{ʔadee-t walad-u})_{\varphi} & (\text{k\bar{i}taab})_{\varphi} \\ \text{'I gave his son a book.'} \end{array}$
- b. $\begin{array}{ccccc} \text{fahham} & \text{al-kaat\bar{i}b} & \text{innu-u} & \text{y\bar{a}ltaan} & \\ \text{made} & \text{understand} & \text{the-writer} & \text{that-he} & \text{wrong} \\ \text{'He made the writer understand that he was wrong.'} \end{array}$
- $\begin{array}{ccccc} \text{V} & \text{NP} & \text{S} & & \\ \rightarrow & (\text{fahham al-kaat\bar{i}b})_{\varphi} & (\text{inn-u y\bar{a}ltaan})_{\varphi} & & \end{array}$

Abu-Mansour assumes the phrasing indicated under the syntactic structures in (20a) and (20b). She states that this phrasing is consistent with Selkirk's (1986) findings for Chi Mwi:ni where "a complement immediately following a lexical head is included in a derived domain with that head, whereas the second complement will never be in the same domain" (Abu-Mansour, 2011, p. 44). Accordingly, Abu-Mansour assumes that neither of the second complements in these examples is included in the same φ -Phrase as the head. Indeed, this is a valid assumption with respect to (20b) where LHS is blocked, indicating that the two complements are in separate domains. This is consistent with the Chi Mwi:ni facts, where the phrasing corresponds to the distribution of long vowels. However, the same assumption is unjustifiable with respect to (20a) because the application of RHS is evidence that the two complements are in the same domain.

The question of multiple complements notwithstanding, Abu-Mansour's analysis makes the wrong prediction with respect to this pattern of RHS. Because the right edge of Lex^{max} is precisely the context in which LHS is blocked, a parallel OT account, with the constraint ranking in (17), predicts RHS will also be blocked in this context. This is illustrated by the tableau (21).

- (21) Predicting under-application of RHS across the right edge of Lex^{max}
Input (NP VP) /saami#sɪmɪʃ-na/ 'Sami heard us.'

Candidates	ONSET	ALIGN (R)	*NUC _{i,u}	ALIGN (L)	MAX- (V)
a. φ saa.mi.) _{φ} (sɪ.miʃ.na			***		
b. saa.mi) _{φ} (sɪ.miʃ.na	*!	*	***	*	
c. $\odot$ saa.mi) _{φ} (s.miʃ.na		*!	**	*	*

The predicted winning candidate (21a) violates only *NUC/i,u, while the actual winning candidate (21c) incurs a fatal violation of the higher-ranking constraint ALIGN (R).

To conclude, Abu-Mansour's (2011) analysis clearly establishes the domain of LHS as the φ -Phrase in Makkan. However, it offers a problematic explanation of the phrasal domain of syncope in terms of the interaction between the syncope constraint and the alignment constraints. Moreover, by adopting a parallel OT approach, the account is unable to explain the asymmetry in the domain of syncope. In the following section, I show that a Stratal-OT approach provides a more adequate account of the patterns of syncope.¹⁸ In addition, I show that the

18. See Watson (2012, pp. 897–98) for a similar suggestion.

domain issue is best understood in terms of the interaction between the syncope constraint and a faithfulness constraint against altering syllable structure.¹⁹

4. A Stratal-OT account of the interaction between syncope and resyllabification

In this section, I propose a Stratal OT account of the syncope patterns attested in UCSA and Shukriiya. I argue that the interaction between syncope and resyllabification provides compelling evidence that post-lexical phonology has a similar organization to that of lexical phonology. Specifically, I show that the prosodic levels of word, φ -Phrase, ι -Phrase, and Utterance represent serially related strata and that each stratum represents a distinct constraint system. I begin with a brief account of lexical syncope and proceed to examine the post-lexical patterns attested in the two dialects.

Lexical syncope

Within lexical phonology, syncope is triggered by stem-level as well as word-level affixes in UCSA and Shukriiya. This is illustrated by the subject suffix in (22a) and the object suffix in (22b), respectively.

- (22) a. /simiʃ-at-na/ → (sim.ʃát.na)_w
 heard-3FS-1P.
 ‘She heard us.’
- b. /simiʃ-u/ → (sím.ʃu)_w
 heard(3MS)-3MS
 ‘He heard him.’

The deletion of the underlined high vowels in (22a) and (22b) indicates that the markedness constraint *NUC/*i,u* outranks the faithfulness constraint MAX (V) within lexical phonology. In addition, failure of syncope to delete other high

19. Abu-Mansour (2011) does not identify the domain of RHS in Makkan. However, given the similarity between the patterns of syncope in UCSA and Makkan, it is likely that the domain of RHS in the latter is also the ι -Phrase. Assuming that to be the case, the analysis proposed here also accounts for the Makkan patterns. As I demonstrate in the next section, the asymmetry in the domain of syncope follows from the different ranking of constraints at the different prosodic levels. The issue of multiple complements does not arise; multiple applications of RHS occur whenever the relevant segmental contexts are parsed within the same ι -Phrase.

vowels indicates that the markedness constraint in (23) and the faithfulness constraint in (24) dominate *NUC/i,u.

- (23) *COMPLEX
Complex margins are prohibited.
(Prince & Smolensky, 1993)
- (24) MAX-IO (MORPHEME)
An input morpheme has a correspondent in the output.
(McCarthy & Prince, 1995)

Indeed, *COMPLEX and MAX-(MORPH) dominate *NUC/i,u at all levels in UCSA and Shukriiya. The dialects impose a total ban on complex margins, and in both vocalic inflectional endings fail to syncope. The constraint ranking in (25) is responsible for the pattern of word-level syncope.

- (25) *COMPLEX, MAX-IO (MORPHEME) » *NUC/i,u » MAX-IO (V)

Input	*COMPLX	MAX- (MORPH)	*NUC/i,u	MAX- (V)
simiʃ-at-na/ 'She heard us.'				
a. smi.ʃát.na	*!		*	*
b. si.mi.ʃát.na			**!	
c. $\varnothing$ sim.ʃát.na			*	*
Input /simiʃ-u/ 'He heard him.'				
d. smi.ʃu	*!		*	*
e. sí.mi.ʃu			**!*	
f. $\varnothing$ sím.ʃu			**	*
g. sí.miʃ.		*!	**	*

The input consists of two potential targets of syncope. Candidates (25a) and (25d) delete the first high vowel but incur fatal violations of the higher-ranking constraint *COMPLEX. Candidates (25b) and (25e) are eliminated for failing to delete the second high vowel. The winning candidates (25c) and (25f) delete the second vowel, incurring one violation of the lower-ranking constraint MAX-(V). Candidate (25g) is eliminated for deleting the object suffix.

Post-lexical syncope

For ease of exposition, I begin this section with a brief summary of the interaction between syncope and resyllabification. The latter operates in two contexts,

reassigning an already parsed consonant to an adjacent syllable. In one context, it reassigns a coda to the onset position of the following syllable; in another context, it reassigns an onset to the coda position of the preceding syllable. In the first context, resyllabification feeds LHS by creating an open syllable. In the second context, it interacts with both RHS and LHS, parsing the onset of the syncopated vowel. Ali's (2014) basic insight is that the blocking of syncope in either context is a reflex of the restriction on the domain of resyllabification. Accordingly, to accurately characterize and formally express the connection between the two phenomena, it is essential that we accurately identify the degree to which resyllabification is restricted and in what domains.

Ali (2017, pp. 51–52) argues that the motivation for restricting resyllabification is structure preservation. That is, prohibiting alteration to syllable structure at a given prosodic level ensures that syllables built at that level are preserved in the output. In the current analysis, I show that resyllabification is restricted accordingly, allowed only if it minimally alters a syllable within an already formed prosodic domain. It may not obliterate such a syllable or render it illicit. This explains why resyllabification of a coda into onset is allowed across the φ -Phrase boundary in UCSA, while resyllabification of an onset into coda is prohibited. The latter would result in an illicit syllable in an already formed φ -Phrase.²⁰ Above the ι -Phrase, the ban on resyllabification is categorical. I assume that the degree to which resyllabification is restricted is a function of the ranking of the faithfulness constraint DEP-(σ) in (26) relative to other well-formedness and markedness constraints.

- (26) DEP-IO (σ) (Kiparsky to appear, p. 92)
 Correspondents have the same syllabic position.
 (No resyllabification: an output onset does not correspond to an input
 coda and an output coda does not correspond to an input onset).

We are now able to formally express the connection between resyllabification and syncope in terms of the interaction between DEP-(σ) and *NUC/ ι , u . The asymmetry in the domain of syncope in UCSA indicates that these constraints have different rankings at the levels of word, φ -Phrase, ι -Phrase and Utterance. In Shukriiya, where both RHS and LHS apply within the ι -Phrase, the same ranking holds at the word and ι -Phrase levels but not at the Utterance level. In the remainder of this section, I demonstrate how the interaction between these constraints explains the patterns of syncope attested in the two dialects in a straightforward manner. I discuss the patterns in the following order: the application of LHS and RHS within

20. See the discussion of the resyllabification pattern in (9).

the φ -Phrase in both dialects, the blocking of LHS above the φ -Phrase in UCSA, the application of RHS within the ι -Phrase in both dialects, the application of LHS within the ι -Phrase in Shukriiya, the blocking of RHS above the ι -Phrase in both dialects, and the blocking of LHS above the ι -Phrase in Shukriiya.²¹

Beginning with the level of phonological word, the application of LHS and RHS within the φ -Phrase in both dialects indicates that *NUC/i,u dominates DEP-(σ) at this level. The constraint ranking in (27) is responsible for this pattern of syncope. I illustrate this in tableau (28) with reference to the application of LHS in the UCSA Example (3).

- (27) Word-Level constraint ranking (LHS within the φ -Phrase in both dialects):
ONSET, DEP-IO (C) » *NUC/i,u » DEP-IO (σ)
- (28) Input (sí.mĩ̌ʃ.)_ω (al.xá.bar)_ω ‘He heard the news.’

Candidates	ONSET	DEP- (C)	*NUC/i,u	DEP- (σ)
a. sí.mĩ̌ʃ.) _ω (al.xá.bar	*!		**	
b. sí.mĩ̌ʃ.) _ω (?al.xá.bar		*!	**	
c. sí.mĩ̌ʃ.) _ω (al.xá.bar			**!	*
d. $\varnothing$ sím.ʃ.) _ω (al.xá.bar			*	**

An output deleting the first high vowel is ruled out because it violates the higher-ranking constraint *COMPLEX. Candidate (28a) loses for violating ONSET, while (28b) shows that epenthesis is not an optimal strategy for circumventing this violation. Candidate (28c) satisfies ONSET through resyllabification but loses for failing to delete the second high vowel. The winning candidate (28d) satisfies *NUC/i,u and incurs an additional violation mark against DEP-(σ) through resyllabifying the onset of the syncopated vowel into a coda.²²

The blocking of LHS in UCSA above the φ -Phrase indicates that DEP-(σ) is promoted to undominated status with respect to *NUC/i,u at this level. This pattern of syncope follows from the constraint ranking in (29). Tableau (30) demonstrates this point with reference to the UCSA Example (4).

21. Patterns attested in both UCSA and Shukriiya will be illustrated with reference to one dialect.

22. The ranking of *NUC/i,u over DEP-(σ) also accounts for application RHS across the word boundary (CV.)_ω (CV.CV) → (CV)_ω (C.CV). It requires the winning candidate to incur one violation of DEP-(σ) through resyllabification of the onset of the syncopated vowel as a coda of the preceding syllable.

- (29) φ -Phrase level constraint ranking (blocking LHS above the φ -Phrase level in UCSA):
 ONSET, *COMPLEX, DEP-IO (C) » DEP-IO (σ) » *NUC/i,u

- (30) Input(φ al.ká:.tjib.) φ (iʃ.tá.raf.) φ ‘The writer confessed’

Candidates	ONSET	*CMPLX	DEP- (C)	DEP- (σ)	*NUC/i,u
a. φ al.ká:.tjib.) φ (iʃ.tá.raf	*!				**
b. φ al.ká:.tjib.) φ (ʃtá.raf		*!			*
c. φ al.ká:.tjib.) φ (ʔiʃ.tá.raf			*!		**
d. φ al.ká:t.b) φ (iʃ.tá.raf				**!	*
e. φ al.ká:.tjib.) φ (iʃ.tá.raf				*	**

The input contains two potential targets of syncope. Candidate (30a) loses for violating ONSET. Deleting the second high vowel in (30b) results in a fatal violation of *COMPLEX. Candidate (30c) shows that an epenthetic glottal stop is not an optimal option for satisfying ONSET at the φ -Phrase level. Candidate (30d) deletes the first high vowel but loses for incurring two violations of DEP- (σ) , one for resyllabifying the onset of the syncopated vowel as a coda of the preceding syllable and a second for resyllabifying the coda of the deleted vowel as an onset of the following syllable. The winning candidate (30e) incurs two violations of the lower ranking constraint *NUC/i,u and only one violation of DEP- (σ) through resyllabifying the coda to satisfy ONSET.

Recall that RHS applies within the ι -Phrase in UCSA. This indicates that *NUC/i,u is promoted to undominated status with respect to DEP- (σ) at the ι -Phrase level in this dialect. Recall also that the domain of syncope in Shukriiya is symmetric, with both LHS and RHS applying within the ι -Phrase. This indicates that the ranking of *NUC/i,u over DEP- (σ) holds at the word and the ι -Phrase levels in this dialect. With the addition of the faithfulness constraint in (31), the application of RHS at the ι -Phrase level in both dialects follows from the constraint ranking in (32).²³ This is demonstrated in tableau (33) with reference to the application of RHS in (5).

- (31) MAX-IO (STRESS) (Based on Alderete, 1999)
 A stressed vowel in the input has a correspondent in the output.

23. The constraint MAX-(STRESS) is independently required to account for lexical stress in UCSA and Shukriiya. In fact the main accent on the second word *ʃirifa* ‘recognized her’ is lexically assigned. See Ali (2014, pp. 80–112) for a detailed analysis of stress in these dialects.

- (32) ι -Phrase level constraint interaction (RHS within the ι -Phrase in both dialects):
 $*\text{COMPLEX}, \text{MAX-IO (STRESS)} \gg * \text{NUC/i,u} \gg \text{DEP-IO } (\sigma)$

- (33) Input $((\text{bu.f}^{\text{á}}\text{:ra.})_{\varphi} (\text{ʕi.rí.fá})_{\varphi})_{\iota}$ ‘Bushara recognized her.’

Candidates	*CMPLX	MAX- (STRESS)	*NUC/i,u	DEP- (σ)
a. $\text{b.f}^{\text{á}}\text{:ra.})_{\varphi} (\text{ʕi.rí.fá})_{\varphi}$	*!		**	
b. $\text{bu.f}^{\text{á}}\text{:ra.})_{\varphi} (\text{ʕi.rí.fá})_{\varphi}$		*!	**	*
c. $\text{bu.f}^{\text{á}}\text{:ra.})_{\varphi} (\text{ʕi.rí.fá})_{\varphi}$			***!	
d. $\text{bu.f}^{\text{á}}\text{:ra.})_{\varphi} (\text{ʕi.rí.fá})_{\varphi}$			**	*

All three high vowels in the input are potential targets of syncope. Deletion of the first high vowel in (33a) results in a complex onset while deletion of the third high vowel in (33b) violates MAX-(STRESS). Candidate (33c) fails to delete the second high vowel, incurring a fatal violation of $* \text{NUC/i,u}$. The optimal candidate (33d) deletes the vowel, incurring one violation of the lower-ranking constraint DEP-(σ) through resyllabification of the onset of the deleted vowel into a coda.

The application of LHS at the ι -Phrase in Shukriiya follows from the constraint interaction in (34). This is illustrated with reference to the second application of LHS in (7a), shown in tableau (35).

- (34) ι -Phrase level constraint interaction (LHS within the ι -Phrase in Shukriiya):
 $\text{ONSET}, \text{DEP-IO (C)}, * \text{NUC/i,u} \gg \text{DEP-IO } (\sigma)$
- (35) Input $(\dots(\text{t}^{\text{á}}\text{:l.b as}^{\text{é}}\text{.s}^{\text{ú}}\text{.luh.})_{\varphi} (\text{ab.sín})_{\varphi})_{\iota}$ ‘...seeking reconciliation, Ab-Sin...’

Candidates	ONSET	DEP- (C)	*NUC/i,u	DEP- (σ)
a. $\text{t}^{\text{á}}\text{:l.b as}^{\text{é}}\text{.s}^{\text{ú}}\text{.luh.})_{\varphi} (\text{ab.sín})_{\varphi}$	*!		***	
b. $\text{t}^{\text{á}}\text{:l.b as}^{\text{é}}\text{.s}^{\text{ú}}\text{.luh.})_{\varphi} (\text{ab.sín})_{\varphi}$		*!	***	
c. $\text{t}^{\text{á}}\text{:l.b as}^{\text{é}}\text{.s}^{\text{ú}}\text{.luh.})_{\varphi} (\text{ab.sín})_{\varphi}$			***!	*
d. $\text{t}^{\text{á}}\text{:l.b as}^{\text{é}}\text{.s}^{\text{ú}}\text{.luh.})_{\varphi} (\text{ab.sín})_{\varphi}$			**	**

The input consists of three potential targets of syncope. The ranking of $* \text{COMPLEX}$ over $* \text{NUC/i,u}$ rules out the deletion of the first and third vowels.²⁴ Candidate (35a) loses for violating ONSET. As evident from (35b), epenthesis is not an optimal option for satisfying ONSET at the ι -Phrase level. Candidate (35c) incurs one violation of DEP-(σ) to satisfy ONSET but fails to delete the second

24. Deletion of these vowels would also violate MAX-(STRESS).

high vowel. The winning candidate (35d) satisfies *NUC/i,u and incurs a second violation of DEP-(σ) through resyllabifying the onset of the deleted vowel into the coda position of the preceding syllable.

Recall that RHS in UCSA and both RHS and LHS in Shukriiya are blocked above the ι -Phrase level. This indicates that DEP-(σ) is promoted to undominated status at the Utterance level in both dialects. The constraint ranking in (36) is responsible for the blocking of RHS above the ι -Phrase level in both dialects. I illustrate this with reference to the UCSA Example (6b) in tableau (37).

- (36) Utterance level constraint interaction (blocking RHS above the ι -Phrase level in both dialects):

*COMPLEX, DEP-IO (σ) » *NUC/i,u

- (37) Input ((...ʕá.li l.híg.na.)_l (rĩ.kíb.na...))_v ‘...Ali caught up with us, we rode.’

Candidates	*COMPLEX	DEP-(σ)	*NUC/i,u
a. ʕá.li l.híg.na.) _l (rkíb.na	*!		***
b. ʕá.li l.híg.na.) _l (r.kíb.na		*!	***
c. ʕá.li l.híg.na.) _l (rĩ.kíb.na			****

Candidate (37a) loses because deletion of the high vowel results in a complex onset. While (37b) satisfies *COMPLEX by resyllabifying the onset of the deleted vowel as a coda, it incurs a fatal violation of DEP-(σ). The winning candidate (37c) satisfies both *COMPLEX and DEP-(σ) at the cost of incurring an additional violation of the lower-ranking constraint *NUC/i,u.

The final pattern to consider is the blocking of LHS at the utterance level in Shukriiya. As illustrated in tableau (35), the feeding relationship between resyllabification and syncope is evident in the context of LHS at the ι -Phrase level in this dialect. However, because DEP-(σ) is undominated at the utterance level, resyllabification of the coda of the potential target of LHS is disallowed, bleeding syncope in effect. The constraint ranking responsible for this pattern are given in (38). The blocking of LHS in (7b) is shown in tableau (39).²⁵

- (38) Utterance level constraint interaction (blocking LHS above the ι -Phrase level in Shukriiya):

ONSET, DEP-IO (σ) » DEP-IO (C)

25. It is important to note that the input in (39) and the input in (35) are identical at the segmental level; they differ only with respect to prosodic constituency. This is clear evidence that the prosodic levels constitute distinct constraint systems.

(39) Input ((...tʰá:l.b asʰ.sʰ.ú.luḥ.)_l (ab.sín...))_v ‘...seeking reconciliation
Ab-Sin...’

Candidates	ONSET	DEP-(σ)	DEP-(C)
a. tʰá:l.b asʰ.sʰ.ú.luḥ.) _l (ab.sín	*!		
b. tʰá:l.b asʰ.sʰ.ú.luḥ.) _l (ab.sín		*!	
c. $\varnothing$ tʰá:l.b asʰ.sʰ.ú.luḥ.) _l (?ab.sín			*

Candidate (39a) violates ONSET. Candidate (39b) satisfies ONSET but incurs a fatal violation of DEP-(σ) through resyllabification of the coda of the high vowel. The winning candidate (39c) satisfies ONSET through epenthesis at the cost of violating the lower-ranking constraint DEP-(C).

Summary

The account of syncope proposed in the previous section provides strong evidence for the stratification of post-lexical phonology. The interaction between syncope and resyllabification indicates that the markedness constraint *NUC/i,u and the faithfulness constraint DEP-(σ) have different rankings at different prosodic levels. The different rankings seem to be motivated by structure preservation. That is, the ranking of DEP-(σ) relative to*NUC/i,u ensures that well-formed syllables in an already formed prosodic domain are preserved in the output. Constraint interaction at the φ-Phrase and ι-Phrase levels favors outputs that minimally alter the structure of syllables in a previous level over outputs that render such syllables illicit. At the Utterance level, the ban on resyllabification is categorical. This constraint interaction is shown to provide a straightforward explanation of the patterns of syncope in UCSA and Shukriiya.

5. Further evidence for post-lexical stratification

In this section, I provide further evidence for the stratification of the post-lexical phonology based on the patterns of realization of word-final clusters in UCSA and Shukriiya.²⁶ For space consideration, I will not provide a detailed account of these patterns. Instead, I briefly point out how the constraint interactions responsible

26. Ali (2014) describes two contexts that give rise to unsyllabified segments in these dialects. The first one arises from affixation of the subject suffix *-t* to a perfect stem ending in a consonant (e.g. /wagaf-t/ ‘I/you stood’. The second context arises from stems that end in a two-consonant cluster. I limit my discussion here to two examples of the latter.

for them support the stratification view. The constraints relevant to this point are those requiring faithful mapping of input segments, on the one hand, and the well-formedness constraint PARSE-SEG, which requires a segment be licensed by a syllable or a mora, on the other.

One type of segment that cannot be properly parsed at the word level arises from stems ending in a two-consonant cluster. In both dialects, this cluster may consist of a full geminate or a partial geminate that consists of a homorganic nasal-stop sequence. In Shukriiya, the cluster may also consist of heterorganic consonants. I illustrate the patterns of repair of unsyllabified segments with reference to one example from each dialect.

In UCSA, the second member of a stem-final geminate is retained unsyllabified up to the φ -Phrase level, where it is stray-erased if it cannot be parsed. This is illustrated with reference to the second member of the geminate in the stem *al-bitt* ‘the girl’ in (40) (Ali, 2014, pp. 32–36).

- (40) a. $[[al-bitt]_N \quad [[al-kabi:r-a]_{AP}]_{NP}$
 the-girl the-old-FSG $\rightarrow$ $((\text{?}al.bi.t)_{\omega} \quad (al.ka.bi.ra)_{\omega})_{\varphi}$
 ‘The older girl.’
- b. $[[[al-bitt]_{N}]_{NP} \quad [[akal-at]_V]_{VP}]_{TP}$
 the girl ate-3FSG $\rightarrow$ $((\text{?}al.bi.t)_{\omega})_{\varphi} \quad ((a.ka.lat)_{\omega})_{\varphi}$
 ‘The girl ate.’

In (40a), the second member of the geminate is repaired through syllabification across the word boundary but is deleted in (40b). In the latter, the first member of the geminate is syllabified across the φ -Phrase boundary to satisfy the onset requirement. This pattern of syllabification indicates that the constraint that requires faithful mapping of the second member of the geminate outranks PARSE-SEG at the word level. At the φ -Phrase level, PARSE-SEG is promoted to undominated status, forcing the deletion of the stray consonant.

In Shukriiya, the second member of a stem-final heterorganic cluster is retained unsyllabified up to the ι -Phrase level, where it must be repaired (Ali, 2014, pp. 156–161). This is illustrated with reference to the final consonant in the nominal stem *darb* ‘path’ in (41).

- (41) *ʔin ʕugub xiti:-t ad-darb ahal-ak bi-ʕadil-u ra:s-ak*
 if then left-2MSG the-path folks-2MSG FUT-fix-3MPL head-2MSG
 ‘If you, then, stray away from the righteous path, your folks will set you straight.’
- a. Normal rate:
 $((\text{?}in \text{ʕugub } xiti:t \text{ addar.} \underline{b} \text{ a.halak bi} \text{ʕadlu } ra:sak))_{\iota}$
- b. Narrative rate:
 $((\text{?}in \text{ʕugub } xiti:t \text{ adda.ri} \underline{b})_{\iota} \quad (\text{?}ahalak bi \text{ʕadlu } ra:sak))_{\iota}$

In (41a), the segment is repaired through syllabification across the word boundary. In (41b), where syllabification across the *ι*-Phrase boundary is prohibited, the segment is repaired through epenthesis. Once again, this indicates that the constraint that requires faithful mapping of root radicals dominates PARSE-SEG at the word level. Both constraints are undominated at the *ι*-Phrase level, forcing a violation of DEP-(V) to repair the segment through epenthesis.²⁷

In conclusion, the patterns of realization of word-final clusters in UCSA and Shukriiya provide further evidence for the stratification of the post-lexical phonology. These patterns indicate that the constraints requiring faithful mapping of input segments dominate the well-formedness constraint PARSE-SEG at the word level. At the phrase level, PARSE-SEG is promoted to undominated status.

6. Concluding remarks

Building on Ali (2014, 2017), I have proposed a Stratal OT account of the interaction between syncope and resyllabification in UCSA and Shukriiya. The account shows that the interaction between these two phenomena provides strong evidence that post-lexical phonology mirrors lexical phonology; prosodic levels constitute distinct constraint systems that are serially related. Further evidence for this view is also provided from the patterns of realization of word-final clusters in the two dialects.

Phrasal syncope is a pervasive phenomenon in contemporary dialects of Arabic. Similarly, resyllabification is attested in virtually all dialects. Still, formal analyses of the domains of these phenomena and of how they interact are lacking. The account proposed in this paper offers a possible approach to analyzing these and other similar phrasal phenomena in contemporary dialects of Arabic.

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27. See Ali (2014, pp. 156–161) for evidence that the underlying form of the stem is /darb/ ‘path’ and that the high vowel in *darib* ‘path’ is epenthetic.

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PART II

Sociolinguistics and pragmatics

Destabilizing Arabic diglossia?

New media and translingual practice

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This paper problematizes current understandings of Arabic diglossia by demonstrating the ways in which it is clearly being reconfigured thanks to the linguistic practices of younger users of the language in the New Media. Analysis of social media data from two undergraduate students, native users of Arabic, illustrates the ways in which such practices are translingual; that is, users do not limit themselves to a single language, language variety, or script, but rather employ multiple resources, including nonlinguistic ones, that they assume will be understood by their addressee(s). These literate practices represent a clear break with traditional academic and lay understandings of diglossia, particularly with regard to the user-based conventionalization of writing dialectal Arabic.

Keywords: Arabic, diglossia, new media, translingual practice

1. Introduction

The goals of this paper are two: first, to problematize some traditional assumptions about Arabic diglossia found not only among users of Arabic but also among researchers on the language and, second, to examine how the New Media have created contexts in which diglossia, however stable it might have been in the past, may well be being destabilized and is surely being reconfigured. Our focus will be the translingual practices of two of the co-authors, Abdulrahman ('Abe') Alkhamees and Rasha Elabdali, both of whom are undergraduate linguistic majors at Portland State,¹ as well as some of those with whom they frequently interact

1. Abdulrahman is a 25-year-old Kuwaiti scholarship student who hopes to work in the Kuwaiti Foreign Ministry, where he would use his language skills and abilities as a "cultural shapeshifter." By his own admission, he is a trickster. He has five siblings and loves being outdoors, whether in the desert or in Oregon. Rasha is a 21-year-old Libyan scholarship student who hopes to return to Libya to start a language school and pursue graduate studies at some

electronically. Before examining these practices, we first provide background on three relevant topics: traditional understandings of diglossia, the emerging construct of translanguing practice and its consequences, and the register of Interactive Written Discourse in the New Media generally and with regard to Arabic more particularly. We then briefly describe the methods used in our study, provide some representative data, and report the results of our analyses, contextualizing them in light of earlier discussions of the existing research literature.

2. Background

As background to this study, we first seek to complicate traditional understandings of diglossia. We then discuss a recent interdisciplinary turn in sociolinguistics and linguistic anthropology, applied linguistics/second acquisition theory, and bilingual education. In all these fields, there is a growing shift away from focusing on languages as discrete entities to focusing on language users, their repertoires, and their practices. Finally, we examine the nature of the New Media and the phenomenon of Inactive Written Discourse (Ferrara, Brunner, & Whittemore, 1991) in the era of Web 2.0.

Complicating common understandings of diglossia

Discussions of diglossia in Arabic, as in other languages, generally begin with Ferguson's (1959) characterization of the phenomenon.

DIGLOSSIA is a *relatively stable language situation* in which, in addition to the primary dialects of the language (which may include a standard or regional standards), there is a very divergent, highly codified (often grammatically more complex) superposed variety, the vehicle of a large and respected body of written literature, either of an earlier period or in another speech community, which is learned largely by formal education and is used for most written and formal spoken purposes but is not used by any section of the community for ordinary conversation. (p. 336, emphasis added)

As Walters (e.g., 2003) has explained, in the 1959 essay, Ferguson's focus was not Arabic and certainly not Arabic alone. It was, rather, the nature of language standardization, with Arabic serving as one of his four key exemplars. Likewise,

point. She is currently employed by PSU's Intensive English Language Program. Keith is a non-native user of Arabic who has lived in Tunisia for over five years at various times and had the opportunity to spend time in Morocco, Egypt, and the West Bank; he first began learning Arabic as a Peace Corps volunteer while teaching EFL in Tunisia in the mid-1970s.

Ferguson was very aware that the characterizations he offered of Arabic and the other languages considered in that article were idealized in key ways. As descriptive research on Arabic diglossia since 1959 has demonstrated, despite the limitations of Ferguson's initial characterization of diglossia in relationship to Arabic, many of his claims continue to hold true – to varying degrees – even as it has become evident that Ferguson was describing language ideologies associated with Arabic diglossia at the time as much as, and perhaps more than, he was describing the nature of Arabic diglossia itself. (In some profound sense, ideology is always part of practice, shaping it in complex ways. However, we contend it is possible to distinguish between ideologies and practices, at least for analytic purposes.)

Our primary concern in this article is Ferguson's characterization of diglossia in Arabic as a "relatively stable language situation." Obviously, Ferguson qualified the characterization with "relatively," implying the existence of synchronic variation and, hence, the likelihood of diachronic change. At the same time, among the differences between speech communities where Arabic is the native language and, say, natively Anglophone communities is the *ʔizdiwaaʒiyyat l-luya* 'duality of language,' the Arabic expression that is traditionally translated as *diglossia*, that characterizes the former. Readers with experience in Arabic-speaking communities are well aware of the nature and consequences of this duality and its stability, despite the vast demographic and social changes during the past century across the Arab world.

Here, we wish to consider whether and how that "relatively stable... situation" may be in the process of being destabilized and is clearly being reconfigured by the current language practices of users of Arabic in the era of the New Media, particularly Web 2.0, the affordances of which permit individuals not only to create content but also to post responses to the content of others. As we demonstrate below, what language users² may be doing in these contexts as they create user-generated content has been discussed in the literature; however, the focus of those discussions has not been diglossia *per se*.

To tackle this issue, we will also draw on another of Ferguson's concerns, *conventionalization*, which he defined as

the process by which members of a community somehow come to share the sound-meaning pairings that constitute their means of verbal communication, in spite of the fact that no two speakers speak exactly the same way and the shared language keeps changing. (1994, p. 15)

2. Throughout, we will refer to the 'users of Arabic' to emphasize that a growing number of individuals who use Arabic in electronic contexts are not native speakers of the language and/or do not necessarily identify as Arab.

Because we are dealing with Interactive Written Discourse – the sorts of written language one finds in text messages, posts on Facebook, or comments on YouTube videos, Instagram, and other forms of social media – our concern is larger than “sound-meaning pairings.” As will become evident, it includes pairings involving scripts, spelling conventions, emojis, languages, language varieties, and social meanings of many sorts. All of these, however, are in the process of becoming conventionalized (and to some degree have already done so) in online environments. Importantly, these processes of conventionalization are bottom-up – that is, they are user driven – in contrast to the top-down, elite-driven processes traditionally associated with standardization.

In his discussion of conventionalization, Ferguson characterized a convention as “an implicit contract among a community of users of a language variety that certain expressions will mean certain things when used in certain combinations under certain social conditions” (1994, p. 15). Thus, our concern is the emerging “implicit contract” among communities of various sizes and kinds about these pairings, which, as noted, are not limited to questions of language varieties. In this regard, this emerging contract is easily located in current discussions of language ideologies (e.g., Irvine and Gal, 2000; Walters, 2018).

In considering discussions of the Arabic linguistic situation, we can easily claim that such discussions have traditionally focused on the distinction between the high and low variety, framing it as a split between the *fusʿhaa* ‘Standard Arabic’ and ‘the dialect,’ an ideological move that erases variability within each of the two varieties or the interaction between them. (After all, in a profound sense, diglossia represents two varieties of a single language in long-term contact, a situation where we would expect to see the sorts of linguistic phenomena that characterize, nearly, all contact situations.) The presentation of diglossia in many introductory sociolinguistics texts similarly discusses the high and low varieties as if each were homogeneous and unchanging, on the one hand, and as if they were hermetically separated by a wide and fixed gulf, with no overlap or interaction between them, on the other.

However, as is well known, speakers of Arabic can generally easily guess a speaker’s origin, even when that person is speaking the *fusʿhaa* ‘Standard Arabic,’ thanks to the phonology or lexicon used. Similarly, trilingual North African colleagues assure one of the authors of this paper that they can often guess whether a text written in *fusʿhaa* was written by someone from a country colonized by France or by England because of the structure of the text itself, as well as lexical and stylistic choices that might indicate the writer’s provenance. In short, there is variability in the *fusʿhaa* ‘Standard Arabic’: each country has developed its own way of speaking and writing that variety – a question of linguistic practice – as well as its own ideologies about what exactly counts as *fusʿhaa* ‘Standard Arabic.’

Interestingly, there are different kinds of erasure that occur with respect to the spoken dialects. Through their labeling practices and comments, speakers construct dialectal boundaries as corresponding to nation-state boundaries. However, the dialectal Arabic of Jendouba, Tunisia, the northwestern-most *wilaaya* 'governorate' of the country and the place where Walters was a Peace Corps volunteer, is much closer to the Arabic of Al-Taref, the northeastern-most province of Algeria, than it is to the Arabic of Medenine, the southeastern-most *wilaaya* 'governorate' of Tunisia, which borders northwestern Libya. And while Tunisians sometimes broadly distinguish Tunisian dialects on the basis of the use of [q] or [g], as noted below, along with other criteria depending on the context, they frequently distinguish Tunisian Arabic from other nation-state varieties as a marker of national identity – a question of scale (e.g., Blommaert, 2007). As Suleiman (2003) has demonstrated, neither of these sets of facts is acknowledged in recurring debates about the *fus^hhaa* 'Standard Arabic' and the dialect(s).

The turn toward considering translingual practice

We frame our consideration of the changing nature of diglossia in terms of a recent interdisciplinary turn in the research perspectives of three intersecting fields: linguistic anthropology and sociolinguistics, applied linguistics/second language acquisition, and bilingual education. Researchers in these fields have begun to move away from a more or less unique focus on the notion of codes – that is, discrete languages – as their subject of inquiry, concerning themselves additionally or instead with speakers, repertoires, and practices, on the one hand, and indexicality and language ideologies on the other. Such a shift is important to this study in two ways. First, it decenters the traditional obsession with partitioning specific forms of Arabic into, e.g., *fus^hhaa* versus dialect. Second, it allows us to examine the use of multiple varieties of Arabic and other languages juxtaposed in a single interaction without stigma. More importantly, however, such a perspective seeks not to reify any particular variety or language, focusing instead on the communicative repertoire of the interactants and their practices.

In a profound sense, many of the trends in these fields trace their origin to Hymes's work in the 1960s and 1970s as he sought to counteract what he saw as the reductionist perspective of formal approaches to the study of language at the time. In this regard, researchers in the fields of linguistic anthropology and sociolinguistics (including sociocultural linguistics) in North America and Britain, in particular, continue to work out the consequences of many of Hymes's observations about the meanings of language use in context and the consequences of social and linguistic inequality in everyday life. Particularly significant here are the work of Silverstein (2003) on orders of indexicality, Irvine and Gal's (2000) analysis of

language ideologies, and Heller's (2006) questioning of the value of focusing on languages as distinct entities in contrast to analysis of what speakers do with their linguistic repertoires in specific situations. Gal (2006) has gone so far as to claim that the view of languages as distinct entities is an ideological invention linked directly to the rise of European nationalism. These perspectives are now inscribed in introductory-level sociolinguistics texts (e.g., Bell, 2013), redefining sociolinguistics in terms far broader than Labovian variation theory (this latter view is still favored by many American linguists) to include research informed by anthropology, including linguistic anthropology, and social theory more broadly.

As noted, applied linguistics/second language acquisition theory has also undergone a social turn, again as a consequence of coming to terms with Hymes's notion of communicative competence in the context of language learning and teaching. A key term here is the notion of multi-competence, "the overall system of a mind or a community that uses more than one language" (Cook 2016, p. 2). A foundational assumption in this work is the notion that those who possess more than one linguistic code, be it dialects or languages – a situation that would hold for (nearly?) all humans – do not generally compartmentalize them but use them in concert, depending on context. On the one hand, such an assumption presupposes that discrete entities labeled languages exist, or at least can – a fairly traditional way of thinking. On the other, many see the leap from the individual to the community to be highly problematic. Singleton (2016) and Thierry (2016) offered critiques of Cook's position while Wei (2016) defended it, linking these claims to the notion of what is termed translanguaging or translingual practice.

Currently, translanguaging and related concepts, enumerated in the following paragraphs, are often most closely associated with research in bilingual education, which is, of course, intimately linked to second language acquisition theory. Research in bilingual education has been much influenced by the work of Hymes, who certainly wrote widely on issues of language in education, particularly for linguistic minorities, including those who are bi- or multilingual. According to Velasco and Garcia,

Translanguaging (TL) does not view the languages of bilinguals as separate linguistic systems. The term stresses the flexible and meaningful actions through which bilinguals select features in their linguistic repertoire in order to communicate appropriately. From this perspective, the language practices [of bilinguals] are in functional interrelationship with other language practices and form an integrated [communicative] system. TL is more than code switching, which considers that the two languages are separate systems (or codes) and are 'switched' for communicative purposes. (2014, p. 7)

It is unfortunate that Velasco and Garcia have limited their focus and discussion to two languages, given the widespread multilingualism in many parts of the world,

though such a practice is common among those whose concern is bilingual education.³ The metaphor of switching is a likewise unfortunate one, but one that we are likely stuck with, given its long history in the field. It implies that the languages (and, by extension, the language varieties) of a bi- or multilingual are switched on and off as with a toggle switch. This is so despite the fact that research on language processing and certain models of syntactic constraints on codeswitching have long demonstrated that both – or all – languages involved are always activated though to different degrees (see, e.g., de Bot, 1992; Myers-Scotton, 1993a; Myers-Scotton, & Jake, 1995, all of whom built on the research of Levelt 1989).

There is no single established term for labeling the focus of current research in these areas. Velasco and Garcia use the term *translanguaging*. Garcia and Wei (2014) and Velasco and Garcia (2014) pointed out that a number of other theorists and researchers invoke similar or overlapping constructs that seek to capture this shift in focus from codes as distinct entities in the world to speakers' repertoires and how they deploy them in specific contexts. Included here would be Bakhtin's notion of heteroglossia (1981), Rampton's discussion of crossing (1995), Jacquemet's analysis of transidiomatic practice (2005), Jørgensen's exploration of polylingualism (2008), Higgins's consideration of multivocality (2009), Creese and Blackledge's exploration of flexible bilingualism (2010), Otsuji and Pennycook's treatment of metrolingualism (2010), and Canagarajah's theorizing about codemeshing and translingual practices (2013).

In very Hymesian fashion, Canagarajah noted that "communication transcends individual languages," going beyond lexical items to include "diverse semiotic resources and ecological affordances" (2013, p. 6). Furthermore, he argued, what have traditionally been termed "languages" cannot help but be in contact with one another and, therefore, necessarily influence one another. It is precisely this contact (and often conflict) that "offers possibilities for voice," that is, for the creation of individual identities.

