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A Sociophonetic Study of Interdental Variation in Spoken Jordanian Arabic

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Abstract

This study examines the potential influence of linguistic and social forces on interdental variation in JA using Goldvarb application. A total of 1756 tokens were coded and analyzed for the three variables ((θ), (ð), (ðˁ)) in a corpus of 9 young speakers (7 female; 2 male) gathered in interviews.The sociolinguistic factors examined include the immediate phonological context, stress, word class, syllable and word position, frequency, sex of speakers, and urbanization. Data analysis shows that stopping is favored by the urban and semi-urban female speakers, while the stridents are exclusively favored among the urban group. Linguistically [t], shown to be the salient linguistic variant, is favored by preceding and following stop segments and by salient linguistic positions such as stressed syllables. On the other hand, [d] and [dˁ] appear to be favored in preceding non-stop segments; the linguistic conditioning of the stridents appears to be marginal due to insufficient occurrences.

Keywords: interdentals, variation, Arabic, sociolinguistics

1- Introduction

Although many studies have examined language variation in Arabic, only a few of them have subjected that variation to multivariate analysis.Therefore, reference to the favoring or disfavoring sociolinguistic factors is limited to an author's personal intuitions about the differences between simple statistical values. In addition, most existing studies have focused on the social conditioning of variation, paying less attention to the role of linguistic factors. For example, Abdel-Jawad and Suleiman (1990) argue that interdental variation in Jordanian Arabic (JA) is not linguistically conditioned by any phonological context, without offering a convincing argument on the exclusion of such conditions.

This paper is meant to fill this gap in the literature. It offers a close examination of the potential influence of linguistic and social forces on interdental variation in JA. Assuming the general variationist concepts highlighted in Labov (1972), Milroy (1992), and Gordon (2000), among others, we examine the variable realization of interdental fricatives ((θ), (ð), and the emphatic (ðˁ)[1]) among young speakers of JA.[2] We examine the possible linguistic constraints on the choice of the variants, as well their distribution according to the region and sex of the speakers.

Multivariate analyses of the data show that interdental variation is constrained not only by social factors, particularly the sex of the speaker and the socioeconomic status of his/her region, but also by the immediate phonological context and the saliency of the linguistic position. The linguistic findings in this paper may challenge the lexically conditioned variation hypothesis (Abdel-Jawad and Suleiman 1990), which proposes that the choice of the variant is predicted by the type of the lexical item that it contains (e.g., [θ] is more likely used in words borrowed from Standard Arabic).

2- Background

2.1. The sociolinguistic scene in the Arab setting

The sociolinguistic setting across Arabic speaking communities is often referred to as a diglossic context, in which two levels of varieties coexist: High and Low (Ferguson 1959; Haeri 2000).The High variety is considered the standard variety (Classical/Standard Arabic or Modern Standard Arabic). Classical/Standard Arabic is the language of the Quraan and the traditional Arabic literature and poetry, while Modern Standard Arabic can be defined as the contemporary variety of Classical Arabic that is used in various formal settings such as news media, textbooks, and formal speeches. There are no native speakers of the High varieties; speakers learn them through formal education.The Low varieties, on the other hand, represent many local varieties that are used in informal day-to-day settings and are thus acquired as the native languages.

Although Arab speakers in general hold favorable attitudes towards the High varieties (i.e., Classical/Standard Arabic or Modern Standard Arabic) (Sawaie 1984, cited in Abdel-Jawad 1986), it has been shown that in almost every Arab country, a local variety (i.e., Low) enjoys a social prestige that competes with and exists independently of the prestige of the High variety (Ibrahim 1986). Thus, the socially prestigious variety need not be the High variety.

The sociolinguistic situation in Jordan is similar to the context described above. JA has been described as a multidialectal variety. In addition to the supradialectal variety of Modern Standard Arabic, three local varieties can be distinguished in Jordan: rural, Bedouin, and urban (Abdel-Jawad 1986:54). The rural variety is commonly used in villages and towns.The Bedouin dialects are regionally restricted, used largely in the eastern and southern parts of the country.The urban variety is common in major urban centers of the country, such parts of as Amman and Irbid.