Much as Gal or Heller might argue, Canagarajah contended that "labeling [languages or language varieties] is an ideological act of demarcating certain codes in relation to certain identities and interests" (p. 6). Thus, language users employ language not according to the labels particular varieties may have, but as part of a unified repertoire developed across the lifespan. In so doing, they engage in what Canagarajah has termed "translingual practice." Hence, users have an "integrated

3. While we are sympathetic to the general perspective espoused by Velasco and Garcia, we must note that in arguing for this shift in perspective, Garcia sometimes (e.g., Grojean 2016) fails to acknowledge earlier work in bi-/multilingualism that had, in fact, demonstrated the inadequacy of the toggle-switch metaphor.

proficiency” that is qualitatively distinct from applied linguists’ traditional concern with proficiency or competence in multiple distinct languages. Such a perspective echoes Grosjean’s (1989) long-standing dictum that a bilingual is not simply two monolinguals residing in a single body. Canagarajah further argued:

treating language as a tightly knit system that stands free of other semiotic resources, detached from the environment, a self-standing product, and autonomous in status distorts meaning-making practices. Though it is important for linguists to focus on language for analytic purposes, such considerations should be informed by multimodality. (2013, p. 7)

This interdisciplinary turn in understanding the nature of multilingualism from the perspective of speaker practice, rather than from the more traditional linguistic perspective of distinct codes that are switched, has clear consequences for our project. First, it problematizes ideologies held by analysts that unreflexively partition repertoires into languages or varieties as well as the frequent obsession with ideologies of interference/negative transfer. Second, its focus on indexicality and ideologies, along with insights from perceptual dialectology (Niedzielski & Preston, 2000), opens new ways for examining how language users understand their own behavior and that of others. (The goal of perceptual dialectology is to understand language varieties and their speakers from the perspective of the ‘folk,’ the users themselves.)

Here, we might also add the notion of membership categorization (Sacks, 1972) from Conversation Analysis, that is, the way that, in discourse, speakers set up divisions among language varieties and/or speakers that index far more than simple linguistic differences. For example, in everyday conversation, Tunisians divide themselves and other Tunisians into two categories, those who speak with “quuli/quutlik” and those who speak with “guuli/guutlik.” As readers with any familiarity with Arabic dialectology and daily life in the Arab world appreciate, the question here is not merely the historical distinction between urban versus Bedouin varieties of Arabic. Rather, the distinction immediately locates the labeler and labeled in social and geographic space, presupposing a host of other values regarding comportment and even moral worth. In this regard, considering translingual practice challenges researchers to think in terms of individuals’ linguistic and semiotic repertoires as well as their understanding of the meanings of their own language practices and those of others.

The emergent register of interactive written discourse

In this section, we discuss the register of Interactive Written Discourse and then consider the research on this register in Arabic. We would certainly acknowledge

that Web 2.0 came into being long after researchers began to investigate online discourse, but, importantly, Web 2.0 permits and in many ways invites or requires users to employ the range of their communicative resources, whether as consumers of information or as generators of content. In so doing, it has vastly increased the novel contexts for Interactive Written Discourse.

Among the first to seek to describe the register of language used in online contexts, Ferrara, Brunner, and Whittemore characterized it as emergent, using the label “Interactive Written Discourse”:

Interactive Written Discourse is a historically unique juxtaposition of text format with real-time interaction pressures. This form of written communication is relatively undocumented but undoubtedly tailored to context of use.... There is ample reason to believe that this type of written communication will proliferate in the future, perhaps even influencing or outdating the conventions of traditional writing styles. (1991, p. 31)

Among these researchers’ focuses was the tendency of those writing in electronic environments, even early ones, to use forms traditionally associated with the spoken rather than written variety of the language, English in their case. In short, the interactive nature of the communication won out over the conventions of written language that governed its use in more traditional and canonical ‘written’ contexts. Ferrara, Brunner, and Whittemore’s predictions have certainly come true with regard to English. For example, Walters now regularly uses BTW or WRT in class handouts and even in PowerPoint slides, though he does not yet use them in formal writing. As we will demonstrate, Ferrara, Brunner, and Whittemore’s predictions also hold true with regard to Arabic.

Importantly, conventions for interactive written discourse can continue to change over time, especially as technological affordances change, a fact evidenced by this exchange of text messages between Abe, who was in the US, and a group of his Kuwaiti friends, all of whom currently reside in Kuwait:

- (1) Text messages between Abe and a group of Kuwaiti friends
 - a. Hamad Alsager Welcome back khamas 9:47 pm
 - b. Abe [who is being addressed as Khamas, a nickname] Ohh how I missed you guys so much 🥺🥺🥺 9:51 PM
 - c. Hamad Alsager MisU2 10:16 PM
 - d. tHis iS 2008 10:16PM
 - e. HoW R U kHaMeS 10:16 PM
 - f. +965 9557 1234 ~Mohammed Al-Na... lol 10:18 PM

Here, in lines (1c–e) of this exchange, Abe understood Hamad to be parodying the way they were forced to communicate pre-iPhone (cf. 1d), when Blackberries that did not support the Arabic script were the only available option. Hamad is typing

in English, using the Latin script, of course – with little concern for the conventionalized use of upper and lower case letters – and in Arabizi for Abe’s name (1a, 1e); that is, Arabic transliterated using Roman characters, as discussed below. As Abe noted, “That’s history” because users of Arabic currently have other options.

Given the exchange in (1) in light of our discussion of diglossia, the turn toward translanguaging practice, and the register of Interactive Written Discourse, three questions immediately arise with respect to understanding Arabic and the New Media:

- i. What are users of Arabic doing when they communicate using social media?
- ii. What motivations do they understand themselves and others to have for employing these practices?
- iii. What consequences might these practices and understandings have for Arabic diglossia and the linguistic situation among users of Arabic more broadly?

Here, we briefly review the research that responds in some ways to questions (i) and (ii). Our primary focus below, however, will be to consider the data we collected in light of question (iii). Since the initial study of online discourse in Arabic by Warschauer, El Said, and Zohry (2002), it is clear that in electronic contexts, including the New Media, users of Arabic most often use and report using dialectal Arabic, whether in Roman characters, Arabic script, or a combination of these (cf. Palfreyman & Al Khalil, 2003; Chun & Walters, 2011; Al-Tamimi & Gorgis, 2007; Bianchi, 2013; Caubet, 2018).

As noted above, the affordances of earlier technology like cell phones did not permit the use of Arabic script. Thus, writers had to resort to transliteration using Roman script. According to the Wikipedia entry for “Arabic Chat Alphabet” (2017), this practice is referred to by various names including *Arabizi* (Yaghan 2008), *muṣarrab* (the term Abe was familiar with), *Arabish*, and *Franco-Arabic*. Rasha reported having no name for this practice, but she often engages in it, as demonstrated below. Abu Elhija (2013) documented the variation across and within national varieties of Arabic with respect to the symbols used for various Arabic sounds/letters in Arabizi while May, Benjira, and Echihabi (2014) and references therein described efforts to construct machine translation systems that can process Arabizi.

Although the affordances of currently available technology permit the use of Arabic script, users of Arabic at least sometimes continue to transliterate the language using Roman script, and the motivations for doing so are likely multiple. First, especially if one is switching between English and Arabic, continuing to use the Roman script saves the user from having to switch keyboards. Of course, the same is true when users switch from Arabic to English, and it is clear that they sometimes transliterate English and other languages into Arabic script, a practice

illustrated below. Second is the ‘cool’ factor: using Arabizi serves as a mark of distinction (Bourdieu, 1984), partitioning off those who have this skill from those who do not. In this regard, this practice functions as an example of what Myers-Scotton (1993b) has termed ‘elite closure’.

Predictably, the use of Arabizi has given rise to claims that its use “is destroying the Arabic language” (e.g., Ghanem, 2011; Al-Fawaz, 2014). While some of these discussions of Arabizi note that writing dialectal Arabic is by and large a novel practice (though see Walters 2003 for a discussion of then-conventionalized uses of written dialect), none considers how this practice might be influencing the nature of Arabic diglossia.

3. Methods

During winter quarter 2017, Abdulrahman and Rasha collected examples of text messages or messages on social media sent by them or members of their social networks. They met weekly with Walters and went over these text messages, generally line by line. They were asked to translate the text messages and to comment on what they observed happening in the data. Walters asked follow-up questions, some about linguistic forms, others about interactional phenomena. All three of the co-authors were involved in some meetings; in others, Walters met individually with Rasha or Abe. Among the questions each was asked was whether and how well she or he understood the text messages shared by the other. (Here, our concern was interdialectal comprehensibility.)

4. Some representative data

Our goal is certainly not to provide a thorough analysis of the Web 2.0 language practices of Abe and Rasha; it is, rather, to offer and analyze a very limited number of examples of the phenomena that occur in their practices with a focus on the changing nature of diglossia. We would note that we were granted permission to use all the examples that we cite in this paper.

Here, we present seven short electronic interchanges, representative in different ways of the sorts of language practices engaged in by Rasha and by Abe. They are representative in that they are unremarkable; the linguistic phenomena they include are illustrative of Abe’s and Rasha’s everyday practices and, indeed, the practices of many younger multilingual users of Arabic at this point. We contend that all these practices have consequences for our understanding of Arabic diglossia and what we might term the ecology of language varieties and practices

involving Arabic more broadly. We would note, additionally, that throughout, we have not pointed out Arabic transliterations of common discourse markers (e.g., *OK*, *uh-huh*). We treat these as borrowings because of the frequency of their occurrence.

We first present four exchanges involving Rasha, three with a Libyan friend from a different part of the country and a fourth with an Iraqi friend. All are undergraduate students at PSU.

- (2) This texting exchange involves Rasha (R), who is from Tripoli, and Aisha (A) (nickname: 'Ayoush'), a female Libyan friend from the eastern part of the country.

a. وينك	R: 'Where are you'
b. ؟؟	double question marks
c. مازلت في الكلاس	A: 'I'm still in class'
d. قريب نطلع	'I'm about to leave'
e. نبي نحكي مع الاستاذ	'I want to talk to the professor'
f. وينك	R: 'Where are you?'
g. لولو	'Hey'
h. تي ردي	'Answer me'
i. توا طلعت	A: 'I'm leaving now'
j. سوري	'Sorry'
[a little later, following up on a comment from an exchange earlier the same morning]	
k. Ohh	R: 'Oh'
l. Nbi shi haaar	R: 'I want something spicy'
m. Halba	R: 'Very [spicy]'

When this exchange occurred, Aisha was in class, but Rasha was in the library, where they were to meet. In (2a–b), Rasha inquires as to where Aisha is. The repeated question marks in (2b) can be taken as a marker of intensification. In (2c–e), Aisha offers an account: she is in class, she is soon going to leave, but she wants to speak with the professor. (2c) merits comment for two reasons. First the English word 'class' is written in Arabic script; it is completely integrated into Arabic, not only orthographically but also morpho-syntactically, as *ʔil-klaas* 'the-class,' with *ʔil-* as the Arabic definite marker. Second, there is a typographical error: an unnecessary *r* (ر) occurs at the end of the word 'class,' but no effort is made to correct it, a common feature of Interactive Written Discourse in Web 2.0 environments, especially texting. Shortly later, in (2f), Rasha repeats her initial question (cf. 2a), intensifying it with the expression in (2g), *luu* (from 'Hello'), which might be glossed as 'Hey' and which carries an implicature of 'What's the problem?', adding the unmitigated directive 'Answer me' in (2h).

During our discussions of this exchange, Rasha pointed out that she perceives the verb *نحكي nihki* 'I talk' in (2e) to be a regional form from eastern Libya, a

form she, being from Tripoli, would not use in unmarked situations but which she understands. She would use *nitkallam* instead. In (2i), the friend replies that she is now leaving and offers a formulaic apology ‘sorry,’ (2j); significantly, the English term is written in Arabic script. A bit later, Rasha posts a picture with several images of fried chicken from Popeyes Louisiana Kitchen, which she had easily found on the Web, along with the comments in (2k–m), ‘Oh, I want something spicy, very spicy.’ (We do not include the photos here because of concerns about intellectual property and permissions.) The photos serve to anchor the referent of ‘something’ to spicy fried chicken from Popeyes; in short, they are not merely decorative but remind us of Canagarajah’s observation that language is but one of several semiotic resources occurring in translanguaging practice.

(3) A later exchange involves Rasha (R) and Aisha (A)

- | | |
|--------------------------|-----------------------------------|
| a. عيوش سوري | R. ‘Ayoush, Sorry |
| b. تاخرت عليك | ‘I’m late’ |
| c. كنت عند التوتور | R: ‘I was with a tutor’ |
| d. مش مشكلة | A: ‘No problem’ |
| e. شافلي lesson plan | R. ‘He looked at just one of |
| f. وحدة بس | my lesson plans’ |
| g. مازلي وحدة ثانية | ‘I still have another one.’ |
| h. ممكن تكتبيني اسمي | ‘Perhaps you could write my name’ |
| i. في الدروب ان توتورينق | ‘on the drop-in tutoring [list] |
| j. الساعة 1 | ‘at 1’ |
| k. اوك انا نكمل عمل | A: ‘OK. I finish work’ |
| l. ساعة 12:50 | ‘at 12:50’ |
| m. على طول حنمشي | ‘I will go straight’ |
| n. بعدها و نكتب اسمك | ‘after that and write your name’ |

In (3a), Rasha begins by apologizing to Aisha for being late, offering an account for her tardiness. She explains that she was with a tutor, who was giving her advice on a lesson plan she had created. She asks if it would be possible for Aisha to sign Rasha up for an additional slot on the tutor’s drop-in schedule. Aisha promises to do so as soon as she finishes work.

What is noteworthy about this exchange is the treatment of English words. In (3a), *sorry* is transliterated into Arabic script as was the case in (2j). In (3c), *tutor* is transliterated into Arabic script, appropriately with the definite article in phrase *ʕand ʔal-tuutur* ‘with the tutor’. In (3e), *lesson plan* appears in English, followed by the feminine adjective *wahada* ‘one’, agreeing, as it would, with the Arabic *xutʕa* ‘plan’. In (3i), *drop-in tutoring* is transliterated into Arabic script as three distinct words. Arabic has no grapheme for *p* or *g*, and their conventionalized equivalents, *b* and *q*, are used instead. Such switching of scripts, like the codeswitching that generally occurs in these exchanges, falls into the category of what Myers-Scotton (1993c) would term codeswitching as unmarked choice, where what is significant

is not the specific switches but the overall pattern and amount of switching. This type of switching is expected to occur only in contexts where participants value highly the identities indexed by each of the languages used.

(4) A third exchange with Aisha

- | | | |
|------------------------|----|---------------------------------|
| a. Hi, Ayoush | R: | 'Hi, Ayoush' |
| b. اهلين | A: | 'Hi' |
| c. Anti fi alhoush? | R: | 'Are you home?' |
| d. No, em at Starbucks | A: | 'No, I'm at Starbucks.' |
| e. Ay wahed? | R: | 'Which one?' |
| f. Kam btagadi? | | 'How long will you be there?' |
| g. The one next | A: | 'The one next to |
| h. to my apt | | 'my apartment' |
| i. La la mesh wajed | | 'No, no, not too long' |
| j. Anti tibi tigi? | | 'Are you coming?' |
| k. Shwia wnkoon | R: | 'A little bit and I will be OK' |
| l. endk tmam | | 'there, OK?' |
| m. OK | A: | 'OK' |

In exchange (4), Rasha begins by asking Aisha where she is, and the two end up deciding to meet at a nearby Starbucks. Of particular interest in this exchange is the use of Arabizi. Except for the opening greeting in English (4a), Aisha's reply in (4b) in Arabic (and Arabic script) and a Aisha's switch to English in (4g–h), the remainder of the exchange takes place in Arabic written in Roman script. In fact, we might term this simplified Arabizi because no special symbol is used to transliterate the *h* of *wahad* 'one' (4e), *h* being used instead, and the *ʕ* of *ʕendrik* 'there' (literally, 'near you') is omitted as is the vowel before the second-person singular suffix *-k*. Descriptions of Arabizi note that sounds like *h* and *ʕ*, which have no corresponding grapheme in English, are traditionally replaced by numerals. The simplifying practices seen here are not surprising: the interactants know one another well, the interaction is transactional in nature, and the likelihood of misunderstanding is very low.

(5) An exchange with Naima (N), an Iraqi student

- | | | |
|---------------------------|----|---------------------------------|
| a. تمشي معنا | R: | 'Are you going with us.' |
| b. Ave 3 ف الى ف 3 للمطعم | | to the restaurant on Avenue 3?' |
| c. 3rd ave | | '3rd Avenue' |
| d. لا لا مااقدر | N: | 'No, no, I can't' |
| e. عندي presentation | | 'I have a presentation' |
| f. بكر اضروري نتجهز | | 'tomorrow. I have to prepare' |
| g. بس ساعتين بعض | R: | 'Just two hours.' |
| h. كولي معنا ونرجع | | 'Eat with us and we will come |
| i. ندرس معا | | 'back and study together' |

j.	اوڪي بس ساعتين	N:	'OK. Just two hours'
k	اها	R:	'Uh-huh'
l.	I am in the library	N:	'I am in the library'
m.	OK. I just.	R:	'OK. I just'
n.	finished work		'finished work'
o.	Do you want me to	R.	'Do you want me to
p.	come and get you?		'to come and get you?'
q.	Yeah plz	N:	'Yeah, please'
r.	Perfecto	R:	'Great'
s.	I'm coming	N:	'I'm coming'
t.	😊😊	R.	'Thanks a lot'

Exchange (5) involves Rasha imploring her Iraqi friend, Naima, to join her and others for dinner at a local restaurant. Part of the interaction takes place in Arabic and part in English, involving both intra- and intersentential codeswitching. The English word *presentation* appears in Roman script in (5e); it is integrated into the Arabic syntax of the sentence, as is evidenced by the lack of an article (Arabic has no indefinite article). Such cultural borrowings (Myers-Scotton, 1993a) should not be surprising: the specific sort of oral presentation Naima is preparing to give has no exact equivalent in Arabic.

The exchange is likewise interesting because Naima uses forms associated with Iraqi Arabic and Rasha accommodates with few exceptions. In (5d), Naima uses *maanaqdr* 'I can't.' Rasha would use the form *maanaqdrf* here because North African varieties use discontinuous negation *maa-* *-f* whereas many Eastern varieties use only the prefix *maa-* in cases like this one. At the same time, this form is unusual in that Eastern dialects generally mark the first person singular of the nonpast tense with a glottal stop, not with *n-*, which is used in North African varieties. When Eastern varieties use *n-*, it indicates 'we', not 'I'. Hence, Naima seems to have written 'we can't' though Rasha is certain, given the context, that Naima was referring only to herself. It is not clear whether Naima was accommodating to Rasha's Arabic – a highly unusual situation – or whether she simply mistyped. (Rasha had not noticed this problematic form until Keith asked her about it.)

As students of Arabic are well aware, these sorts of systematic differences in dialects have given rise to and reinforce ideologies among speakers in the Eastern and Western parts of the Arabic-speaking world related to who should accommodate to whom, as discussed below. Naima has told Rasha that she does not use North African forms because she does not understand North African dialects.

While Rasha uses the Libyan form of 'together' *mʕaanaa* in (5a), she uses the Iraqi form *mʕanaa* in (5g) once she and Naima are conversing. She likewise uses Eastern forms for *we will come back* (5h) and *we will study* (5i) in contrast to the forms that we would expect speakers of Western dialects to use and that

she normally uses with other Libyans or North Africans. As noted above, among speakers of Western dialects, these same forms would mean *I will come back* and *I will study*; however, the *together* (5i) makes clear that Rasha intends these to be first-person plural forms, that is Eastern forms.

Rasha's use of *perfecto* (5r) 'great' (< Spanish) also merits note. Rasha reported that she had "picked this up" in the States. It is further evidence of the nature of translanguaging practice: it is not about language boundaries, but rather about pragmatic appropriateness.

We now examine three exchanges involving Abe. The exchange in (6) occurred in response to a photo Abe had posted on Instagram. Abe predicts that he has about 1300 followers, 65% are Kuwaitis (who may reside anywhere), and 20% are from the US (and likely American) while the remaining 15% are from elsewhere. Importantly, the avatars, or images accompanying the commenter's name, are not included. They, for example, often provide information about the commenter's avowed identity just as the screen name a person chooses to use does. Elobed's avatar, for example, is a headshot, showing him wearing a ghutra (a traditional headdress worn by Kuwaiti men), temporary provisions' is a sunset, and Abe's is a photo of him hiking.

- (6) This Instagram exchange involves Abe and a several friends, some of whom are not users of Arabic.
- a. elobed روعة
 - b. josh.griffe this is super sick 🍌
 - c. temporary provisions yassssssssss
 - d. samurai808 magnificent 😊
 - e. abdurlrahman_alkhamees_q8 @thenomadstories @ashfarleigh @srd-77 @bropluto @bigbagtheory_la @rogueriverbotanicals @ahmadbilal.official @josh. friggie @tempoary provisions @samurai808 much appreciated guys!!!
 - f. abdurlrahman_alkhamees_q8 @elobed تشكر ايدرم 🍌 😊
 - g. eltoofii 🍌 ❤️

In (2a), elobed, a native Kuwaiti living there who has near-native English skills, responds to the photo with a comment in Modern Standard Arabic (MSA), *rawṣa*, 'amazing' or 'magnificent', which, during our discussions, Abe glossed as 'wow.' The use of MSA is marked in this context, as discussed below. Likewise, Elobed's use of a *ṭ* (*taaʔ marbuuṭʔah*) rather than *h* (*h*) as the final letter of *rawṣa* is marked: Abe explained that he and his friends use the *h* rather than the *t* though the latter is technically correct in MSA. There is a functional motivation for this substitution: until very recently, the *ṭ* did not appear on the regular phone or computer keyboard, and its use required additional key strokes. Most users opted for

convenience, assuming readers, understanding the language and cognizant of the circumstances of production, would read the ٤ as ٤. Now that ٤ is available on phones, it will be interesting to see whether users continue using ٤, which would be evidence of the power of habit and conventionalization.

In (2b), josh.griffe, an American who does not know Arabic, responds with 'this is super sick' followed by an emoticon signally 'ok.' Abe glossed this emoticon as 'amazing.' In (2c), temporary provisions, another American who does not know Arabic, responds with 'yassssssssssss,' using the conventions of alternative spelling and repeated letters to show emphasis; thus, his comment is taken as being far stronger than 'yes' would have been. In (2b), samurai808, an American from Hawaii, where the area code is 808, offers an assessment of 'magnificent,' which is intensified by an emoticon.

Abe responds to these comments and those of others in (2e) in English with 'much appreciated guys!!!'; again, the use of multiple exclamation points conventionally signals intensification. In (2f), Abe responds to elobed, specifically, with the set Turkish expression for 'thank you very much' notably written in Arabic, not Latin, script, as it would normally be in Turkey, *teşekkür ederim*. Abe is currently studying Turkish, and he reported he assumed elobed would know the Turkish expression since knowledge of bits of Turkish is common among youth from the Gulf. Further, even if elobed did not know the expression, the similarity between *تشكر tafakkur* and Arabic *شكراً fukran* would likely render the meaning transparent. The expression is preceded or followed (depending on how one reads it) by two emoticons, both indicating positive stances. Finally, in (2g), eltoofii, an older female cousin of Abe's, offers a positive assessment using two emoticons; Abe glossed this comment as 'It's beautiful. Thanks.'

Abe reported that in such multilingual exchanges, no one seems perturbed about the presence of other languages, and English is often the unmarked code choice, especially when most of the interactants are not users of Arabic. The users of Arabic, of course, also understand English, and many use it with ease. It is worth nothing that the native users of English use a variety of the language much like their spoken English; thus, their postings become models of contemporary English as used by young adults whose first language is not English. Of course, the same is true regarding Arabic: the Arabic that nonnative users see can function as a model for them of how the language is currently used.

Finally, we would point out that this exchange is unusual in that it contains almost no Arabic. Many of Abe's exchanges with groups of friends, particularly those with several Kuwaitis (though non-users of Arabic may be involved in the interactions to various degrees) use Arabic, whether Arabic script, which Abe much prefers, or Arabizi. These exchanges are characterized by a great deal of banter of the sort that characterizes young, male in-group interactions in the Arab

world and the US. (Indeed, a very interesting avenue of research would be displays of affect, particularly affection, in online interactions among native users of Arabic and of English or other languages.)

- (7) This text exchange involves Abe (A) and Solomon (S), a Kuwaiti whom Abe identifies as a social intimate. Here we reproduce a screen shot of the exchange and provide a translation below it.



[12-second recorded message]

- | | |
|-----------------------|---------------------------------|
| a. 🙄🙄🙄🙄 ابشر | S: 'Gladly' |
| b. 🙄🙄🙄🙄 فوقها افا بعد | 'Vibe killer' |
| c. 🙄🙄🙄🙄 | A: Thanks for understanding' |
| d. بحبك | S: 'I love you' |
| e. مش اكتر من الفول | A: 'Not more than <i>fuul</i> ' |
| f. او المقلقل 🙄🙄🙄🙄 | S: 'Or <i>mugalgal</i> ' |

In (7), in the 12-second recorded message at the top of the screen, Abe has just requested that Solomon remove Abe's name from his broadcast list because the information shared there often involves foodstuffs Solomon is offering to send to those on the list but which cannot be sent to the US. The exchange that follows is ludic in nature. Solomon gladly assents to the request (7a), but immediately employs an idiomatic expression, a very mild but playful insult, that Abe translates as 'vibe killer,' used when a group of friends has decided on a course of action, but

one backs out, thereby killing the vibe. Abe's reply – three emoticons expressing affection and laughter – is met with Solomon's response, 'I love you' in Egyptian Arabic (7d). As those familiar with the Arab world are well aware, Egyptians and hence Egyptian Arabic are associated with good-humoredness and banter. Abe replies (7e) that Solomon does not value him above *fuul*, fava beans – a reference to *fuul medammes*, a staple of Egyptian cuisine. Solomon's retort, a series of laughing emoticons and 'or *mugalgat*' (7e), in reference to a Gulf dish of shredded lamb or chicken with tomatoes and onions, ups the ante.

In this exchange, we see the use of Egyptian Arabic, a variety neither person speaks natively, but a variety widely understood across the Arab world thanks to the history of Egyptian media and indexical of a particular kind of jocular personality. Its use offers evidence of the ways speakers draw from a range of linguistic resources and corresponding conventionalized meanings that they assume are shared by their interactant.

- (8) An interaction between Abe and Jazan, a Saudi who is a few years older than Abe and not a social intimate. They met while both were at PSU, Jazan having now returned home. The two men text from time to time simply to keep in touch.

a. يا لله حيه	J: 'May God welcome you'
b. كيف الحال	'How are you?'
c. لله يحبك و يبقيك	A: 'May God welcome and keep you'
d. بخير الله الحمد	'Fine. May God be praised.'
e. وانتם	'And you(pl.)?'
f. نحمد الله	J: 'We thank God'
g. في دير غبره	'(I am) in a dusty town'
h. بعيد عنك	'far away from you'
i. لاه لاه له	A: '(Oh) no, no, no'
j. دنيا و تعدي	'This too will pass'
k. بوحصة يا 🤔	'Oh, Father of Hassa'

This interaction is quite different from Abe's previous interactions. As we have sought to indicate in the glossing, which is complex mixture of pragmatic meaning and literalness, the tone of this interaction is more formal, and the language used is less colloquial, closer to MSA. For Abe, this way of using Arab indexes a particular kind of persona, one knowledgeable about religious traditions and the customary ways of using language associated with those and other cultural traditions. It often indexes one aspect of male Saudiness.

The opening lines of the interaction (8a–8f) are largely formulaic in nature, indicating the sort of two-part politeness formulas common across Arabic speech communities (Ferguson, 1967), as well as the frequent mention of the deity. Worth noting is Abe's use of the plural in addressing Jazan (8e) when inquiring after the

latter's health, in contrast to his earlier use of the singular (8c) when responding to Jazan's use of the singular (8b). Jazan's response (8f) is in the plural form, though in reference only to himself. Abe sees his own use of the plural in such cases as indexing respect, formality, tradition, and seriousness.

As in exchange (1), Jazan uses *h* instead of *taaʔ marbuutʿah* in typing the noun phrase translated as "dusty town" (8g), a matter of exigency, as discussed above. Abe sees his own slightly mocking reply in (8i) to Jazan's comment about being far away in a dusty town as accommodation to Jazan's way of speaking Arabic: the string of *no*'s is written as *lah*, with heavy aspiration as Jazan usually pronounces the word, in contrast to *la*, Abe's normal pronunciation. In (8k), Abe refers to Jazen by the polite kunya "Father of Hassa," his daughter.

In this section, we have presented seven examples of Rasha's and Abe's interactions through the New Media with the goal of illustrating the range of kinds of translanguing practices they and their interlocutors engage in.

5. Discussion

In this section, we seek to contextualize the practices described above in terms of the ways younger users of Arabic are reconfiguring and even destabilizing diglossia. First, with regard to our results, we would note that little, if anything, we observed will surprise readers who are, say, 45 or younger and who use social media involving Arabic. In other words, our concern is ultimately not language practices associated with electronic communication among users of Arabic but specifically the particular language practices of younger individuals. They are developing new conventions for using the varieties of Arabic appropriate in the electronic contexts under consideration, the appropriate ways of writing the language in those contexts, and the extent and ways in which Arabic should or should not be combined with other languages. We assume that a reframing of those practices may be useful in helping us, as researchers, understand electronically mediated communication, language, and the changing nature of diglossia in Arabic.

Second, as those familiar with social media in Arabic would expect, the language use of Rasha and Abe, as well as those with whom they interact, draws from the range of resources available to various interactants. That is, they juxtapose varieties and languages within and across messages, even to the same addressee(s), a process that gives rise to new social meanings and meaning potentials. Further, as Canagarajah noted about translanguing practices generally, these resources are not only linguistic in nature. As the exchanges in (1, 5, 6, 7, and 8) demonstrate, emojis are a common feature of texting, one that carries a range of affective meanings, and in cases like (6) helps mediate communication among users who do not all share the same linguistic repertoires. Avatars likewise communicate information

visually and are part of each commenter's message. As noted, Rasha included several photos from the Internet in exchange (2), and it was not unusual for Abe's exchanges to include recorded verbal comments that had been inserted into the ongoing interaction as in (7). Indeed, one may question whether current texting practices will not, in the future, be replaced by recorded messages, which recipients can listen to or see transcribed, an affordance provided in beta version by some phone voicemail systems.

Significantly for our discussion, nearly all of the Arabic that is written is dialectal Arabic, not Modern Standard Arabic/Classical Arabic (MSA/CA). In fact, based on our experience, we would claim that most of the Arabic currently being written is not MSA/CA but forms of dialectal Arabic rendered in Arabic script or Arabizi. The fact that such a claim is likely incontrovertible immediately indicates that something significant is occurring with regard to diglossia. In short, it can no longer be claimed that writing is the domain of the high variety while the national dialects are the domain of spoken language, a frequently made generalization that follows from Ferguson's (1959) discussion. In this regard, it is worth noting that given the rise of near universal education and satellite television across the Arab world over the past several decades, in particular, new contexts have arisen for the use of the high variety, including contexts where the variety is used extemporaneously or with at best only partial planning (cf. Ochs, 1979). This contrasts with most earlier contexts, where oral use of the high variety was associated with reading aloud or 'talking like a book.' This fact likewise stands in contrast to the nature of diglossia at the time Ferguson first wrote. In short, the links between diglossia and setting (Brown and Levinson, 1987, p. 181) are being renegotiated and, hence, recalibrated.

Additionally, we found that various dialects were juxtaposed with one another and with MSA or even CA as well as with other languages, as noted, but certainly not in random ways. In (7), for example, Solomon used the Egyptian phrase for *I love you*, and in (8), Abe's representations of Saudi Arabic were juxtaposed with fairly standard ritualized interactional expressions. Arabic and English were mixed in various ways and to varying degrees in several of the exchanges. In (5), forms that are markedly Eastern and Western occur with English and a word of Spanish origin that some might argue has been borrowed into American English. In this regard, rather than language users of Arabic confining themselves to the high or low varieties, as has been the traditional understanding of diglossia, they are engaging in what Hebdige (1979), following Levi-Strauss (1966) and Clark (1976), termed 'bricolage'.⁴ In so doing, users are "appropriat[ing]...commodities

4. *Bricolage* is more or less the French equivalent of *DIY* or *do-it-yourself*. Hebdige's work has had great influence on the thinking of Penny Eckert and the development of the third wave of variationist sociolinguistics <<https://web.stanford.edu/~eckert/csofp.html>>.

by placing them in a symbolic ensemble which serve[s] to erase or subvert their original straight meanings” (p. 104). In other words, if we take languages and language varieties to be parts of symbolic economies (cf. Bourdieu, 1991), their values differ on different markets (that is, in different contexts). What young users of Arabic are doing is employing varieties traditionally having a specified value in a particular context (or symbolic market) and often juxtaposing them, along with other communicative resources, in a novel set of electronically mediated contexts. In so doing, they are assigning these resources new values. These new practices – “structured improvisations” in Hebdige’s terms – as well as the values they inscribe simultaneously “erase or subvert [the] original...meanings” associated with the varieties and practices in question (p. 104). Specifically, writing dialectal Arabic is no longer marked; it is, rather, the new norm in certain specifiable electronic contexts.⁵

Importantly, however, from a structural point of view, the sorts of restrictions that hold for diglossic switching continue to hold for these current translanguaging practices (cf. Walters, 1996; Boussofara-Omar, 2006). In short, while it is always acceptable to use a dialectal variety as matrix, embedding elements from MSA/CA (or other languages), when MSA/CA is used as matrix, embeddings from dialects or language varieties must be rhetorically marked in some fashion lest they be seen as errors, resulting in a negative evaluation of the writer. We found no exceptions to this claim. Thus, certain ideologies associated with diglossia endure.

Third, bits of language are seen as indexical of performed identities, whether inadvertently or consciously so, constructing Self and Other. Examples here include Rasha’s comment in (2) about the Eastern Libyan form, where she identifies the friend’s use of *nihki* نكي ‘I talk’ as not being one she herself would normally use. As is clear from her other text messages and Facebook posting, she and her Libyan friends often use forms they consider Syrian or Lebanese – set expressions, lyrics from songs – as ways of showing the closeness of their friendship, believing that these varieties are less ‘hard’ than Libyan Arabic, much as Solomon uses Egyptian Arabic with Abe in (7) to mark an affective stance. Rasha likewise uses CA/MSA (for passages from the Qur’an or Islamic texts or for religious expressions) and English (affirmations from Oprah and other sources, which she and her friends discuss predominantly in written dialectal Arabic). In Abe’s texting, we also find song lyrics in various dialects, cartoon videos in Saudi Arabic, poetry in MSA, and

5. It is certainly not the case, however, that dialectal Arabic is the only form written in interactive electronic contexts. For example, with a focus on social change and resistance (in contrast to linguistic analysis), Samin (2010) examined data from two Saudi discussion boards where MSA/CA, with clear influence from varieties of Saudi Arabic, is the unmarked code.

even a quote from a speech Gaddafi gave to the Arab League in which he asked, من انتم *man ʔantum* literally, ‘Who are you?’ with the implicature of ‘Who are you to speak to me this way?’ Abe used this taunt in response to a snarky comment from a good friend. This sort of Bakhtinian (1982) revoicing is, of course, common in the New Media, and as this example illustrates, electronically mediated contexts often encourage or give rise to language play and verbal art.

Abe also uses forms other than Kuwaiti forms, often unconsciously accommodating to varieties used from Egypt to the east, as is evidenced in (8), where he accommodates to the linguistic practices of his Saudi friend and represents his aspirated way of pronouncing *no*. He states that he does not accommodate to North African varieties and reports that he cannot, for example, understand many parts of Rasha’s text messages. In contrast, Rasha accommodates to Eastern varieties when interacting with friends from the Eastern part of the Arab world, as in (5), though she notes that one of her Libyan friends consciously and adamantly refuses to do so. The friend’s attitude seems to be one of ‘If we are expected to learn their Arabic, they can learn ours.’ This situation reflects long-standing language attitudes in the Arab world with regard to the “hierarchical relationship between Mashreqi (Middle Eastern) and Maghrebi (North African) vernacular Arabic varieties” (Hachimi 2013, p. 269; see also S’hiri, 2002).

All these observations parallel those reported by Chun and Walters (2013), who analyzed comments posted on a YouTube video of the Axis of Evil comedy tour in Dubai. Native speakers of Arabic, in discussing those comments with Walters, clearly made assumptions about a commenter’s national identity, gender, and sometimes politics based on linguistic aspects of the Arabic used in the written comments (e.g., a particular lexical item or discourse marker) rather than the content of those forms.

Rasha sees using other dialects of Arabic and other languages as being about ‘social status.’ That is, as Le Page and Tabouret-Keller (1985) might frame it, their use projects a desired identity (and simultaneously distances the user from other possible identities). Like Abe, she is aware of her patterns of language use with the different individuals she texts. In short, at some level, she is always considering the linguistic resources that these individuals have access to and the ways in which the use of the linguistic resources at her disposal will likely be interpreted, particularly in light of pre-existing relationships. Interestingly, it is the use of English that she and Abe are most self-consciously aware of. As individuals who are studying in the US and who have become quite comfortable using English, they are aware that their use of English – especially ‘too much English,’ whatever that might mean in a given interaction – could be seen as condescending or showing off by friends or family members who are less confident users of the language or who have not had such opportunities.

Abe and Rasha both agree that the linguistic practices they engage in online help them create cosmopolitan identities. They can demonstrate their linguistic citizenship in or belonging to their home country (and even some particular social location in that country, whether provenance or class); their membership in the larger Arab world; and, by using other languages, their participation in larger world communities.

When asked about where they gained their knowledge of other varieties of Arabic, Abe and Rasha replied, independently, that they learned from music videos, television, the New Media more broadly, and personal relationships with speakers of other varieties, whether in their home countries (especially for Abe) or in the US (for both). They both agree that they have a far broader knowledge of the variation across varieties of Arabic than do their parents or particularly their grandparents.

They likewise noted that while their parents might recognize these varieties (that is, they are able to place them as to their origin), they would be far less likely to use them, if they used them at all. Rasha and Abe also see an attitudinal shift between people of their generation and their elders. Not only do younger users of Arabic, for whom it is a native language, have much broader knowledge of varieties of Arabic other than their native one than their elders have, but they are also willing to use them. While they do not claim to 'own' them in any sense (in the way that they, as users of English and students familiar with a World Englishes perspective on the language, might claim ownership of English), they frequently employ them in their construction of their identities as highly educated and cosmopolitan Arabs.

In this sense, this growing exposure to, knowledge of, and willingness to employ a range of varieties of Arabic among younger users today creates a situation not unlike the one proponents of Arab nationalism could only have dreamed of. Crucially, however, the realities of contemporary linguistic practice show that what is shared is not exclusive use of the *fus^hhaa* or the ideological purism that accompanied the theorizing of proponents of Arab nationalism (cf. Walters, 2018). As Abe commented, despite being divided politically in many regards, there is a growing unification of the Arab world through language practices, a sentiment with which Rasha agreed, and this practice involves using all the linguistic resources at one's disposal, particularly writing what has traditionally been considered spoken Arabic.

Importantly, such situations are not unusual across languages. In 2007, *The Vanguard*, Portland State's student newspaper ran the following announcement:

PSU students will be answering phones for Oregon Public Broadcasting on Sunday, March 11 from 7 p. m. until 10:15 p. m. OPB – the station that brings

nature, news and *people with British accents* to the Oregon community – is a nonprofit, locally owned public broadcast network....

Fitzsimmons (2007, emphasis added)

From these slightly sarcastic comments, it is clear that the author, Eva Fitzsimmons, believed she, as an American, knows what British accents sound like and that she had gained this knowledge from watching various OPB programs and perhaps through personal interactions. Her comments, however, remind us that the majority of what speakers know or think they know about varieties of their own language comes via the media, whether traditional media like radio, motion pictures, and television, or the New Media. Her comment likewise demonstrates that there is nothing unusual about any of what is happening among users of Arabic.

With regard to the shift in attitudes that both Rasha and Abe noted, we contend that it is related to at least three forces working in tandem. The first is a matter of access. Access to knowledge of varieties of Arabic other than one's own variety has been far greater and come much earlier for the younger generation of native users of Arabic than for their parents or grandparents; it has also come via both traditional and more importantly the New Media, which, thanks to user-generated content, permits and in many cases requires consumer involvement via language use. The second is a shift from a strong sense of Arab nationalism, which dominated political thinking in the Arab world for much of the twentieth century at least until the 1967 war, to a stronger sense of nation-state nationalism across the region, in which one's manifest pre-emptive loyalty is to one's own country, not some abstract notion of the larger Arab world. The third is the desire or need for individuals to construct a cosmopolitan identity in an increasingly globalized world, where knowledge of other languages and other varieties of Arabic is highly valued (cf. Walters, 2018 on the second and third of these forces).

6. Conclusion

In this paper, we have sought to document and examine some of the ways in which the translingual language practices among users of Arabic, especially younger ones, in the context of the New Media represent shifts in the nature of diglossia. As Ferguson predicted, diglossia as the allocation of language varieties by function, even if relatively stable, continues to change. While these new practices are still in the process of conventionalization (and certainly do not represent a case of standardization imposed by elite institutions), they indicate a reconfiguration of diglossia in Arabic as it has been understood since Ferguson's (1959) discussion of the phenomenon. It is no longer the case that the low variety is reserved for

speaking; as noted, most of the Arabic being written today is assuredly various forms of dialectal Arabic in the New Media. Significantly, these changes are the result of the practices of groups of language users who have neither waited for nor sought the blessing of political or nonpolitical entities.⁶ Instead, they result from a particular set of historical circumstances involving evolving technologies and an increasingly educated populace in a world globalized in many regards. At the same time, linguistic and pragmatic constraints on diglossic switching and codeswitching remain in place, as do certain language ideologies associated with accommodation across Arabic dialects.

As we trust we have demonstrated, the New Media provide a particularly powerful context in which users of Arabic can be, and often are, exposed to a broad range of the variation found across spoken dialects of Arabic in written form. It also affords opportunities to employ resources from the range of one's linguistic repertoire, regardless of what language varieties might be involved.

Further, among users of Arabic, the New Media have created robust and growing contexts for writing the dialects, giving rise to increasingly conventionalized patterns for doing so, including Arabizi. In this regard, as Ferrara, Brunner, and Whittemore predicted, the contexts for using Interactive Written Discourse are "proliferat[ing], even influencing or outdating the conventions of traditional writing styles," a situation that some predictably find distressing, particularly given ideologies of language purism associated with Arabic (cf. Walters, 2018). As demonstrated, the juxtaposition in writing of the high and low varieties of Arabic often creates contexts for the sort of language play and verbal art associated with informal, spoken interactions. Finally, the turn among sociolinguists and others

6. In his treatment of debates regarding scripts and script reform in Arabic, Suleiman (2003, *passim*) discussed failed efforts to encourage or mandate the writing of Arabic using the Roman script by individuals representing a range of ideological positions from British civil servants in Egypt during the colonial period to Egyptian Salāma Mūsā writing in the middle of the twentieth century to the Lebanese poet Sā'id 'Aql writing in the 1970s. As a reviewer noted, the Lebanese folklorist Anīs Furayḥa, active in the mid-twentieth century, also supported the use of the Roman script for writing the language. Further, all these individuals argued for writing dialectal Arabic though for different reasons.

Suleiman likewise examined the "lukewarm defense" of continuing the use of the Arabic script offered by Sāṭi' al-Ḥuṣrī, for many, the major early theorist of Arab nationalism, during the era when the latter was writing, the second quarter of the twentieth century. Suleiman contended that al-Ḥuṣrī "[did] not believe that the way a language is written is one of its inalienable linguistic properties, the implication being that a change of the script does not mean a change of the language as a system *sui generis*" (p. 144). Apparently, younger users of Arabic would agree with al-Ḥuṣrī's position.

away from a focus on discrete, named varieties toward speaker practice, indexicality, and ideologies offers us new possibilities for understanding language use in contexts, particularly in novel contexts like the New Media. This shift encourages sociolinguists to move from focusing so heavily on languages as distinct entities toward an appreciation of how language users employ the resources at their disposals across various contexts, a most Hymesian of shifts. In this regard, they encourage researchers to move from thinking in terms of Arabic sociolinguistics to focusing on the sociolinguistics of Arabic.

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Dialect contact in the Tunisian diaspora

Chebba speakers in Mazara del Vallo (Sicily)

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The Tunisian community of Mazara del Vallo (Sicily) is the oldest Tunisian community in Italy, its first immigrants arriving at the end of the 1960s. The linguistic dynamics of the community differ from those observed in other Arab communities in the European and American diaspora. Many second-generation speakers are still Arabic-dominant, and active competence is also demonstrated by third-generation speakers. This situation provides a rare opportunity to study dialect contact outside of mainland Tunisia, where the phenomena of leveling and accommodation have already been studied by Gibson (1998, 2002). The demographic structure of the Tunisian community of Mazara del Vallo shows a clear prevalence of speakers from the town of Mahdiyya city, followed by Chebba and other Tunisian towns. This paper focuses on Tunisian speakers hailing from Chebba (in the governorate of Mahdiyya), whose village dialect is distinguished from the varieties spoken in both Mahdiyya and Tunis by a set of clearly recognizable isoglosses. The analysis focuses on the realization of the uvular /q/, the interdental /θ, ð, ð'/ and the diphthongs /ay, aw/. The results are compared with Gibson's (2002) findings concerning dialect leveling in Tunisian Arabic to ascertain whether language change in mainland Tunisia and in the diaspora follows similar trends.

Keywords: Arabic, dialectology, contact, diaspora, Tunisian, sociolinguistics

1. Introduction

In recent decades, the study of Arabic in the diaspora has attracted considerable interest as large communities of Arabic speakers have settled in different areas in both Europe and the US. Phenomena under investigation range from language maintenance and attrition / erosion to language contact, codeswitching, sociolinguistic vitality, and issues of identity. Rouchdy (1992), which focuses on Arabic in the American diaspora, was followed by Rouchdy (2002) which discusses a vast array of topics regarding Arabic-speaking communities living in both Europe

and America. The typical paradigm of Arabic-speaking communities in the diaspora can be exemplified through the following excerpts concerning Moroccans in Europe and Lebanese in the US, respectively:

The Moroccan communities exhibit a strong tendency toward the exclusive use of the socially dominant European languages within two or three generations, which is also faster than in some other immigrant communities, like the Turks or the Chinese. (Boumans & de Ruiter, 2002, p. 282)

The shift to English is not surprising, but the speed at which it is taking place is.... The complete shift on the production level in the first generation of American-Lebanese children and on the comprehension level in the second generation needs to be explained. (Daher, 1992, p. 29)

Thus, it seems that Arabic-speaking immigrants often undergo the typical process of language erosion, resulting in the (sometimes only partial) loss of active competence in the second generation followed by the loss of passive competence and a complete shift to the socially dominant language in the third generation (Canagarajah, 2008, p. 151). This general paradigm is typical of situations in which transmission of the heritage language at home is hindered or blocked (Dorian, 2004, p. 440) and is influenced by different factors, particularly by the ethnolinguistic vitality of the community (Ehala, 2015). The case of Iraqis in the UK described by Abu Haidar (2002) is a textbook example of how changing levels of ethnolinguistic vitality may, in turn, affect the rate of language maintenance within a specific community. When the first Iraqis arrived in the UK during the 1960s, they maintained a low profile, tried to integrate into British mainstream life, and hardly engaged in any communal activity (Abu Haidar, 2002, pp. 288, 295). With reference to the three factors that shape ethnolinguistic vitality in the classic description provided by Giles, Bourhis, and Taylor (1977), namely status, demography, and institutional support, their vitality level was probably quite low. The social status of the immigrants was in fact quite modest, and a lack of communal activity translated into an absence of informal institutional support.¹ In the 1970s a second wave of immigrants arrived, eventually forming the wealthiest and most educated Arab community in the UK. The newcomers not only increased the population of the Iraqi community, but they also demarginalized the Arabic language, engaging in cultural activities such as publishing Arabic-language newspapers, organizing clubs, and opening language schools. This increased ethnolinguistic vitality of the community at the social, demographic,

1. It is not possible to evaluate the third factor, i.e. demography, because Abu Haidar (2002) does not provide demographic data.

and institutional levels resulted in a revival of the Arabic language and increased rates of maintenance (Abu Haidar, 2002, p. 295).

The situation in Mazara del Vallo, on the other hand, is quite different. Many second-generation speakers, especially those born in the period ranging from the 1970s to the late 1990s, appear to be Arabic-dominant, while third-generation speakers still display active competence in the heritage language. This provides us with an opportunity to investigate dialect contact in a unique environment. Dialect contact in mainland Tunisia has been the object of two works by Gibson (1998, 2002) in which the dialect of Tunis appears to be the target variety for speakers of other areas and influences their speech both phonetically and morphologically. The present paper investigates dialect contact in the environment of a Tunisian transnational community.

Section 2 of this paper concisely describes the Tunisian community of Mazara del Vallo, providing a brief historical sketch and an outline of its social profile. Section 3 provides information concerning data collection and the methodology followed in the present study. It describes the varieties in contact that are the object of this paper in order to clearly present their main traits. Section 4 presents data concerning dialect leveling in the Tunisian community of Mazara, with particular attention paid to speakers hailing from the coastal town of Chebba in the governorate of Mahdiyya. Throughout the paper, Trudgill's (1998, 2004) model of dialect contact is used as a theoretical framework. The data are discussed in Section 5, followed by concluding thoughts.

2. The Tunisian community of Mazara del Vallo (Sicily)

The history of Mazara del Vallo is inextricably intertwined with that of Tunisia. Mazara is, in fact, the closest Italian town to Tunisia, which has resulted in a rich history of contact, trade, and dispute between these two shores of the Mediterranean. This relationship reached its peak on June 17, 827 AD, when Arab-Islamic armies from Tunisia landed in Mazara and went on to conquer Sicily (Amari, 1991, p. 395). The structure of Mazara's historical center still bears the signs of the long Arab domination, which ended only in 1091. The resemblance of the old town to the classic North African *medina* 'city' is so striking that the inhabitants of Mazara renamed it the *Kasbah*.² The second half of the twentieth century was a turning point in the rich history of the relationship between Mazara and the

2. The word *Kasbah* derives from the Arabic *qaṣba*, meaning 'central part of a town or citadel'.

Tunisian Sahel,³ a relationship that had continued even after the end of Islamic rule over Sicily. At the end of the 1960s groups of Tunisian workers started to settle in Mazara, looking for jobs in the fishing industry. This phenomenon should be contextualized within the framework of the so-called *Italian boom*. Starting from the 1960s, Italy witnessed a period of intense economic growth with a sizable portion of the younger generation refusing to continue in their fathers' line of work (such as fishing in Mazara del Vallo) in order to pursue higher education and better-paid government jobs. This situation resulted in an increased demand for workers that was met by immigrant laborers, despite fierce resistance from the local labor unions. Some believed that the massive presence of immigrants would have catastrophic consequences on the job market due to their willingness to accept poorer working conditions and lower salaries (Cusumano, 1976, pp. 24, 70–71). The majority of the newcomers arrived from the Tunisian Sahel, in particular from the Mahdiyya governorate, and many had already been employed in the fishing sector for years before moving to Italy.

The first few decades saw strong local resistance and an ambiguous response from authorities, many of whom were often willing to turn a blind eye to the presence of undocumented immigrants due to pressure exerted by ship owners. As a consequence, exact numbers are difficult to estimate. In 1996, almost 30 years after the initial wave of immigration, the official census counted 2,360 Tunisian immigrants living in Mazara among a total population of 52,035 inhabitants (4.53%). These numbers should be rounded up, however, since the phenomenon of undocumented immigration was never completely eradicated. The Tunisian population reached its peak at the turn of the century and then started to decrease slowly, stabilizing around 2,200 inhabitants from 2005 to 2015 (Amoruso, 2007, p. 30).

While the existence of a community that constitutes 4–5% of the total local population is worth some attention, the distribution of the Tunisian immigrants within the urban fabric of Mazara del Vallo represents an even more interesting case. As mentioned previously, the historical center of Mazara still bears the visible marks of its Arab-Islamic past, with narrow, winding streets and small houses. When the first Tunisian immigrants arrived, locals had already started to abandon this part of the town in search of more comfortable areas. The vacant houses were mostly rented to the newcomers, which sped up the process of relocating the Italian inhabitants. As a result, most Tunisian immigrants live in this historical center and form a close-knit community (Milroy, 1980), with the percentage of

3. The word Sahel (*sāḥal*, lit. 'coast') designates, in Tunisia, the eastern coastal region and its main cities.

immigrants in the neighborhood ranging from 30% to 70% (Amoruso, 2007, p. 136). Moreover, the demographic balance of the community is constantly being altered in a way that favors the retention of Arabic language use. Young bilingual speakers emigrate due to a crisis that hit the fishing sector, and monolingual Arabic speakers continuously arrive from Tunisia due to endogamous marriages.⁴ In this situation, Arabic is often the most commonly spoken language in the inner areas of the so-called *Kasbah*. Thus, demographic factors, such as the number of Tunisian inhabitants and their distribution, to a large extent help strengthen the ethnolinguistic vitality of the community.

The short distance between Mazara del Vallo and Tunisia is another factor that impacts the linguistic situation of the community. With less than 100 miles separating the two shores of the Mediterranean and a rich offer of reasonably priced flights and ferryboats, Tunisians living in Mazara del Vallo spend long periods of time in their homeland, especially during summer holidays and in the holy month of Ramadan. Most of my informants regularly visit Tunisia for a total of at least one month per year (but usually more), often on two or three separate occasions, which helps to slow language erosion. Fishman (2004) strongly opposes the idea of explaining language retention on the basis of both demographic factors and proximity to homeland, arguing that the “home-family-neighborhood efforts” are instead the main factors in language preservation (p. 427). While the relevance of a large and close-knit community can hardly be downplayed, Canagarajah (2008) also showed that Fishman (2004) is incorrect in considering the family as a self-contained unit that operates autonomously. On the contrary, the language choices of a family are subject to the influence of external factors. The difference between the Tunisian community of Mazara and the Sri Lankan case investigated by Canagarajah, for instance, shows that proximity to homeland may represent an important factor in language preservation. In situations in which the heritage language does not enjoy a high status in the host community (Giles, Bourhis and Taylor, 1977, p. 331), the necessity to cultivate relationships with monolingual relatives who live in the homeland is one of the reasons why families commit to the intergenerational transmission of their heritage language. When the homeland is particularly far away or difficult to reach for political reasons, this necessity fades (Canagarajah, 2008, p. 166). However, Tunisians in Mazara del Vallo tend to spend

4. Young Tunisian men in Mazara show a marked tendency to marry Tunisian women who were born and raised in Tunisia. Some of the speakers, when explicitly asked about the reasons behind such a choice, answered saying that Tunisian women born in Mazara del Vallo are too westernized. For the same reasons, Tunisian women in Mazara also often choose partners coming from Tunisia. In both cases, the partners join the community thanks to Italian laws allowing family reunification.

at the very least one month per year with their families in Tunisia, which increases the importance of intergenerational transmission and also provides long periods of full immersion in the heritage language.

The community in Mazara del Vallo also enjoys good institutional support, both formally and informally. For example, the community requested that the Tunisian government open a Tunisian school, which is located within the historical center (Hannachi, 2008, p. 3). The school offers a completely Arabic curriculum, identical to the standard curriculum used in Tunisia, in which Italian is not even taught as a second language. The Tunisian school provides second-generation immigrants the opportunity to receive a formal education in their heritage language, although this comes at the expense of complete integration into the Italian school system. Arabic education is only available at the elementary school level, however, after which students may choose either return to Tunisia to continue their education or switch to an Italian middle school without any preliminary formal knowledge of Italian. Nevertheless, the Tunisian school was the most popular choice for almost three decades, during which Tunisian immigrants favored this completely Arabic curriculum for their children while dreaming of a possible return to Tunisia. When the illusion of return (Amoruso, 2007, p. 29) eventually started to wane, enrollment rates consequently decreased from 120 students in 2008 to only 17 (among five classes) in 2016. The community also enjoys limited but tangible formal support from Italian institutions. A representative elected by community members holds a seat in the town council, while different public offices (such as the post office) now feature the presence of Arabic-speaking employees and dedicated services. Within the neighborhood, informal support is evident from the presence of a mosque, Tunisian shops, coffeehouses and the so-called *Dār Tūnis* “Tunisia House” where religious and civil celebrations are regularly held.

In summary, the ethnolinguistic vitality of the community is robust due to the presence of a closely-knit community, extreme proximity to the homeland, and a good level of institutional support.⁵ These factors help explain why Arabic is preserved beyond what is observed in other Arab communities in Europe and the US. This therefore allows us to observe dialect contact within an environment where speakers hailing from different Tunisian towns live together in a relatively restricted area in which Arabic is otherwise a minority language.⁶ In Mazara del

5. The situation is, however, more nuanced. The utilitarian perspective emerging from both our interviews and Amoruso (2007b), in fact, hints at a decreasing ethnolinguistic vitality (Ehala, 2015, p. 6), which is probably counterbalanced by the other factors mentioned above.

6. For other Arabic-speaking communities living in the diaspora, no actual process of dialect levelling has been observed. This is due either to the fact that Arabic is mainly spoken at home,

Vallo, speakers hailing from Mahdiyya make up approximately 80% of the Tunisian population, with immigrants from Chebba being the second largest community (10–15%). The remaining 5–10% includes speakers from other Tunisian towns (Sousse, Sfax, Qayrawan, Tabarka, Zarzis, Tunis). The following section describes the procedures followed for data collection, the nature of our informants, and the methodology used for this study.

3. Data and methodology

The data discussed in the present work were collected during three months of fieldwork in Mazara del Vallo in the summer of 2016, followed by shorter research stays in January 2017 and the summer of 2017. During this period, 63 sociolinguistic interviews were conducted, with the purpose of analyzing the sociolinguistic situation of the community. The interviews consisted of a structured questionnaire, usually preceded by a non-structured conversation on topics concerning the life of the community, its evolution, and the speaker's expectations for the future. Speakers younger than 18 years old were also presented with the wordless picture story *Frog, where are you?* by Mercer Mayer. Each participant was asked to tell the story in Tunisian Arabic as part of the questionnaire. In the selection of interviewees, classical sociolinguistic variables of gender, age, and social class were taken into account, although some categories may be represented more than others due to availability of speakers. The corpus consists of 22 female and 35 male speakers, along with 6 non-Arabic-speakers (sons of mixed families who did not learn Arabic, social workers, and other professionals who work with the community on a daily basis). The ages of the interviewees range from 8 to 70. Although the community is quite homogeneous from a social perspective, the corpus includes representatives from the community's main social groups, including students, fishermen, shop owners, and public employees. The length of the interviews ranges from 10 minutes for the most informal ones or when speakers refused to take the questionnaire, to over one hour, with the average interview lasting about 30 minutes.

For the purpose of the present study, we selected ten out of the eleven community members hailing from Chebba, plus an old female speaker who had just

such as in the case of Moroccans living in The Netherlands (Boumans, 2001, pp. 107–108), or to the fact that speakers tend to converge toward the national prestige variety, such as in the case of Moroccans in Zaragoza (Vicente, 2008, pp. 138). A similar situation of dialect levelling, on the other hand, obtains in Ceuta, a Spanish enclave in Morocco, which was also analyzed by Vicente (2008).

moved from the coastal Tunisian town to Mazara.⁷ The study is based on 5 hours and 14 minutes of recorded materials which include answers to the sociolinguistic questionnaire, informal interviews, and recordings of the younger participants telling the story *Frog, Where are you?* for YFS2 and YMS5.

Table 1. Informants from Chebba

	Age	Generation	Education	Occupation
OFS0	65	-	None	-
OFS1	66	1st	Elementary (Chebba / Mazara)	Restaurant owner
AFS3	27	2nd	High school (Mazara)	Pastry chef
YFS2	17	2nd	Middle school (Mazara)	Student
OMS6	70	1st	Unknown	Retired fisherman
OMS7	56	1st	Elementary (Chebba)	Fisherman
AMS3	28	1st	Middle school (Chebba)	Bartender
AMS8	36	2nd	Elementary (Tunis)	Mechanic
AMS11	25	1st	Middle school (Chebba)	Fisherman
YMS4	16	2nd	Middle school (Mazara)	Student
YMS5	20	2nd	High school (Mazara)	Dance teacher

Three variables were selected and analyzed:

- the voiceless uvular plosive /q/;
- the three interdental phonemes /θ/, /ð/ and /ðʕ/;
- the two diphthongs /ay/ and /aw/;

These three variables were selected because they are reliable isoglosses distinguishing the varieties of Chebba, Mahdiyya, and Tunis (Gibson, 2009), the variety to which most speakers from the Tunisian Sahel accommodate according to Gibson (2002). Table 2 reports the realization of the three variables in the three above-mentioned varieties.

As evident from Table 2, the variable /q/ is realized as [q] in the Mahdiyya and Tunis varieties, but not in the Chebba variety. To ascertain whether speakers from Chebba are accommodating to the Mahdiyya or Tunis variety, we then cross-

7. The eleventh member was excluded because, due to a long period spent in Tripoli (Libya), he tended to accommodate to the Libyan dialect spoken by the interviewer throughout the interview.

Table 2. Variables under analysis

	Chebba	Mahdiyya	Tunis
/q/	[g]	[q]	[q]
/θ/, /ð/, /ð ^ʕ /	[θ], [ð], [ð ^ʕ]	[t], [d], [d ^ʕ]	[θ], [ð], [ð ^ʕ]
/ay/, /aw/	[e:], [o:]	[e:], [o:]	[i:], [u:]

checked results with the realization of interdentalals and etymological diphthongs. Occurrences of the selected variables were counted and coded on an Excel spreadsheet.

4. Dialect leveling in speakers from Chebba

The /q/ variable

Before presenting the results concerning the realization of /q/ among speakers in the community, it should be noted that in Tunisia, "... in sedentary dialects, and in the majority of Bedouin ones, both /q/ and /g/ are present and have phonemic status (Gibson, 2002, p. 25)."⁸ Saada (1984, p. 29) provides a list of Tunisian towns ranked according to their urbanization coefficient – that is, the proportion of [q] (the urban variant) and [g] (the non-urban one) produced by inhabitants. This list was criticized by Gibson (2002, p. 32) because it does not take into consideration the nature of the lexical items that are realized with each variant. It is widely known that some items (such as religious terms and loanwords from MSA) systematically trigger the [q] variant, while words like *bāgra* 'cow' and *gamra* 'moon' tend to be realized with [g] in the majority of dialects, including sedentary ones. Saada's list gives us, nonetheless, an idea of how [q] and [g] coexist in most Tunisian dialects. It is also possible to get an idea of the proportion of [q] to [g] in Chebba by analyzing OFS0's speech (Table 3), given that this speaker is illiterate and had never left Chebba before moving to Mazara del Vallo only two weeks before the interview. As is to be expected, loanwords from MSA and religious terms, such as *qurʔān*

8. The phonemic opposition between /q/ and /g/ is quite marginal in the system of Tunisian dialects, yet it is usually possible to find minimal pairs. Saada (1984, p. 28), for instance, mentions *safga* 'tap' vs *safqa* 'deal', *marqa* 'broth' vs *marga* 'swamp', quoting more examples for the coastal dialect of Sīdi Alwān.

‘Quran’, *taqlīdi* ‘traditional’, *taqālid* ‘traditions’ and *ṣalāqa* ‘relation’, invariably trigger the [q] variant, and have not been included in the analysis of variation.

Table 3. Proportion of [q] and [g] in OFS0’s speech

Occurrences of etymological /q/ [g]	[q]
OFS0 263	94.3% (248) 5.7% (15)

Lexical items pertaining to the field of education (the only formal topic in the interview), on the other hand, show variation between [q] and [g]. Examples include *qrēna* ‘we studied’, *nqarrīw* ‘we teach’, but *igarrīw* ‘they teach’, *mā-garrā-nā-š* ‘he didn’t send us to school’ and *grāya* ‘study’. Given that, as previously stated, both /q/ and /g/ have phonemic status in most Tunisian dialects, it seems we are dealing with a case of MERGER BY TRANSFER (Trudgill and Foxcroft, 1978, p. 72; Gibson, 2002, p. 25), in which “...words are transferred gradually from one phonemic category to another (Labov, 1994, p. 321).” Generally speaking, we may conclude that [g] is by far the most common variant in Chebba, while lexical items pertaining to more formal registers display variation. Table 4 shows the results of data analysis for the 10 members of the Tunisian community of Mazara del Vallo who hail from Chebba but live stably in Mazara.

Table 4. Proportion of [q] and [g] in speakers from Chebba

Speaker	Generation	/q/	[g]	[q]
OMS6	1st	75	98.67% (74)	1.33% (1)
AMS11	1st	149	82.67% (124)	17.33% (25)
AMS3	1st	53	75.47% (40)	24.53% (13)
OMS7	1st	216	61.11% (132)	38.89% (84)
AFS3	2nd	59	54.24% (32)	45.76% (27)
YMS4	2nd	27	48.15% (13)	51.85% (14)
OFS1	1st	121	35.54% (43)	64.46% (78)
AMS8	2nd	51	27.08% (13)	72.92% (38)
YMS5	2nd	12	8.33% (1)	91.67% (11)
YFS2	2nd	14	0% (0)	100% (14)

The first consideration involves the distribution of the two variants across generations. With a single exception (OFS1), first-generation speakers tend to realize the native [g] variant more often than second-generation speakers. Given that

the interviews generally covered the same topics, such a clear tendency cannot be determined solely by the kind of lexical items employed by the interviewees. A second and equally important consideration concerns the way in which [q] and [g] are distributed, independently of their proportion, in the speech of first- and second-generation speakers.

Taking the following sample into consideration, for instance, the distribution of [q] and [g] in the speech of a first-generation speaker (AMS11) makes perfect sense:⁹

- (1) *famma maṭalan, talgā-h mūš qāri* (AMS11)
 there.is for.instance 2.find.M.SG-him NEG ACT.PTCP.study.M.SG
 'For example, sometimes you find out he didn't go to school.'

In sample 1, the [g] variant co-occurs with the verb *talga* 'you find', while *qāri* 'educated', a word pertaining to a more formal register, is realized with [q]. The same happens with *ngūl* 'I say', opposed to *iqarri* 'he teaches', in sample 2:

- (2) *eṭ-ṭlāyn mā... mā-rēt-š, mā-šuft-š maṭalan,*
 DEF-Italians NEG NEG-saw.1.SG-NEG NEG-saw.1.SG-NEG for.instance
taww mā... fammā-š mānəš idā-kān famma ṭlāyna
 now NEG there.is-NEG obstacle if there.is Italians
ḥābb iqarri wuld-u bi-l-ṣarbi
 ACT.PTCP.want.M.SG 3.M.teach.SG son-his by-DEF-Arabic
yumkən... nḍunn-əš, ngūl-l-ək
 3.M.be.possible.SG 1.think.SG-NEG 1.say.SG-to-you
 'I didn't see Italians... for instance, now, there's no problem if there are
 Italians who want to have their son study Arabic, it is possible, I don't think
 (there is any problem), I'm telling you.' (OMS7)

In the model of merger by transfer, the realization of either [q] or [g] occurs in a relatively predictable way that is independent of the proportion in which they are otherwise produced by a single speaker. Even though it is not possible to establish relations of strong implication (Gibson, 1998, pp. 41–47), it is still possible to agree with Gibson (2002, p. 35) on the fact that statistical correlations occur. For instance, the presence of the [q] variant in the stem /*lqa*/ 'find' (as in OFS1) will

9. Glosses are mostly based on the conventions set in the Leipzig Glossing rules. In the text, the following abbreviations are used: M = masculine, F = feminine, SG = singular, PL = plural, NEG = negation, ACT = active, PTCP = participle, DEF = definite, PRES = presentative.

correlate statistically with a higher probability of its occurrence in the stem /qʕd/ 'stay', despite a certain level of variation.

Such predictions are much more difficult to make for second-generation speakers, again, independent of the proportion of [q] and [g] in their speech. Variation with the same stem, for instance, occurs to a much higher degree, as evident from the following sample:

- (3) *w-allāhi ani mā-grēt-š fē-ha rā-hu xwāt-i*
 by-God I NEG-studied.1.SG-NEG in-her PRES-him sisters.my
grēw fē-ha u xū-y grēw
 studied.3.M.PL in-her and brother-my studied.3.M.PL
fē-ha, amma bēhya xāṭar xū-ya, xū-ya miṭāl
 in-her but good.F.SG because brother-my brother-my for.instance
gre l-ənna hne xams snīn, w-aḥne fi tūnās mən
 studied.3.M.SG here here five years and-we in Tunisia from
əl-ibtidāʔi naqrāw sitt snīn. mše, qre
 DEF-elementary 1.study.PL six years went.3.M.SG studied.3.M.SG
s-sēdis ʕām qrā-h fi tūnās xū-ya,
 DEF-sixth year studied.3.M.SG-him in Tunisia brother-my
rawwhāt bī-h umm-a qre fi tūnās. kī
 went.back.3.F.SG with-him mother-her studied.3.M.SG in Tunisia when
qre fi tūnās že l-awwəl fi l...
 studied.3.M.SG in Tunisia came.3.M.SG DEF-first in DEF
wilāyət əl-məhdiyya
 governorate DEF-Mahdiyya

'By God, I did not study there (i.e. in the Arabic school of Mazara). My sisters and my brother studied there, but it is good, because my brother, my brother for instance studied here for five years, and we in Tunisia study six years from elementary school. He went, studied for his sixth year in Tunisia, my brother, and my mother went back with him, he studied in Tunisia. When he studied in Tunisia, he was the first student (i.e., he was the student with the highest test scores) in the Governorate of Mahdiyya.' (AFS3)

AFS3, the most conservative second-generation speaker, alternates freely between [q] and [g] for the stem /qrʔ/ within the same utterance. In her speech, moreover, the [g] variant occurs in lexical items that are understood to be loanwords from MSA and that systematically trigger the employment of [q] in first-generation speakers, such as *ḥaḡīga*.

This difference is consistent with the stages of dialect contact described by Trudgill (2004, pp. 84–89) that can be summarized as follows:

- Stage I: rudimentary leveling and interdialect development
- Stage II: variability and apparent leveling in new-dialect formation
- Stage III: determinism in new-dialect formation

When mutually intelligible varieties come into contact for extended periods, the first stage consists in a process of rudimentary leveling and interdialect development. The leveling process does not occur randomly but reflects the demographic proportions of the community in which said contact occurs. Speakers from Mahdiyya, who use [q], make up 80% of the total number of Tunisian immigrants in Mazara, and the use of [q] is also prevalent among speakers hailing from other towns (e.g., Tunis, Sousse, Sfax, Qayrawan). Thus, it is likely to observe different degrees of leveling and accommodation in first-generation speakers coming from Chebba. Interdialect development, with hybrid forms that do not exist in either of the two varieties, also occurs. The form *atqal* ‘heavier’ (OMS7), for instance, is intermediate between the Chebba *atgəl* and the Mahdiyya *atqal*. These hybrid forms are reminiscent of the ‘fudged forms’ discussed by Al-Wer (2007) for the dialect of Amman, albeit with some differences. In Mazara, hybrid forms rarely occur and were collected among first-generation speakers, so they may be considered as having resulted from rudimentary leveling. Al-Wer (2007, pp. 67–68), however, is correct to criticize the fact that the overwhelming majority of studies on variation in Arabic focus on consonants, which are easier to detect and considered more salient. In many cases, however, vocalic differences are the only way to distinguish otherwise phonologically identical varieties. Therefore, a comprehensive study of vowels in the production of second-generation speakers in Mazara might reveal a greater incidence of hybrid (or ‘fudged’) forms.

The behavior of second-generation speakers, however, only superficially corresponds to that of first-generation speakers. Once again, the situation is similar to the Ammani case described by Al-Wer (2007). Although the variation involves the same consonants ([q] and [g]), the speakers in this case are not leveling or accommodating since they were born and raised in a linguistic environment in which both variants were present side by side. In other words, second-generation speakers whose parents arrived from Chebba learned Arabic from speakers who had already been through the stage of rudimentary leveling. At the same time, they were exposed to the different Tunisian dialects spoken by their peers in a situation of extreme variation, which lacked the well-defined peer-group variety that otherwise typically serves as a model for younger speakers. This stage is described

as chaotic by both Trudgill (1998), with reference to New Zealand English, and Al-Wer (2007, p. 64), with reference to second-generation speakers in Amman. When speakers experience this sort of situation, they are ‘... free to combine features from different dialects which are present in a contact situation into new and hitherto nonexistent combinations’ (Trudgill, 2004, p. 104).

In Mazara, the production of second-generation speakers hailing from Chebba is similarly marked by a high degree of both intra- and inter-individual variation. Sample 3 was paradigmatic of the degree of intra-individual variation, even within a single utterance. Table 5, on the other hand, shows the extent to which we can expect inter-individual variation among second-generation speakers, with AFS3 who prevalently realizes [g] and YFS2 who completely switched to [q].

Table 5. Sample of inter-individual variation in second-generation speakers from Chebba

Speaker	Age	[g]	[q]
AFS3	27	54.24% (32)	45.76% (27)
YFS2	17	0% (0)	100% (14)

In conclusion, the realization of the /q/ variable represents a textbook example of the first two stages of new dialect formation described by Trudgill (1998, 2004). First-generation speakers, as expected, show signs of rudimentary leveling, while the second generation is marked by an almost chaotic degree of intra- and inter-individual variation.

Interdental phonemes /θ/, /ð/ and /ð^s/

The analysis will now focus on the three interdental phonemes /θ/, /ð/ and /ð^s/. Recall that in mainland Tunisia the interdental phonemes are one of the isoglosses that allow us to distinguish the dialect of Chebba (which preserves interdentals) from the neighboring variety of Mahdiyya (which merges them with corresponding plosives). The results of this study are presented in Table 6. In the case of some speakers, very few occurrences were produced during the interview. Nevertheless, the data show, with only one exception, a clear tendency toward the preservation of interdentals.

The results display a clear difference from what was observed with regard to the /q/ variable. Nine out of ten speakers do not show any significant variation, displaying a consistent preservation of the interdental phonemes. In this case, the behavior of first- and second-generation speakers does not show any significant difference. Only YFS2 shows, despite the low number of occurrences, a clear tendency towards the loss of interdental phonemes, which is consistent with her

Table 6. Realization of interdental phonemes in speakers from Chebba

Speaker	/θ/ ^a		/ð/		/ð ^ɕ /		/d ^ɕ /	
	[θ]	[t]	[ð]	[d]	[ð ^ɕ]	[d ^ɕ]	[ð ^ɕ]	[d ^ɕ]
OMS6	100% (14)	0% (0)	100% (19)	0% (0)	-	-	100 (12)	0% (0)
AMS11	100% (57)	0% (0)	100% (41)	0% (0)	100% (2)	0% (0)	100% (3)	0% (0)
AMS3	100% (39)	0% (0)	100% (19)	0% (0)	100% (1)	0% (0)	83.3% (10)	16.7% (2)
OMS7	100% (77)	0% (0)	100% (54)	0% (0)	100% (15)	0% (0)	100% (24)	0% (0)
AFS3	100% (35)	0% (0)	100% (7)	0% (0)	100% (9)	0% (0)	100% (9)	0% (0)
AMS8	100% (7)	0% (0)	100% (16)	0% (0)	100% (1)	0% (0)	92.3% (12)	7.7% (1)
YMS4	100% (23)	0% (0)	85.7% (12)	14.3% (2)	-	-	0% (0)	100% (3)
YMS5	100% (12)	0% (0)	100% (4)	0% (0)	-	-	100% (1)	0% (0)
OFS1	94.1% (32)	5.9% (2)	100% (42)	0% (0)	87.5% (7)	12.5% (1)	100% (28)	0% (0)
YFS2	50 % (2)	50% (2)	0% (0)	100% (2)	-	-	-	-

^aThe numeral ‘three’, etymologically *θala:θa*, is realized as *tla:θa* in all Tunisian dialects that preserve interdentals. Given that the first /θ/ is stably realized as [t] and does not feature any variation, only the second interdental has been counted.

complete shift to the [q] variant. This speaker thus displays an almost systematical convergence with the Mahdiyya variety that needs further research to be satisfactorily explained.

The etymological diphthongs /ay/ and /aw/

The realization of the etymological diphthongs /ay/ and /aw/ was selected because it provides us with a reliable isogloss, distinguishing village dialects, such as those spoken in Mahdiyya and Chebba (Mion, 2015, p. 271), from the urban variety of Tunis (Gibson, 2009, p. 564). In village dialects, the two etymological diphthongs are reduced to [e:] and [o:], while in the variety spoken in the capital they are reduced to [i:] and [u:]. This variable was also studied in Gibson (2002, pp. 27–29), with a specific focus on speakers from the Tunisian Sahel, where accommodation to the Tunis variants [i:] and [u:] occurs among young speakers. In Sfax, for instance, one of Gibson’s informants says (Gibson, 2002, p. 28):

- (4) *l-ažyāl* *iz-zġira* *tawwika...* *iḥāwilu* *iqalldu*
DEF-generations DEF-little.F.SG now 3.try.M.PL 3.imitate.M.PL
tūnis *l-ḡāšma.* *iqūlu* *zīt*
Tunis DEF-capital 3.say.M.PL oil

‘The younger generations now... try to copy Tunis the capital. They say *zīt* (oil).’

The community of Mazara includes a few speakers hailing from Tunis, but their number is negligible compared to speakers coming from either Mahdiyya or Chebba. Speakers living in Mazara are exposed to the dialect of Tunis mainly through Tunisian mass media, where it is used as a sort of national standard variety, and through sporadic contacts with consular employees in Palermo (130 km from Mazara). As expected, none of our interviewees displayed a tendency toward shifting from [e:] / [o:] to [i:] / [u:].¹⁰ This will be discussed in the next section. The only lexical item in which the etymological diphthong /ay/ was often realized as [ī] was *kīf* ‘how’, with one isolated occurrence of *sīf* ‘summer’ (AMS8), *ʕalī-h* ‘on him’ (AMS11), and *xīr* ‘better’ (YMS4).¹¹

Table 7. Realization of diphthongs in speakers from Chebba

Speaker	/ay/		/aw/	
	[e:]	[i:]	[o:]	[u:]
OMS6	20 (100%)	0 (0%)	7 (100%)	0 (0%)
AMS11	33 (86,8%)	5 (13,2%)	8 (100%)	0 (0%)
AMS3	27 (90%)	3 (10%)	5 (100%)	0 (0%)
OMS7	50 (84,7%)	9 (15,3%)	14 (100%)	0 (0%)
AFS3	10 (66,7%)	5 (33,3%)	6 (100%)	0 (0%)
AMS8	20 (69%)	9 (31%)	1 (100%)	0 (0%)
YMS4	14 (73,7%)	5 (26,3%)	4 (100%)	0 (0%)
YMS5	6 (100%)	0 (0%)	-	-
OFS1	29 (70,7%)	12 (29,3%)	20 (100%)	0 (0%)
YFS2	4 (100%)	0 (0%)	5 (100%)	0 (0%)

10. As said in note 4, a different situation obtains among Moroccans living in Zaragoza (Vicente, 2008), where the same dialectal convergence toward a koineized Moroccan can be observed both in mainland Morocco and in the diasporic community. In Mazara, probably, the first immigrants arrived before the dialect of Tunis started acquiring its status of a national prestige variety, and the newcomers just adapted to the existing situations. The fact that in Mazara more than 90% of the immigrants hail from two neighboring towns, with reduced dialectal variation, is also a factor.

11. Different from the numeral *talāta* ‘three’, etymological *kayfa* has been counted here, since three speakers (OMS6, YMS4 and AMS8) show occurrences of *kēf*, so that variation actually is present. The complete absence of the [u:] realization of the diphthong /aw/, however, shows that the occurrences of [i:] for /ay/ are lexically conditioned and not signs of an ongoing change.

5. Discussion

The data presented above can be broadly summarized as follows:

- /q/: Chebba has [g], Mahdiyya has [q], and leveling and accommodation to [q] is widespread among members of the Tunisian community hailing from Chebba, with different patterns among first- and second-generation speakers.
- /θ/, /ð/, and /ð^ʕ/: Chebba has [θ], [ð] and [ð^ʕ], Mahdiyya has [t], [d], and [d^ʕ], but interdental phonemes are, with a single exception (YFS2), preserved among members of the Tunisian community hailing from Chebba. No difference is noticeable between first- and second-generation speakers.
- /ay/ and /aw/: both Chebba and Mahdiyya have /ay/ → [e:] and /aw/ → [o:], while the dialect of Tunis has [i:] and [u:]. Accommodation to the Tunis variants was not observed in our data, where variation is lexically conditioned.

In mainland Tunisia, the shift from [e:] / [o:] to [i:] / [u:] in coastal dialects is led by young educated speakers, who move from their towns to Tunis to pursue higher education or to find a job (Gibson, 2002, p. 32). In the capital, they are exposed to Tunis Arabic, which can be considered the national prestige variety.¹² The situation, however, is quite different in Mazara, where no variety of Arabic can be considered prestigious. Italian is the socially dominant language and needs to be learned to function within the host country. The dialect of Tunis is still available to speakers living in Mazara through contact with the few residents hailing from the capital, contact with consular employees in Palermo, and access to satellite television and other media. The presence of the Tunisian national prestige variety, however, is not strong enough to trigger a process of language change. In fact, the idea that television can be an active factor in language change has been criticized by Trudgill (2014); the author cites Stuart-Smith, Pryce, Timmins, and Gunter (2013, pp. 529) who show that the media can act as catalysts of ongoing (or latent) processes but are in themselves “...neither necessary nor sufficient for ‘causing’ these changes.”

In Mazara, as was to be expected, Chebba speakers are accommodating to the variety of Mahdiyya. However, while they shift from their native [g] to [q], they almost systematically preserve their native interdental phonemes. This apparent contradiction arises from the misconception that when change happens speakers

12. Within the diglossic situation of the Arabic-speaking world, Ibrahim (1986, p. 120–122) and Haeri (2000, p. 65) have convincingly demonstrated the existence of dialectal prestige varieties, often at the national level, alongside Classical Arabic, which was previously considered as the sole prestige variety.

switch from one dialect to another one. The process, on the contrary, does not involve “one dialect supplanting all other dialects, but ... a particular dialect variant of an individual feature supplanting all other variants” (Trudgill, 2004, p. 85). In this specific case, the individual feature (variant) [q] is supplanting, to different degrees, the individual feature [g], while interdental phonemes are generally being preserved by the same speakers. While this behavior is not surprising in itself, the reasons behind it need to be accounted for.