2.2. Literature review

Previous sociolinguistic studies have found that language variation in Arab communities is constrained by such social factors as urbanization and speaker's sex. Urbanization is considered a major social change that has had a significant impact on the communities' linguistic behavior in the Arab world. It is often associated with modernity or with "effeminacy and decadence" (Miller 2003:177). In Jordan, for instance, the urban variety is often referred to as the locally prestigious variety (Abdel-Jawad: 1986). Linguistic variants such as stopping of interdentals and the glottalization of the uvular stop are more frequent among urban dwellers, particularly female speakers, than among those living in small towns or villages (Holes 2004: 71-72, Sawai 1987).

On the other hand, the sociolinguistic literature has consistently found that speaker sex influences language variation. Many studies conducted in western or eastern communities have found that women tend to use prestigious variants more than men (Chambers and Trudgill 1986:72; Labov 1972, 1990; Trudgill 1983; Chambers 1992; Haeri 1991; Al-Wer 1997; Assiri 2008; among others).

Language variation can also be constrained by linguistic factors, as demonstrated by some works on Arabic.Walters (1992: 202) found that in addition to its social meaning, the low variant [o:] in Korba, a Tunisian town, is significantly favored by preceding emphatic and back consonants. Daher (1998:238)

shows that in Damascene Arabic, the stop variants [t] and [d] are more frequent in pre-consonantal contexts (-C), whereas the interdentals [θ] and [ð] are favored in pre-vocalic environments (-V). Haeri (1991:47) found that palatalization of dental stops in Cairene Arabic is favored when the following segment is a glide or a high vowel. In addition, frequency can play a role in variation. For example, Daher (1998: 190) found that frequent words in Damascene Arabic disfavor the uvular stop variant, which is associated with Standard Arabic. Like other varieties spoken in Syria and Lebanon, JA exhibits alternation of the interdental fricatives (θ), (ð), and the interdental emphatic fricative (ðˤ) with corresponding stops or stridents. The variable (θ) can be realized as [θ], [t], and [s]; (ð) as [ð], [d], and [z]; (ðˤ) as [ðˤ], [dˤ], and [zˤ]. The stop and strident (sibilant) variants are socially valued as markers of urban modernity among Jordanian speakers (Abdel-Jawad 1986), while the interdental variants are characteristics of rural and Bedouin speakers (Al-Wer 1999). Interdental variation is also found in many varieties of English, such as Newfoundland English (Van Herk, Childs, and Thorburn 2007) and African-American Vernacular English (Bailey and Thomas 1998). However, unlike the Arabic context, the stop variants in these communities do not enjoy high social prestige. For example, the stop variants in Cajun English are socially stigmatized (Dubois and Horvath 1998).

2.3. Data and Methodological Considerations

Data were gathered through interviews at Al Al-Bayt University in Jordan. The first author selected a group of young students with the help of friends who worked as instructors in the university. All the interviews were conducted by the first author at a friend's office, and lasted between 25-35 minutes. Topics raised in the interviews included the participants' studies, school experiences, lifestyle, socializing, and future plans. The participants were also asked for their observations with respect to the lifestyle in the three areas where the speakers came from (rural, semi-urban (Irbid), and urban (Amman)). They all agreed that the lifestyle in these three places was different. They also emphasized that the city of Irbid (semi-urban) does not have the same degree of modernization as Amman; compared with Amman, some described it as more rural and associated it with a less complicated life. Most of the interviews were done in a one-to-one setting, but with the presence of participant's friends (one or two at most). As confirmed by the participants, particularly the female speakers, the presence of their friends would make them feel more comfortable.This is due to some cultural restrictions on the interaction between males and females. Recordings were made using an analogue recorder and were then digitized.Statistical analysis was carried out using the Windows application GoldvarbX (Sankoff et al. 2005).

Interviews were conducted with 18 native residents, but only 9 speakers were included in the multivariate analyses because the others used the interdental (rural) variants categorically.The speakers come from three areas: rural areas of the north, downtown Irbid (semi urban), and Amman, the major urban center in the country. The following table provides a summary description of the participants of the study.

Table 1: the participants of the study

Sex	Rural areas	Semi-urban (Irbid)	Urban (Amman)
Male	0/4	0/3	2/3
female	2/3	2/2	3/3

A total of 1756 tokens were extracted and coded for the three variables ((θ), (ð), and (ðˤ)). They were transcribed and coded in a Microsoft Excel sheet by the first author, a native speaker of JA, and then were copied into a token file created by Goldvarb.[3].

Some lexical items were produced with all three variants (interdental, stop, and sibilant), whereas others were produced with two variants only (either interdental vs. stop, or interdental vs. sibilant), as illustrated in the following table:

Table 2: examples of tokens from the data

Example maθalan	Translation 'for example'	Phonemic transcription /maθalan/	Variation1 [maθalan]	Variation2 [matalan]	Variation3 [masalan]
ʔaxaðit	'I took'	/ʔaxaðit/	[ʔaxaðit]	[ʔaxadit]	-
ʔaðˤun	'I believe'	/ʔðˤun/	[ʔaðˤun]	-	[ʔazˤun]

Few words exhibited across-group variation. The only words reported were /hāða/ 'this' and /haðol/ 'these' in which the interdental fricative [ð] alternated with the [ðˤ]. This was reported only in the speech of the rural speakers.

Based on existing literature on interdental stopping (e.g., Van Herk et al. 2007), each token was coded for the following linguistic and social factors:

1. Preceding and following phonological environment: consonant, vowel, pause. In cases where the variant was a geminate, the following vowel, not the other half of the geminate, was coded as the following environment since geminates are assumed to be a single constituent at the feature level (Kenstowicz 1994). Similarly, we coded the underlying form of the definite article 'il'. [4] So, when the 'l' assimilated with the following variant, the preceding environment was coded as 'l', not the surface form. For example, the preceding environment for the variant [θˤ] in the word [iθˤ-θˤan] 'the suspicion' is coded as an 'l'.
2. Stress: whether the syllable containing the variant was stressed or unstressed. For example, the word ʔaxaðuh 'he took it' is coded as unstressed, because the variant [ð] occurs in an unstressed syllable.
3. Word class: lexical or function words. For certain words, the classification of function and lexical words was based on a more or less criterion, as some words exhibited both features. For example, the word kθīr'a lot of' functions as a quantifier, but it behaves like lexical words in agreeing in number and gender with the noun it modifies. Such examples were coded as lexical.
4. Syllable position: onset and coda. For example, [t] in [mitil] 'like' was coded as being in onset position.
5. Word position: word initial, medial, and final. Variants preceded by the definite article 'il' were coded as being in initial position.
6. Frequency: frequent or infrequent. Words repeated 50 times or more in the data set were coded as frequent; words occurring fewer than 50 times were coded as infrequent.

7. Sex of informant: male or female.
8. Urbanization of informant: rural, semi-urban (Irbid), or urban (Amman).

3- Results

Cross-tabulations of factor groups were examined to check for any possible interactions. They showed interactions between word position vs. syllable position, as variants occurring in onset position naturally occur in word initial position and between stress and word class, because most words containing variants occurring in stressed positions were also coded as being lexical. Each pair of these factor groups was combined, and all the possible combinations of the variants of the combined groups were recoded. For example, variants occurring in onset position and word initial position were recoded and given a single code.

Separate Goldvarb runs were performed for each group of variants in a binary fashion (stops vs. both strident and non-strident fricatives, stridents vs. stops and non-strident fricatives), including all the linguistic factor groups at each run. However, no runs for interdental fricatives vs. other variants were made since our major interest was in the socially marked variants and how they fit into the system as a whole. The linguistic and social findings will be presented in 3.1 and 3.2, respectively.

3. 1 The Linguistic findings

3. 1. 1 Overview

The fine-grained coding of the immediate phonological environment within the Goldvarb program permitted recoding to test differing (and methodologically incompatible) hypotheses about variant choice. Given that the variants included in the study can be classified into [–continuant] (stops), or [+continuant] (fricatives and stridents), the preceding and following segment codes were collapsed into the same features (i. e. , [-cont] and [+cont]) to test for any possible effects of assimilation or dissimilation. As the alternation between stops and fricatives is phonologically common in both intervocalic and post-vocalic positions (Spencer 1996: 62; Kenstowicz 1994: 35), the intervocalic and preceding/following vowel/consonant contexts were developed to test this hypothesis. In other words, we conducted three separate analyses, each involving a different conceptualization of the phonological environment.

The effect of other phonological contexts could also have been tested, but that was hindered by the lack of sufficient data. For example, we could not test the influence of a preceding/following strident segment for the choice of stridents due to insufficient occurrences of this type in the data.