In his study on dialect leveling in Tunisian Arabic, Gibson (2002, p. 27) writes that the /q/ variable “is mentioned far more than all the other variables by Tunisians talking about dialectal differences in their country.” The situation is not different in other countries, such as Jordan and Palestine, where the /q/ variable has received far more attention than any other variable (Al-Wer and Herin, 2011; Cotter, 2016). The Tunisian community of Mazara is not an exception. When speakers from both Chebba and Mahdiyya were asked about the differences between their respective dialects, they systematically mentioned the /q/ variable:

- (5) *nətkallmu bi-l-gā, hūma bi-l-qā, fhəmti?*
 1.speak.PL by-DEF-gā they by-DEF-qā understood.2.SG
 ‘We speak with *gā*, they with *qā*, do you understand?’ (AMS11)
- (6) *mā-ʕand-nā-š farq, kull-a fard, āma šnūwa? famma hāža*
 NEG-at-us-NEG difference all-her one but what there.is thing
bārək, famma l-kalēm bi-l-qā u famma
 only there.is DEF-speech by-DEF-qā and there.is
l-kalēm bi-l-gā
 DEF-speech by-DEF-gā
 ‘We have no difference, it’s all the same, but what? There is only one thing, there’s speaking with *qā* and there’s speaking with *gā*.’ (OMS7)

The same opinion was invariably repeated by all the interviewees who were asked this question, and none of them mentioned the other isogloss (the different realization of interdental phonemes). Salience may be playing a role here, although it does not seem to be equally important in later stages of dialect contact:

In general, it is salient features – those which are ‘noticed’ (...) by speakers – which are accommodated to. I shall argue below that, in fact, salience is not relevant at most stages of the new-dialect formation process. However, this does not apply to rudimentary leveling, where accommodation would have operated in the normal way amongst adults, and salience could have been a factor.

(Trudgill, 2004, p. 93)

In other words, speakers from Chebba accommodate to [q] and not to the interdental because [q] is perceived as an isogloss between the two varieties of Chebba

and Mahdiyya, while interdental phonemes are not. Other factors, however, might also be at play, since the preservation of interdentals is also observed in second-generation speakers, for whom salience should not play an active role. The survival of minority variants is a well-documented reality in situations of language contact. In particular, minority variants (such as interdentals in Mazara) have a chance to survive at the expense of majority ones if they represent an unmarked choice (Trudgill, 2004, pp. 85–86). In most Arabic dialects, the interdental realization is the marked variant. In Jordan, for instance, interdental phonemes are strongly associated with the local indigenous varieties and thus replaced by the corresponding alveolar plosives (Al-Wer, 1998, pp. 258). Tunisian dialects are, on the contrary, very conservative at the phonetic level, and tend to also preserve interdentals in most sedentary varieties (Gibson, 2009, p. 564), with the notable exceptions of Mahdiyya and of the Judeo-Arabic varieties once spoken in the country (D. Cohen, 1975, p. 12; Yoda, 2008, p. 484; W. Marçais, 1950, p. 201). While speakers from Mahdiyya represent a vast majority (around 80%) in Mazara del Vallo, interdental phonemes are preserved in the native varieties of speakers hailing from all the other towns (Chebba, Tunis, Sousse, Qayrawan, Tabarka, Sfax etc.). They can be safely considered the unmarked choice for Tunisian speakers. The combination of these two factors may explain the higher rate of preservation compared with the voiced realization of /q/.

From this point of view, it is not the case that interdentals seem to be spreading into the speech of young educated speakers hailing from Mahdiyya, who often alternate between their native set of alveolar plosives [t], [d] and [dʕ] and the interdentals [θ], [ð] and [ðʕ], as in the following sample:

- (7) *mā-fammā-š flūs maʕnā-h, bāš əl-madərša*
 NEG-there.is-NEG money meaning-his to DEF-school
hāḍika təkbar (AFS4)
 that.F 3.F.grow.SG
 ‘There is no money for this school to grow.’

6. Conclusions

The present work analyzed some phenomena of dialect contact in the Tunisian community of Mazara del Vallo (Sicily). While dialect leveling in Tunisian Arabic has been the object of previous studies (Gibson, 1998, 2002), to the best of my knowledge it has never been investigated in the unique environment of a close-knit community living in the diaspora. The data analyzed in the preceding paragraphs thus allow us to draw a number of conclusions.

First, speakers hailing from Chebba display signs of accommodation to the dialect of Mahdiyya (the majority variety in Mazara del Vallo) with respect to the /q/ variable, realized as [g] in Chebba and [q] in Mahdiyya. The phenomenon is stronger in second-generation speakers. Accommodation to the variety of Mahdiyya, however, is only partial, since speakers from Chebba are likely to shift to the Mahdiyya variant [q] (at the detriment of their native [g]), but they almost systematically retain their native set of interdental phonemes. Two different factors are probably at play here: the lower salience of interdental phonemes (with respect to the /q/ variable), and their unmarked status in Tunisian dialects, where only Mahdiyya and the Judeo-Arabic varieties no longer spoken in the country have merged interdentals with the corresponding alveolar plosives.

Second, the urban variety of Tunis does not enjoy the prestige status that characterizes it in mainland Tunisia. While Gibson (2002) demonstrated that young educated speakers from the Tunisian Sahel tend to accommodate to the dialect of Tunis, the open realization of the etymological diphthongs /ay/ → [e:] and /aw/ → [o:] proves that Chebba speakers in Mazara do not partake in this process. By adopting Trudgill's deterministic perspective on dialect contact, this fact is easily explained by looking at the factors that result in dialect change. When mutually intelligible varieties come into contact for long periods, the sheer force of numbers normally determine the outcome of dialect contact. In the case of Mazara del Vallo, the presence of speakers from Tunis is negligible. Young educated speakers, who lead language change in mainland Tunisia, usually travel to the capital and are exposed to its dialect while completing their education or looking for a job. Their peers in Mazara del Vallo study at Italian universities and are thus exempt from such an influence, and media alone are not proven to be capable of triggering the processes of language change.

Finally, the situation of first- and second-generation speakers seems to be comparable with the first two stages of new-dialect formation described by Trudgill (1998, 2004), namely rudimentary leveling (stage 1) and variability and apparent leveling (stage 2). According to this paradigm, the third generation, after approximately 50 years from the first wave of immigration, should display a more stable repertoire, which coincides with the formation of a new dialect. The process described by Trudgill (the formation of colonial English dialects), however, markedly differs from the situation of the Tunisian community of Mazara del Vallo, whose members mostly belong to lower socio-economic classes and speak a minority language. In this situation, there are different factors that may interfere with the process. First, there is continuous demographic alteration within the community. Male adult second-generation speakers often choose to emigrate to northern Italy to look for better jobs, while new speakers continually arrive from mainland Tunisia. This process probably helps to slow down language erosion,

but it also alters the process of new-dialect formation, since most newcomers are adult female speakers who married a member of the community, do not speak Italian, and have not partaken in the leveling that has occurred in Mazara. Thus, the variety of Arabic that they transmit to their children is not easily comparable to what we observe in third generations. Second, language erosion, however slow, is inevitably happening, as evident from the lexical impoverishment and partial phonemic loss observable in some younger speakers (D'Anna, 2017, pp. 83–97). It is thus difficult to predict whether a new Mazarese Tunisian dialect will come about before the community completely switches to the dominant language. For this reason, continuous research in the next decade is necessary, with special regard to young third-generation speakers.

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Speaker-oriented attitude datives as authority indexicals

Evidence from family talk in the Syrian soap opera *ba:b l-ħa:ra*

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Most, if not all, Arabic dialects license the use of optional dative pronouns that index or point to the speaker as an authority figure in relation to the hearer and the activity that the speaker and hearer are involved in. I refer to these pronouns as speaker-oriented attitude datives and analyze the social conditions on their use as authority indexicals. I focus on directives (e.g., orders, requests) used during family talk in the Syrian soap opera *ba:b l-ħa:ra* ‘the neighborhood gate.’

Keywords: authority, attitude datives, indexicality, power, pragmatic markers, family talk

1. Introduction

Most, if not all, people have experience with the relational concept of authority in some form or another. From an early age, we realize that certain individuals around us, such as our parents and other caregivers, have authority over us – an authority that we recognize even if we do not always willingly embrace it. We also realize – or tacitly comprehend – that authority is hardly ever absolute, that it depends on contextual factors, and that social actors use different means (some linguistic and some non-linguistic) to index or point at the form of authority that they mean to project.

As we grow older, we take on different forms of authority and learn the parameters of our authority: whom to use it with, where and when to use it, and to what end. In interacting with individuals over whom we have (or are trying to exert) authority, we learn how to employ the linguistic and non-linguistic means at our disposal to cue our hearers to recognize our authority and take seriously the message we are trying to convey.

The means that social actors use to index themselves as authority figures are often subtle. An assertive tone, a confident posture (e.g., standing with a straight spine), or the use of pragmatic markers (e.g., *you know*) is often enough to highlight a social actor's authority, forcing other social actors to see it and feel its impact. At the same time, such means are not as distinct as, say, facts or opinions that people may isolate and discuss separately. In this chapter, I investigate a class of pragmatic markers in Syrian Arabic in order to examine how they serve as indexicals of authority. These are optional dative pronouns that refer to the speaker. I label them speaker-oriented attitude datives (SP-ADs); the pronoun in boldface in (1) is an example.

- (1) Context: The head of the district police, Abu Jawdat,¹ gives a direct order to Nuri, the second in command, to search for Samo, a person of interest in a burglary.

nu:ri:, bta:xod ʔarbaʕ ʕana:sʕer w-bitdawru:-li: ʕala:

Nuri, you.take four soldiers and-you.search-**me.D** for

ha:da: Samʕo.

this Samo.

'Nuri, take four soldiers and look [**me**] for this man Samo.'

From the Syrian soap opera *ba:b l-ḥa:ra* 'the neighborhood gate' –

Season 1 – Episode 20 – 00:14:20

SP-ADs are optional in the sense that deleting them does not affect the main message of an utterance. Like other interpersonal pragmatic markers, they serve two broad functions: (i) an evaluative function, expressing a stance toward the main message of an utterance, and (ii) a relational function, managing (e.g., affirming, challenging) a relationship between social actors (see Brinton, 1996, Chapter 2; Beeching, 2016, Chapter 1; Haddad, 2018, and work cited there).

This paper examines the contextual factors that inform and are informed by the use of SP-ADs. I begin the discussion in Section 2 by providing a more elaborate definition of authority as a relational and contextual concept. I also specify the

1. Most of the examples used here contain names that begin with *ʔim* (Im) and *ʔabu:* (Abu). These mean 'the mother of' and 'the father of,' respectively. In the Arab world, they are used as teknonyms: i.e., adults are referred to by referencing their eldest son. If a man is not married, he may still be addressed as, say, *ʔabu: kari:m* 'father of Karim,' with the assumption that his eldest son will be named Karim. This is especially the case if the man's father's name is Karim and he plans to name his future son after his father. Finally, *ʔim* and *ʔabu:* may also be used to refer to a salient characteristic that a person may have. For example, knowing that *xdu:d* means 'cheeks,' the term *ʔabu: xdu:d* may be used to describe or refer to a person with chubby cheeks, just as the term *cacheton* is used in Colombian Spanish, and perhaps other varieties, to describe a person with big *cachetes* 'chubby cheeks.'

form of authority that will be the focus of this chapter and illustrate how authority may be indexed in interaction. I end Section 2 by delimiting the main purpose of this paper. All the data in this chapter come from the Syrian soap opera *ba:b l-ha:ra* ‘the neighborhood gate.’ Section 3 provides an overview of this TV series and discusses some potential issues with the use of a scripted show as a source of data. Section 4 highlights elements of the sociocultural context that are relevant to the rest of the paper. Section 5 examines the use of SP-ADs as indexicals of hierarchical authority in directives, focusing on the immediate situational context and providing the co-textual context. Section 6 concludes by highlighting the significance of this type of research from a learnability perspective.

2. What is authority and how is it indexed?

Authority may be defined as “a form of legitimation [that is] legally, culturally, and interactionally constructed” (Wilson and Stapleton, 2010, p. 50; see also Dickerson, Flanagan, and O’Neill, 2009, p. 20). It is an attribute that a social actor claims for her- or himself and that society acknowledges based on the social actor’s identity. During interaction, authority, as a form of legitimation, is based on one or more aspects of a social actor’s identity in relation to (i) the identities of her or his interlocutors and (ii) the interactional activity (e.g., family dinner, committee meeting) in which they are involved. A social actor’s identity may include her or his individual identity (e.g., physical strength), group identity (e.g., gender), and relational identity (e.g., kinship). Omnipresent in all these social dimensions is the broader sociocultural context of shared values, beliefs, and norms.

Exercising one’s authority in a social interaction is optional and may or may not result in the granting of power. For example, a boss may choose to exercise her or his authority by asking an employee to fulfil a work-related task. Only if the employee complies, however, does the boss’s authority result in power. If the employee does not comply, the boss’s bid for authority has failed, and she or he will need to decide whether to pursue further action or let the employee get away with her or his refusal to follow instructions.

Not all power derives from authority; it may also arise through a social actor’s “ability to act effectively on persons or things, to make or secure favorable decisions which are not of right allocated to the individuals or their roles” (Rosaldo, 1974, p. 21). This is different from power that derives from authority that is recognized by all parties involved; this latter form of power is based on legitimation and on “the recognition that it is a right” (Rosaldo, 1974, p. 21).

Authority is not a uniform concept; different types of authority may be recognized. For example, one may distinguish between hierarchical authority and

knowledge authority. Hierarchical authority is a form of legitimation in which one or more aspects of a social actor's identity rank her or him legally or socioculturally above other social actors in an interaction. In this paper, I will use the term "hierarchical" authority specifically to refer to a form of authority that is potentially coercive and punitive. In other words, hierarchical authority allows the social actors who have it to force those they outrank to comply with their desires, and to punish those who disobey. A boss's authority over her or his employees, for example, is coercive and punitive within a work setting: employees may be fired for failing to do what the boss asks.

Knowledge authority, conversely, is derived from a social actor's level of expertise, and is neither coercive nor punitive. For example, a physician has the knowledge authority to prescribe medications to patients but may not force them to take the recommended dose or punish them if they don't (at least not without further support from the state).

Authority manifests itself in daily interactions and is affirmed, redefined, or negotiated via the linguistic choices that social actors make during these interactions (Wilson & Stapleton, 2010, pp. 50–51). Languages in general allow social actors to overtly state an aspect of their identity in order to affirm, redefine, or negotiate their authority with respect to the hearer. For example, a speaker who wishes to give a hearer a directive may start by saying: *This is me talking to you as your boss/lawyer/legal guardian*. Alternatively, a speaker may choose to waive authority by saying: *This is me talking to you as your friend, not your boss*. Assertions like these function as perspectivizers à la Verhagen (2005). They invite the hearer to view the rest of the utterance from a specific perspective. If the utterance is a directive, perspectivizers instruct the hearer to view that utterance either as an order that they must obey or as a request/suggestion that they should consider but not necessarily obey.

Although language allows this overt establishment of authority, speakers rarely need to use it to affirm their authority in an interaction. A social actor's role (e.g., as a boss) is often enough to prime the hearers to view that person's remark as something that they should take seriously; see Holtgraves (1994). Alternatively, speakers may make use of non-verbal cues, such as uttering a directive with a falling contour (characteristic of commands) versus a rising tone (characteristic of requests); see Wichmann (2012). Subtler verbal cues are also available: interpersonal pragmatic markers that project or waive authority and cue the hearer to view the utterance from a particular perspective. For example, inserting *will you?* at the end of a directive in English cues the hearer to view the directive as a request. As Pérez (2002) puts it, "it expresses a reduction of the speaker's expectations with respect to the compliance with the request on the part of the hearer" (69–70).

The main purpose of this chapter is to examine the use of speaker-oriented attitude datives (SP-ADs) as indexicals of hierarchical authority in directives. SP-ADs are optional dative pronominal clitics licensed in Levantine Arabic (Jordanian, Lebanese, Palestinian, and Syrian Arabic), as well as in other Arabic dialects; see Haddad (2018). The focus here is on Syrian Arabic. The utterance in (2) is an example. See also (1) above.

- (2) Context: The wife of the neighborhood coffee shop owner, Abu Hatem, is pregnant and needs some medical attention. Abu Hatem orders his employee, Msallam, to fetch the midwife.

msallam ... wsʕal-li: la-be:t ʔim ziki: l-da:ye , ʔill-a: tru:h

Masallam ... go-me.ɒ to-house Im Ziki the-midwife , tell-her go

la-ʕinn-a: ʕa-l-be:t l-ʕya:l ʕa:yzin-a: dʕaru:ri: ʔawa:m .

to-place-our to-the-house the-family need-her urgently immediately.

‘Msallam, go [me] to the house of Im Ziki, the midwife, right away and tell her to go to our house; the family needs her urgently.’

Episode 12 – 00:40:50

In both (1) and (2), the SP-AD expresses the speaker’s responsibility for the directive and his right to it. It also affirms the speaker’s role as a boss and cues the hearer to view the directive as an order that he must obey because it comes from an authority figure. The SP-AD serves as a perspectivizer that reminds the hearer of this shared understanding.

Importantly, there is nothing in the lexical composition of the SP-AD itself that signifies hierarchical authority. Rather, the dative serves as a linguistic index pointing to the presence of hierarchical authority in the interaction. Ochs (1996, p. 411) defines a linguistic index as follows:

A linguistic index is usually a structure (e.g. sentential voice, emphatic stress, diminutive affix) that is used variably from one situation to another and becomes conventionally associated with particular situational dimensions such that when that structure is used, the form invokes those situational dimensions.

The situational dimension invoked by the SP-AD in (1) and (2) is the identity of the speaker as a hierarchical authority figure in relation to the hearer and the interactional activity the two are involved in.

Crucially, a linguistic index is variable and conventional – or “conventionalized,” in the sense that its meaning is context-dependent and its pragmatic contribution varies with contextual factors (Culpeper, 2011, p. 129, drawing on Gumperz, 1982 and Terkourafi, 2005). The behavior of SP-ADs fits this description. The identification of a SP-AD and the interpretation of its pragmatic contribution as an indexical of hierarchical authority (versus, say, knowledge authority

or any other form of authority) depends on the context. Three types of context are relevant (see LoCastro, 2003; Culpeper, 2009):

- i. the broader sociocultural context, along with all social values, beliefs, and norms that members of a given community live by and take for granted;
- ii. the immediate situational context of an interaction, including the identities of the interlocutors and the type of activity they are involved in; and
- iii. the co-textual context or actual linguistic interaction that the SP-AD is a part of, including the utterance that the SP-AD occurs in and the utterances that precede and follow it.

In the rest of this chapter, I focus on SP-ADs as indexicals of hierarchical authority. The broader sociocultural context is a Damascene neighborhood as portrayed in Season 1 of the Syrian soap opera *ba:b l-ḥa:ra* ‘the neighborhood gate.’ The immediate situational context involves family members (mother, father, and children) and family-related activities (e.g., arguments between wife and husband, dinner preparation). The co-textual context involves directives, along with any relevant utterances that precede or follow them.

3. The source of data

As I pointed out earlier, all the data come from family interactions depicted in Season 1 of the Syrian soap opera *ba:b l-ḥa:ra* ‘the neighborhood gate.’ It was originally aired in 2006. It is made of thirty-three episodes. Each episode is about fifty minutes long.

The show is about daily life in a neighborhood called *ḥa:ret l-dʿabeṣ* ‘the neighborhood of the hyena’ in early twentieth-century Damascus, Syria. At the time, Syria was under the French mandate. The storyline in Season 1 revolves around two threads: (i) the theft of gold coins from a resident of the neighborhood and ensuing attempts to find the perpetrator, and (ii) the infiltration of a spy who works for the French and who tries to stymie efforts by leaders of the community to support the Palestinians in fighting for independence from British control. Around these two threads, all types of events and subplots are featured in the show, ranging from family feuds to arranged marriages and from storytelling to street fights.

In Haddad (2018), I closely examined the thirty-three episodes of Season 1 and transcribed all instances of Attitude Datives, including the SP-ADs examined in this chapter.

A potential concern about the data is that they are based on texts scripted by show writers. As such, they are not necessarily representative of naturally occurring

data spontaneously produced by social actors on the basis of their shared socio-cultural knowledge, identities, and activities. While it is true that these data are produced artificially, I do not believe that detracts from their informative value regarding the immediate context of the show. The show's writers are aware, consciously or subconsciously, of the norms and expectations that their characters live by, and they take these norms into consideration as they prepare the script for them and put words in their mouths.

Moreover, in Season 1 of *ba:b l-ha:ra*, the interactions between characters are mainly improvised. In an interview on Alsharjah TV with Abbas l-Noury, who plays the role of Abu Esam in the show, the actor comments that he and his fellow actors in the show often "improvised the dialog of the series in the same moment the cameras were doing their job" (from a 2009 online article; my translation).² This observation was confirmed to me independently during an exchange with the actress Laila Sammur, who plays the role of Fawziyya. Ms. Sammur explained to me that most of the time, the actors were not given scripts, but instead broad guidelines, and the dialogs were mostly improvised. It is not clear what percentage of the dialog was actually improvised. However, the comments by l-Noury and Sammur suggest that improvisation was rather common. The comments also suggest that when actors in the show get into character, they use language, including the SP-ADs under examination, as informed by the identities of their characters, the types of activity that their characters are involved in, and the broader sociocultural values and beliefs that the show assumes and the characters often articulate.³

4. The sociocultural context of *ba:b l-ha:ra*

As I mentioned in the previous section, The Syrian show *ba:b l-ha:ra* is about daily life in a Damascene neighborhood in the early twentieth century. Because the setting is an earlier period in Syrian history that some viewers may not be familiar with, the show goes to great lengths to articulate the cultural values, beliefs, and norms considered by the show's writers and producers to be characteristic of Damascene communities of the time. Viewers learn about the sociocultural context through the words of the characters as well as their behavior.

2. <http://alasr.me/articles/view/10983/> accessed on 8/24/2016

3. See Haddad (2018) for evidence that even in shows with carefully scripted texts that actors are required to adhere to, the use of attitude datives like the SP-ADs under examination is subject to improvisation.

It is important to note before we proceed that the observations I am about to make in this section are only meant to articulate the sociocultural values and beliefs depicted in the show. They are not meant as a generalization over a whole population (e.g., Damascene or Syrian culture). These values and beliefs may or may not be historically completely accurate, and in fact some of them have been criticized on exactly this basis. For example, in a 2007 article in the newspaper *l-hiwa:r l-mutamaddin* 'Civilized Debate', Rima Nazzal, a member of the secretariat of the General Union of Palestinian Women, criticizes the show for portraying women as objects and for not highlighting the important roles that women played in early twentieth-century Syria. For the purpose of the analysis presented in this paper, however, the important question is: how do the sociocultural values, beliefs, and norms that the members of the community in the show live by inform – and how are they informed by – the use of SP-ADs as authority indexicals?

The following are some of the relevant sociocultural values, beliefs, and norms that the show's family members live by and take for granted. First, the husband and father is the highest authority in the household; as long as he provides for his family and protects its honor, he may not be blamed or defied. The following are some examples that reflect the importance and superiority of men as husbands and fathers:

- (3) Context: Two single young women, Latifeh and Jamileh, are talking about marriage when Latifeh expresses the sentiment that a man has the right to discipline his wife by beating her.

l-riz3a:l ma: biku:n ri33a:l ʕan haʔʔ w-ħaʔi:ʔ ʔiza: ma:
 the-man NEG is man for.real If NEG

dʕarab mart-o kil yo:m.
 beat wife-his every day.

'A man is not a man for real if he does not beat his wife every day.'

Episode 9 – 00:23:45

- (4) Context: Two older women, Im Khater and Im Ziki, are talking about a third woman, Buran, and how her husband beat her while the two were arguing. They dismiss the incident as insignificant and add:

Im Khater: *w-ʔiza: ka:n bu:ra:n 3o:z-a dʕarab-a: ʃi:*
 and-if was Buran husband-her beat-her some
marra? ʔixt-i: ha:da: ri33a:l, w-l-ri33a:l ma:
 time? sister-my this man, and-the-man NEG

byinʕa:b ʃu: ma: ʕimil.
 blamed whatever he.did.

'And what if Buran's husband beat her every now and then?
 Sister, this is a man, and a man may not be blamed or shamed
 whatever he does.'

Im Ziki: *ʔe: w-alla: ʕam-tihki: sʕahi:h . l-riʕza:l ma:*
 yes by-God PROG-you.say the.right.thing . the-man NEG
byinʕa:b bno:b .
 blamed at.all .

‘Yes, I swear, you are right. A man is never to be blamed or
 shamed.’

Episode 11 – 00:46:30

- (5) Context: Abu Bashir, the neighborhood baker, tells his son about the importance of a man/father in the family for maintaining order.

l-be:t lli: ma: fi-i riʕza:l , l-wla:d ma: bila:ʔu:
 the-house that NEG there-it man , the-children NEG find
mi:n ydʕibb-un .
 who keep.well.behaved-them .

‘If a house is without a man, the children will have no one to keep them
 well-behaved.’

Episode 10 – 00:21:00

Examples (3) through (5) reflect the belief, shared by all members of the society (women and men, young and old) as depicted in the show, that a husband is superior to his wife and that he has authority over her and over his children. Of course, a husband’s group identity as a man and his relational identity as a spouse and father come with expectations at the level of individual identity. For a man to be recognized as the head of his household and as an authority figure, he must work hard, provide for his family, and protect his family and its honor by keeping everyone – especially the women – from misbehaving (e.g., smoking, talking to strangers of the opposite sex).

A wife has no authority over her husband – or at least, she is not expected to.⁴ She does, however, have authority over her children, both female and male, in relation to household activities. Such activities include cooking, cleaning, purchasing groceries, and entertaining visitors. She is also in charge of making sure the children of all ages are well-behaved. As (6) illustrates, children are aware of their mother’s role and her authority.

4. A wife may have power over her husband; she may be able to manipulate him in order to secure certain decisions. This power, however, is different from authority; only authority is legitimized and recognized as a right by all social actors involved and by the community at large; see Rosaldo (1974).

- (6) Context: Latifeh, a young woman, suggests to her friends that they should have coffee just like their mothers. To this, Jamileh responds:

ʔe: w-alla: w-alla: ma: tismaʕ ʔimm-i: ʔinn-i: fribet ʔahwe
 INTER by-God by-God for hear mother-my that-I drank coffee
ʃi: marra:, la-tiʔsʕof ʕimr-i: ʔasʕef!
 some time, then-she.snap life-my snap!

'I swear, if my mother hears that I have ever had coffee, she will kill me.'

Episode 9 – 00:23:00

Whereas the husband/father's authority is inherent in his group identity as a man, the wife/mother's authority is delegated by her husband and is thus part of her relational identity as a wife. If the children defy their mother's authority, for example, the mother may threaten that she will tell their father that they have not been obedient. The threat often works. The only individual in the household that may bypass a mother's authority in relation to household activities is the father, but he rarely does. Even when the father notices that one of his children – especially a daughter, but also a son – is misbehaving, he often instructs his wife to address the issue, provided it remains within the confines of the household.

If a mother has sons, her authority extends over her daughters-in-law once the sons get married. Women in the world of the show move in with their in-laws when they get married. The instructions in (7), given by a mother to her soon-to-be-married daughter, illustrate the social expectations of mother-in-law/daughter-in-law relations. The authority of the mother-in-law is normally boosted by the fact that, in the event of an argument with the daughter-in-law, the son/husband is expected to side with his mother rather than his wife, which he normally does.

- (7) Context: Upon learning that her husband has just arranged for their daughter's marriage to a man he knows, a mother gives her daughter the pre-marriage talk.

ʔahamm ʃi: ya:mo⁵ tismaʕi: kala:m-o w-kala:m
 most.important thing mom listen speech-his and-speech
ʔimm-o w-ma: tʔili:-lo laʔ bi-haya:t-ik ... w-bu:si: ʔi:d-o
 mother-his and-NEG say-him.D no in-life-your ... and-kiss hand-his
w-ʔi:d ʕama:t-ek ... ʔana: rah zu:r-ek ʔiza: ʔabu-ki
 and-hand mother-in-law-you ... I will visit-you if father-your

5. The use of *ya:mo* 'mom' by the mother to address her daughter is an instance of a reverse role vocative, whereby an older relative uses her or his kinship role to address a younger relative. For example, a father may address his daughter or son as 'dad,' and an aunt may address her niece or nephew as 'aunt.' See Rieschild, 1998.

samah-li: . w-ʔahamm fi: ma: btitʕlaʕi: min be:t-ek
 allow-me.D . and-most.important thing NEG get.out of house-your
ʔiza: ma: ʔaxadti: fo:r hama:t-ek w-ʔo:z-ek .
 if NEG take permission mother-in-law-your and-husband-your .
w-ʔiza: ʔal-lek laʔ, yaʕni: laʔ. la: ta:xdi: w-taʕʕi:
 and-if he-say-you.D no, this.mean no . NEG take and-give
maʕ-o bi-l-kala:m, ha:kem l-riʕza:l ya:mo ma: bihibb
 with-him in-the-speech, for the-man mom NEG like
l-hirme tridd b-wiʕz-o .
 the-woman answer in-face-his .

‘The most important thing, sweetheart, is for you to obey him and his mother and never ever disobey him. And kiss his hand and the hand of your mother-in-law. I will visit you if your father lets me. Most importantly, never leave the house without asking your mother-in-law and your husband for permission. And if they say no, then no. Do not try to argue with him, for men do not like women to talk back to them.’ Episode 13 – 00:24:30

As a daughter-in-law grows older, has children (especially sons), and takes charge of her own household, she acquires more authority. She gains knowledge and experience and the trust of her husband to run the internal affairs of the household. These qualities, in turn, qualify her as an authority over the household in terms of management and organization: dividing chores related to cooking, cleaning, and running errands among her daughters, sons, and later her own daughters-in-law. See Rassam (1980) for similar observations and a discussion of family dynamics in Morocco.

It follows from these norms and beliefs that even among siblings, brothers have authority over their sisters, but not the other way around. Boys, especially the eldest among them, are raised to replace the father in the event of the latter’s death, as the following example illustrates.

- (8) Context: A father is giving his eldest son the pre-marriage talk. In the process, he reminds him that, although he will be a married man soon, he will still be responsible for his mother and sister when he, the father, passes away.

ʔiza: ʔalla: ʔaxad ʔama:nt-o ... ʔimm-ak w-ʔixwa:t-ak
 if God took consignment-his ... mother-your and-sisters-your
bi-raʔibt-ak la-ħa:l-ak .
 in-neck-your by-self-your .

‘If I die one day (if God takes what is owed to him), you alone are responsible for your mother and sisters.’ Episode 25 – 00:10:00

In the next section, we will see how the sociocultural values and beliefs presented here inform the use of SP-ADs as authority indexicals in directives during family talk, and how the use of SP-ADs perpetuates these values and beliefs.

5. SP-ADs, family interactions, and indexicality

Based on the sociocultural sketch presented in the previous section, it is clear that the characters in *ba:b l-ħa:ra* live in a strictly patriarchal society. Within the confines of family life, this patriarchy translates into hierarchical authority that applies as follows: husband/father → wife/mother → sons → daughters; the order of authority never proceeds the other way around (unless a speaker means to challenge the system and negotiate a new identity, an attempt that does not happen during family talk in Season 1 of the show). In this section, I will show how this familial system informs the use of SP-ADs; at the same time, we will see that SP-ADs perpetuate the system by serving as authority indexicals that affirm social roles and remind all parties involved of “who’s boss” in the interaction.

The focus in the rest of this section will be on directives. During family activities, family members may perform directives in any direction; that is, a mother may perform a directive with her son, and a daughter may perform a directive with her father. However, a SP-AD is only used when the speaker performing the directive has hierarchical authority over the hearer and wishes to affirm (or even enhance) this authority.

Let’s start with parent–child interactions. It is common for parents to use SP-AD directives with their children. They may do so in a loving tone, as in (9), or in a tone that is not so loving, as in (10). In both cases, the SP-AD indexes the speaker as a form of parental authority – caring in the former case, cruel in the latter.⁶ Whether caring or cruel, however, this parental authority is coercive and potentially punitive, as is expected of hierarchical authority in general (see Section 1). For example, when the son in (10) questions his father’s order, the father gets upset and tries to beat him up; he only fails to do so because he is too drunk to keep his balance.

- (9) Context: Zahra is peeling potatoes in the kitchen. Her mother, Im Khater, walks in and, in a loving tone, gives her some instructions.

ya:mo zahra , tiʔibri:ni: ,⁷ bas txalsʕi: taʔʃi:r l-batʕa:tʕa ,
mom Zahra , sweetheart , when you.finish peeling the-potatoes ,

6. For the interaction between SP-ADs and politeness/facework, see Haddad (2018: 76–78)

7. This is a term of endearment that literally means ‘bury me,’ but has come to mean ‘sweetheart.’ It is often – though not exclusively – used by parents or older relatives addressing younger people, based on the premise that the young should always outlive the old and not the other way around. As such, it may be translated as ‘may you outlive me!’

bitxart^fi:-li: l-bandu:ra:t , w-bitʔafri:-li:
 you.dice-**me.D** the-tomatoes , and-you.peel-**me.D**

l-xya:ra:t , ʔe: ...
 the-cucumbers , OK ...

'Sweetheart Zahra, when you are done peeling the potatoes, dice [**me**] the tomatoes and peel [**me**] the cucumbers, OK?' Episode 9 – 00:33:15

- (10) Context: Idaashari comes home drunk one night and decides that his donkey is cold and needs to be covered. He calls his son Sobhi and says:
nit^ftʃ zib-li: lha:f , w-ya^ftʃi:-li: ha-l-ʔas^fi:l , yalla: .
 jump bring-**me.D** blanket , and-cover-**me.D** this-the-well-bred , go.on .
 'Go bring [**me**] a blanket and cover this well-bred [normally used for horses]. Go on now.' Episode 17 – 00:22:30

A mother may use SP-ADs with her sons as well, as Example (11) illustrates. Note that the yogurt the mother asks her son to bring home is for the whole family and not only for her; thus, *-li* 'me-D' cannot be interpreted as a beneficiary. Compare this Example to (14) below, in which the same speaker gives her husband a directive and uses a dative that references not only her, but also the rest of the family.

- (11) Context: Im Esam is assigning chores to her daughters in the house. Her son Esam is about to leave. This conversation takes place between the two right before he leaves.

Im Esam: *ʕis^fa:m , la: tinsa:-li: l-labana:t .*
 Esam , NEG forget-**me.D** the-yogurt .
 'Esam, don't forget [**me**] the yogurt.'

Esam: *ha:d^fer , ya:mo .*
 at.your.service , mother .
 'Okay, mother.'

Episode 24 – 00:21:50

Throughout the show, daughters and sons are normally on the receiving end of directives and rarely give their parents directives. When they do, the directives often take the form of complaints, and never employ SP-ADs; thus, children never index themselves as a hierarchical authority in relation to their mother or father.

One example from Season 1 comes close to breaking this rule: Example (12). In this conversation with his mother about his father, the speaker, Khater, uses a SP-AD to index himself as a knowledge authority who knows better than his father does. He tries to negotiate this identity in order to get his mother to agree that he is right and that his father/her husband is wrong about treating a new employee, Riyad, more favorably than everybody else. The mother immediately dismisses the knowledge authority indexed by the SP-AD, and informs her son that he should follow his father's instructions because the father knows better what is good for business.

- (12) Context: Khater works for his father, Abu Khater, as a coppersmith. Abu Khater recently hired a new employee, Riyad, who is very good at what he does and has become Abu Khater's favorite. This has made Khater jealous and upset. One day, he comes home around lunchtime to bring some groceries and take lunch to his father. The following conversation takes place:

Khater: *ʔab-i: ... ʒa:yib-li: wa:hed ʕa-l-fiyl*
 father-my ... brought-me.D one to-the-work
w-ʕa:ml-o mʕallem ʕale:-na: w-huwwe ...
 and-made-him boss on-us and-he ...
mitl-o mitil-na: ...
 like-him like-us ...
 'My father hired [me] a new employee and he made him our
 [my and my coworkers'] boss although he is no better than us.'

Im Khater: *... ʔabu:-k ʔadra: bi-masʕlaht l-fiyl ...*
 ... father-your know.better about-need the-work ...
ʃu: ma: sa:wa ... ʔinta ʕle:k ta:xod bi-raʔy-o
 what.ever he.does ... you must take with-opinion-his
w-tnaffez lli: biʔu:l-o ... ʔabu:-k biddo
 and-implement what he.say-it ... father-your want
yizi: yityadda: bi-l-be:t ... ?
 come have.lunch at-the-house ... ?

'Your father knows better what is good for business. Whatever he does, your job is to take him seriously and do what he says. Is your father coming home for lunch?'

Khater: *la: ya:mo , l-fiyl la-fo:ʔ ra:s-na: .*
 no mother , the-work till-above head-our .
hitʕi:-lo l-ʔakel .
 pack-him.D the-food .

'No, mother, we are swamped with work. Pack lunch for him.'

Episode 6 – 00:31:00

Note that in the final part of this exchange, the son gives his mother a directive to pack lunch for his father. In doing so, he does not use any mitigating words, such as *min fadʕlik* 'please', to overtly mark the directive as a request. This does not necessarily make the directive impolite or inappropriate if the purpose is transactional or task-oriented, as is the case here; see Spencer-Oatey (2005, p. 107). Note, however, that the dative the son uses in this utterance references the father as a beneficiary; he does not use a SP-AD, which would index him as a form of hierarchical authority. If he did, his mother would put him in his place just as she does when he uses a SP-AD as a knowledge authority indexical.

Now we turn to SP-ADs used in directives between spouses. In a context like *ba:b l-ħa:ra*, where men are considered categorically socioculturally superior to women,

SP-ADs are far more likely to be used by men speaking to women than the other way around. The exchange between Abu Esam and Im Esam in (13) illustrates this power relation between husband and wife. In this example, the SP-AD indexes Abu Esam as a hierarchical authority in the household, and as the individual in the relationship who has the final say. The authority that Abu Esam assumes through his use of the SP-AD reflects the shared belief in the community that a husband must control his wife and that a wife must obey her husband, a belief that both women and men in the show explicitly state as a social fact on various occasions, as we saw in Section 4.

- (13) Context: After a disagreement, Im Esam kicked her son's soon-to-be mother-in-law, Firyal, out of the house. Firyal is also the niece of Abu Saleh, the neighborhood mayor, whom Abu Esam holds in high esteem. When Abu Esam learns of his wife's treatment of Firyal, he gets upset. He grabs Im Esam by the arm and demands that she go to Firyal's house and apologize to her.

Abu Esam: *bitru:hi: la-ʕind l-maxlu:ʔa bi-ra:s-ek , bitdiʔʔi:*
you.go to-place the-person with-head-your , you.knock
ba-b-a: , w-btiʕtizri: minn-a: , w-bitsakri:-li:
door-her , and-you.apologize to-her , and-you.end-me.D
ha-l-ʔisʕsʕa: kill-a: !
this-the-story all-it !

'You go to Firyal's house, you knock on her door, you apologize to her, and you end [me] this issue completely.'

Im Esam: *ʔana: ʔiʕtizir min-ha: ? la: , la-ʕad ho:n w-bas !*
I apologize to-her ? no , enough is enough !
'You want me to apologize to her? No way! Enough is enough.'

Abu Esam: *la-ʕad ho:n w-bas ? fu: ha:y la-ʕad ho:n w-bas ?*
enough is enough ? what this enough is enough ?
'Enough is enough? Are you out of your mind?'

Im Esam: *msʕa:laʔa ma: raʕ sa:leʕ-a: , w-ha:da:*
making.up NEG will make.up.with-her , and-this
l-mawdʕu:ʕ ʔinta la: titdaxxal fi-i , laʔann-ak
the-topic you NEG interfere with-it , because-you
ma: btaʕrif fu: fi: be:n-i: w-be:n Firya:l ...
NEG know there is between-me and-between Firyal ...
ʔinte la: tiʕfer ha:l-ak be:n l-niswa:n , w-
You NEG insert self-your between the-women , and-
titdaxxal bi-ʔisʕasʕ-un ...
interfere with-stories-their ...

'I will never make up with Firyal. This topic is none of your business and you have no idea what is going on between Firyal and me. Don't get in women's business and concern yourself with their issues.'

Episode 33 – 00:42:30

As I mentioned earlier, hierarchical authority is potentially punitive. Following the exchange in (13) where Im Esam defies Abu Esam, he exercises that punitive power by pronouncing her divorced.⁸

The interesting part about (13) is that Im Esam actually uses very strong language with her husband; she even yells at him at times. She could easily have used a SP-AD with either *titdaxxal* ‘interfere’ or *tihfer* ‘insert’ (highlighted in grey in (13)), but she doesn’t. In fact, I was not able to find a single scene in any of the thirty-three episodes of Season 1 in which a woman uses a SP-AD directive to establish hierarchical authority when speaking with her husband. On the rare occasions that a woman uses a dative to address her husband, the dative takes a beneficiary form. For example, in (14), Im Esam uses a plural dative to refer to all the family members, herself included, as beneficiaries. Compare this to the SP-AD that she uses with her son in (11) above, when she asks him not to forget to buy yogurt.

- (14) Context: Abu Esam is about to leave the house to go to his store. His wife, Im Esam, adjusts his scarf around his shoulders and in a loving tone asks him to have some sweets sent home for dessert.
bʕat-ilna fwayyet ʔatʕa:yef ʕasʕa:fi:ri la-l-tihla:ye , tiʔbirni: .
 send-us.D a.little sweet.pies bird.like for-the-dessert , sweetheart .
 ‘Sweetheart, send us some small sweet pies for dessert.’

An interesting case in the show is the marital relationship between Fawziyye and her husband Abu Badr. The two are the comic relief in an otherwise very dramatic soap opera. The comedy stems from the fact that Fawziyye is the boss in the relationship. She orders Abu Badr around; she has him do household chores, which is unusual for men in the context of the show; she also restricts his freedom, imposing a curfew on him and requiring him to ask for permission before he leaves the house. Despite this inverted power dynamic, however, Fawziyye never inserts a SP-AD in any directive she gives to her husband. Given how much power she has over him, and how explicit her use of that power is, it is perhaps surprising that she never uses a SP-AD as a hierarchical authority indexical. Close examination, however, shows that Fawziyye’s imposition of power over Abu Badr does not occur because she wishes to negotiate a new identity for herself as a woman with hierarchical authority over her husband, but out of necessity because, in her words, he is not “man enough to take charge.” It is clear that she would prefer to embrace the socioculturally expected role of women as subordinate and obedient; indeed, on a number of occasions, she explicitly wishes her husband would be “a real man”:

8. In Islam, a husband may unilaterally divorce his wife by pronouncing her divorced.

- (15) Context: Talking about her husband to a neighbor, Fawziyye says:
ya: re:to ji: marra: yid^frib-ni: ... bas his ?inno mitzawze
 I.wish.he some time hit-me ... only I.feel that married
ri33a:l ?an ha? w-ha?i:?!
 man for.real !

‘I wish he would hit me at least once just so that I would feel that I am married to a man for real!’

Episode 3 – 00:45:00

On the very few occasions when Abu Badr actually lives up to her expectations and acts like “a real man,” Fawziyye celebrates his behavior and feels better about herself:

- (16) Context: Abu Badr yells at Fawziyye. When he leaves the room, she smiles with excitement, and reacts as follows:

ma: ?am-s^faddi? ! s^farrax bi-wi33-i: !
 NEG PROG-I.believe ! he.yelled in-face-my !

‘I can’t believe it! He actually yelled at me!’

Episode 14 – 00:08:30

The same observations we have made about interactions between spouses apply to interactions between siblings as well. Brothers may use SP-ADs in directives to their sisters, as (17) demonstrates, but sisters never use SP-ADs with their brothers. When a sister uses a dative with her brother, the dative normally refers to all the members of the family as beneficiaries, as (18) illustrates.

- (17) Context: Zahra asks her brother Khater about a young man called Riyad, who was mentioned by their father over dinner. Khater does not like Riyad, and he does not want his sister to mention his name again. So he says:

smafi: wle: , ma: bit3i:bi:-li: ?ism-o ?a-lsa:n-ik
 listen you.girl , NEG bring-me.DAT name-his on-tongue-your
bno:b ha: !
 never huh !

‘Listen, girl, don’t you ever mention [me] his name on your tongue again.’

Episode 19 – 00:34:00

- (18) Context: A bad smell comes from part of the courtyard used as storage. Shafiq, a young woman, thinks it could be a dead animal. When her brother Sobhi comes home, she asks him to check it out. She says:
fu:t ?a-l-xara:be jif-ilna: fu: ha-l-ri:ha lli: t^fa:l?a minn-a: .
 enter to-the-yard see-us.D what this-the-smell that rise from-it .
 ‘Go into the courtyard and find out for us what that smell is that’s coming from it.’

The use of a SP-AD by a woman addressing her husband or her brother – or any man other than her son – would index her as a legitimized authority figure in

relation to him. Within the sociocultural context of *ba:b l-ḥa:ra*, such indexing would be inappropriate; a woman is expected to obey her husband, and the only man she may exercise authority over is her son. Any deviation from this norm (e.g., the relationship between Fawziyye and Abu Badr) is frowned upon as an anomaly. As Ochs (1996, p. 418) maintains, “the indexical potential of a form derives from a history of usage and cultural expectations surrounding that form.”

Of course, women may use SP-ADs when addressing men in order to negotiate a new identity for themselves. This does not happen in *ba:b l-ḥa:ra*; the women in the show embrace the cultural expectations of their community and abide by the tacit rules of the use of SP-ADs. However, if we fast-forward to late twentieth-century and early twenty-first-century contexts in Syria and the rest of the Levant, we see that gender relations have been redefined – or at least, are in the process of being redefined. Accordingly, we find scenarios in which a woman assumes an authority role in relation to the men around her, including her husband and brother; see Haddad (2018) for a detailed account.

6. Conclusion

This chapter has presented a sociopragmatic analysis of SP-ADs, focusing on the specific social conditions on their use in order to understand their functions as indexicals of hierarchical authority. Why is this sort of investigation of indexicals – that is, elements that “are associated in one’s mind with particular contexts” (Culpeper, 2011, p. 129) – important?

When we learn a language, we learn not only the structure and mental representation of linguistic forms, but also the rules that inform who may use those forms, with whom, where, when, and for what purpose. All these restrictions are mandated within the sociocultural context. As Mey (2016) maintains, “language is more than sounds and grammar rules: It is primarily a way of dealing with the world” (19–20); see also Ochs (1996). This observation is particularly relevant to pragmatic markers like the SP-ADs under investigation because these markers are entirely use-conditional (rather than factual or truth-conditional). Their use-conditionality makes them highly context-dependent; examining the social conditions on their use is thus especially important. After all, our understanding of these pragmatic markers “depends crucially on the worlds in which their speakers live” (Mey, 2001, p. 29), on the “situational, i.e., indexical meanings” that speakers assign to them, and on the associations they build between these factors “and particular identities, relationships, actions, stances, and the like” (Ochs, 1996, p. 410).

Studying SP-ADs and other pragmatic markers is especially useful in the context of teaching an Arabic dialect as a foreign language. In recent years, universities

in the United States and other countries have been incorporating Arabic dialects into their foreign language curricula. Helping students understand and use these datives may be challenging. Native speakers have a tacit understanding of these datives and intuitively know how, where, when, and with whom to use them; however, because this knowledge is tacit, they may have difficulty articulating the indexical meaning of these pragmatic markers and may thus struggle to teach them or explain them effectively.

The issue of learnability and foreign language pedagogy in relation to pragmatic markers is often compounded by the fact that these markers have no simple equivalent in the students' native language (e.g., English). This is especially true of attitude datives, which may explain why they are categorically ignored in Arabic-English translations of novels and movies. To illustrate this omission, observe the Example in (19). Here, a speaker from a Lebanese movie uses three SP-ADs when addressing her daughter. The English subtitles of the movie, however, contain no sign of the datives or their effect.

- (19) Context: In a village inhabited by Christian and Muslim families, a Christian young man, the youngest of two brothers and a sister, is killed while running an errand outside the village. His mother decides to keep his death a secret for a while because she believes his elder brother may assume that Muslims were responsible for his death and go after the Muslims in the village. She says to her daughter:

rita, ma baʔaf baddi: fu:f-ik ʕam-btibki: . yasli:-li: wi33-ik ,
 Rita, no longer I.want see-you PROG-cry . wash-me.D face-you ,

tʕlaʕi: hitʕi:-li: fi ʕa-ʕinay-ki . w-yayri:-li:
 you.go.up put-me.D something on-eyes-your . and-change-me.D

tye:b-ik , lbisi: mlawwan
 clothes-your , wear colorful (clothes)

'Rita, I don't want to see you crying anymore. Go upstairs, wash [me] your face, put [me] some makeup on your eyes, change [me] your black clothes and wear colorful clothes.'

From *hallaʔ la-we:n* 'where do we go now' – 01:06:00 – LEB

A systematic analysis of the indexical meaning of these datives and other pragmatic markers is the first step in making the task of Arabic dialect instructors and learners easier.

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Generic expressions in Tunisian Arabic

Beyond the definite article *al-*

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Previous analyses of generic expressions in Arabic have focused on definite singular and plural DPs headed with the definite article *al-* (Fehri, 2004; Al-Malki et al., 2014). This study introduces an additional type of generic reference expressed with the Tunisian Arabic (TA) demonstrative *hāk*. Based on an analysis of naturally occurring discourse, this study shows that the felicity of this generic demonstrative is subject to a number of constraints. First, the generic demonstrative *hāk* always occurs with a plural count or singular non-count noun and a restrictive modifier in order to denote a familiar (i.e., in memory) kind set. Second, the evoked kind set must be a relatively subordinate and atypical (i.e., less central) kind set in accordance with Rosch (1978) and Lakoff's (1987) principles of categorization.

Keywords: generic demonstratives, pragmatics, Arabic, cognitive linguistics, categorization, prototype theory, discourse

1. Introduction

Previous analyses of generic expressions in Arabic have focused on definite singular and plural DPs headed with the definite article *al-* (Fehri, 2004; Al-Malki et al., 2014). The current study introduces an additional type of generic reference expressed with the TA demonstrative *hāk*, which I hereafter term the 'generic demonstrative.' Its usage can be seen in the contrast between (1) where the speaker is asking the hearer about whether his (the hearer's) friend has found a wife, and (2) where a woman is complaining about the kind of women who always stalk other women's partners on Facebook.

- (1) *sāhb-ik hāk illi j-hib ʔla mrā, māzāl j-lawwiʔ?*
friend-POS that REL 1M-want on woman still 1M-look
'Your friend, that one who wants a wife, is he still looking?'

- (2) *θamma hāk l-nawṣ mtāṣ l-ṯaṣṣāb t-tufaḷlīja illi dīma*
 there that the-kind POS the-weed REL always
mādd-in wṣūh-hum fi l-profil mtāṣ sāhb-ik
 extend-PROG faces-POS in the-profile POS boyfriend-POS
xatīb-ik rāzl-ik
 fiancé-POS husband-POS

‘There is that kind of intruder who is always stalking your boyfriend, fiancé, [or] husband on his Facebook.’

In (1), the referent of *hāk* is interpreted existentially. That is, the assertion made in this example is true only if there already exists a specific friend in the mind of the addressee. In contrast, in (2), the speaker uses the demonstrative *hāk* generically not to introduce specific girls but to denote a class of girls, specifically the ones who always stalk other women’s boyfriends, fiancés, or husbands on Facebook.

Based on a corpus analysis of naturally occurring discourse, the goal of this study is to show that this kind of generic usage is subject to a number of general and cognitive constraints. In doing so, this study contributes to research arguing for the existence of a class of generic demonstratives (Maclaran, 1980; Bowdle and Ward, 1995). First, results show that the generic demonstrative always occurs with an overt or covert phrase consisting of *l-nawṣ mtāṣ* ‘the kind of’ NP, followed by a restrictive modifier in order to denote a familiar kind set. Second, results indicate that the generic demonstrative *hāk* requires that the kind set it evokes be relatively subordinate and atypical (i.e., less central) in the sense of Rosch’s (1978) and Lakoff’s (1987) principles of categorization. Further, the current study has revealed that while most of the generics expressed with *hāk* are evaluative, evaluativity is not a restriction but a consequence of the atypicality requirement.

Section 2 provides an overview of generic expressions in Arabic. Section 3 discusses previous work on generic demonstratives. Section 4 discusses the current study. In this section, I first give morphosyntactic and cognitive status features of the demonstrative *hāk*; then I describe the data and methodology used to conduct this study. Finally, I discuss the general and cognitive restrictions on the generic demonstrative usage. A conclusion is given in Section 5.

2. Generic expressions in Arabic

An overview

Previous work on generic expressions in Arabic has focused primarily on two main structures: the definite singular DP and the definite plural DP, both of which are introduced with the definite article *al-* (e.g., Fehri, 2004; Al-Malki et al., 2014).

Unlike other languages, such as English, Arabic does not allow bare indefinite nouns with generic expressions. Fehri (2004) points out that the interpretation of Arabic nominal arguments as generic or existential depends first on whether they overtly include the definite determiner *al-* ‘the’ or whether they lack such an overt expression of definiteness. This can be seen by comparing the Examples in (3) and (4). Both examples are from Standard Arabic.

- (3) a. *al-kalbu ja-nbaħu*
the-dog 3M-barks
‘The dog barks.’
b. *al-kilābu ta-nbaħu*
the-dogs 3F-bark
‘Dogs bark.’ (Fehri, 2004, p. 44)
- (4) a. *#kalbun ja-nbaħu*
dog 3M-bark
‘A dog is barking.’
b. *#kilābun ta-nbaħu*
dogs 3F-bark
‘Dogs are barking.’ (Fehri, 2004, p. 44)

In (3), the definite singular and plural DPs may receive a generic interpretation (in addition to an existential one), while in (4) the bare singular and plural nouns receive only an existential interpretation. Further, Fehri points out that the definiteness restriction equally applies to mass nouns as shown in (5).

- (5) a. *ʃtaraj-tu z-zajta*
buy-PST.1SG the-oil
‘I bought (the) oil.’
b. *ʃtaraj-tu zajtan*
buy-PST.1SG oil
‘I bought some oil.’ (Fehri, 2004, p. 45)

The definite DP *z-zajta* (the oil) receives a generic interpretation, while the indefinite bare noun *zajtan* (some oil) receives only an existential reading. Further, Al-Malki et al. (2014) observe that Arabic does not make an overt distinction between established and non-established kind sets. Established categories are familiar categories which are established in the long term memory of the hearer, while non-established categories are ad hoc categories that are temporarily constructed by speakers for particular goals (see Barsalou, 1983 for further discussion on ad hoc vs. established categories). In this sense, Arabic general generics do not require the kind set to be familiar in the mind of the addressee, as shown in the Example in (6).

- (6) a. *al-dubbu al-bunni-ju xatīrun*
 the-bear the-brown dangerous
 ‘The brown bear is dangerous.’
 b. *al-dubbu al-yāḏibu xatīrun*
 the-bear the- angry dangerous
 ‘The angry bear is dangerous.’ (Al-Malki et al., 2014, p. 20)

The phrase ‘the brown bear’ in (6) refers to a distinct species of bear that is well established in the long-term memory of the hearer. In contrast, the DP ‘angry bear’ denotes an ad hoc kind set, because it denotes any bear that happens to be angry.

3. Previous work on generic demonstratives

Although most analyses on generic expressions have focused on the use of indefinite and definite articles, a few studies (Maclaran, 1980; Bowdle and Ward, 1995) have demonstrated that genericity can also be expressed with demonstratives. Bowdle and Ward (1995) investigated the use of English demonstratives in generic contexts. They explain that they “are closely aligned with definite generics in that they refer to kinds rather than representative instances” (p. 41). For example, in (7) the speaker uses a demonstrative DP to refer to the kind ‘Labradors.’

- (7) A: *My roommate just bought a Labrador.*
 B: *Those Labradors make great pets.*
 (Bowdle & Ward, 1995, p. 32)

Bowdle and Ward note that both singular and plural demonstrative DPs can be used generically as shown in (8) and (9), respectively.

- (8) A: *My roommate owns an IBM ThinkPad.*
 B: *Those IBM ThinkPads are quite popular.*
 (9) A: *My roommate owns an IBM ThinkPad.*
 B: *That IBM ThinkPad is quite popular.*
 (Bowdle & Ward, 1995, p. 33)

Their analysis also reveals that while examples like the ones in (7), (8), and (9) use the distal demonstrative, the proximal demonstrative is also possible, as shown in (10).

- (10) a. *[in front of a computer] These IBM ThinkPads are amazing!*
 b. *[in front of a computer] This IBM ThinkPad is amazing!*
 (Bowdle & Ward, 1995, p. 33)

Bowdle and Ward (1995) explain that “the choice between distal and proximal forms depends primarily on the location of the demonstratum” (p. 33). For

example, in (9) the demonstratum is distant from the speaker, while in (10) it is not. Thus, according to Bowdle and Ward's study, the proximal-distal distinction does not pose a constraint on the generic demonstrative use. However, the examples discussed in their study indicate that the choice between the distal and the proximal demonstratives is not determined by the location of the demonstratum. While in all the examples that include a proximal demonstrative, the demonstratum is in the same location as the speaker and the hearer, it is not the case with the examples that include the distal demonstrative.¹ For example, while in (10) the demonstratum is in the same location as the speaker and the hearer, in (8) and (9) it is not.

Bowdle and Ward also show that such generic demonstratives are further subject to a number of constraints not shared with other types of generics expressed with the indefinite and definite articles. First, the predicate of the generic DP is typically evaluative. That is, it reflects the speaker's emotional involvement in the subject matter, as shown in (11), where the generic demonstrative is felicitous with the evaluative predicate in B_1 and infelicitous with the non-evaluative predicate in B_2 . They also note that this evaluativity restriction does not apply to other types of generics, as illustrated by the felicity of the example in B_3 where the bare plural generic occurs with the non-evaluative predicate.

- (11) A: *My cousin just returned from Canada with an adorable Labrador retriever puppy.*
 B_1 : *Those Labradors are extremely loyal, you know.*
 B_2 : *#Those Labradors were first bred in Newfoundland, you know.*
 B_3 : *Labradors were first bred in Newfoundland, you know.*
 (Bowdle & Ward, 1995, p. 32)

Bowdle and Ward also note that generic demonstrative DPs are further constrained in that they must denote a kind set that is assumed to be already familiar to the hearer. That is, the speaker would plausibly assume that the evoked set is a pre-existing category to the hearer. The use of non-familiar categories with generic demonstratives results in infelicity, as shown in (12).

- (12) a. A: *My brother just bought a small car.*
 B: *Those small cars are so garish.*
 b. A: *My brother just bought a red car.*
 B: *#Those red cars are so garish.* (Bowdle & Ward, 1995, p. 34)

1. It is also worth noting that the use of relative spatial distance to explain the proximal vs. distal demonstrative distinction has been recently challenged by works which gave alternative explanations for the use of demonstratives that focus on other cognitive and pragmatic meanings (e.g., OH, 2001; Khalfaoui, 2007; and Zaki, 2007)

Bowdle and Ward (1995) explain that the difference between the choice of ‘small cars’ and ‘red cars’ as generics can be attributed to “the ease with which the former, but not the latter, can be construed as a ‘hearer-old’ (Prince, 1992) category.” Therefore, the category ‘small cars’ would be processed by the hearer as a coherent concept, while the category ‘red cars’ is less coherent and relatively ad hoc and, therefore, cannot plausibly be assumed to be a pre-existing category (p. 34).

In addition to these general constraints, Bowdle and Ward indicate that generic demonstratives are further constrained by category variability (Rosch, 1978). That is, they mostly denote subordinate level sets (e.g., ‘Labrador’ vs. ‘dog’ and ‘sports car’ vs. ‘car’). While ‘dogs’ and ‘cars’ are base level sets, ‘Labradors’ and ‘sports cars’ are subordinate level kind sets with fewer internal contrasts, as shown in (13) and (14).

- (13) a. A: *My roommate just bought a dog.*
 B: *#Those dogs make great pets.*
- b. A: *I’m thinking about buying a new car.*
 B: *#Those cars can be expensive.* (Bowdle & Ward, 1995, p. 34)
- (14) a. A: *My roommate just bought a Labrador.*
 B: *Those Labradors make great pets.*
- b. A: *I’m thinking about buying a new sports car.*
 B: *Those sports cars can be expensive.* (Bowdle & Ward, 1995, p. 35)

Bowdle and Ward (1995) note that the difference in felicity between the Examples given in (13) and the Examples given in (14) lies in the fact that “the kinds being referenced here (‘Labradors’ and ‘sports cars’) are more specific instantiations of the kinds ... (‘dogs’ and ‘cars’)” (p. 35). Further, they note that the same restriction applies to generic mass nouns as illustrated in the Examples in (15) and (16) where the base level generic DP ‘that ice cream’ is odd, while the subordinate level DP ‘that Ben & Jerry ice cream’ is acceptable.

- (15) A: *I’ll be serving ice cream at the party.*
 B: *#That ice cream is a real crowd pleaser.* (Bowdle & Ward, 1995, p. 38)
- (16) A: *I’ll be serving Ben & Jerry’s ice cream at the party.*
 B: *That Ben & Jerry’s ice cream is a real crowd pleaser.* (Bowdle & Ward, 1995, p. 38)

In addition, Bowdle and Ward (1995) show that singular generic demonstratives with count nouns are also sensitive to category variability of the evoked kind set, but they are more constrained than plural generics. They note that while felicitous use of plural demonstrative generics requires that the kind in question be relatively homogenous, “singular demonstrative generics involving count nouns require that

the individual exemplars set are conceptually identical or functionally indistinguishable” (p.38). This difference is illustrated by contrasting the Examples given in (17) and (18).

- (17) A: *My roommate owns a laptop computer.*
 B₁: *Those laptop computers are pretty versatile.*
 B₂: *#That laptop computer is pretty versatile.*
 (Bowdle & Ward, 1995, p. 38)
- (18) A: *My roommate owns an IBM ThinkPad.*
 B₁: *Those IBM ThinkPads are pretty versatile.*
 B₂: *#That IBM ThinkPad is pretty versatile.*
 (Bowdle & Ward, 1995, p. 38)

Members of the kind set ‘IBM Thinkpads’ have less variability than members of the kind set ‘Laptop computers.’ Bowdle and Ward indicate that this further restriction explains why singular generic demonstratives are odd when the evoked set is a natural kind, even if the kind set evoked is homogenous. In contrast, the singular generic demonstratives will be felicitous for “the exemplars of the lowest level categories in artifact taxonomies (e.g., ‘IBM ThinkPad,’ ‘Honda Civic’) which tend to be functionally indistinguishable by design” (1995, p. 37).

Similarly, Maclaran (1980) introduces a demonstrative generic use similar to the one discussed in this study. She indicates that the demonstrative ‘that,’ which she terms ‘restrictive that,’ can refer to a generic unique set. She argues that the evoked set must be a non-anaphoric and non-deictic defined set (p. 816).² That is, the referent of the restrictive modifier cannot have been recently mentioned in the discourse, nor be a part of the physical context. In addition, Maclaran explains that like generic descriptions, this use of the demonstrative description with *that* does not carry an existential entailment”, since “the description denotes possible individuals, not actual ones” (1980, p. 817). Further, Maclaran notes that in this generic usage, the demonstrative occurs with an obligatory restrictive modifier. She observes that “the relative clause or other modifier is vital to the establishment of reference” (1980, p. 815) as shown in (19).

- (19) a. *Only attempt those questions for which you think you know the answers.*
 b. *#Only attempt those questions.* (Maclaran, 1980, p. 815)

2. Another type of demonstrative that must be non-anaphoric and non-deictic is the ‘referential demonstrative’ (also referred to in the literature as the presentational demonstrative). However, this usage, unlike the generic one, has an existential entailment. That is, it is appropriate only if the speaker refers to a particular entity, such as in ‘I was walking and saw this dog’ (see Maclaran, 1980; Prince, 1992; and Gundel et al., 1993 for further discussion on referential demonstratives).

Maclaran (1980) explains that, in (19), the demonstrative ‘those’ picks out a defined set (i.e., the questions for which you know the answers, and not a specific entity), while, in (19), the referent “can only be understood if it is anaphoric or clarified by the physical context” (p. 815). She also notes that this usage is restricted to the demonstrative ‘that’ and that the demonstrative ‘this’ cannot be used in the non-anaphoric, non-direct-deictic sense” (p. 815), as illustrated by the Example given in (20).

- (20) *Those/#these British subjects who are residents outside of the United Kingdom are exempt from British taxes.* (Maclaran, 1980, p. 816)

Further, Maclaran (1980) notes that the referent of a restrictive demonstrative must be non-specific. That is, the speaker is not referring to a particular referent in mind. For example, in (21) she explains that the speaker “can only refer to such income” (p. 816) and not to a specific income.

- (21) *Only that income in excess of \$5000 earned outside the country will be taxable.* (Maclaran, 1980, p. 816)

Although Maclaran did not discuss the number restriction on the generic restrictive demonstrative, it seems from her examples that this usage allows both plural and singular demonstratives, as shown in (19) and (21), respectively. Her work is important for understanding generic demonstratives and is especially significant to this study, as it similarly focuses on generic demonstratives occurring with a restrictive modifier. However, her work did not address the cognitive characteristics that distinguish the kind set evoked by the generic demonstrative. In the next section, I discuss generics introduced with the TA demonstrative *hāk*.

4. The current study

Generics expressed with the demonstrative *hāk*

The goal of this section is to investigate the demonstrative *hāk* in generic contexts and examine it in light of the general and cognitive constraints discussed in Sections 2 and 3. I first give a short overview of the morphosyntactic and cognitive status features of the demonstrative *hāk*, then I describe the data and methodology used in this study. After that, I discuss results of the study in terms of the general and cognitive restrictions that characterize this usage.

The demonstrative *hāk*

Morphosyntactic and cognitive status features

Tunisian Arabic has four demonstratives: two invariant prenominal demonstratives, *ha* and *hāk*, which are not marked for number or gender, and which occur as determiners only; and two postnominal demonstratives, *haḍa* and *haḍaka*, which are marked for number and gender, and which can occur as determiners and as pronouns.³ It is beyond the scope of this paper to discuss the morphosyntactic features of these demonstratives in detail, so in the remainder of this section, I will focus only on the demonstrative *hāk*.

Table 1. Morphosyntactic features of the demonstrative *hāk*

Singular feminine	Singular masculine	Plural feminine	Plural masculine
<i>hāk l-bnāja</i>	<i>hāk l-wlīd*</i>	<i>hāk l-bnāt</i>	<i>hāk l-wlād</i>
this the-girl	this the-boy	this the-girls	this the-boys
‘this girl’	‘this boy’	‘these girls’	‘these boys’

*Another variant of *wlīd* is *wlād*.

As shown in Table 1, the demonstrative determiner *hāk* does not carry number or gender features. It remains invariant before the singular feminine NP *l-bnāja* (the girl) and the singular masculine NP *l-wlīd* (the-boy). It also remains invariant before the plural feminine NP *l-bnāt* (the girls), and the plural masculine *l-wlād* (the boys). In addition, the demonstrative *hāk* occurs only as a determiner, as illustrated in (22).

- (22) a. *l-bāriḥ* *fuf-t* *hāk l-masrahijja*
 the-yesterday see-PST.1SG that the-play
 ‘Yesterday, I watched that play.’
- b. **l-bāriḥ* *fuf-t* *hāk*
 the-yesterday see-PST.1SG that
 ‘Yesterday, I saw that.’

As shown in the example, while the use of the demonstrative *hāk* as a determiner in (22a) is grammatical, its use as a demonstrative pronoun in (22b) is ungrammatical. As will be discussed later in this section, the noun that follows the

3. In addition, Tunisian Arabic can combine the prenominal and postnominal demonstratives to form double demonstratives. See Khalfaoui (2007) for a thorough morphosyntactic description of TA demonstratives.

demonstrative can be dropped when its meaning is evoked earlier in the utterance, and can therefore be easily recovered by the hearer. In addition, in previous accounts (Khalifaoui, 2007; Gundel et al., 2010) the demonstrative *hāk* has been determined within the Givenness Hierarchy theory (Gundel et al., 1993) to require the status Familiar.⁴ That is, the choice of this demonstrative is appropriate only when the speaker assumes that the hearer has a representation of the particular referent in memory from previous knowledge or previous mention in the discourse. The demonstrative *hāk*, therefore, cannot be used to refer to entities that are only uniquely identifiable (i.e., the speaker can form representation of the referent based on the descriptive content given in the utterance), as shown by the contrast between (23) and (24).

- (23) [The speaker assumes that the hearer has previous knowledge of the movie]
ma ʕʕib-nī-f hāk l-film
 NEG please.PST.3MSG-me-NEG that the-movie
 'I didn't like that movie.'
- (24) [The speaker assumes that the hearer does not know the movie under discussion]
ma ʕʕib-nī-f #hāk l-film illi qāʕid ja-lʕib
 NEG please.PST.3MSG-me-NEG that the-movie REL PROG 3MSG-play
tawwa fi l-sīnima
 now in the-cinema
 'I don't like that movie that is playing now in the theatre.'

The choice of the demonstrative *hāk* in (23) is appropriate because the movie can be assumed by the speaker to be familiar in the mind of the addressee. In (24), on the other hand, the speaker does not have a representation of the movie in memory, and the choice of the demonstrative *hāk* would therefore be inappropriate.

Methodology

For the purpose of this study, I collected a corpus with a total of 44,850 words. Two criteria were used in the data selection: First, all the data used for this study are from spoken or written Tunisian Arabic. Second, conscious effort was made to include a variety of genres and topics in order to avoid the influence of one genre. The corpus comes from two sources: the Tunisian Arabic Corpus (McNeil & Faiza, 2012) and freely available internet blogs. From the former, I collected ten blogs covering topics ranging from politics to economy and social issues; five folk tales

4. The Givenness Hierarchy (Gundel et al., 1993) is an implicational scale of six cognitive statuses relevant for explicating the use of referring expressions in natural language discourse.

written down from memory; and two radio broadcasts, one about politics and the other an interview with a book publisher. The rest of the texts come from eleven freely available internet blogs and microblogs, which cover a range of political, social, and personal topics. All the texts collected for the purpose of this study are used in their entirety. All texts are informal, unplanned, or require minimal planning. They are characterized by typos, repetitions, and minimal internal organization.

I identified all the occurrences of the demonstrative *hāk* and focused only on the ones that occur in generic contexts. That is, I focused on contexts in which the referent of the demonstrative *hāk* is a kind set rather than specific individuals. The difference can be seen by contrasting (25) and (26). In (25) the speaker writes a microblog asking the readers to imagine what would happen if the diplomats who traveled to Syria and met with Bashar al-Assad ruled the country, whereas in (26) the speaker, a young man attending a wedding party, recounts how a woman had asked him to take pictures of her and her daughter. After taking few pictures, the woman was embarrassed and asked him to stop, assuming that he was using a traditional camera, and that the pictures would therefore be more costly to develop.

- (25) t-sawwir *hāk* l-3māʕa illi *mṣā-t* l-baṣṣār t-3ī-hum
 2-imagine that the-group REL go-PST.3FSG to-bashar 3F-come-them
fursa w ju-ḥkmu fī-na wallah ma ju-frmu
 opportunity and 3M-rule in-us with.god FUT 3M-grind

star f-jaʕb
 half the-people

‘Imagine if that group [of diplomats] who went to Bashar would find an opportunity to rule us. I swear they would grind us down.’

- (26) *fhim-t* ʔinnu māfi fī bāl-ha ann-ha musawwra
 understand-PST.1SG EMPH be.PROG in mind-POS EMPH-it camera
ʕādijja hāk illi ji-xdmu b-l-pelikyl
 ordinary that REL 3M-work with-the-film

‘I realized that she thought it was an ordinary camera; that kind that works with film.’

In (25), the speaker is talking about a specific group of individuals, while in (26) the speaker uses the demonstrative to refer not to specific cameras, but to denote the kind of camera which works with film.

A total of 28 generic examples were identified in the data. Each example was analyzed in terms of (i) general constraints where each demonstrative phrase is analyzed in terms of its linguistic structure, number, evaluativity, and cognitive

status; and (ii) category variability where each example is examined in terms of level of categorization and prototypicality.

General constraints

Results of the data analysis show that all the generics expressed with the demonstrative *hāk* include a restrictive modifier introduced with the relative pronoun *illi* (that, which, whose, who), indicating that the restrictive modifier is crucial to the establishment of the generic reference. As illustrated in the Example in (27), deleting the restrictive modifier results in infelicity. In this example, the speaker indicates that one of her wishes for the year 2013 is that the category of rural people who take pictures of themselves wearing sunglasses inside public internet cafes or sunglasses inside a closed room would completely disappear. As shown in the example, these people are referred to within the culture with the derogatory term *wʒūh il-lūh* (literally: wooden faced individuals).

- (27) a. *min matālb-i li-sanat 2013 hāk wʒūh il-lūh illi*
 from demands-POS for-year 2013 that faces the-wood who
ji-t-sawwru fi pyblinet b-kaskāt wa
 3M-REFL-take. picture in public.internet with-headphones and
illa fi jumbr msakkra b-lynet infalla ji-nqarðu
 or in room closed with-glasses god-willing 3M-get.extinct
 ‘One of my wishes for the year 2013 is that those crude faces who take pictures wearing headphones in a public internet cafe, or wearing [sun] glasses in a closed room would disappear completely.’
- b. *#min matālb-i li-sanat 2013 hāk wʒūh il-lūh*
 from demands-POS for-year 2013 that faces the-wood
infalla ji-nqarðu
 god-willing 3M-get.extinct
 ‘One of my wishes for the year 2013 is that those crude people disappear completely.’

While in (27a) the demonstrative phrase may give rise to a generic reading, in (27b) it is only possible that the speaker is referring to a specified group of crude people. As will be discussed in Section 4, this requirement for a restrictive modifier is not arbitrary. Rather, it is motivated by cognitive requirements on the evoked kind set.

Further, the data analysis reveals that in the examples identified in the data, the demonstrative *hāk* is followed by the phrase *l-nawʕ mtāʕ NP* ‘the kind of NP’, as shown in (2) and repeated here as (28).

- (28) a. *θamma hāk l-nawš mtāš l-ʔašfāb t-tufajlija illi dīma*
 there that the-kind POS the-weed REL always
mādd-īn wʒūhh-um fi l-profil mtāš sāhb-ik
 extend-PROG faces-POS in the-profile POS boyfriend-POS
xatīb-ik rāʒl-ik
 fiancé-POS husband-POS
 ‘There is that kind of intruder who is always stalking your boyfriend,
 fiancé, [or] husband on Facebook.’

The use of *l-nawš mtāš* NP (kind of NP) signals to the hearer that the referent of the demonstrative phrase should be processed as a kind set and not as specific individuals. Analyzing the data, however, reveals that the expression *l-nawš mtāš* (kind of) and/or the NP that follows it are not always explicitly mentioned in the linguistic content of the utterance. For example, in (29), where a female is expressing her frustration with a certain kind of boys, the expression *l-nawš mtāš* (kind of) is dropped by the speaker. Similarly, in (30) where the speaker is describing the kind of guns that he and his friends used to play with as children, he drops *l-nawš mtāš* ‘the kind of’ and the NP *l-frūda* (the guns) that follows it.

- (29) a. *hāk l-wlād illi labsīn balluta fi wiḏnī-hum*
 that the-boys REL wear-PROG earring in ears-POS
xatbū-k w la kašba baqlāwa waddīnt-na bī-ha
 propose-PST.3PL.you and no piece baklawa treat.pst.3FSG with-it
....tabban malla manāḏīr
damn what jerks
 ‘Those boys who wear earrings ... [would tell you] “you got engaged
 and you didn’t even treat us to one piece of baklawa” ... damn, what
 jerks.’
- b. *hāk l-nawš mtāš l-wlād illi labsīn balluta*
 that the-kind POS the-boys REL wear-PROG earring
fi wiḏnī-hum xatbū-k w la kašba baqlāwa
 in ears-POS propose-PST.3PL.you and no piece baklawa
waddīnt-na bī-ha tabban malla manāḏīr
 treat.pst.3SGF with-it damn what jerks
 ‘Those boys who wear earrings ... [would tell you] “you got engaged
 and you didn’t even treat us to one piece of baklawa” ... damn, what
 jerks.’

In addition, the NP that follows the demonstrative *hāk* is sometimes dropped when it can be recovered from the previous utterance as shown in (30).

- (30) a. w kun-na ʕanna frūda hāk illi ʕmārit-hum dūra
 and be-PST.1PL have guns that REL ammunition-POS circle
plastik hamra
 plastic red
 ‘and we used to have [bottle cap] guns; that [kind of gun] which
 ammunition is a red plastic circle.’
- b. w kun-na ʕanna frūda hāk l-nawʕ mtāʕ l-frūda illi
 and be-PST.1PL have guns that type POS guns REL
ʕmārit-hum dūra plastik hamra
 ammunition-POS circle plastic red
 ‘and we used to have [bottle cap] guns; that kind of gun which
 ammunition is a red plastic circle.’

Note that after adding *l-nawʕ mtāʕ* ‘the kind of’ in the (b) Example in (29), the sentence is still acceptable. Similarly, *l-nawʕ mtāʕ l-frūda* (the type of gun) in the (b) Example in (30) does not affect the meaning of the utterance. My explanation for this is that speakers choose not to linguistically encode the phrase *l-nawʕ mtāʕ* or the NP in order to reduce the speaker’s processing effort in the sense of Relevance Theory (Sperber and Wilson, 1995). Carston (2006) explains that hearers can recover the conceptual material that is not linguistically encoded in an utterance through a pragmatic process called enrichment. She points out that the linguistically encoded content of an utterance falls short of what speakers intend to communicate. Thus, speakers encode just what is necessary to ensure that the hearer achieves the intended meaning as effortlessly as possible through pragmatic processes such as enrichment. She explains that in order to recover the meaning of the material that is not linguistically encoded in the utterance, speakers take into account the hearer’s immediately available assumptions and the inferences upon which they can draw. The hearer, therefore, uses contextual information to enrich the linguistically underdetermined semantic representation. Thus, when speakers drop *l-nawʕ mtāʕ* in Examples such as (29) and (30), they assume that the hearer can effortlessly recover its conceptual meaning because there is enough contextual information in the utterance indicating that the referent is generic. Similarly, hearers manage to effortlessly recover the conceptual meaning of the NP *l-frūda* (the guns) in Examples such as (30) because it is evoked earlier in the utterance and can therefore be easily recovered by the hearer. As illustrated in the Example in (31), if the conceptual meaning of the NP that follows the demonstrative *hāk* is not evoked earlier in the utterance, the hearer would not be able to recover its meaning and the sentence would be ungrammatical. This is because, as discussed earlier in this section, the demonstrative *hāk* cannot stand alone as a pronoun.

- (31) a. *hāk l-wlād illi labs-īn balluta fi wiḏnī-hum*
 that boys REL wear-PROG earring in ears-POS
xatbū-k w la kaṣba baqlāwa waddī-t-na
 propose-PST.3PL.you and no piece baklawa treat-PST.3SGF
bī-ha tabban malla manāḏir
 with-it damn what jerks
 ‘Those boys who wear earrings ... [would tell you] “you got engaged and you didn’t even treat us to one piece of baklawa” ... damn, what jerks.’
- b. **hāk illi labs-īn balluta fi wiḏnī-hum xatbū-k*
 that REL wear-PROG earring in ears-POS propose-PST.3PL.you
w la kaṣba baqlāwa waddī-t-na bī-ha ... tabban
 and not piece baklawa treat-PST.3SGF-US with-it ... damn
malla manāḏir
 what jerks
 ‘Those who wear earrings ... [would tell you] “you got engaged and you didn’t even treat us to one piece of baklawa” ... damn, what jerks.’

In addition, results of the data analysis show that the referent of the generic demonstrative must be familiar (Gundel et al. 1993). That is, the speaker assumes that the hearer has a representation of this particular category already in memory from previous knowledge or experience, but the kind has not been recently evoked in the immediately preceding utterance, nor is it present in the immediate physical context. In this sense, in terms of cognitive status requirement, the TA generic demonstrative is similar to other generic demonstratives discussed in Sections 2 and 3. That is, they all require the kind set under discussion to be in memory of the hearer.

Further, results show that this usage, like the English ‘restrictive that’ discussed in Section 2, is restricted to the demonstrative *hāk*. Therefore, the use of any other demonstrative results in infelicity, as shown in the Example in (30) and repeated here as (32).

- (32) ... *w kun-na ṣanna frūda hāk/#ha/#haḏum/#haḏukum illi*
 ... and be-PST.1PL have guns those/this/this/those REL
ṣmārit-hum dūra plastik ḥamra
 immuniton-POS circle plastic red
 ‘... and we used to have [bottle cap guns]; that [kind of gun] whose ammunition is a red plastic circle.’

As shown in the example, while the demonstrative *hāk* is acceptable, all other TA demonstratives are not. In this sense, generic expressions introduced with the

demonstrative *hāk* act like the non-generic (i.e., existential) ones with respect to cognitive status because they require their referents to be at least familiar. This explains why the three other demonstratives, which require their referents to be Activated (i.e., activated in the current memory of the hearer by mention in the immediately preceding utterance or by a gesture or eye gaze) are not acceptable in (32); see Khalfaoui (2007) and Gundel et al. (2010).

I now turn to the generic demonstrative with respect to the count vs. non-count distinction. The data analysis in this study revealed that the generic demonstrative allows only plural count nouns. The use of a singular noun is infelicitous because it gives only an existential reading, as shown in (27) and repeated here as (33).

- (33) a. *min matālb-i li-sanat 2013 hāk wzūh il-lūh illi*
 from demands-POS for-year 2013 that faces the-wood who
ji-tsawwru fi pyblinet b-kaskāt wa illa fi
 3M-take.picture in public.internet with-headphones and or in
fəmbri msakkra b-lynet infalla ji-nqarðu
 room closed with-glasses god.willing 3M-get.extinct
 'One of my wishes for the year 2013 is that those crude faces who take pictures wearing headphones in a public internet cafe or wearing [sun] glasses in a closed room would disappear completely.'
- b. *#min matālb-i li-sanat 2013 hāk wizh il-lūh illi*
 from demands-POS for-year 2013 that face the-wood who
ji-tsawwir fi pybli-net b-kāskāt wa illa fi
 3M-take.picture in public.internet with-headphones and or in
fəmbri msakkra b-lynet infalla ji-nqarið
 room closed with-glasses god.willing 3M-get.extinct'
 'One of my wishes for the year 2013 is that that crude face who takes pictures wearing headphones headphones in a public internet cafe or wearing [sun] glasses in a closed room would completely disappear.'