3. 1. 2 Factors favoring/disfavoring stops

3. 1. 2. 1 Overview

We present the results of our three separate multivariate analyses of the linguistic factors contributing to the choice of a stop realization in Tables (3, 4, and 5) below. We followed previous work (e. g. ,Van Herk et al. 2007) in running separate analyses on subsets of the data, depending on the voicing (and, in this case, emphatics) of the variable. It should be noted that the findings for voiceless, voiced, and emphatic subsets are presented in the same tables, although each finding for each subset was the product of a separate run.

Table 3: the contribution of **preceding and following vowel/consonant factors** to the probability of stop realizations of (θ), (ð), and (ðˢ)

Factor group	t vs. (θ and s)			d vs. (ð and z)			dˢ vs. (ðˢ and zˢ)		
	weight	**%**	**N**	**weight**	**%**	**N**	**weight**	**%**	**N**
Syllable and word position (combined)									
Onset and word initial position	0.48	59. 1	203	0.04	3.7	27	0.48	42.0	50
Onset and word medial position	**0.58**	52.0	642	0.48	29.1	165	0.49	44.7	318
Coda and word medial position	0. 13	32.4	34	**0.86**	66.7	21	0.31	26.0	73
Coda and word final position	0.09	32.7	49	**0.72**	56.1	66	0.68	59.0	100
RANGE	*49*			*82*			*37*		
Total			928			279			541
Preceding phonological segment									
cons.	**0.62**	66.0	561	[ ]	[ ]	43	[ ]	[ ]	188
vowel	0.32	29.2	356	[ ]	[ ]	235	[ ]	[ ]	349
pause	0.48	46.7	15			1	[ ]	[ ]	8
RANGE	*30*								
Total			932			279			545
Following phonological segment									
cons.	**0. 93**	59.0	78	[ ]	[ ]	61	[ ]	[ ]	79
vowel	0. 44	51. 2	846	[ ]	[ ]	206	[ ]	[ ]	429
pause	**0.85**	25.0	8	[ ]	[ ]	1	[ ]	[ ]	37
RANGE	*49*								
Total			932			279			545
Stress and word class (combined)									
Stressed position and lexical words	**0.61**	66.5	519	0. 44	35.8	67	**0.57**	42.0	207
Unstressed position and lexical words	0.45	39.3	150	**0.64**	50.7	73	0.44	33.3	204
Unstressed position and function words	0.32	29.5	261	0.42	19.3	88	0.49	63.5	104
RANGE	*29*			*22*			*13*		
Total			930			228			515
Word frequency									
Frequent	[ ]		561	[ ]		()	**0.82**	76.8	56
Infrequent	[ ]		371	[ ]		279	0.46	41.1	489
RANGE							*36*		
Total			932			279			545
Corrected mean			0.52			0.26			0.49

-Factor weights closer to 1 are interpreted as favoring the application value, whereas those closer to 0 are disfavoring (favoring weights are highlighted).

-[ ] = not selected as significant.

Table 4: the contribution of **the preceding and following [±cont] factors** to the probability of stop realizations of (θ), (ð), and (ðˢ).

Factor group	t vs. (θand s)			d vs. (ð and z)			dˢ vs. (ðˢ and zˢ)		
	weight	**%**	**N**	**weight**	**%**	**N**	**weight**	**%**	**N**
Syllable and word position (combined)									
Onset and word initial position	**0.64**	59.1	203	0.05	3.7	27	0.47	42.0	50
Onset and word medial position	0.48	52.0	642	0.49	29.1	165	**0.50**	44.7	318
Coda and word medial position	0.30	32.4	34	**0.84**	66.7	21	0.29	26.0	73
Coda and word final position	0.30	32.7	49	0.69	56.1	66	**0.66**	59.0	100
RANGE	*34*			*81*			37		
Total			928			279			541
Preceding phonological segment									
[–cont]	**0.69**	70.4	436	0.14	8.3	12	0.28	22.2	45
[+cont]	0.33	34.7	481	**0.52**	36.8	266	**0.52**	46.7	492
Pause	0.30	46.7	15	()	100	1	**0.66**	50.0	8
RANGE	*39*			*38*			*38*		
Total			932			279			545