While the plural expression *hāk wzūh il-lūh* (those crude faces) in (33) may give rise to a generic reading, the singular expression *hāk wizh il-lūh* (that crude face) in (33) only gives an existential reading. The results of my analysis, however, reveal that the singular is possible with non-count nouns, as shown in the next Example (34) where a man is talking about his first love.

- (34) ... *w t-naʒʒim t-qūl ʔawwal hub fi hajāt-i ʕraft-ū-h hub*
 ... and 2-can 2-say first love in life-POS know-past.2PL-it love
l-tufūla hāk l-barī? l-mahlāh illi ma
 the-childhood that the-innocent the-nice REL NEG

fi-h-f ḥsābāt

in-it-NEG calculations

‘... and you can say it’s the first love of my life. You know, that innocent beautiful [love] which happens without calculations.’

To sum up, generic expressions always occur with an overt or covert expression *l-nawf mtāf* NP ‘the kind of NP’ followed by a restrictive modifier and are subject to restrictions related to number and cognitive status. Speakers drop *l-nawf mtāf* ‘the kind of’ because they assume that the hearer can easily recover its meaning from the context. Similarly, they drop the NP only when it is evoked earlier in the utterance and can therefore be effortlessly recovered by the hearer. In the next section, I discuss constraints on the demonstrative *hāk* in terms of categorization in the sense of Rosch (1978) and Lakoff (1987).

Category variability

I will now investigate how speakers categorize the kind set evoked by the generic demonstrative *hāk*. Specifically, I will discuss the kind set evoked by the generic demonstrative in terms of level of categorization and prototypicality. Evans and Green (2006) define categorization as “our ability to identify perceived similarities (and differences) between entities and thus group them together” (p. 248). Lakoff (1987) notes that “there is nothing more basic than categorization to our thought, perception, action, and speech” (p. 5). He explains that every time we classify something as a kind of thing, we reason about kinds of things, or we perform any kind of action, we are using categories (p. 6).

Rosch (1978) points out that the human categorization system has two dimensions: a vertical dimension and a horizontal dimension. The vertical dimension relates to the level of inclusiveness of a particular category. That is, it relates to what is subsumed within a particular category. Thus, categories can be distinguished according to three levels of inclusiveness: superordinate, basic, and subordinate levels. Superordinate level categories are the least homogenous group in which within-category resemblance is low. For example, the superordinate category ‘furniture’ includes members such as ‘chair,’ ‘table,’ and ‘lamp.’ Basic level categories are mid-level categories. They provide the most inclusive level of detail at which members of that particular category share features in common. This is the level for which a clear visual image can be formed. For example, we can visualize a chair, but we cannot visualize a member of the superordinate level category ‘furniture.’ This is also the level used for everyday neutral reference. For example, we are more likely to say that someone was almost hit by a car than to say that she was almost hit by a Honda. Subordinate level categories are the most specific. Within-category resemblance is higher than that of basic level categories. For example, there are

more shared salient features between the category ‘rocking chair’ than between members of the category ‘chair’.

The horizontal dimension involves within-category typicality effects, where certain members of a category are more prototypical than other members. Rosch (1978) indicates that typicality effects result from the categorization judgements that people make, where some members of a particular category are judged as more representative examples of the category. For example, robins are prototypical members of the category ‘bird,’ while penguins are less prototypical or atypical members.

Similarly, Lakoff (1987) indicates that prototype effects can arise in different ways. For example, one source that gives rise to typicality effects is idealized cognitive models (ICMS). He explains that ICMS are subjective and created by human beings, and that not all cultures have the same ICMS (p. 69). For example, he explains that we define words such as ‘Tuesday’ relative to an idealized model in which “the week is a whole with seven parts organized in linear sequence; each part is called a day, and the third is *Tuesday*” (p. 68). Lakoff adds that ICMs are oversimplified, because they do not fit the world very precisely. For example, the seven-day week is created by humans and not all cultures have the same kinds of weeks. Thus, if a particular day is created relative to a different ICM, and deviates from the seven-day week ICM, it gives rise to typicality effects.

Lakoff (1987) adds that another major source of typicality effects is metonymy in which “a member or subcategory can stand metonymically for the whole category for the purpose of making inferences or judgments” (p. 79). For example, social stereotypes can be used to stand for a category as a whole. Lakoff points out that social stereotypes are conscious, and subject to change over time and “since they define cultural expectations, they are used in reasoning and especially to what is called “jumping to conclusions” (p. 85). For example, Lakoff indicates that the stereotypical Japanese is industrious, polite, and clever. Thus, if all one knew about someone was that he was Japanese, he might be surprised to find out that he is lazy or that he is a procrastinator.

Level of categorization

I now turn to discuss the results of the current study in terms of level of categorization. When analyzing the data, the first question I asked was: how much internal variability is allowed within the evoked set? In other words, the kind set to which the generic demonstrative refers typically belongs to what level of categorization? Results of the data analysis reveal that members of the evoked set denoted by the generic demonstrative *hāk* are sensitive to kind specificity, similar to the English generic demonstratives discussed in Bowdle and Ward (1995). That is, in order for the generic demonstrative to be acceptable, members of the evoked kind set must belong to a relatively subordinate level category. In other words, they must

be more homogenous, provide more detail, and have fewer internal contrasts than base level categories, as illustrated in the Example in (35).

- (35) a. *n-hib ni-tsāfil flāf ma j-fiddū-f hāk l-kuntinarāt illi*
 1-want 1-ask why NEG 3M- stop-NEG those the-containers REL
dāxlin li-l-burt šajnāni ti ma θmmā-f kif-hum
 enter-PROG to-the-port openly EMPH NEG exist-NEG like-them
xtar allah la j-qaddir kān farqf-u
 danger god NEG 3M-destine if explode-3.PST.PL
 'I wonder why they don't stop those containers which openly enter the harbor. There is nothing more dangerous than them if, God forbid, they explode ...'
- b. *#n-hib ni-tsāfil flāf ma j-fiddū-f hāk l-kuntinarāt*
 1-want 1-ask why NEG 3M- stop-NEG those the-containers
ti ma θmmāf kif-hum xtar allah la j-qaddir
 Emph NEG exist-NEG like-them danger god NEG 3M-destine
kān j-farqfu
 if 3M-explode
 'I wonder why they don't stop those containers; there is nothing more dangerous than them if, God forbid, they explode ...'

While the demonstrative phrase 'those containers which enter the harbor openly' in (35) can give both a generic and an existential reading, the base level category 'containers' in (35) gives only an existential reading.

Prototypicality

Interestingly, analysis of the examples identified in the data reveals that the evoked set is also sensitive to further cognitive constraints beyond category specificity. Results show that for demonstrative *hāk* to be used generically, the kind set must be atypical (e.g., unusual, socially awkward, rare) in the sense of Prototype Theory (Rosch, 1978; Lakoff, 1987) discussed earlier in this section. Consider the Example in (29) repeated here as (36).

- (36) *hāk l-wlād illi lābsin balluta fi wiḍnī-hum*
 that the-boys REL wearing earring in ears-POS
xatb-ū-k w la kaṣba baqlāwa waddī-t-na
 propose-PST.3PL-you and no piece baklava treat-PST.3SGF-US
bī-ha tabban malla manāḍir
 with-it damn what jerks

'Those boys who wear earrings ... [would tell you] "you got engaged and you didn't even treat us to one piece of baklava" ... damn, what jerks.'

Replacing the atypical kind set with a more prototypical set results in infelicity, as shown in (37).

- (37) #*hāk l-wlād illi lābsīn srāwil žīn xatb-ū-k w*
 that the-boy REL wear-PROG pants Jeans propose-PST.3PL-you and
la kašba baqlāwa waddī-t-na bī-ha tabban malla manāḏir
 no piece baklāwa treat-PST.3FSG-US with-it damn what jerks
 ‘Those boys who wear jeans [would tell you] “you got engaged and you
 didn’t even treat us to one piece of baklawa ... damn, what jerks.’

The kind set ‘boys who wear earrings’ deviates from the prototypical image of the category ‘boys.’ They can therefore be judged as atypical. In contrast, the category ‘boys who wear jeans’ does not deviate from the prototypical social image of ‘boy.’ As discussed earlier in this section, Lakoff explains that idealized cognitive models are created by humans, are subjective, and change from one culture to the next. So, the category ‘boys who wear earrings’ give rise to prototypicality effects because they deviate from an ICM in which boys are not expected to wear earrings. However, in cultures where it is the norm for boys to wear earrings, the category ‘boys who wear earrings’ would not be judged as odd or atypical because they do not deviate from the ICM for ‘boy’ within the particular culture.

These two cognitive constraints on category variability and prototypically explain why the restrictive modifier is obligatory with the generic demonstrative. The restrictive modifier must have enough descriptive content in order to distinguish members of the evoked set from base level members of the category since it minimizes the number of internal contrasts between them. Further, the descriptive content given in the restrictive modifier distinguishes members of the evoked set from prototypical members within the category. For example, the restrictive modifier in ‘boys who wear earrings’ distinguishes this kind set from the more prototypical members within the base level category ‘boys.’

In the remainder of this section, I discuss the evaluativity constraint on the use of generic demonstratives. The question to investigate here is whether evaluativity is a restriction on the choice of generic demonstrative phrases, as is the case with the English generic demonstratives (Bowdle & Ward, 1995) discussed earlier in this section. Out of the 28 demonstrative generic expressions identified in the data of this study, 20 were found to be evaluative. That is, the speaker is emotionally involved in the subject matter by expressing a positive or a negative attitude toward the referent of the generic demonstrative. These examples also include evaluative language such as exclamation marks and evaluative adjectives. These results indicate that while evaluative usage is present in most of the examples identified in the data, generic demonstrative phrases may be felicitous even when the

speaker is not emotionally involved in the subject matter as shown in the two Examples (38) and (39).

- (38) *t-ʒīb zūz maʕunāt t-ħut-hum fi d-dār w ta-bqa*
 3F-bring two dishes 3F-put-them in the-house and 3F-stay
t-ḍil-ni ʕli-hum ʕumr-i l-kul w kân talʕit
 3F-humiliate-me on-them life-POS the-all and if turn.out-PST.3SGF
xarnānā min hāk n-nawʕ [...] illi jaʕfiq l-xūḍa mteʕ t-ħib ...
 nagger from that the-type REL adore the-chaos POS 3F-like
t-tajjih d-dūf beʕ ti-kbir l-kuʒīna w ta-qsim
 3F-demolish the-shower so 3F-grow the-kitchen and 3F-divide
bīt z-zy ār
 room the-children

‘She brings a few kitchen utensils, puts them in the house, and humiliates me because of them for the rest of my life; and if she turns out to be a nagger, of that kind who adores chaos, such as demolishing the shower in order to expand the kitchen and dividing the children’s room ...’

- (39) ... *w l-wālid huwa illi ji-frī-l-na w j-ʒib-il-na*
 ... and the-father he REL 3M-buy-for-us and 3M-bring-to-us
li-d-dār ʕanna θlāḡa anwāʕ ḡalwa hāk l-karamel l-mrabʕa
 to-the-house have three types candy that the-caramel the-square
w illi ... l-flajju illi msawwar ʕli-ha ʒāmiʕ ʕuqba willa
 and REL ... the-mint REL drawn on-her mosque ʕuqba or
mteʕ l-qahwa illi malfūfa bi-l-ʔazraq
 POS the-coffee REL wrapped with-the-blue

‘... and it was my father who used to buy and bring us home [sweets]. we used to have three types of candy: that square caramel [candy] which ..., the mint one on which there is a drawing of Mosque Uqba, or the coffee one, which is wrapped in blue.’

In (38), the speaker is speaking with sarcasm, and is criticizing the kind of women who are always nagging and trying to make home improvements. In (39), on the other hand, the speaker is more neutral because he is sharing some information about the different types of candy his father used to bring home. The significant number of evaluative examples identified can be explained by the connection between atypicality and evaluativity. That is, speakers tend to be emotionally involved and judgmental when they talk about less central, awkward entities that deviate from the expected norm.

5. Conclusion

The current study introduces an additional type of generic reference expressed with the Tunisian Arabic generic demonstrative *hāk*. Based on a corpus analysis of naturally occurring discourse, this study has shown that the felicity of this generic demonstrative is subject to a number of general and cognitive constraints. First, the generic demonstrative *hāk* always occurs with an overt or covert phrase that consists of *l-nawʕ mtāʕ* and a plural count or a singular non-count NP followed by a restrictive modifier to introduce a familiar generic kind set. Second, the results of the analysis show that the evoked kind set it denotes must be relatively subordinate and atypical (i.e., less-central) (Rosch, 1978; Lakoff, 1987). Thus, the use of base level and/or prototypical kind sets results in infelicity because they do not give a generic reading. Further, the current study reveals that, while most of the generics expressed with *hāk* are evaluative, evaluativity is not a restriction but a consequence of the requirement that the generic demonstrative be atypical and less central, since atypical members are normally judged as different from prototypical members within the category.

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PART III

Language acquisition

Palestinian Arabic dual formation in typically developing heritage speakers of Palestinian Arabic

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This study provides preliminary data on Palestinian Arabic and English plural elicitation in Palestinian Arabic heritage-speaking children in the United States. Since dual formation is present in Palestinian Arabic but not English, this kind of investigation could elucidate whether a shift from heritage language (Arabic) to language of environmental dominance (English) affects the ability to access L1 plural formation. An elicited production task was administered to 21 typically developing Palestinian Arabic heritage-speaking children, aged 5;04 to 9;11 years.¹ The task was designed to elicit productions of Palestinian Arabic dual and sound and broken plural, and regular and irregular plurals in English. Half the items in each language and category were based on real words and the other half on pseudowords. Parent questionnaires provided background information. Findings revealed systematic effects of language, plural category, and lexicality. Dual production correlated with feminine plural formation in Arabic, and dual appeared to be preferred over masculine and broken plurals. Effects of lexicality across the two languages provided insight into distinct patterns of productivity for plural marking. Although effects of socioeconomic status were not found to be significant, parental education and home exposure to Palestinian Arabic correlated with children's performance on irregular pluralization. Findings are discussed with a view to informing further studies.

Keywords: heritage speakers, Arabic, dual, plural, bilingualism, language acquisition, children

1. Introduction

Heritage languages, referred to in Canada and Europe as ethnic minority languages or community languages (Montrul, 2012), are defined as languages that are

1. Numbers following a semi-colon (e.g., 5 in 7;5) signify the number of months, while numbers following a point (e.g., 5 in 7.5) are decimals.

“spoken at home or otherwise readily available to young children, and crucially ... not a dominant language of the larger society” (Rothman, 2009, p. 159). The course of language acquisition in heritage speakers is characterized by incomplete acquisition and/or attrition of the heritage language due to a reduction or cessation of first language (L1) exposure and use, often coinciding with the onset of formal education (Montrul, 2012). Acquisition of a heritage minority language substantially differs from acquisition of a minority second language and from the later learning of a foreign language. Specifically, the exposure to and use of L1 is generally maintained during second or foreign language acquisition, while it is reduced or eliminated in the context of heritage language learning. Montrul (2012, 2015) suggests that various bilingual profiles can be associated not only with the order of acquisition of the different languages (e.g., first vs. second language; parallel vs. sequential bilinguals) or the functional dimension of each language within individual language repertoires (e.g., primary vs. secondary language) but also with the sociopolitical dimension of each language (e.g., minority vs. majority language). Within this framework, heritage speakers are similar to L2 learners in that knowledge of the minority language is weaker; however, they differ from L2 learners in terms of order of acquisition, with the minority language being acquired first for heritage speakers, while it is acquired second for L2 learners (Montrul, 2015).

Benmamoun, Montrul, and Polinsky (2010) have pointed out that there are distinct causal mechanisms underlying the attainment limitations of heritage speakers in their L1: there may be incomplete acquisition of the L1 in the first place due to reduced or terminated exposure in childhood, or there may be attrition of existing linguistic knowledge, which assumes that knowledge was acquired and then lost (see also Polinsky, 2011a). Distinguishing between these two situations is experimentally challenging, but it provides opportunities for insight into the processes involved in first language acquisition. Unlike second language learners, heritage speakers are exposed to their L1 before the presumed critical period for language; yet, they do not develop – or do not maintain – native-like performance in all aspects of their L1 grammar (Benmamoun et al., 2010). This means that studies of heritage language can elucidate outstanding questions for linguistics, in particular with reference to the acquisition of language under minimal input conditions.

In part reflecting on this approach, recent years have seen a growing number of research studies examining heritage language acquisition in North America focusing on critical issues of acquisition, attrition, and change (e.g., Johannessen & Salmons, 2015; Makarova, 2012; y Cabo, 2016). Most of the published work so far has examined the expressive linguistic abilities of adult heritage speakers in comparison to monolingual speakers of that same language. Only a limited number

of studies simultaneously examined performance in both languages of heritage speakers and even fewer studies have examined language acquisition in heritage-speaking children (for example, see the annotated bibliography produced by Polinsky, 2011b; of around 100 peer-reviewed articles mentioned, fewer than 10 explicitly address the combination of the L1 and the L2 in adult heritage speakers, and perhaps two – Serratrice, Sorace, Filiaci, and Baldo, 2009; Silva-Corvalan, 2014 – examine such comparisons in children). This highlights a need for studies in heritage language to include children, rather than focusing only on adult heritage speakers (e.g. Rothman, Tsimpili, and y Cabo, 2016), and for comparisons between adult and child heritage speakers (Polinsky, 2016). According to Polinsky (2016) this type of comparison could be more informative than comparisons between adult heritage speakers and monolinguals because (1) adult and child heritage speakers share environmental factors that would differ for monolinguals, such as living in a particular country; (2) bilingual education is absent as a confounding variable; and (3) they share the shift from home language input to external (school or community) language input and use. Further emphasizing the need to investigate heritage language acquisition in children, others (e.g., Putnam & Sanchez, 2013) have called for the application of longitudinal study designs to elucidate questions about the process and nature of L1 attrition in heritage speakers as it happens.

This preliminary study aims to draw together these threads and take an initial step towards examining child heritage speakers in both their L1 and their dominant L2, specifically with respect to their production of plural constructions that are specific to each language. The heritage language for this group is Arabic, and their dominant language is English. We examine their productions of dual marking and plurals in their Palestinian Arabic heritage language, and we relate this to their English productions of regular and irregular plurals. We discuss our findings in light of the following three questions: (1) how do differences in language properties (i.e., English vs. Arabic) affect heritage-speaking children's plural formation? (2) do Palestinian Arabic heritage-speaking children exhibit loss of the dual number category, which is non-existent in their dominant L2? and (3) are there identifiable effects of other factors – specifically, type of acquisition (simultaneous vs. consecutive), socioeconomic status, age of initial exposure to L2 – on heritage-speaking children's dual and plural formation in Palestinian Arabic and/or English?

In what follows, we provide a short overview of Arabic and English plural categories and the developmental milestones of their acquisition in monolingual Arabic-speaking children. This context provides a way to tease apart the possibilities related to L1 attrition versus incomplete acquisition of Arabic plural for the heritage speakers. Next, we report the methods used to examine Palestinian

Arabic and English plural formation in 21 Palestinian Arabic heritage-speaking children. Results of this study are reported in Section 4. In section 5, we discuss the results with respect to changes in heritage language after the dominance shift, as well as theoretical perspectives on language attainment, attrition, and morphological processing. We also consider effects of socioeconomic status and related variables, and we comment on the applications for research of this nature to questions of clinical and educational import.

2. Arabic and English pluralization systems: An overview

Arabic vs. English pluralization systems: Structural characteristics and differences

The pluralization systems in English and Arabic differ in three main respects. First, differences in gender inflection are realized in Arabic but are absent in English. Second, Arabic makes a distinction between singular, dual, and plural, while English distinguishes only singular and plural. Third, irregular pluralization is much more frequent in the Arabic system, whereas it is relatively infrequent in English. Consequently, unlike English, Arabic nouns can be inflected not only for plural but also for duality and gender, as in Examples (1–3) from Palestinian Arabic.

- | | | | |
|-----|--|--|---|
| (1) | <i>hallāʔ-a(t)</i> ,
barber-FEM.SG,
a female barber, | <i>hallāʔt-ēn</i> ,
barber-FEM.dual,
two female barbers, | <i>hallāʔāt</i>
barber-FEM.PL.
several female barbers |
| (2) | <i>hallāʔ</i> ,
barber-MASC.SG,
a male barber, | <i>hallāʔ-ēn</i> ,
barber.MASC-dual,
two male barbers, | <i>hallāʔ-īn</i>
barber-MASC.PL,
several male barbers |
| (3) | <i>ktāb</i> ,
book,
a book, | <i>ktāb-ēn</i> ,
book-dual,
two books, | <i>kutub</i>
book-plural
several books |

The Arabic dual is usually realized by adding a suffix (-ēn masculine, or -t-ēn feminine) to the singular word². The Arabic plural system includes two subsystems,

2. Differences between Modern Standard Arabic and the various dialects in Arabic are found in all language domains. The dual agreement system for adjectives exists in Modern Standard Arabic but not in the spoken dialects. Differences between the dialects with respect to dual marking are also seen; for example, the dual marker on the noun is absent in the Moroccan dialect.

namely the sound plural (Examples (1) for feminine and (2) for masculine above) and broken plural (Example (3) above). The sound plural involves concatenative formation, by adding a feminine (-ât) or a masculine (-în) suffix; whereas the broken plural involves morphological modification of internal structures through a non-concatenative formation which involves root and pattern affixation. The broken plural is more frequent in Arabic than the irregular plural in English; for example, Boudelaa and Gaskell (2002) found that about 41% of Arabic noun types take a broken plural form, while there are just a few hundred irregular nouns in English (e.g., Crystal, 2003). Productivity also differs between irregular English plural forms and the Arabic broken plural forms. The former are mostly non-productive, following a few specific patterns (such as Old English-derived -en plural formation for *children*, *brethren*, *oxen*; or apophonic pluralization for *men*, *teeth*, *geese*). Broken plural in Arabic, by contrast, comprises 31 different productive patterns, not to mention rare and non-productive patterns (McCarthy & Prince, 1990; Wright, 1896/1988). Hence, a large percentage of plural formation in Arabic involves modifications of the internal structure of a word (a nonconcatenative process), in comparison to English, which in general involves linear alternations (addition of -s at the end of words), only involving word-internal modifications in a few non-productive cases. These differences between English and Arabic pluralization make it difficult to study this morphosyntactic operation in both languages at the same time; however, we argue that this cross-linguistic approach is crucial for understanding heritage speakers, and in this paper we describe a first attempt to obtain information about plural formation in both English and Arabic co-synchronously.

Developmental research has shown that children who are native speakers of Arabic start producing plurals early in language development, starting with the sound feminine plural (acquired by age 3) and dual marking (also acquired early, though its developmental trajectory is somewhat longer than that of the sound feminine plural; e.g., Ravid and Farah, 1999, 2009; Aljenai, Abdella, and Farghal, 2003; Albirini, 2015). Their accuracy increases with age until they show general mastery of the plural system around age 8 (although some plural forms, such as collectives, still show errors at this age; e.g., Ravid and Hayek, 2003).

Arabic number categories and monolingual acquisition

Studies of the acquisition of plural categories in various spoken varieties of Arabic, including Palestinian, Jordanian, and Kuwaiti, have revealed that feminine plural and dual are the earliest plural categories acquired by native speakers of Arabic (e.g., Ravid and Farah, 1999, 2009; Aljenai et al., 2003; Albirini, 2015). Ravid and Farah (1999) examined productions of masculine sound plural (e.g., *ṭabbāx*

– *ṭabbāxīn* ‘chef – chefs’), feminine sound plural (e.g., *tāwle(t)* – *tāwlāt* ‘table – tables’), and broken plural using a sentence completion paradigm. They examined 48 typically developing children between the ages of 2 and 5 years and showed that feminine plural is the earliest acquired, by age 3. Feminine sound plural was also the most frequently used pattern in children’s pluralization errors, substituted for sound masculine plural and broken plural items. Masculine sound plural was the least preferred form. Ravid and Farah continued their study of plural acquisition, publishing a longitudinal case study (Ravid & Farah, 2009) that focused on the acquisition of plural productions by a monolingual Arabic-speaking child between the ages of 1;08 and 2;08. The results showed that feminine plural and broken plural were the most commonly observed forms in the child’s early productions, with dual and masculine forms ranging between 4% and 22% of all produced plural forms. In a later study, Ravid and Hayek (2003) examined productions of dual, collective, and sound feminine plurals, again using a sentence completion paradigm. Presenting data from 58 typically developing Palestinian-speaking children between the ages of 3;6 and 8 years, they provided more evidence that feminine plural and dual are acquired earlier than masculine plural and that acquisition of collective plurals is still error-prone up to age 8 years.

A similar sequence of acquisition has been found upon the examination of plural formation in other dialects, including Kuwaiti Arabic (Aljenai et al., 2003) and Jordanian Arabic (Albirini, 2015). These studies showed that dual and feminine plural are acquired within the first 5 years, while sound masculine plural and broken plural are acquired later.

Investigations of language attainment in heritage Arabic-speaking adults in the U.S. (e.g., Albirini, Benmamoun, and Saadah, 2011; Albirini, Benmamoun, & Chakrani, 2013; Albirini & Benmamoun, 2014; Albirini, 2015) have contributed immensely to understanding the nature of incomplete acquisition in heritage-speaking adults, in particular shedding light on the way that specific morphosyntactic features of Arabic may exhibit maintenance or loss with the shift to English dominance. In recent work, Albirini (2015) has also examined plural formation in monolingual native Arabic-speaking children in comparison with Arabic heritage speakers. Albirini (2015) shows that, by age 4 years, children are still using uninflected singular forms, while continuing to increase their accuracy in producing feminine plural suffixation. By ages 5 and 6, children are developing broken plurals but are still making mistakes in those forms. In Albirini’s words, this may “underline their incomplete knowledge of the application of the morphological paradigms to the relevant singular stems” (Albirini, 2015, p. 255). By the ages of 7 and 8, children were showing general command of the various transparent plural forms in the system, but they were still making errors in more complex forms, especially the broken plurals.

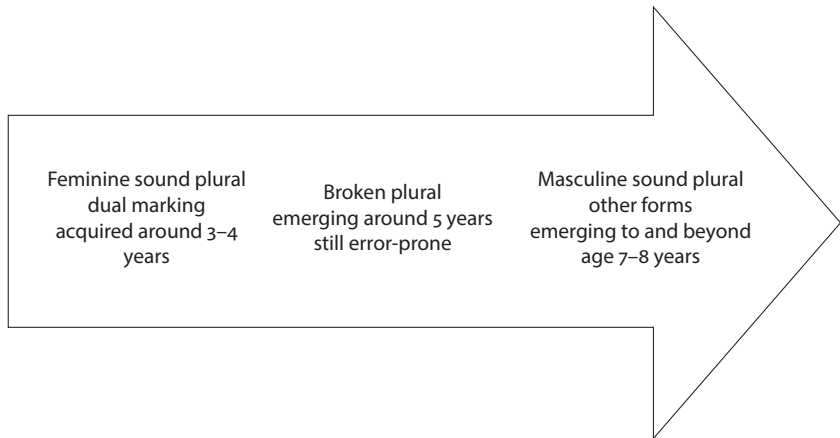


Figure 1. Order of acquisition of pluralization in monolingual Arabic-speaking children

Experimental hypotheses and predictions

Based on the inherent differences between Arabic and English pluralization described above, and the evidence about the developmental trajectory for Arabic plurals, it is possible to derive predictions about heritage-speaking children's likely performance on the production of specific types of plural in their L1. On the one hand, assuming an "incomplete acquisition" situation for heritage speakers could mean that the plural system has not been fully acquired, but that the earliest-acquired forms are available to the child. If already-acquired knowledge is retained after the dominance shift to a heritage-speaking situation, we can predict that children's ability to produce the Arabic dual should be maintained, even as their proficiency with English pluralization builds.

On the other hand, if we take an attrition-based approach, we would assume that linguistic knowledge that has already been acquired, like dual constructions, would be lost as children are exposed to the dominant language. This happens because, by assumption, the children's partially-formed Arabic plural system is reorganized to more closely resemble the monolingual English system. If this is the case, we could predict that greater accuracy on English plural productions would correlate with lower accuracy for Arabic dual productions.

This general approach could also serve to inform our knowledge of the main factors underlying maintenance of L1 structures in heritage learning. For example, if maintenance is mainly dependent on the complexity of the structure, then children could be expected to maintain the Arabic dual and feminine plural; whereas, if frequency of occurrence is the main predictive factor for maintenance, and in light of the low frequency of dual occurrence in Arabic, attrition of the dual

construction would be predicted. In cross-sectional work, this could be evaluated by examining children's ability to produce the different plural forms at a specific time after the dominance shift has occurred.

Hypotheses concerning the role of morphological processing in children's plural productions can also be evaluated through investigations of heritage speakers. For example, by employing both real words and pseudowords in our experimental paradigm, it is possible to distinguish whether Arabic heritage speakers rely on rote memorization of specific plural forms or whether they concatenatively create plural forms "on the fly," using morphological processes that constitute part of their knowledge of their L1. This goes hand in hand with studies that have evaluated the dual-route vs. single-route (connectionist) hypotheses with respect to plural formation (e.g., Saiegh-Haddad, Hadieh, and Ravid, 2012). Dual-route models suggest that fully-developed morphological processing involves two systems: one dealing with regular inflections by application of rules that can be extended to novel words (including pseudowords) and another that relies on lexical memory for retrieval of irregular forms (e.g., Pinker, 1999). On the other hand, single-route models of morphological processing assume a connectionist memory model that processes each linguistic experience as a set of features; these features will be more or less shared by other representations that may overlap. Under such a view, learning involves strengthening or weakening the connections between stored representations in response to linguistic input (e.g., Plunkett and Juola, 1999; McClelland and Patterson, 2002). From a single-route perspective, there should be no difference between regular and irregular plural forms apart from the extent to which the learner has experience with them.

Based on these theoretical frameworks, we could predict the following:

- A. Palestinian Arabic Heritage speakers will make more errors on all Palestinian Arabic plural elicitations compared to English plural elicitations, just as all heritage speakers exhibit reduced proficiency in their L1 with the extensive exposure and use of the dominant language of their society.
- B. Attrition in heritage language learning would be associated with loss of dual marking, an early-acquired construct that has no English equivalent. However, if the heritage learning process involves mainly incomplete acquisition of L1 but not attrition of that knowledge once acquired, then we can predict that feminine plural and dual would be accessible to children who are heritage speakers of Arabic.
- C. If heritage speakers are accessing morphological processes rather than just over-learned forms to create the dual and feminine sound plural, they should perform well when asked to pluralize novel forms, such as pseudowords (this could be broadly interpreted in support of a dual-route model). If they are

relying on rote memorization of specific forms rather than productive morphological processes, pluralization of pseudowords should be more difficult for them than pluralization of real words to which they have been exposed (possibly interpretable as providing support for a single-route account of morphological processing that relies on input experience).

3. Experimental study

Participants

Twenty-one (21) children participated in this study. All were Palestinian Arabic heritage speakers exposed at home to Palestinian Arabic. There were 10 males and 11 females, aged from 5;04 to 9;11 years (mean = 6.68 years, $SD = 2.65$). Participants were recruited through the Arab American Association of New York, Paterson Islamic Saturday School, and word of mouth. All experimental procedures were approved by the Institutional Review Board at Adelphi University, New York.

All participating families completed a questionnaire to probe socio-economic status, parental education, length of time in the U.S., length of their child's exposure to Palestinian Arabic and English, and the relative usage of Palestinian Arabic and English in the home. Parental Index of Social Position (ISP) was calculated based on the information provided on occupation and education, using the ISP calculation formula by Hollingshead (1971). All participating children came from middle or high socio-economic status families, with fathers reporting 12 to 22 years of education (mean = 13.8, $SD = 3.78$) and mothers reporting 12 to 16.5 years of education (mean = 12.5, $SD = 2.71$). Per parent report, the children in the study overall had been exposed to Palestinian Arabic for 2–9 years of their lives (mean = 4.1 years, $SD = 1.8$).

Information about time of immigration was not available for 3 participating families, but of the other 18, 12 reported that their participating child was born in the US and 6 reported that they had immigrated after the child was born (mean age of participating children at immigration, based on parent report: 44 months; $SD = 18.07$). For the 6 children who immigrated, parents reported that they were exposed to an English-dominant environment for an average of just over three years (mean = 38.5 months, $SD = 23.97$, range 10–77 months); at the time of testing these children were aged between 5;04 and 8;09 (mean age at testing = 6.88 years, $SD = 1.47$), so their English-dominant exposure constituted a mean of 45.14% of their lifespan ($SD = 23.47$).

For the children born in the U.S., their ages at testing ranged from 5;11–9;11 (mean = 7.69 years, $SD = 1.28$), and their parents reported a mean of just over 5

years of exposure to an English-dominant environment (mean = 63.55 months, $SD = 25.65$, range 35–106 months). Hence, their English-dominant exposure constituted a mean of 59.5% of their lifespan ($SD = 28.87$). This means that all the children in the study were exposed to an English-dominant environment for roughly similar lengths of time as a function of their age despite differing immigration backgrounds.

Based on parent reports, 17 of the participating children were determined to be consecutive heritage bilinguals who had been exposed to Palestinian Arabic prior to any English exposure. Four (4) of the children were simultaneous bilingual learners of Palestinian Arabic and English. Parents used Likert scales to estimate a comparison of the frequency of Palestinian Arabic and English use in their homes (My child uses English / Palestinian Arabic at home: (1) never / (2) sometimes / (3) frequently / (4) always). Using this visual and very simple metric, parents estimated that their use of Palestinian Arabic at home ranged from 1 to 4 (mean = 3.2, $SD = 0.8$), while their use of English at home was estimated to range from 2 to 4 (mean = 2.4, $SD = 1.1$). Although this measure provides only a crude estimate of the relative exposure to Palestinian Arabic versus English in the home, it offers a simple rubric for quantification of exposure that is otherwise very difficult to capture.

Materials

The study used an elicited production task with 120 pictures developed for this study by a local Syrian artist living in the U.S. who is familiar with Arab-American culture. Stimuli included 8 Palestinian Arabic singular forms and 60 items for elicitation of Palestinian Arabic plural productions, distributed as follows: 5 real words and 5 pseudowords in a dual context, 5 real words and 5 pseudowords for elicitation of the feminine sound plural, 5 real words and 5 pseudowords for elicitation of the masculine sound plural, and 30 items used for broken plural elicitation following the six most frequent Palestinian Arabic plural patterns (5 real and 5 pseudowords each for type I and type II, and another 5 real and 5 pseudowords representing patterns from Types III–VI). See examples for dual items in Figures 2 and 3, for masculine plural in Figure 4, and for broken plural in Figure 5.

The English pluralization stimuli included 40 English nouns in the following distribution: 8 singular, 5 real words, and 5 pseudowords for elicitation of irregular plural forms, 15 real words and 15 pseudowords for elicitation of regular plurals. Since English regular plural includes allophonic variants (in voiced, devoiced, and sibilant contexts), the plural elicitation prompts for English words and pseudowords were divided between these different phonological contexts to probe children's awareness of the phonological rules applied to English regular plurals (see



Figure 2. Example item for eliciting Palestinian Arabic dual marking on a real word. Children were asked to complete the sentence in Palestinian Arabic [hōn fi ʔamiš w-hōn...] 'here is one shirt and here are...' (presented while pointing to the relevant pictures). Expected elicitation: [ʔamišēn]

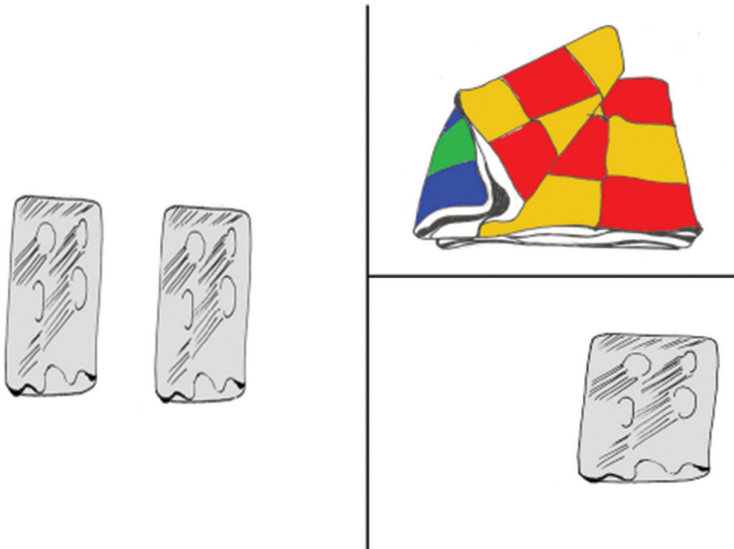


Figure 3. Example item for eliciting Palestinian Arabic dual marking on a pseudoword. Children were asked to complete the sentence in Palestinian Arabic [hāda hrām, w-hāda brām, w-hadōl...] 'here is a blanket, and here is a Xlanket, and here are...' (presented while pointing to the relevant pictures). Expected elicitation: [braāmēn]

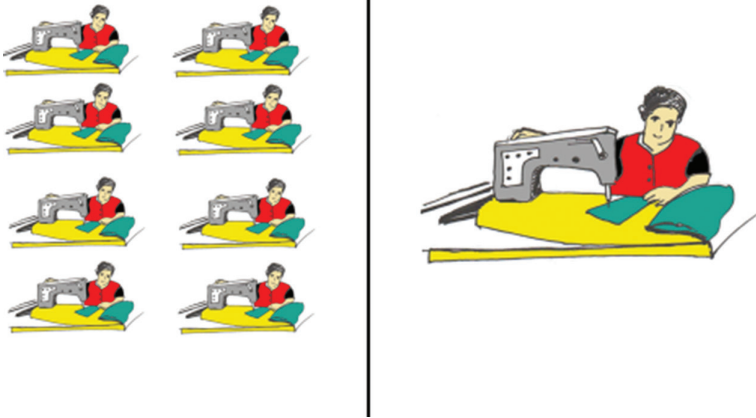


Figure 4. Example item for eliciting Palestinian Arabic masculine plural on a real word. Children are asked to complete the sentence in Palestinian Arabic [hāda xayyāṭ w-hadōl...] ‘here is a tailor, and here are some ...’ (presented while pointing to the relevant pictures). Expected elicitation: [xayyāṭin]

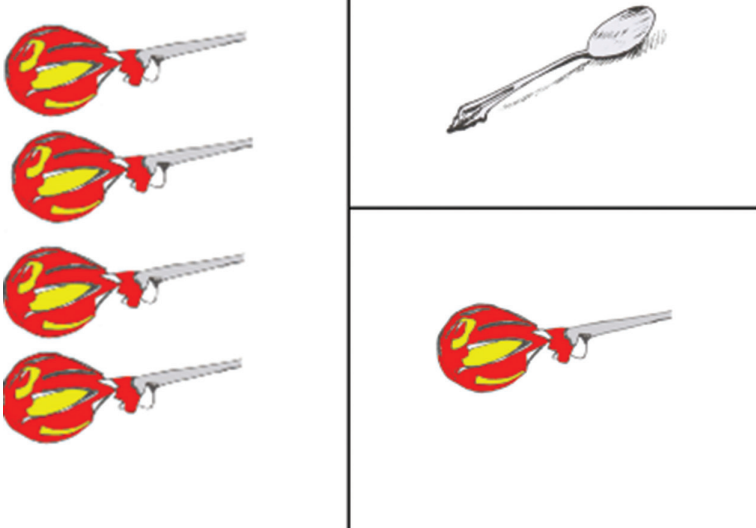


Figure 5. Example item for eliciting Palestinian Arabic broken plural on a pseudoword. Children are asked to complete the sentence in Palestinian Arabic [hāy miṣla?a w-hāy miyya?a w-hadōl...] ‘here is a spoon, and here is a sXoon, and here are some ...’ (presented while pointing to the relevant pictures). Expected elicitation: [mayāyiʔ]

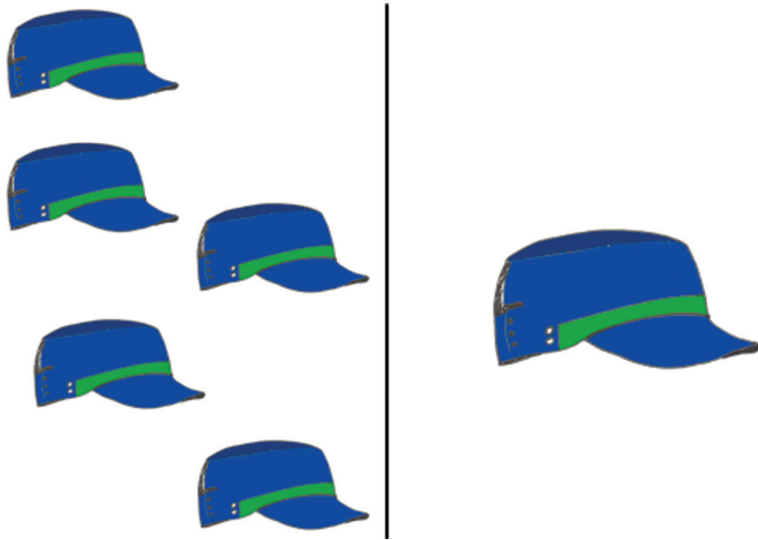


Figure 6. Example item for eliciting English regular plural on a real word (devoiced phonological context). Children are asked to complete the sentence in English: Here is a hat, and here are many... (presented while pointing to the relevant pictures). Expected elicitation: “hats” (devoiced)

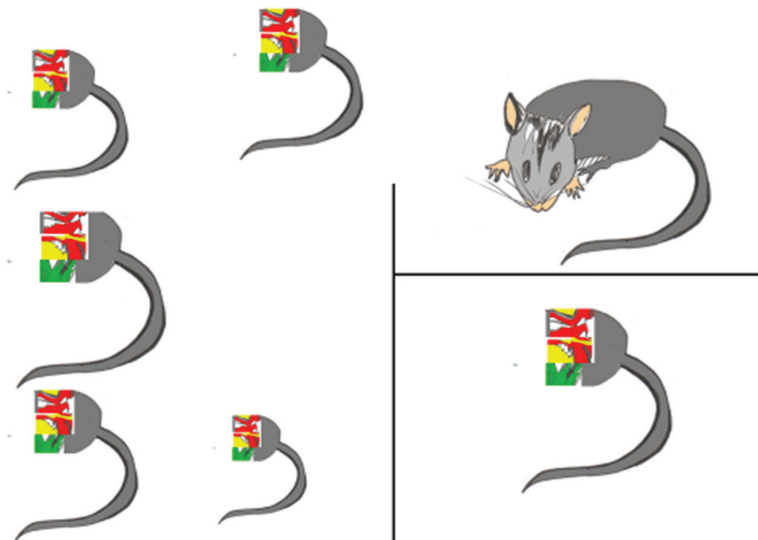


Figure 7. Example item for eliciting English irregular plural on a pseudoword. Children are asked to complete the sentence in English: This is a mouse, and this is a souse, and these are... (presented while pointing to the relevant pictures). Expected elicitation: “sice” (apophonic plural primed by mouse → mice)

examples in Figures 6 and 7). Methodologically, we probed more English regular plurals than irregulars, whereas for Palestinian Arabic we probed more broken plurals than sound plurals, consistent with the respective distributions of pluralization in each language. Pseudoword contexts for irregular and broken as well as regular and sound plural forms were included to determine whether children could recognize and generalize the different plural alternations to novel forms, specifically by analogy to examples provided in the plural elicitation prompt.