Factor group	t vs. (θand s)			d vs. (ð and z)			dˤ vs. (ðˤ and zˤ)		
	weight	%	N	weight	%	N	weight	%	N
Following phonological segment									
[-cont]	**0.85**	66.7	45	[ ]	[ ]	27	[ ]	[ ]	484
[+cont]	0.48	51.1	879	[ ]	[ ]	240	[ ]	[ ]	24
Pause	**0.55**	25.0	8	[ ]	[ ]	12	[ ]	[ ]	37
RANGE	*37*								
Total			932			279			545
Stress and word class (combined)									
Stressed position and lexical words	**0.60**	66.5	519	0.46	35.8	67	**0.57**	42.0	207
Unstressed position and lexical words	0.46	39.3	150	**0.66**	50.7	73	0.43	33.3	204
Unstressed position and functional words	0.33	29.5	261	0.40	19.3	88	0.49	63.5	104
RANGE	*27*			*26*			*14*		
			930			228			515
Word frequency									
Frequent	[ ]	[ ]	561	()	()	()	**0.81**	76.8	56
Infrequent	[ ]	[ ]	371	()	35.8	279	0.46	41.1	489
RANGE							*35*		
Total			932			279			545
Corrected mean			0.57			0.49			0.49

- Factor weights closer to 1 are interpreted as favoring the application value, whereas those closer to 0 are disfavoring (favoring weights are highlighted).
- [ ] = not selected as significant.
- () = factor excluded due to a "knockout" (categorical) or "singleton"(only one token). [5]

Table 5: the contribution **of intervocalic position factor** to the probability of stop realizations of (θ), (ð), and (ðˤ)

Factor group	t vs. (θ and s)			d vs. (ð and z)			dˤvs. (ðˤand zˤ)		
	weight	%	N	weight	%	N	weight	%	N
Syllable and word position (combined)									
Onset and word initial position	0.47	59.1	203	0.05	3.7	27	0.48	42.0	50
Onset and word medial position	**0.55**	52.0	642	0.49	29.1	165	0.49	44.7	318
Coda and word medial position	0.29	32.4	34	**0.83**	66.7	21	0.31	26.0	73
Coda and word final position	0.24	32.7	49	**0.69**	56.1	66	**0.68**	59.0	100
RANGE	*31*			*78*			*37*		
Total			928			279			541
Phonological environment									
Intervocalic position	0.28	23.8	282	0.37	21.2	151	[]	[]	230
Elsewhere	**0.60**	63.7	650	**0.66**	53.1	128	[]	[]	315
RANGE	*32*			*29*					
Total			932			279			545
Stress and word class									
Stressed position and lexical words	**0.60**	66.5	519	0.34	35.8	67	**0.57**	42.0	207
Unstressed position and lexical words	0.45	39.3	150	**0.59**	50.7	73	0.44	33.3	204
Unstressed position and function words	0.33	29.5	261	**0.55**	19.3	88	0.49	63.5	104
RANGE	*27*			*25*			*13*		
			930			228			515
Word frequency									
Frequent	[]	[]	561	()	NA	()	**0.82**	76.8	56
Infrequent	[]	[]	371	()	35. 8	()	0.46	41.1	489
RANGE							*36*		
Total			932						545
Corrected mean			0.51			0.26			0.43

-Factor weights closer to 1 are interpreted as favoring the application value, whereas those closer to 0 are disfavoring (favoring weights are highlighted).
- [] = not selected as significant.
- () = a factor group or a variant was not included in the run due to a "knockout" or a "singleton group".

Multivariate analysis of the contribution of the three phonological environments (i. e. , preceding and following consonant/vowel, preceding and following [±cont], and intervocalic position) shows that all of these factor groups are selected as significant in the different runs. However, the findings may differ for a particular variant from one environment to another. For example, we notice that the preceding [±cont] environment (Table4) is selected as significant to the choice of [d], whereas the preceding vowel/consonant (Table 3) is not selected for the same variant.

A quick comparison of Tables (3, 4, and 5) suggests that preceding/following [±cont] (Table 4) has a greater effect on the variant choice than does the preceding/following vowel/consonant contexts (Table 3), as it exerts a statistically significant effect on more variants. For example, unlike the preceding vowel/consonant context (Table 3), preceding [±cont] (Table 4) is selected as a significant factor for all the variants. Comparing findings for preceding/following vowel/consonant (Table **3**) and preceding/following [±cont] (Table 4) with the findings for the effect of the intervocalic position, the intervocalic position seems to have a minor effect, as it exhibits the lowest range (Table 5). Note that we are not claiming a hierarchy of the effect of the three phonological environments based on a comparison of the ranges across the three phonological environment factor groups.The main purpose of this comparison is to facilitate the flow of the discussion. All of the findings for the three immediate phonological contexts will be addressed in our discussion section.

Our discussion of the other linguistic findings (syllable position, stress, etc.) will be based on the multivariate analysis that resulted from coding the phonological environment as [±cont].This is because, as explained above, this analysis seems to give us more information about the variants. In addition, the findings for these linguistic factors (i. e. , syllable position, stress, etc.) across Tables (3, 4, and 5), are quite similar for all the variants. For instance, except for a slight difference in range, the syllable and word position factor group findings for [d] in the preceding/following vowel consonant context (Table 3) are similar to those in both Table 4 and Table 5.

Findings about the linguistic constraints on the choice of a stop variant will be presented below in sections 3.1.2.2and 3.1.2.3 while those for the choice of a strident will follow in section 03.13. The social findings for all the variants will be presented in section3.2.

3. 1. 2. 2 Preceding and following phonological environment

In this section, we describe the contribution of the preceding and following phonological environment to the choice of a stop variant.

As shown in Table 3, [t] is favored in the context where it is preceded by a consonant (weight=0.62) as well as when followed by a consonant (weight=0.93).The higher range was for the following environment factor group (49 vs. 30).

As shown in (Table 4), [t] is also favored in the context where the preceding (weight=0.69) and following (weight=0.85) segment was [–cont], with a slightly higher range for the preceding environment factor group (39 vs. 37). However, both [d] and [d^{ς}] are equally disfavored in the preceding [–cont]

context (weight=0.14). The following phonological environment is not selected as significant for these two variants.

As shown in Table 5, intervocalic position disfavors stopping. Both [t] (weight=0.28) and [d] (weight=0.37) are disfavored in intervocalic position; this position is not selected as significant for the choice of [dˤ].

3. 1. 2. 3 Other linguistic factors (syllable and word position, stress and word class, and frequency)

In this section, we describe the results for the contribution of the factors of syllable and word position, stress, word class, and frequency to the choice of a stop variant.

As shown in (Table 4), with respect to syllable and word position, [t] is favored in word initial onset position (weight=0.64), while [d] is favored in word medial and word final coda positions (weight=0.84). [dˤ] behaves much like [d] in being favored in word final coda position (weight=0.66). In stress and word class contexts, [t] and [d] behave differently. [t] is favored in stressed positions within lexical words (weight=0.60), whereas [d] is favored in unstressed positions within lexical words (weight=0.66). [dˤ], on the other hand, behaves like [t] in this context. It is favored in stressed positions within lexical words (weight=0.57).

The frequency factor is selected as significant only for the choice of [dˤ], in that [dˤ] appears to be favored in frequent words (weight=0.81).

3. 1. 3 Factors favoring/disfavoring stridents

3. 1. 3. 1 Preceding and following phonological environment

Parallel to the section above, here we present findings for the contribution of the three different conceptualizations of phonological environment to the choice of a different variant, the strident (Tables 6, 7, and 8).

Table 6: the contribution of **the preceding and following vowel/consonant factor** to the probability of strident realizations of (θ), (ð), and (ðˤ).

Factor group	s vs. (θ and t)			z vs. (ð and d)			zˤvs. (ðˤand dˤ)		
	weight	**%**	**N**	**weight**	**%**	**N**	**weight**	**%**	**N**
Syllable and word position (combined)									
Onset and word initial position	()	0	203	[ ]	[ ]	27	**0.55**	12.0	50
Onset and word medial position	[ ]	[ ]	642	[ ]	[ ]	165	0.46	8.8	318
Coda and word medial position	()	0	34	[ ]	[ ]	21	**0.74**	24.7	73
Coda and word final position	[ ]	[ ]	49	[ ]	[ ]	66	0.40	7.0	100
RANGE							*34*		
Total			928			279			541
Preceding phonological segment									
cons.	0.23	0.5	561	[ ]	[ ]	43	[ ]	[ ]	188
vowel	**0.87**	20.2	356	[ ]	[ ]	235	[ ]	[ ]	349
pause	()	0	15	()	0	1	[ ]	[ ]	8
RANGE	*64*								
Total			932			279			545
Following phonological segment									
cons.	[ ]	[ ]	78	0.27	11.5	61	[ ]	[ ]	79
vowel	[ ]	[ ]	846	**0.55**	39.3	206	[ ]	[ ]	429
pause	( )	0	8	**0.82**	66.7	12	[ ]	[ ]	37
RANGE				*55*					