The remaining four picture items were used for practice, 2 each for the English and Palestinian Arabic versions of the task.

Procedure

Each participating child was tested individually in a quiet room either at home or at their Saturday school. Each child completed two elicitation tasks, one in Palestinian Arabic and one in English, presented in the same order of presentation for all children (Palestinian Arabic first). For the singular production items, the child was shown the picture on an iPad and asked to name it. For each of the plural elicitation tasks, children first carried out two illustration trials, to ensure that they understood what was required of them. Plural elicitation test items were then presented one by one, with the examiner presenting the relevant singular form and then proving the sentence completion probe, in the form “This is an X, and these are ...” Repetitions of test items were provided on request by each participant, and responses were written down by the examiner. Encouragement was given to the child by the experimenter irrespective of the accuracy or expectedness of plural productions. Children’s responses were later coded and entered into SPSS for statistical analyses.

Coded data were analyzed through a regression analysis and planned comparisons (pairwise correlations and paired-samples *t*-tests) to examine the effects and interactions between (1) language (English versus Arabic), (2) structure (i.e., the dual and other plural types in Palestinian Arabic and English), and (3) lexical status (real words versus pseudowords). The impact of other variables, such as family socio-economic status and length of time exposed to English, was also considered.

Results

Table 1 provides the mean percentages of plural forms produced, reported for each level of language, lexicality, and structure.

A regression analysis was carried out to determine the significance of the effects of the three main study variables described above: language (Palestinian

Table 1. Mean percentages of plurals (SD in parentheses) produced as expected in the elicitation task, by language (Palestinian Arabic vs. English), lexicality (real word vs. pseudoword prompts) and structure (regular vs. irregular plurals).

				Totals
Arabic	Real	Dual	40.95 (39.23)	27.43 (37.14)
		Regular	29.76 (39.27)	
		Irregular	9.37 (22.05)	
	Pseudo	Dual	31.43 (28.69)	20.00 (31.20)
		Regular	22.38 (36.21)	
		Irregular	3.81 (10.24)	
English	Real	Regular	96.19 (12.88)	80.00 (35.48)
		Irregular	29.52 (34.99)	
	Pseudo	Regular	83.17 (27.17)	64.29 (40.96)
		Irregular	7.62 (13.38)	

Arabic vs. English), lexicality (real vs. pseudowords), and structure (dual and sound plural vs. broken plural in Arabic, regular vs. irregular plural in English). The effect of language on the percentages of plurals produced as expected in Palestinian Arabic and English was found to be statistically significant ($F(1, 20) = 27.241, p < 0.001$), as were the effects of lexicality ($F(1, 20) = 41.857, p < 0.001$) and structure ($F(1, 20) = 84.421, p < 0.001$).

Planned comparisons investigating the effects of language showed that participating children's performance on the elicitation task was significantly superior for English items in comparison to Palestinian Arabic items ($t(167) = 11.591, p < 0.001$). The lexicality effect was found to be driven by significantly superior performance across the board on real word elicitation prompts as compared to pseudowords; this pattern was maintained within each of the two targeted languages (expected elicitations of plurals, all real word vs. all pseudoword prompts: $t(167) = -6.358, p < 0.001$; Palestinian Arabic real word vs. pseudoword prompts: $t(83) = -3.192, p = 0.002$; English real word vs. pseudoword prompts: $t(83) = -5.731, p < 0.001$). An examination of the lexicality effect by each probed structure revealed interactions between language, structure, and lexicality. While English showed effects of lexicality across the board (all English regular prompts, real vs. pseudowords: $t(62) = -3.536, p = 0.001$; all English irregular prompts, real vs. pseudowords: $t(20) = -3.557, p = 0.002$), Palestinian Arabic showed a more complex pattern of lexicality distinctions that primarily affected the earlier-acquired plural constructions. This effect was most apparent for feminine sound plural prompts (real vs. pseudowords: $t(20) = -2.660, p = 0.015$) but was diminished,

not quite reaching significance, for the dual marking condition ($t(20) = -2.024$, $p = 0.056$) and absent for the masculine sound plural and broken plural conditions (masculine, real vs. pseudowords: $t(20) = 0.809$, $p = 0.428$; broken plural, real vs. pseudowords: $t(20) = -1.694$, $p = 0.106$).

The effect of structure was broken down through planned comparisons within each language at each level of lexicality. Productions of expected English regular plurals in both voiced and devoiced contexts were at ceiling for real word prompts for all participants, while a few errors were made in sibilant contexts (such as doubling the expected affix: oranges $\rightarrow$ [ʊrændʒɪzɪz] or producing no overt plural marker at all). By contrast with the near-to-ceiling performance on regular English pluralization contexts, irregular plural elicitation in English was error-prone, with most errors being plural marker omissions (zero plural marking produced). The differences between numbers of regular and irregular forms produced as expected were significant for both words ($t(20) = -9.228$, $p < 0.001$) and pseudowords ($t(20) = -8.771$, $p < 0.001$).

For the Palestinian Arabic task, the split between structures was different; see Table 2 for summary findings within each Palestinian Arabic plural form that was probed. Early-acquired plural forms (feminine sound plural and dual marking) were produced, as expected, significantly more often than broken plural and masculine sound plural formations (feminine vs masculine sound plural: $t(41) = 4.712$, $p < 0.001$; vs. broken: $t(41) = 5.824$, $p < 0.001$; dual vs. masculine sound plural: $t(41) = -5.667$, $p < 0.001$; vs. broken: $t(41) = 6.283$, $p < 0.001$). These differences between feminine sound plural and dual, on the one hand, and masculine sound plural and broken plural, on the other, were also evident when real words and pseudowords were examined separately. There was no significant difference between the numbers of appropriately-marked plurals produced in response to the feminine sound plural or the dual prompts when these were taken as a whole ($t(41) = 0.589$, $p = 0.559$), nor when differences were split between real words ($t(20) = -0.698$, $p = 0.493$) and pseudowords ($t(20) = -0.127$, $p = 0.900$). This strongly suggests that feminine sound plural and dual marking are treated with a similar level of familiarity and ease by the participants, while masculine and broken plurals appeared to be much harder across the board.

Table 2. Percentages of produced plural forms matching expected elicitations for dual and plural in Arabic: mean (SD)

	Feminine plural	Masculine plural	Dual	Broken plural
Real	46.67 (42.11)	12.00 (27.07)	40.95 (39.23)	9.37 (22.05)
Pseudo	32.38 (40.24)	12.78 (29.31)	31.43 (28.69)	3.81 (10.23)
Total	39.52 (41.32)	11.90 (27.61)	36.19 (34.28)	6.59 (17.21)

Dual marking performance

When words and pseudowords were collapsed together, paired-samples *t*-tests revealed significantly superior performance on dual plural formation compared to masculine and broken plurals (dual vs. masculine plural: $t(41) = -5.667$, $p < 0.001$; dual vs. broken plural: $t(41) = 6.283$, $p < 0.001$). These effects were maintained when real words and pseudowords were examined separately (real words, dual vs. masculine: $t(20) = 4.212$, $p < 0.001$; dual vs. broken: $t(20) = 4.850$, $p < 0.001$; pseudowords, dual vs. masculine: $t(20) = 3.301$, $p = 0.004$; dual vs. broken: $t(20) = 5.033$, $p < 0.001$). This, together with the status of dual as an early-acquired morphological category, and the lack of significant differences in performance between dual marking and feminine sound plural formation, lends support to the hypothesis that knowledge of dual marking is available to heritage speakers.

Despite the lack of a statistically significant performance distinction between dual marking and the feminine sound plural, qualitative differences between the children's performance on these two elicitation categories were observed. Only 4 out of the 21 heritage speakers who participated in this study were able to produce the dual form correctly in all five real word presentations, and none of the participating children achieved 100% accuracy in producing dual forms for pseudoword items. Most of the errors for the dual marking items, both real and pseudowords, involved incorrect feminine gender selection (for example, [ʔamiʃtēn] instead of [ʔamiʃēn] 'two shirts') or the use of singular form instead of dual form ([ʔamiʃ] instead of [ʔamiʃēn]). This pattern resembles observations of dual-marking development in native speakers of Arabic, who tended to feminize words before starting to correctly dualize them (Albirini, 2015).

Correlations

Correlations were used to evaluate the significance of relationships between participant and familial variables, plus a set of performance variables derived by calculating the mean expected productions per child in each of six categories: all English items, all Palestinian Arabic items, all regular, sound and dual prompts, all irregular and broken plural prompts, all real word prompts, and all pseudoword prompts (see Table 3).

The regression analysis showed no significant effect of the Index of Social Position (ISP) on any of these performance variables, though predictably it correlated positively with both maternal and paternal education and work. Mother's education and father's education both correlated with the children's performance on irregular plural productions (mother's education: $r = 0.490$, $p = 0.039$; father's education: $r = 0.502$, $p = 0.034$). The amount of Palestinian Arabic in the home showed a negative correlation with performance on irregular plural productions

Table 3. Mean percentages of responses (SD) produced as expected by all participants in six general performance categories, reflecting study factors, language, regularity and lexicality: all English items, all Palestinian Arabic items, all regular, sound and dual prompts, all irregular and broken plural prompts, all real word prompts, and all pseudoword prompts.

	Mean (SD)
All English prompts	72.10 (39.02)
All Palestinian Arabic prompts	23.69 (34.38)
All regular, sound and dual prompts	64.40 (42.79)
All irregular and broken plural prompts	12.58 (24.12)
All real word prompts	53.71 (44.79)
All pseudoword prompts	42.14 (42.56)

($r = -0.509$, $p = 0.026$), perhaps indicating a reliance on feminine sound plurals and dual marking in children who were still experiencing naturalistic exposure to Palestinian Arabic in their home environments. Age was the primary correlate with performance variables, showing significant correlations with overall performance on English ($r = 0.781$, $p < 0.001$), performance on all regular/sound/dual and all irregular/broken plural forms (regular, sound and dual: $r = 0.591$, $p = 0.006$; irregular and broken: $r = 0.526$, $p = 0.017$), and performance on all real words and all pseudowords (real words: $r = 0.515$, $p = 0.020$; pseudowords: $r = 0.693$, $p = 0.001$). There was also a significant correlation between months spent in an English-dominant environment and the overall performance on English plural elicitation ($r = 0.500$, $p = 0.035$). Interestingly, there was no significant (positive or negative) correlation found between age or time spent in an English dominant environment and overall performance on Palestinian Arabic pluralization.

These same categories of overall performance were used to provide an informal insight into the possible effects of type of bilingualism on children's performance. There were only 4 children participating in this study who could be classified as simultaneous bilinguals who were exposed to both English and Palestinian Arabic at the same time; the other 17 child participants were classified as consecutive heritage bilinguals who were exposed first to Palestinian Arabic and then to English. Therefore, no formal analysis of the effects of bilingualism type on the children's plural productions was possible. However, informal examination suggested that simultaneous bilingual children performed better than consecutive bilinguals on irregular and broken plurals across the board. This effect was small (mean proportion of irregular and broken plurals produced as expected by simultaneous bilingual children: 0.25, $SD = 0.33$; by consecutive bilingual children: 0.10,

$SD = 0.21$) and could not be subjected to statistical analysis because of the low n and the unequally-sized groups. No other differences between the two types of bilingualism were observable in this data set.

Finally, to evaluate whether there was a relationship between performance on Palestinian Arabic dual marking and English pluralization, as would be predicted under attrition hypotheses suggesting reorganization of linguistic systems to approximate more closely to the dominant L2 (e.g., Polinsky, 2011a), we examined correlations between dual marking performance and the various categories of performance on English pluralization (regular vs. irregular, real vs. pseudowords). None of these correlations were found to be significant.

Summary

To summarize, the study findings revealed a significant effect of language, typical for heritage learners, whereby participating children showed greater accuracy in English plural formation tasks in comparison to Palestinian Arabic items. However, there was no observable effect of English pluralization ability on Palestinian Arabic dual marking despite the overall difference between languages. Effects of lexicality were also significant, with pseudoword elicitation prompts much less likely than real word prompts to result in productive applications of plural formation patterns, regardless of the language of presentation. Certain plural structures were more difficult than others; specifically, in Palestinian Arabic, performance on the feminine sound plural and the dual was relatively robust compared to the error-prone masculine and broken plurals. In English, irregular nouns were less likely to be accurately pluralized than regular nouns. ISP had no significant effect on production of dual formation in Palestinian Arabic or plural formation in Palestinian Arabic or English, though parental education, together with the amount of Palestinian Arabic estimated to be spoken in the home, correlated with children's performance on irregular pluralization. There may also have been an effect of type of bilingualism (consecutive vs. simultaneous) on irregular pluralization. Moreover, the study results indicate that dual production correlated with feminine plural formation, and dual appeared to be a preferred plural form compared to masculine and broken plurals.

5. Discussion

This preliminary investigation sought to examine Palestinian Arabic dual and plural formation, as well as English plural formation, in real and pseudo-words in Palestinian Arabic heritage-speaking children living in the U.S. A picture-based elicitation task was developed to examine plural formation in 21 children, aged

5;04 – 9;11. This is the first study to address dual and plural formation in child heritage speakers of Palestinian Arabic while also assessing their plural formation in English, and it provides preliminary evidence that the procedures and general approach applied to this question could offer important insights into aspects of heritage speakers' representations of plural in both their L1 and their dominant L2. Examination of plural in different linguistic situations has been important for our understanding of the development of inflectional morphology despite the semantic and structural complexities of plural (e.g., Corbett, 2000). This is in part because plural marking is one of the most basic triggers of agreement, and it takes a central role in morphosyntactic development, being one of the earliest categories to emerge in the course of language acquisition (e.g., Stephany & Voeikova, 2009).

This investigation contributes to the scarce research on language acquisition in heritage Arabic-speaking children, and it provides a basis for further research that could support the understanding of the kinds of linguistic shift associated with language acquisition in heritage speakers. This kind of knowledge would be particularly valuable in clinical arenas, especially speech-language pathology, since evaluation that is sensitive to cultural and linguistic differences is dependent on the availability of high-level evidence that can support and inform clinical decision-making (e.g., Khamis-Dakwar & Khatlab, 2014). Establishing baselines for linguistic milestones and predictive markers of language loss in heritage speakers of Palestinian Arabic may provide speech language pathologists with the necessary foundational knowledge to develop appropriately sensitive measures for speech and language evaluations.

The main research questions addressed in this study were the following: (1) Are there effects of the language of presentation (i.e., English versus Arabic) on the plural productions of heritage-speaking children? (2) Do Palestinian Arabic heritage-speaking children use the dual number category, which is non-existent in their dominant L2, productively? (3) Can we identify other factors – specifically, type of acquisition (simultaneous vs. consecutive), socio-economic status (SES), age of initial exposure to L2 – that have an impact on heritage-speaking children's plural formations in Arabic and/or English?

The language of presentation was observed to have significant effects on the plural productions elicited from the children in this study, with performance on English prompts significantly more accurate than performance in response to Palestinian Arabic prompts. This is consistent with documented findings from language development studies in heritage-speaking children (e.g., Montrul & Polinsky, 2011) and supports the view that the dominant language in the environment has greater impact on children's language acquisition than the first language to which they are exposed; see Köpke and Schmid (2004) for a review. This finding is also consistent with our prediction A above. However, the methods we

used provided more insight than a simple performance difference between languages. The effect of language interacted with effects of lexicality and structure too. Pseudowords across the board were more difficult for participants to pluralize appropriately than real words, which may indicate an important role of previous exposure/memorization that is being applied by the children who took part in this study (see our prediction C above). However, this effect of lexicality broke down differently in the two languages tested, suggesting that the picture is more complex. In English, the pseudowords revealed a regularity effect, with regular pluralization being applied significantly more accurately than irregular. In Arabic, however, the interaction between lexicality and category effects was different from English and broke down along more obviously developmental lines. The detrimental effect of pseudoword prompts in Palestinian Arabic was most evident for feminine sound plurals, was just observable for dual marking, and was apparently absent for masculine and broken plurals. These preliminary data might be suggesting that later-acquired plural forms are treated as though they are somehow “novel” by the heritage-speaking children in this study, while the early-acquired feminine and dual markings have a more productive capacity. This suggests an interplay between memorization and productive rule application, such as that proposed under a dual-route model. Further investigation of this issue is warranted, possibly by extending the numbers of trials for each condition so as to provide the statistical power needed for a more in-depth analysis of this interaction. Again, longitudinal approaches would be of value for greater understanding of this question in order to determine whether the roles of memorization and productive rule application may shift over time with respect to the two languages.

To evaluate whether Palestinian Arabic heritage-speaking children really evidence productive use of the dual marker, which represents a pluralization category that is absent from English, children’s dual formation in response to real and pseudoword prompts was examined in addition to Palestinian Arabic and English regular and irregular plural. The preliminary findings reported here suggest that this group of heritage speakers is able to access and productively use the Arabic rules for dual formation quite effectively despite the lack of a corresponding morphosyntactic reflex in their dominant language. Dual formation was significantly superior compared to masculine and broken plurals, and children appeared to be applying their knowledge of the dual formation at levels similar to their performance on the feminine sound plurals, known to be acquired by age 3 in monolingual speakers of Arabic (Ravid & Hayek, 2003). This finding is therefore consistent with developmental milestones documented in Arabic monolingual speaking children, where Arabic feminine and dual forms are acquired before broken plural and regular masculine plural (Ravid & Farah, 1999, 2009; Aljenai et al., 2003; Albirini, 2015). With respect to our prediction B above, these findings suggest that

being able to access rules for English pluralization did not necessarily reduce the ability to access rules for Palestinian Arabic dual formation. However, the lack of a significant correlation between any aspect of English plural marking and the various measures of Palestinian Arabic dual marking could also be related to the low number of trials per condition in this preliminary study (there were five instances of dual marking with real word prompts, for instance, but 15 instances of English regular pluralization).

It may be possible to consider these findings in the light of proposals by Montrul (2012, 2015) and Polinsky (2011a) concerning whether the linguistic knowledge of heritage speakers for their L1 is affected primarily by processes of incomplete acquisition or attrition. The present preliminary findings do not contribute directly to this debate since they are based on cross-sectional rather than longitudinal data. Effects of attrition might be evidenced on dual formation later in development, for instance. However, the data presented here suggest that there is superior performance on plural formations that conform to early-acquired categories – feminine sound plural and dual – compared to relatively poor performance in masculine sound plural and all broken plural categories. This may reflect an interaction between incomplete attainment and knowledge attrition since there are no ceiling effects on either feminine sound plural or dual elicitations in these data. It seems plausible to suggest that knowledge may be retained at whatever level of attainment was achieved prior to attenuation of the L1 input; indeed, Putnam and Sanchez (2013) argue that incomplete acquisition and language attrition “both are epiphenomenal instances of the same process, albeit at different ends of the spectrum” (p. 30).

Although the importance of longitudinal study designs to directly address questions of this nature is clear, cross-sectional approaches that compare performance between heritage-speaking children and adults may also be methodologically useful. Polinsky (2016) highlights the promise of such comparisons, pointing out that all heritage speakers – children and adults – share experiences that are not part of the usual monolingual experience; the shared shift from home language input to school language input and use, the absence of bilingual education, and shared environmental factors. We advocate for future investigations that follow heritage speakers longitudinally through their development, assessing both their L1 and dominant L2, or multiple cross-sectional designs that compare child and adult heritage-speaking populations with respect to both their languages. These approaches may provide foundational information towards development of clinical protocols for assessment of the language skills and knowledge of heritage speakers in general – and of Arabic in particular – by identifying markers of typical language development in heritage situations. This would provide a more ecologically valid alternative to the current practice of placing heritage-speaking

children along developmental trajectories that were established via the study of monolingual speaking children, who may acquire the same (heritage) L1 but who experience a substantially different environmental context.

No significant main effect of ISP on children's productions of plural and dual forms was found, but other measures of socioeconomic status and family educational background were found to be important. Maternal and paternal education did correlate with ISP, and those two measures also correlated with the children's performance on irregular and broken plural productions. In fact, the success of children's irregular and broken plural productions across the board seems to be revealing of several factors that could be influencing language development in these heritage speakers, directly or indirectly, including parental education, amount of Arabic in the home (a negative correlation, suggesting that more Arabic in the home means children are focusing more on constructions such as the feminine sound plural and dual that are typically being consolidated around the ages we tested), and type of bilingualism. This may suggest that irregular and broken plurals could provide a sensitive measure of language development in heritage speakers and certainly warrants further investigation. The finding with respect to ISP would not have been predicted, given the socioeconomic diversity within the Arab diaspora in general and the sampled participant group in particular. However, given the correlations between parental education and irregular plural productions, it may be that our selected measure of socioeconomic status was simply not sufficiently sensitive to reveal the nature of the interplay between such environmental variables and the development of pluralization in heritage speakers. Alternatively, there may be processes of feature reconfiguration in the course of language development in heritage learning that are beyond the impact of ISP – presumably, the morphosyntactic processes that (by hypothesis) drive regular plural formation, as opposed to the learning processes that drive irregular plural learning. This perspective is in line with a dual-route model of inflectional systems such as that proposed by Pinker (1999). However, as previously mentioned, longitudinal studies of plural development, more in-depth work on irregular plurals, and possibly a more specific and/or sensitive measure of socioeconomic status would be needed to shed light on the mechanisms underlying the preliminary observations reported here.

Future research and implications

We call for an expansion of linguistic investigations into the course of language development in heritage-speaking children and adults. In Arabic heritage speakers who find themselves in English-dominant environments, it is important to examine language development with a focus on those parameters that are different

between the L1 and the dominant L2. The preliminary investigation reported here focused on one such domain: the productive capacity of nominal pluralization. This kind of study is valuable, especially in light of the distinctions between Arabic and English in this domain: absence of the dual category in English pluralization, the early acquisition of English regular plural, Arabic dual and feminine plural markers in the course of monolingual acquisition, and the gender agreement that is found in Arabic but not in English.

Further studies using longitudinal designs or comparisons between adult and child heritage speakers are needed to evaluate whether there is attrition or retention of the dual in later stages of language acquisition in heritage situations. More fine-grained and sensitive measures of familial socioeconomic status and of factors such as length of exposure to the dominant L2 and the extent of heritage language use in the home environment are also needed. In this preliminary study, we targeted only production of various plural forms, yet we did not investigate comprehension. There may also be an interaction between the presence of the dual marker in various languages and the cognitive processing of number concepts (e.g., Almoammer, Sullivan, Donlan, Marusic, Zaucer, O'Donnell, & Barner, 2013); this could also be investigated through the examination of heritage speakers of Arabic.

In order to capitalize most effectively on the preliminary findings we have reported here, it would be necessary to expand the number of participants and their age range, and increase the numbers of trials per condition to reveal more fine-grained patterns of responding. A combined qualitative/quantitative analysis of elicited plural productions would also provide a more detailed view of morpho-syntactic processing in heritage speakers.

6. Conclusions

This preliminary examination of dual and plural formation in both the L1 and the dominant L2 of Palestinian Arabic heritage-speaking children contributes to the relatively sparse literature on language acquisition in this population and highlights the need to expand the study of heritage languages to include children, rather than focusing only on adult heritage speakers (e.g., Rothman, Tsimpli, & y Cabo, 2016). Our findings suggest that the methods employed are effective and offer a means for investigating dual and plural formation in both Arabic and English. This is potentially valuable in theoretical debates related to attrition versus incomplete acquisition in the course of language development, as well as for investigations that are focused on identifying the types of structures with a tendency to attrition in heritage language learning. As discussed, expansions of this preliminary study have the potential to contribute to our understanding of the grammatical

restructuring processes that are at play in heritage speakers throughout the course of their language acquisition.

In addition to the potential theoretical contribution, this study sets forth an approach that could provide a foundation for addressing a specific gap in the clinical and educational literature. Currently, clinical and educational decisions may be mainly informed by evidence derived from studies of monolingual minority-language speakers. Such individuals do not share similar environmental learning conditions and do not exhibit the language shift that is distinctive to heritage speakers. Hence, relying on such evidence to inform clinical and educational decisions about heritage-speaking populations could be considered inauthentic in the sense that it could lead to practices that are not sensitive to the child's linguistic and cultural background. Such approaches run contrary to professional and federal standards, but currently clinicians and educators are left with little alternative as they attempt to work within evidence-based frameworks. Quite simply, the needed evidence base about language development in heritage speakers of Arabic is currently lacking. In order to adopt an ecologically valid perspective for clinical and educational decision-making, more studies of this nature are needed.

Finally, expansions of this approach to include both children and adults – longitudinally or within multiple cross-sectional designs – could enhance our understanding of the course of language acquisition in heritage speakers. This would provide important evidence that could potentially contribute to the development of effective language maintenance and Arabic teaching strategies that are appropriate for Arabic heritage speakers.

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Interactions between temporal acoustics and indexical information in speech rate perception

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This study examines the interplay between a number of factors that affect speech rate perception. Three factors were investigated: pause type/length (short, long, and non-silent), actual speech rate (accelerated vs. decelerated), and utterance type (native Arabic, accented Arabic, and unfamiliar language). A group of Arabic speakers judged whether the sentences they heard were slow or fast, and rated their speed on a 1–7 scale (1 = extremely slow, 7 = extremely fast). The findings show that all three factors influence speed judgments and ratings and that they interact with one another on different levels. Our results testify that perceived speech rate is the outcome of an interaction between the actual linguistic and acoustic properties of an utterance along with a listener's indexical knowledge about the speaker.

Keywords: speech rate, temporal acoustics, indexical information, perception, pauses

1. Introduction

The term *speech rate* is a complex one. Put simply, speech rate refers to the speed at which we speak, often measured as the number of linguistic units per time, but in fact it involves more than actual articulation rate. It encompasses both linguistic and extra-linguistic factors such as hypo- and hyper-articulation, pause type, pause length, pause position, hesitation, repetition, utterance position, pre-judges, stereotypes, narration style, interlocutors' age, gender, relationships, and so on. Because of its effect on intelligibility, comprehensibility, and accentedness, speech rate is relevant to studies on both speech production and perception. For instance, an increased speech rate has been shown to have a positive impact on evaluations of both comprehensibility and accentedness (Derwing & Munro, 2001; Kendall, 2013; Matsuura, Chiba, Mahoney, & Rilling, 2014; Munro & Derwing,

2001). Interestingly, there is not always a direct correspondence between measured speech rate (temporal acoustics) and perceived speed. That is to say, actual articulated speech rate does not necessarily agree with the speech rate perceived by a listener. Perceived speech rate seems to be affected by other factors in the speech signal, such as pause length (long vs. short pauses) and type (silent vs. non-silent pauses) (García-Amaya, 2015; Kendall, 2013; Matsuura, Chiba, Mahoney, & Rilling, 2014; Pellegrino, Coupé, & Marsico, 2011), as well as by factors outside the speech signal, such as a listener's familiarity with the speaker's language (e.g., native, accented but native, or unfamiliar language) (Schnoebelen, 2009).¹

The current study examines the interaction between two sources of information in speech rate perception, namely utterance characteristics (articulation rate, pause type and/or length, and actual speed of utterance) and listener's knowledge/familiarity with a speaker's linguistic background (i.e. speaker's language or accent). Although the relationship between utterance characteristics and speech rate perception has been investigated in prior literature, interaction between utterance characteristics and listener's knowledge about a speaker's linguistic background has yet to be examined in detail.

We introduce the major factors involved in both the production and perception of speech rate in the subsequent subsections. Investigating the interaction between temporal acoustics as measured by speech tempo and interlocutors' information as realized (or assumed) between speaker and listeners provides us with insight into speech rate perception and speech perception in general. It could account for, at least to some extent, the disparity between the rate of speech produced/intended by a speaker (or measured by a researcher) and speech rate as perceived by a listener.

Background

Previous studies have advanced our understanding of speech rate production and highlighted several potential measurements of speech tempo, including speed, pause type, and correlation (or lack thereof) between speed and pause type. These are outlined in the next subsections.

1. Abbreviations: 1/2/3P = 1st/2nd/3rd person; ACC = accusative; Acc = accelerated; Dec = decelerated; *df* = degree of freedom; F = female; IND = indicative; L1 = first language; L2 = second language; M (in data) = male; M (in statistics) = mean; mps = millisecond per syllable; ms = millisecond; N = noun; pps = phone per second; S = singular; SD = standard deviation; spm = syllable per minute; sps = syllable per second; V = verb; wpm = word per minute; wps = word per second

Speech rate in production

Speech rate or *rate of speech* is a broad term which refers to the speed of speech with or without the measurement of pauses (Kendall, 2013). Researchers have long realized the difference pauses can make in measurements of speech rate production and the effect they can have on speech rate perception (Duez, 1982; Goldman-Eisler, 1968). *Speaking rate* and *articulation rate* are therefore used to distinguish between a measurement including pauses (uninterrupted speech) and a measurement which excludes pauses (interrupted speech), respectively (Bradlow, Kim, & Blasingame, 2017; Robb, Maclagan, & Chen, 2004; Dankovičová, 2001; Kendall, 2009, 2013; Laver, 1994). As the terms suggest, a statistically significant correlation has been found between pauses and speaking rate (Goldman-Eisler, 1968) but not between pauses and articulation rate (Laver, 1994). This distinction poses a challenge for any speech rate study because researchers will differ on what is considered a pause and how speech should be measured after pause removal (Campioné & Véronis, 2002).

Pauses can be broadly classified as silent and non-silent (or filled/voiced) (Duez, 1982; Kendall, 2009, 2013; Rochester, 1973). A silent pause can be defined as the period of time in which a speaker does not produce any instance of an utterance. This period can be for a long period of time during a conversation or as short as a stop closure (Kendall, 2013). Note, however, that neither of these is deemed a pause with respect to articulation rate. Researchers have made different decisions regarding pause duration. For instance, Goldman-Eisler (1968) used 250 ms as a normal pause length, while Robb, Maclagan, and Chen (2004) and Thomas (2010) adopted the 250 ms cut-off but added that 50 ms is a non-pause, therefore defining a pause as within a range from 50 to 250 ms. Other researchers used different cut-offs to define normal pause duration, including 100 ms (Kowal & O'Connell, 1980), 270 ms (Henderson, Goldman-Eisler, & Skarbek, 1966), and 400 ms (Segalowitz & Freed, 2004). Campioné and Véronis (2002) analyzed 6,000 pauses in five languages and concluded that a brief pause can be defined as 200 ms or less, a medium pause is between 200 and 1,000 ms, and a long pause is over 1,000 ms. Kendall (2009, 2013) studied a large corpus of American dialects and defined 220–560 ms as the usual duration for a short pause, recommending that further experimental studies confirm this and examine longer pauses. A recent study by García-Amaya (2015) decided, based on previous works, to categorize silent pauses between 400 and 1,000 ms as short, silent pauses between 1,000 and 2,000 ms as intermediate, and silent pauses between 2,000 and 3,000 ms as long.

Non-silent pauses are another type of pause that presents difficulty for researchers regarding speech rate. Non-silent pauses can be of different types including filled pauses, false starts, repeats, and lengthened syllables (Duez, 1982, 1985,

1993). *Filled pauses* are defined as hesitations or interjections that have a lexical status such as *like* or a non-lexical status such as *um* and *uh* (García-Amaya, 2015). A *false start* pause is defined as a sequence of segments uttered to start the next lexical item, but which gets terminated and replaced by another chain of segments. For example, a gender marker in Arabic such as /ta/ which marks 3rd person singular feminine at the beginning of a perfective verb can be a false start pause when the speaker realizes that the subject of the clause is a male rather than a female and continues to replace it with /ja/. A *repeat pause* is similar but the speaker continues to use the intended form without any replacement. For instance, the gender marker /ta/ can be interrupted and repeated, with the speaker eventually producing it as part of the intended form. A *lengthening syllable* pause occurs when a vowel (or a consonant) gets prolonged, especially word- or phrase-finally (Yuan, Liberman, & Cieri, 2006), as in the case of the final vowel in /ʒaww malwaakii ʔabah-naa/ “Milwaukee’s weather killed us”.

In determining what constitutes a pause and how to classify pauses, a researcher must also choose a measurement unit for articulation rate (i.e., the rate of actual speech excluding pauses). Researchers of speech rate have used different measurement units including words per minute (wpm), words per second (wps), syllables per minute (spm), syllables per second (sps), and phones per second (pps) (see Hewlett & Rendall, 1998; Kendall, 2013; Jacewicz, O’Neill, & Salmons, 2009; Jacewicz & Wei, 2010; Robb, MacLagan, & Chen, 2004; Yuan, Liberman, & Cieri, 2006; among many others). Other studies instead use another metric, the average time unit per syllable; for example, ms per syllable (mps) (Tsao & Weismer, 1997). Among these measurement units, syllables per second seems to be the most precise measurement and most suitable for dealing with cross-linguistic data (Hewlett & Rendall, 1998; Kendall, 2013). Words are a comparatively unreliable metric, as a word in Spanish may not bear as many morphemes as in Turkish or Arabic, for example.

Regardless of a researcher’s decisions regarding pause duration and metric selection, there are still other factors influencing both pauses and articulation rate. One is the native language of the speaker who produced the utterances (Bradlow, Kim, & Blasingame, 2017; García-Amaya, 2011, 2012, 2015; Segalowitz & Freed, 2004). The major and consistent finding regarding speech rate in one’s native vs. nonnative language emphasizes that first language (L1) production is usually faster than second language production (L2), regardless of how L1-L2 speech rate is perceived. This slower speech rate can also be linked to the pausing phenomenon in L2. Segalowitz and Freed (2004), for example, demonstrated that L1-Spanish learners of L2-English overuse short pauses in phrase-medial positions compared to native speakers of English. García-Amaya (2015) reported that over time, speech rate improved while pausing shifted from stages

dominated by long pauses to stages consisting mostly of filled and short pauses among L1-Spanish learners of L2-English. She concluded that the learners used pauses as a processing and planning strategy, and their use of pauses changed into a more native-like manner (e.g., more short and filled pauses rather than long pauses) over time. One issue related to L1-L2 speech rate is whether L2 speech rate is L1-dependent. In other words, can L1 rate predict L2 rate? This issue arises since languages differ in speech rate, pause duration, and pause type (Pellegrino, Coupé, & Marsico, 2011). Bradlow, Kim, and Blasingame's (2017) recent study has shown that the answer is affirmative, in line with findings from previous works such as de Jong, Groenhout, Schoonen, and Hulstijn (2015) and Derwing, Munro, Thomson, and Rossiter (2009).

Thus, as illustrated, speech rate is a complex and multifaceted issue at the production level and hence requires the researcher to make a series of decisions when conducting a speech rate study. Speech rate also retains its complexity at the perception level. The following provides a review of previous findings on speech rate in perception.

Speech rate in perception

Speech utterances can be measured for speech rate using one of the measurement units outlined in the previous subsection. However, it is difficult to make a direct one-to-one matching between measured speech rate and perceived speech rate. There are two major factors influencing this mismatch: pause type and length and utterance type (e.g., native vs. accented native).

Pausing has been identified as a contributory factor indicating cognitive difficulty for a speaker during production and as a perceptual factor marking slow speech for a listener (Goldman-Eisler, 1968). According to this view, what is perceived as slow or fast speech is indeed highly dependent on pausing. Therefore, some researchers have made a strong claim that pauses could be the primary element informing perceived speech rate (e.g., Grosjean, 1980). Nevertheless, as Kendall (2013) pointed out, there is not a great deal of literature on pausing, and the literature that exists is not focused on one specific area of research. Studies on pausing range from discourse analysis to psycholinguistics to corpus linguistics and, recently, to sociolinguistics as in his study. Furthermore, many of these studies examine pauses with respect to production rather than perception, focusing on length, location, type (i.e., silent vs. non-silent, cognitive vs. non-cognitive, and grammatical vs. ungrammatical), frequency, function, distribution, and the acoustics of pausing.

Duez's (1982) study on the perception of silent pauses in continuous speech is one of the few perception studies on pausing. He found that a lengthening of the

pause-preceding vowel is an indicator of a pause. He also reported that listeners tend not to hear pauses at locations where they do not already expect them. Pause duration was also found to be an essential perceptual parameter in detecting pauses.

In addition to pauses, another decisive factor is utterance type, defined here as the status (or familiarity) of the language relative to the listener's native language. The utterance can belong to a native language, to an accented but native language (e.g., nonnative speakers' production of the listener's L1), or to an unfamiliar language. Utterance type influences not only speech rate production but also a listener's perception of the rate. Many L1-L2 speech rate perception studies have further tied this topic to speech intelligibility and comprehensibility. In general, previous studies seem to report inconsistent relationships between rate and comprehension and/or accentedness (Derwing & Munro, 2001). For example, Griffiths (1990) examined the effects of three speech rates on L2 learners' comprehensibility of passages. The results indicated a significant difference between fast and slow speech but not between slow and normal speech, which did not support the hypothesis that a slower rate would result in better comprehension. Munro and Derwing (1998) examined the effects of nonnative speakers' slowed speech on native listeners' comprehension. The results confirmed that slowed speech sounded less comprehensible and more accented. Later, they conducted another study (Munro and Derwing, 2001) and found that speeding up the speech to a non-extreme point resulted in positive impacts on evaluations of both accentedness and comprehensibility. However, some other studies found no positive effects for a slowed rate. For instance, Blau (1990) and Rader (1990) reported that slow speech was not statistically different from normal speech in a comprehension task despite a handful of higher scores for the slower rate in Rader (1990).

Similarly, researchers disagree on how listeners perceive speech rate in unfamiliar languages. For example, Roach (1998) claims that languages do not differ in speech rate (but rather in syllabic rate) and that listeners lose their objectivity to judge the speed of an unfamiliar language due to perceptual differences. In contrast, Dellwo, Ferragne, and Pellegrino (2006) disagree with this claim. In their experimental study, they examined the perception of intended speech rate when produced in the listener's native language (French), a foreign language to which listeners had low exposure (German), and a foreign language in which listeners had overall better proficiency (English). The experimenters naturally manipulated the temporal characteristics of utterances at different levels (from very slow to the fastest possible) and asked the participants to rate their speeds on a 1–17 scale. The results showed a significant correlation between the measured objective

speech rate (sps) and the perceived speech rate both in their native and nonnative languages. Thus, the authors concluded that, regardless of (un)familiarity with a language or variation in speech rate, listeners are capable of evaluating a speaker's *intended* speed fairly accurately.

Dellwo, Ferragne, and Pellegrino (2006) pointed out that further research is needed to capture the cues used by the listeners to recover the original intended speech rate, a question that they admitted was unanswered in their study. The temporary assumption they provided was that the participants could use pausing rather than vocalic variation (syllabification per second) in each of the different conditions. For the current study, we also suspect pausing plays a large role not only directly in this study but also indirectly, possibly having an effect on the results of previous studies that showed inconsistent findings regarding slowed vs. a speeded-up rate of speech. Therefore, we consider pausing in our current study, along with other factors.