Factor group	s vs. (θ and t)			z vs. (ð and d)			$z^{ʕ}$vs. ($ð^{ʕ}$and $d^{ʕ}$)		
	weight	%	N	weight	%	N	weight	%	N
Total			932			279			545
Stress and word class (combined)									
Stressed position and lexical words	0.18	0.2	519	**0.53**	32.8	67	[ ]	[ ]	207
Unstressed position and lexical words	**0.65**	4.7	150	0.31	15.1	73	[ ]	[ ]	204
Unstressed position and function words	**0.94**	25.7	261	**0.64**	48.9	88	[ ]	[ ]	104
RANGE	*76*			*33*					
Total			930			228			515
Word frequency									
Frequent	[ ]	[ ]	561	()	()	()	()	0.0	56
Infrequent	[ ]	[ ]	371	()	34.4	297	()	12.1	489
RANGE									
Total			932						545
Corrected mean	0.01			0.51			0.10		

-Factor weights closer to 1 are interpreted as favoring the application value, whereas those closer to 0 are disfavoring (favoring weights are highlighted).
-[] = not selected as significant.
- () = a factor group or a variant was not included in the run due to a "knockout" or a "singleton group".

Table 7: the contribution of **the preceding and following [±cont] factors** to the probability of strident realizations of (θ), (ð), and ($ð^{ʕ}$).

Factor group	s vs. (θ and t)			z vs. (ð and d)			$z^{ʕ}$ vs. ($ð^{ʕ}$and $d^{ʕ}$)		
	Weight	%	N	Weight	%	N	Weight	%	N
Syllable and word position (combined)									
Onset and word initial position	()	0.0	203	**0.69**	51.9	27	**0.57**	12.0	50
Onset and word medial position	0.48	11.1	642	**0.52**	38.8	165	0.48	8.8	318
Coda and word medial position	()	0.0	34	0.10	4.8	21	**0.75**	24.7	73
Coda and word final position	**0.71**	8.2	49	0.**56**	25.8	66	0.32	7.0	100
RANGE	*23*			*59*			*43*		
Total			928			279			541
Preceding phonological segment									
[–cont]	0.10	0.2	436	**0.93**	75.0	12	**0.81**	11.1	45
[+cont]	**0.88**	15.4	481	0.47	32.7	266	0.48	10.8	492
Pause	()	0. 0	15	46		1	33		8
RANGE	*78*								
Total			932			279			545
Following phonological segment									
[-cont]	[ ]	[ ]	45	0.19	3.7	27	[ ]	[ ]	24
[+cont]	[ ]	[ ]	879	**0.52**	36.2	240	[ ]	[ ]	484
Pause	()	0.0	8	**0.83**	66.7	12	[ ]	[ ]	37
RANGE				*64*					
Total			932			279			545
Stress and word class (combined)									
Stressed position and lexical words	0.17	0.2	519	**0.52**	32.8	67	**0.50**	12.6	207
Unstressed position and lexical words	**0.60**	4.7	150	0.25	15.1	73	**0.58**	13.2	204
Unstressed position and functional words	**0.95**	25.7	261	**0.70**	48.9	88	0.35	4.8	104
RANGE	*78*			*45*			*23*		
Total			930			228			515
Word frequency									
Frequent	[ ]	[ ]	561	()	()	()	()	0.0	56
Infrequent	[ ]	[ ]	371	()	34.4	279	()	12.1	489
RANGE									
Total			932			279			545
Corrected mean			0.01			0.48			0.19

- Factor weights closer to 1 are interpreted as favoring the application value, whereas those closer to 0 are disfavoring (favoring weights are highlighted).