Current study

Previous studies which manipulated speech rate either naturally or using computer-assisted techniques did not provide sufficient detail as to (1) what types of pauses the stimuli contained or (2) what methodological procedures were used to deal with pauses. If the researchers who time-compressed their stimuli also time-compressed the pauses, then pause duration as a perceptual parameter should have contributed to the listeners' perception of speech rate. Still, if they only time-compressed the actual speech and kept or re-located the un-compressed pauses, then the relative correspondence between articulation rate and pause duration would be expected to unsettle. It is also unclear whether some attitudes and assumptions about the speakers or languages of the stimuli played a role in any of the studies. For example, in the studies by Munro and colleagues, one may question the potential influence of the indexical information about the Mandarin speakers of English as a nonnative language.

Hence, in the current study we attempt to examine the role of these three factors (actual speed/articulation rate, pause type/length, and utterance type as conveying some indexical information about the speaker/language) as well as their interactions. The precise question at hand is: What is the influence of speed type, pause type, and utterance type on the perception of speech rate? We hypothesize that pauses play a decisive role and function as the primary factor affecting speech rate perception. We also predict that pauses interact with the other two factors. That is to say, pause type influences speech rate perception, but it moderates and is moderated by utterance and speed types.

2. Methodology

In light of the previous findings, and to answer the current research question, we ran an experiment in which participants listened to a controlled set of structurally identical sentences and then judged and rated their speeds.

Materials

The stimuli consisted of 20 Modern Standard Arabic (MSA) sentences in which length (number of syllables) and syntactic structure were both controlled. The Example in (1) presents one sentence with its syntactic structure as representative of all sentences used as stimuli:

- (1) *ʔaʕtaqid-u ʔanna l-maʕrifat-a |* (V complementizer N)
 I_{PS}-think-*IN* that the-knowledge-*ACC*
 ‘I think that the knowledge’
llatii ta-nqusʕ-u l-ʔinsaan-a | (relative clause)
 that 3_{PSF}-lack-*IND* the-human
 ‘that one lacks’
ta-ħtaaq-u l-baħθ | (V N)
 3_{PSF}-need-*IND* the-search
 ‘necessitates searching.’

All sentences used as stimuli had an identical structure in order to avoid any unwanted effects caused by structural differences, as previous studies have shown that listeners are sensitive to the syntactic locations of pauses and constituent boundaries (Duez, 1985). The subject of the initial verb was null in all sentences because Arabic is a pro-drop language. The sentences were also translated into Spanish, another pro-drop language. Every Arabic sentence was 8 words long and had a similar number of syllables ($M = 22.4$, $SD = 1.33$). The translation from Arabic to Spanish was undertaken with the help of a bilingual speaker of Arabic and Spanish with a background in linguistics. Care was taken to maintain the same structure and to obtain relatively the same length by avoiding some extremely long words when short alternatives were available, even if precise one-to-one meaning was not achieved in such cases. The average number of syllables per sentence was similar to those in the original Arabic sentences, but the standard deviation was slightly larger ($M = 20.25$, $SD = 4$). An example of the Spanish sentences is provided:

- (2) *Creo que la mano | que se extiende para ayudar | será bendecida*
 I think that the hand | that it extends to help | will be blessed
 ‘I think that the hand that helps will be blessed.’

Stimuli recording

Four speakers produced the stimuli. Speaker 1 is a male native speaker of Arabic who produced the stimuli in MSA. Speaker 2 is a nonnative speaker of Arabic who has been taking courses in Arabic and linguistics at the University of Wisconsin-Milwaukee. We gave him the stimuli to practice reading every sentence as accurately as possible. Although a few words were unfamiliar to him, he was given enough time to study the words and therefore produced them properly. Speaker 3 is a native speaker of Spanish and produced the Spanish version of the sentences. Two pauses were fixed before and after the relative clause in every sentence, and speakers were instructed to make short silent pauses in one version (first recording) and non-silent pauses in another version (second recording). Speaker 4 is a female native speaker of Arabic who was asked to produce random sentences without any specific requirements except that they were produced in MSA. The sentences she produced were not target sentences for the study and were used as fillers. After the speakers produced all the sentences and before any manipulation of length or pauses took place, we examined the original length of each sentence. The sentences were similar in length, as shown in Table 1.

Table 1. Average length and speaking rate of target sentences before manipulation

	Native Arabic	Accented Arabic	Spanish
Duration mean (in seconds)	5.78	6.34	5.52
Standard deviation (in seconds)	0.23	0.42	0.39
Speaking rate (sps)	3.87	3.52	3.68

The average speech rate in this study was relatively slower than the reported range in the literature for both Arabic and Spanish. Gósy (1991) reported that average speech rate in both Arabic and Spanish ranges between 4.6–7 sps. This difference could be due to the fact that we included a pause in our calculations, while Gósy did not (i.e., Gósy reported average articulation rate as opposed to speech rate). It is also possible that the speakers' careful production of stimuli sentences in the current study resulted in a slightly slower than average speech rate. Unsurprisingly, the accented Arabic sentences were overall slower than the same sentences in native Arabic, an issue that was addressed earlier (nonnative speakers are usually slower).

Stimuli preparation and design

The speed of the sentences was manipulated to create two separate sets of stimuli at accelerated and decelerated speeds, respectively. The original speed was increased

once to create accelerated sentences and then decreased a separate time to create decelerated sentences. Then, any original pauses made by the speakers were removed and filled in with fixed pauses in both stimuli sets.

Acceleration vs. deceleration

We digitally accelerated each sentence by 20% once and then separately decelerated each sentence by 20% once using computer-based time compression, a technique that has been used in previous studies such as Derwing and Munro (2001). While some researchers used a 10% manipulation technique (Derwing & Munro, 2001), we used 20% because we are targeting the potential interplay between multiple factors, as opposed to actual speech rate alone. Additionally, manipulation by 20% was not too extreme, as previous studies have shown that continuous speech is resistant to degradation caused by time compression. For instance, some studies have shown that speech remains comprehensible even at 50% time-compression (Gerber, 1974). Beasley, Bratt, and Rintelmann (1980) tested the intelligibility of time-compressed sentences and found that speech is still comprehensible at accuracy rate of 97.5% after 40% of acceleration. In order to compensate for the fundamental frequency change caused by acceleration or deceleration, we changed the frequency by +/- 19% using the PSOLA (Pitch-Synchronous Overlap-and-Add) method available in Praat (Boersma, 2001). This decision was based on the judgments of five Arabic speakers and five Spanish speakers who rated sentences at 19% as being closest to the originals (prior to acceleration or deceleration). Table 2 displays original articulation rate, accelerated rate, and decelerated rate for all three speakers. After the acceleration/deceleration procedure was completed, we inserted pauses as detailed in *pausing*.

Table 2. Articulation rate of the target sentences before manipulation

Articulation mean (sps)	Native Arabic	Accented Arabic	Spanish
Original	4.61	4.39	4.53
Accelerated	5.53	5.26	5.43
Decelerated	4.05	3.51	3.62

Pausing

Two silent pauses were fixed at 400 ms (short) once and 2,000 ms (long) once in every sentence to generate two pause-dependent conditions. We decided on 400 and 2,000 ms based on the previous studies, as outlined in the literature earlier. The 400 and 2,000 ms pauses replaced the original pauses of the speakers in the

pre- and post-relative clause locations. In the third condition (non-silent pauses), all hesitation, repeat, and false start pauses were totally removed from the second recording and placed in the exact two locations to function as non-silent pauses. These non-silent pauses consisted of two types. One type was false start or repeat pauses produced deliberately by the speakers. The other type of non-silent pause was hesitation or filler that was not part of the words but rather “hemming and hawing” non-lexical items such as *em*, *er*, and *el* (*/il, al/* occurs frequently in Arabic). No modification of any type was made to Speaker 4’s 15 non-target sentences.

Design

Each sentence was produced in two versions, accelerated and decelerated, for each speaker, and each version was further manipulated to have three types of pauses: 400 ms, 2,000 ms, and non-silent pauses. This made a total of 360 sentences ($20 \text{ [sentence]} \times 3 \text{ [utterance]} \times 2 \text{ [speed]} \times 3 \text{ [pause]} = 360$), in addition to the 15 non-target sentences. Table 3 illustrates the experimental design. The design involved three types of conditions. Condition 1 was the utterance type, of which there were three: native Arabic, accented Arabic, and unfamiliar Spanish. Condition 2 was speed, either accelerated or decelerated. Condition 3 was pause type, either silent 400 ms, silent 2,000 ms, or non-silent (at an average of approximately 1,000 ms).

Table 3. A summary of the study design

Speed	Utterance	Pause
	Native Arabic	Short silent pause
Accelerated	Accented Arabic	Long silent pause
Decelerated	Unfamiliar Spanish	Non-silent/filled pause

Participants

Thirty-one native Arabic speakers (8 males and 23 females) participated in this study. The participants speak different dialectal variations such as Hijazi, Najdi, Southern Saudi Arabic, Syrian, Moroccan, and Jordanian. However, their dialects were not targeted in this study since the stimuli were all in MSA, a variety that all speakers had received formal education in. About a third of the participants speak English as an L2, but none of them speak Spanish or any Romance languages.

Lists, tasks, and procedure

We used a software randomizer to perform a randomization of the 360 sentential stimuli. Four lists of 90 randomized sentences ($5 \text{ [sentence]} \times 3 \text{ [utterance]}$

type] $\times$ 2 [speed type] $\times$ 3 [pause type] = 90) were generated, where no item re-occurred within any set, and 15 non-target sentences were added to each list. We presented one of the randomized lists (105 sentences) to each participant (who was met individually) to judge whether each sentence they heard was fast or slow (hereafter, *Judgment Task*), and to then rate each sentence on a scale from 1–7 with 1 being extremely slow and 7 being extremely fast (hereafter, *Rating Task*). The subjects were verbally instructed to listen to the entire sentence and not judge before the sentence was finished. The entire experiment took about 30 minutes.

3. Results

The current study aimed to examine how utterance type, pausing, and speed interact with one another in speech rate perception and what contribution each provides to the perception of speech rate. Before we explore the results with statistical details, we present the overall findings.

Overall patterns from both tasks

The general findings are displayed in Figures 1 and 2, which present the percentage of “fast” responses and the mean ratings for all conditions, respectively. In both figures, the top three panels show the results for different utterance types in the accelerated condition, while the bottom panels show the results for those in the decelerated condition. The three bars in each panel indicate different pause types: long, short, and non-silent pauses. The results from both tasks mirror each other. In general, the response patterns from the accelerated condition manifest themselves in a very similar pattern in the decelerated condition. For example, in Figure 1, we observe the highest portion of “fast” responses for the non-silent pause condition, followed by the short pause condition, and then by the long pause condition in the accented and unfamiliar utterance types. This is true for both the accelerated and decelerated conditions. We also observe that the response patterns are similar overall within the same utterance type. For instance, sentences are judged as the fastest in the short pause condition for the native utterance type regardless of speed type in Figure 1. However, patterns across the utterance conditions vary significantly from one to another. More “fast” responses and higher ratings are reported for short and non-silent pauses in the accented condition, for short pauses in the native condition, and for non-silent pauses in the unfamiliar condition.

Statistical analysis

We performed a binary logistic regression to examine the data from the Judgment Task. To decide whether a certain variable plays an important role in the

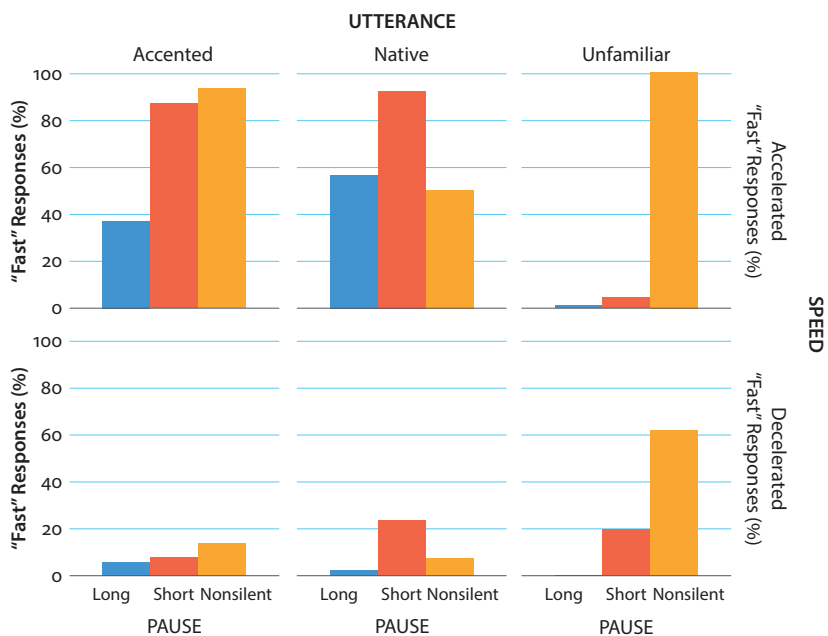


Figure 1. Proportion of "Fast" responses from judgment task

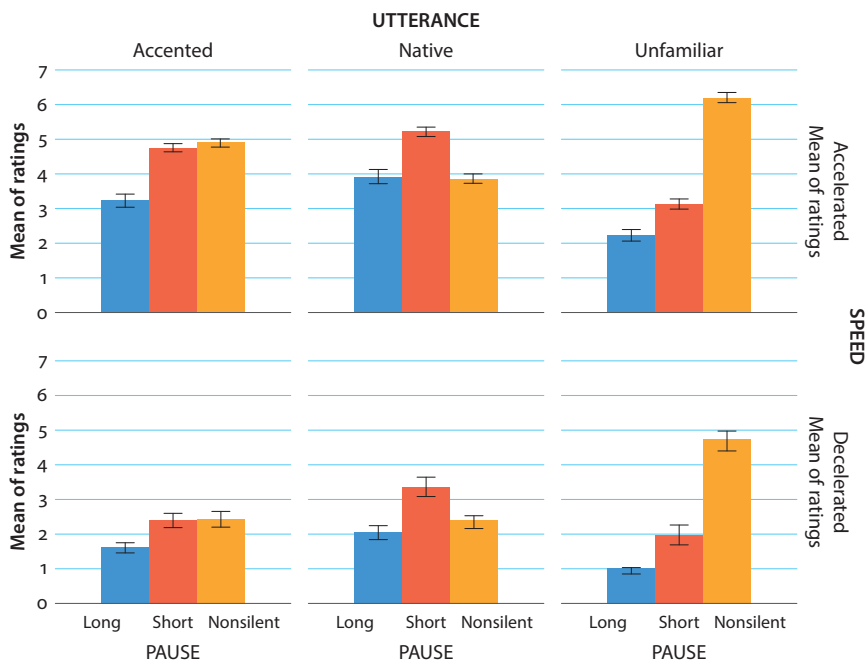


Figure 2. Mean ratings (1 = extremely slow, 2 = slow, 3 = slightly slow, 4 = neutral, 5 = slightly slow, 6 = slow, 7 = extremely fast)

perception of speech rate, we compared a variety of models. Our intention was to systematically build up to a final model by progressively adding in one variable at a time. At each step, if the additional variable did not improve the model fit, we concluded that the added variable was not crucial to speech rate perception. First, we compared three models each with one of the three main variables: utterance type, speed type, and pause type. Such a comparison was done to confirm (or disconfirm) whether each of these factors contributes to the perception of speech rate as suggested by previous studies. Second, we progressively compared each of these models to models with additional interaction terms. This comparison was intended to investigate whether the three factors interact with one another to have an effect on speech rate perception. Lastly, we examined the full model to investigate the degree to which each factor or interactions of factors contribute to speech rate perception.

The first model we built used only *speed* as a predictor (Model 1). We progressively built this model by adding *pause* (Model 2), and again by adding *utterance* (Model 3). The results indicate that all three models contributed to accounting for the data at the 0.01 level. Model 1, Model 2, and Model 3 yielded a chi-square of 553.055 ($df = 1$), 926.613 ($df = 3$), and 954.149 ($df = 5$), respectively. The improvement of the model can be examined by taking the chi-square difference between the models. The model was improved by adding the effect of *pause* to Model 1 as the change in the chi-square value of 373.558 ($= 926.613 - 553.055$) ($df = 2$) is significant, $p < .01$. Model 3 improved Model 2 with a change of chi-square to 27.536 ($df = 2$), $p < .01$. These comparisons confirm the previous findings that speed type, pause type, and utterance type all have a significant effect on speech rate perception.

To investigate interactions among the three main factors, we examined the chi-square change by adding an interaction to the model as a predictor. The base model was Model 3, which used the three main variables. We built up this model by adding a *speed* $\times$ *pause* interaction (Model 4). Model 4 was a significant fit for the data, $\chi^2(7) = 960.627$, $p < .01$. However, the change of the chi-square values was not significant at the 0.01 level, $\chi^2(2) = 6.48$, $p = .039$. We built up this model by adding a *speed* $\times$ *utterance* interaction (Model 5), by adding an *utterance* $\times$ *pause* interaction (Model 6) to Model 5, and by adding a *pause* $\times$ *speed* $\times$ *utterance* interaction (Model 7) to Model 6. Models 5 to 7 were a significant fit for the data at the 0.01 level, as were the chi-square changes for the models. These results indicate that all three factors interact with one another in speech rate perception, with the exception of speed and pause which interact with utterance but not with each other. Table 4 summarizes the results of the model comparisons.

Based on the model comparisons, we built a final model using the full interaction terms, leaving out the *speed* $\times$ *pause* interaction, for our main

Table 4. Summary of the model comparisons

Model		$\chi^2(df)$	χ^2 difference (<i>df</i>)
Model 1	speed	553.055** (1)	
Model 2	speed, pause	926.613** (3)	373.558** (2)
Model 3	speed, pause, utterance	954.149** (5)	27.536** (2)
Model 4	speed, pause, utterance, speed $\times$ pause	960.627** (7)	6.478 (2)
Model 5	speed, pause, utterance, speed $\times$ pause, speed $\times$ utterance	1193.154** (9)	232.527** (2)
Model 6	speed, pause, utterance, speed $\times$ pause, speed $\times$ utterance, utterance $\times$ pause	1668.353** (13)	475.199** (4)
Model 7	speed, pause, utterance, speed $\times$ pause, speed $\times$ utterance, utterance $\times$ pause, pause $\times$ speed $\times$ utterance	1766.563** (17)	98.210** (4)

** $p < .01$

investigation. This logistic regression model was statistically significant, $\chi^2(15) = 1759.035$, $p < 0.01$. The model explained between 46.8% (Cox and Snell R square) and 63.9% (Nagelkerke R square) of the variances in the judgment data and correctly classified 84.4% of the cases. Table 5 summarizes the results in more detail. To understand the results, note that the native Arabic, filled pause, and decelerated conditions served as reference conditions for the utterance, pause, and speed types, respectively. The accented Arabic and unfamiliar Spanish conditions were coded with “1” and “2,” respectively, for utterance type; the long pause and short pause conditions were coded with “1” and “2,” respectively, for pause type; and the accelerated condition was coded with “1” for speed type. Table 5 shows a summary of the final model. Note that an Exp(b) value greater than 1 indicates that as the predictor increases, the odds of the outcome (“fast” responses here) also increases. If the value of Exp(b) is less than 1, then as the predictor increases the odds of the outcome decreases (i.e., fewer “fast” responses).

Although we examined a complex model with almost all possible interaction terms in order to determine whether there are intereactions among the three factors of interest, building such a complex model is not usual in most binary logistic regression analyses. As a result, some statistical results may not contribute to meaningful discussion of interactions among the examined predictors. For instance, it

Table 5. Summary of the model (with full interaction terms, except for Speed × Pause interaction) Predicting whether a response is “Fast”

	b (coefficients)	df	95% Confidence interval for odds ratio		
Included in the model			Lower	Exp(b)	Upper
Constant	−3.268**	1		.038	
Speed (1)	3.392**	1	18.911	29.735	46.755
Pause	**	2			
Pause (1)	.045	1	.689	1.046	1.588
Pause (2)	2.156**	1	5.271	8.639	14.160
Utterance	**	2			
Utterance (1)	1.415**	1	2.095	4.115	8.083
Utterance (2)	3.755**	1	23.658	42.724	77.156
Speed × Utterance		2			
Speed (1) by Utterance (1)	1.033*	1	1.153	2.809	6.842
Speed (1) by Utterance (2)	17.324	1	.000	33389479.5	.
Pause × Utterance	**	4			
Pause (1) by Utterance (1)	−.978*	1	.150	.376	.939
Pause (1) by Utterance (2)	−21.735	1	.000	.000	.
Pause (2) by Utterance (1)	−2.781**	1	.025	.062	.152
Pause (2) by Utterance (2)	−4.029**	1	.009	.018	.036
Pause × Speed × Utterance	**	4			
Pause (1) by Speed (1) by Utterance (1)	−2.209**	1	.038	.110	.321
Pause (1) by Speed (1) by Utterance (2)	−4.550	1	.000	.011	.
Pause (2) by Speed (1) by Utterance (1)	−.094	1	.312	.910	2.655
Pause (2) by Speed (1) by Utterance (2)	−22.381	3	.000	.000	−22.381

Note: $R^2 = .468$ (Cox and Snell) $.639$ (Nagelkerke). Model $\chi^2(15) = 1759.035$, $p < .01$.

* $p < .05$

** $p < .01$.

is difficult to interpret what the three-way interaction implies in our study. Therefore, we will present only straightforward results here. As we observe in Table 5, all three predictors (*utterance*, *speed*, and *pause*), the *pause* × *utterance* two-way interaction, and the three-way interaction among the three predictors all contribute to the model significantly at the 0.01 level. According to the previous model

comparison and the new full model analyses, the role of interaction between pause type and utterance type as well as between speed and utterance type is not strong in speech rate perception. Across all data, accelerated utterances have 29.735 times higher odds than decelerated ones, as the $\text{Exp}(b)$ value for Speed (1) indicates. For Utterance (2), the odds that unfamiliar Spanish sentences will be judged “fast” are 42.724 times higher than those of native Arabic sentences. Compared to sentences with filled pauses, sentences with short pauses are more likely to be judged as being “fast” ($\text{Exp}(b) = 8.639$). Contrary to the general pattern, sentences with short pauses are less likely to be judged as “fast” in both accented Arabic and unfamiliar Spanish sentences ($\text{Exp}(b) < 1$).

We now turn to the results of the Rating Task. We performed a series of repeated measures ANOVA tests to investigate the main effects of the three factors and the interactions among them. A three-way repeated measures ANOVA indicated that there was a significant main effect for all three factors – utterance type, speed type, and pause type – on ratings at the 0.01 level. The ANOVA also indicated that there were three-way interactions among all factors and all possible two-way interactions between factors, except between speed type and pause type ($p = .062$) at the 0.01 level. The same pattern was found in the Judgment Task. Table 6 provides a summary of the three-way repeated measures ANOVA.

Table 6. Summary of the three-way repeated measures ANOVA

Source	$F(df_M, df_R)$	p
Utterance type	$F(2, 308) = 15.666$	.000
Speed type	$F(1, 154) = 665.571$	.000
Pause type	$F(1.548, 238.454) = 413.985$	.000
Utterance $\times$ speed	$F(2, 308) = 46.711$	.000
Utterance $\times$ pause	$F(3.601, 554.58) = 410.449$	.000
Speed $\times$ pause	$F(1.822, 280.633) = 2.891$	.062
Utterance $\times$ speed $\times$ pause	$F(3.644, 561.139) = 12.403$	.000

Note: Mauchly's test of sphericity indicated that the assumption of sphericity was violated for all cases at the 0.01 level, except for *utterance* and *utterance $\times$ speed*. Thus, we report Greenhouse-Geisser corrected tests.

To investigate the nature of the interactions, we ran a two-way repeated measures ANOVA with the factors *utterance* and *pause* for the *accelerated* and *decelerated* conditions separately. Our decision for this division of the data was due to the number of levels in speed type and the lack of interaction between speed type and pause type in the previous analysis. There are only two levels of speed type, while there are three levels for the other types. Thus, two, rather than three, statistical

tests are needed when exploring the data according to speed type. In addition, the lack of interaction between speed type and pause type ensures that we can focus on the other factors without focusing on the interaction between speed type and this factor.

The two-way repeated measures ANOVA for the accelerated data indicates that there are main effects of utterance type and pause type, as well as an interaction between these two, at the 0.01 level. A summary of the statistical test results appears in Table 7. Based on the Least Significant Difference (LSD) test, the ratings for unfamiliar Spanish ($M = 3.849$) are significantly lower (i.e., slower) than those for native Arabic ($M = 4.32$) and accented Arabic ($M = 4.295$) at the 0.01 level. However, the ratings do not differ for native Arabic and accented Arabic ($p = .676$). The ratings are the highest (i.e., fastest) for filled pauses ($M = 4.97$), followed by short pauses ($M = 4.37$) and long pauses ($M = 3.125$). The LSD test also indicates that such rating differences between the pause types are significant at the 0.01 level. Figure 3 shows the interaction between utterance type and pause type in the accelerated condition. In this figure, the x-axis shows pause type (long pause, short pause, and filled pause) and the y-axis indicates the mean ratings (lower = slower, higher = faster). Each bar represents utterance type, and the figure also shows a 95% confidence interval along with the mean ratings. As we can see in Figure 3, the rating patterns are similar to each other for long pauses and for short pauses, whereas the filled pauses exhibit different patterns. First, the ratings are higher (i.e., faster) with filled pauses in an unfamiliar language compared to those with other pause types. This pattern is contrary to those of other utterance types in which the ratings are lower for filled pauses than for other pause types. Second, the ratings are lower (i.e., slower) with short pauses in an unfamiliar language than for other pause types. Again, this pattern contrasts with those of other utterance types in which the ratings are highest for sentences with short pauses.

Similar to the accelerated data, the two-way repeated measures ANOVA for the decelerated data indicates that there are also main effects of utterance type and pause type as well as an interaction between these two at the 0.01 level. A summary of the statistical test results appears in Table 7. The ratings for accented Arabic ($M = 2.129$) are the lowest, followed by unfamiliar Spanish ($M = 2.563$) and native Arabic (2.596). Although the mean rating difference is small, the LSD test indicates that the difference is statistically significant between accented Arabic and the other two utterance types at the 0.01 level. The patterns for pause type are the same as in the accelerated data. The ratings are the highest (i.e., fastest) for filled pauses ($M = 3.176$), followed by short pauses ($M = 2.563$) and long pauses ($M = 1.548$). Based on the LSD test, such rating differences between the pause types are significant at the 0.01 level. Figure 4 shows the interaction of utterance type and

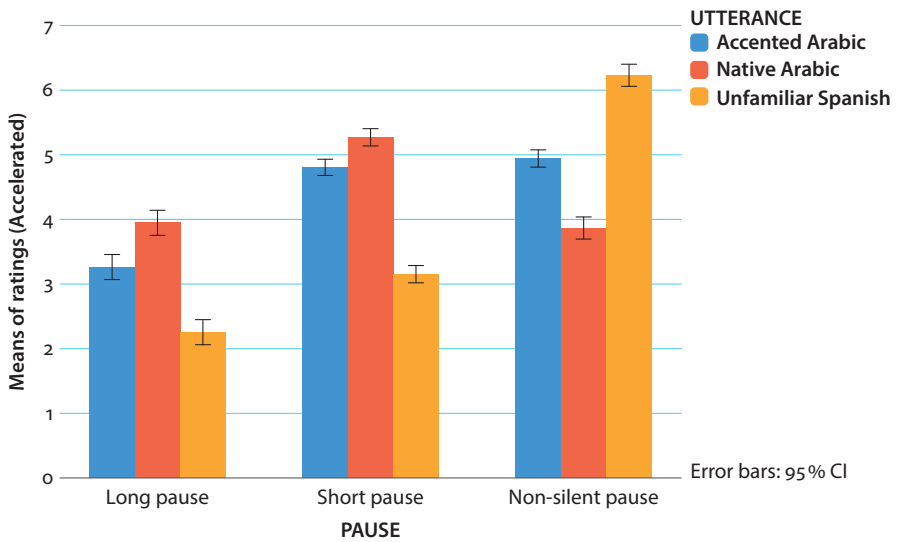


Figure 3. Ratings of different utterance types for different pause types in an accelerated condition

pause type, following the same format as in Figure 3. In general, Figure 4 shows similar patterns to those in Figure 3, though the mean ratings are lower. The rating patterns are similar to each other for long pauses and for short pauses, while they are different for filled pauses. Again, the ratings are higher (i.e., faster) with filled pauses in an unfamiliar language compared to those with other pause types, contrary to in other utterance types. The ratings are also lower (i.e., slower) with short pauses in an unfamiliar language than those in other pause types, though the ratings are not the absolute lowest this time as was the case in the accelerated condition.

We can summarize the results for the series of repeated measures ANOVAs and pairwise comparisons as follows. The three factors in this study – utterance type, speed type, and pause type – all influence a listener's perception of speech rate. Further, these factors are not independent from each other, rather they interact with one another, influencing speech rate perception in a collective manner. However, the interaction between utterance type and pause type is stronger than that between other factors (e.g., between speed type and pause type).

In summary, our examination of the data from the Judgment Task and Rating Task give us compatible results. Utterance type, speed type, and pause type all contribute to speech rate perception. Not all three factors interact with one another to the same degree. Rather, the interaction between pause type and utterance type

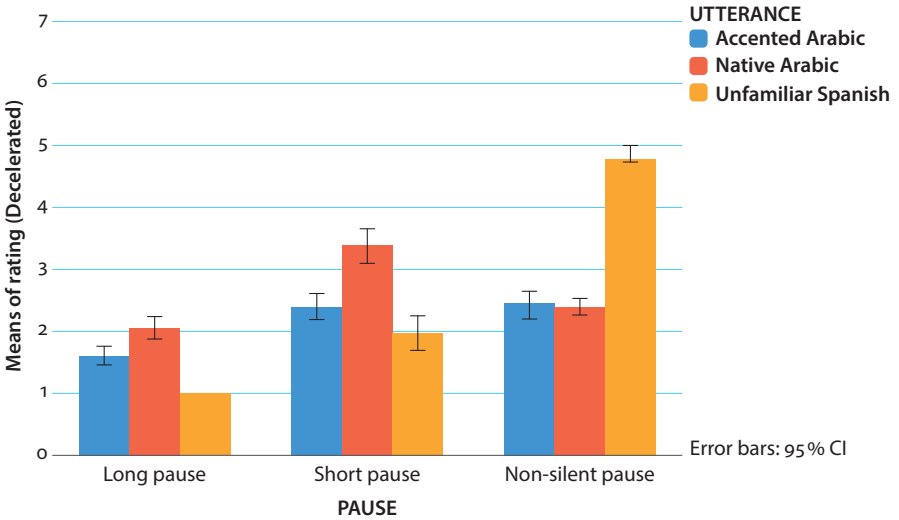


Figure 4. Ratings of different utterance types for different pause types in the decelerated condition

Table 7. Summary of the two-way repeated measures ANOVAs

	Source	$F(df_M, df_R)$	p
<i>Accelerated</i>	Utterance type	$F(1.859, 286.297) = 46.988$	.000
	Pause type	$F(1.808, 278.364) = 335.289$	.000
	Utterance $\times$ pause	$F(3.077, 473.928) = 294.609$	.000
<i>Decelerated</i>	Utterance type	$F(1.915, 294.979) = 21.119$	.000
	Pause type	$F(1.731, 266.523) = 168.956$	.000
	Utterance $\times$ pause	$F(3.465, 533.569) = 188.003$	.000

Note: Mauchly’s test of sphericity indicated that the assumption of sphericity was violated for all cases at the 0.01 level. Thus, we report Greenhouse-Geisser corrected tests.

is stronger than the others. Furthermore, the interaction between speed type and pause type is negligible with respect to speech rate perception.

4. Discussion

The categorical and gradient datasets collected with our two experimental tasks are in agreement with each other and collectively indicate that all three factors – utterance type, speed type, and pause type – together shape a listener’s perception

of speech rate. The influence of pause type is dependent on utterance type and vice versa, and the interaction between these two factors is maintained across different speed types. In other words, the general effect of pause type or utterance type on speech rate perception will maintain the same pattern regardless of whether the articulation rate is fast or slow. This is well demonstrated by the similar patterns shown in Figures 3 and 4. These results suggest that speed is not the only determinant involved in a listener's perception of speech rate. Rather, both silent and non-silent pauses along with indexical information about the speaker together constitute one's perception of speech rate. Stated differently, speech rate perception is modeled by the interaction between temporal acoustics (speed and pauses) and indexical information (utterance type). Figure 5 illustrates this relationship. The dotted lines mark the types of pauses that make the speaker perceive a sentence as being slow. Actual speed moderates this relationship between the two sides and controls the magnitude of the effect, but it will not change the pattern. Note that speech is perceived as being slow if it is of the unfamiliar utterance type with either long or short silent pauses (represented by the dashed lines connecting "unfamiliar," "long," and "short"), if it is of the native utterance type with long or non-silent pauses (represented by the dotted lines connecting "native," "long," and "non-silent"), or if it is accented with long pauses (represented by the solid lines connecting "accented" and "long").

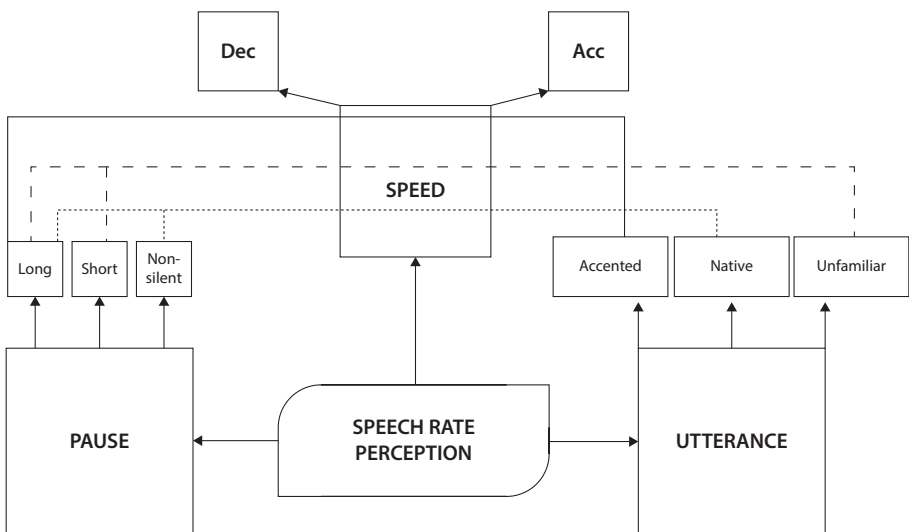


Figure 5. Illustration of the interactions between the three factors (Dec: decelerated; Acc: accelerated)

Our findings partially agree with previous studies. One important facet of the current study is the distinction we make between articulation rate and speaking rate, not only as a measurement of speech rate production but also with respect to perception. Many previous studies (e.g., Bradlow, Kim, & Blasingame, 2017; Robb, Maclagan, & Chen, 2004; Dankovičová, 2001; Kendall, 2009, 2013; Laver, 1994) paid attention to this distinction, but most of these studies focused exclusively either on production or inclusion/exclusion of silent pauses in the measurement. A few studies (e.g., Goldman-Eisler, 1968) suggest that perception of speech rate can be attributed to changes in the production of pauses. The findings from the current experimental study indicate that non-silent pauses can function similarly, with short pauses in accented speech and long pauses in native speech. Further, non-silent pauses function differently than short and long pauses in unfamiliar speech. These results suggest that when we exclude silent pauses to measure articulation rate, the measured speech still encompasses some sort of pause, namely non-silent pauses, that can perceptually function like silent pauses.

Rochester (1973) noticed the significance of pauses in spontaneous speech and explained that short pauses and filled pauses show up in speech production as a function of the increase in difficulty of a task. However, in perception, as our results suggest, listeners treat these short silent pauses and filled pauses differently depending on who produced the utterance. Specifically, a native speaker is perceived as slow when making non-silent pauses and as fast when producing short silent pauses. This may be because the listener is affected by the assumption that a native speaker should speak with fluency. In contrast, a nonnative speaker who makes short or non-silent pauses is still perceived as being fast. One possible reason for this may be the listener's assumption that a nonnative speaker is expected to exhibit a certain level of disfluency. For example, previous studies have shown that L2 learners' short and non-silent pauses emerge over time as a speech processing and planning strategy (García-Amaya, 2015). This contrast between accented and native speech shows the inconsistent relationship between production and perception of speech rate, which becomes extreme in the case of unfamiliar speech. The results here show that while listeners are relatively accurate in evaluating the speed of produced speech (that is, articulation rate), their perception of the actual speed is biased by the presence of silent pauses, be they short or long.

This brings the discussion to the question of whether or not we can perceive the intended or measured speech rate of foreign/unfamiliar languages. If speech rate perception is based on the number of linguistic units per time, then listeners should still use syllabic patterns to judge speech rate no matter who the speaker is or what the language is. Dellwo, Ferragne, and Pellegrino (2006) experimentally showed that listeners are to some extent successful in judging the tempo of foreign speech, while Roach (1998) claimed in contrast that we lose

our objectivity in evaluating the speed of unfamiliar speech. The results from the present study primarily support Dellwo, Ferragne, and Pellegrino (2006) as the listeners in our study were able to make a distinction between accelerated and decelerated rates in an unfamiliar language. Nevertheless, the participants assigned the highest speed ratings to sentences in the non-silent, but not the silent, pause condition, despite the fact that the measured speech rate was the same as in the two Arabic utterance type conditions. This suggests that we tend to perceive foreign speakers as being faster if the speaker does not produce silent pauses. All things considered, while we are able to evaluate the actual speed of foreign speech, we seem to be more influenced by the pauses (or lack thereof) and by our knowledge about the speech (e.g., a foreign utterance type). In other words, speech rate perception is influenced by an interaction between linguistic and paralinguistic factors.

One possible factor explaining the differences between the ratings of accented utterance and unfamiliar utterance, though beyond the scope of this paper, is the effect of speech rate in one's native language. Some previous studies have shown that native language plays an important role in the production rate of an L2 (Bradlow, Kim, & Blasingame, 2017; Yuan, Liberman, & Cieri, 2006). If speech rate in one's native language can affect it in one's nonnative language, it may also affect the perception of speech rate in a nonnative language, even if we are capable of judging the syllables and temporal intervals per second as some other studies have suggested (e.g. Rochester, 1973). This is also true with respect to the perception of speech rate in the language we speak natively. In two different studies by Munro and Derwing (1998, 2001), nonnative speakers were reported to be perceived as fast, despite the fact that their actual speech rate was comparatively slower than native speakers. Our results show that native and nonnative speakers are judged differently, as explained in the result section. This supports the findings by Munro and colleagues that produced speech rate is not always the same as the perceived rate. However, we interpret the discrepancy between the ratings as a consequence of the indexical information we retain about a speaker, which not only holds when contrasting native vs. nonnative conditions but also can be expanded to explain the results from the unfamiliar language utterance type. In addition, previous studies on this issue were concerned with intelligibility and comprehensibility of accented speech, whereas the design of our study did not focus on speech intelligibility at all. Rather, our study involved short sentences spoken in a careful manner in order to examine the interaction between the three factors in question.

One remaining and important issue is how to determine what constitutes a short pause. After analyzing a large amount of spontaneous speech, Kendall (2009, 2013) recommended 570 ms as the average length of short pauses. Further, he

suggested running perceptual experiments to test the significance of this length with respect to speech perception. Although the purpose of our study was not to examine this question, the results provided us with some insight into it. The 400 ms pause type was sufficient for the participants to distinguish it from long and non-silent pauses, at least in the native utterance type condition. Short pauses also made a difference when rating unfamiliar speech as compared to non-silent pauses. This suggests that pause type (non-silent) rather than pause length (approximately 1,000 ms) was the basis for judgment among participants. Otherwise, non-silent pauses should have triggered an intermediate rating between short and long pauses.

5. Conclusions

This study has investigated the interactions between three factors that contribute to the perception of speech rate: temporal acoustics represented by both articulation rate and pause type and/or length, and indexical information represented by the speaker's utterance type (native, accented, or foreign). Our findings complement previous observations regarding the role of the three factors in speech rate perception as individual contributors. However, the present study contributes to the existing knowledge in the field by providing evidence of the collective role of the factors in question, including how they interact to shape our perception of speech rate. It also raises some concerns about previous studies which did not control for non-silent pauses or did not provide any methodological details about how they treated non-silent pauses. Our main finding is that the perceived speech rate of an utterance is the result of an interaction between its actual acoustic properties and the listener's linguistic/indexical knowledge, and that the match/mismatch between the produced rate and perceived rate can be attributed to utterance and pause types. Although this conclusion is based on patterns of Arabic speakers' reactions to stimuli two thirds of which are from Arabic, our results contribute to the scholarship on the phenomenon of speech rate perception in general.

A few limitations and unaddressed issues which are left for future work should be outlined. First, all non-silent pauses, be they repeat, false start, or hesitation pauses, were treated as one pause type. It would be interesting if another follow-up experiment were to break down this type into subtypes and investigate them further. Second, it would also strengthen the current findings if future research recruited Spanish participants to rate the same sentences used in this experiment under the same conditions to observe whether the same findings persist.

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