-[] = not selected as significant.
- () = a factor group or a variant was not included in the run due to a "knockout" or a "singleton group".

Table 8: the contribution of **intervocalic position factor** to the probability of strident realizations of (θ), (ð), and (ðˤ).

Factor group	s vs. (θ and t)			z vs. (ð and d)			$z^ˤ$ vs. ($ð^ˤ$ and $d^ˤ$)		
	weight	**%**	**N**	**weight**	**%**	**N**	**weight**	**%**	**N**
Syllable and word position (combined)									
Onset and word initial position	()	0. 0	203	()6	()	27	**0.55**	12.0	50
Onset and word medial position	0.45	11.1	642	()	()	165	0.46	8.8	318
Coda and word medial position	()	()	()	()	()	21	**0.74**	24.7	73
Coda and word final position	**0.93**	8.2	49	()	()	66	0.40	7.0	100
RANGE	*48*						*34*		
Total			894			279			541
Phonological environment									
Intervocalic position	**0.87**	24.5	282	**0.63**	46.4	151	[]	[]	229
Elsewhere	0.30	0.9	650	0.35	20.3	128	[]	[]	316
RANGE	*57*			*28*					
Total			932			279			545
Stress and word class (combined)									
Stressed position and lexical words	0.18	0.2	519	**0.62**	32.8	67	[]	[]	207
Unstressed position and lexical words	**0.63**	4.7	150	0.33	15.1	73	[]	[]	204
Unstressed position and function words	**0.94**	25.7	261	**0.56**	48.9	88	[]	[]	104
RANGE	*76*			*29*					
Total			930			228			515
Word Frequency									
Frequent	[]	11.9	561	()	()	()	()	0. 0	56
Infrequent	[]	2.2	371	()	34.4	279	()	12.1	489
RANGE									
Total			932			279			545
Corrected mean			0.01			0.31			0.10

-Factor weights closer to 1 are interpreted as favoring the application value, whereas those closer to 0 are disfavoring (favoring weights are highlighted).
-[] = not selected as significant.
- () = a factor group or a variant was not included in the run due to a "knockout" or a "singleton group".

As shown in Table **6**, [s] is favored when preceded by a vowel (weight =0.87). Preceding vowel/consonant context is not selected as significant for the choice of [z] and [$z^ˤ$]. We also see that [z] is favored by following vowel (weight =0.55) and pause (weight =0.82) contexts, while this factor group (i. e. , following phonological segement) is not selected as significant for the other two subsets ([s] and [$z^ˤ$]).

In preceding and following [±cont] environment (Table 7), [s] is favored in preceding [+cont] contexts (weight =0.88). However, both [z] (weight =0.47) and [$z^ˤ$] (weight =0.48) are disfavored in the same context. Both [s] (weight =0.87) and [z] (weight =0.63) are favored in intervocalic position (Table 8).

3.1.3.2 Other linguistic factors (syllable and word position, stress and word class, and frequency)

The other linguistic findings for each of the strident variants seem to be similar in all of the three runs.Therefore, as above, we will refer to findings in only one run (Table 7 (preceding/following [±cont])), as this run gives more information about the linguistic variants.

Word final coda position is selected as a significant factor for the choice of [s] (weight =0.71). [z] and [$z^ˤ$] seem to have different patterns.[z] is favored in onset position (word initial (weight =0.69) and

word medial (weight =0.52)) and in word final coda position (weight =0.56), while [zˤ] is favored in word initial onset position (weight =0.57) and in word medial position(weight =0.75).

Concerning the stress and word class factor group, the three variants behave differently. [s] is favored in unstressed position, in both lexical (weight =0.60) and functional words (weight =0.95). [z] is favored in stressed position in lexical words (weight =0.52) and in unstressed position in functional words (weight =0.70). [zˤ] is favored in stressed position in lexical words (weight =0.50) and in unstressed position in functional words (weight =0.58).

If we consider the factor weights of the favoring factors within the stress and word class position (Table 7), we find that the general tendency for all the strident variants is to be more favored in an unstressed position. For instance, the factor weight for [z] in unstressed position in functional words (0.70) is higher than that of the other favoring factor in the group (i. e. , stressed position within lexical words (0.52)).

However, a close examination of the number of occurrences of the strident variants, particularly [s] and [z], in the linguistic environments tested shows that in most cases the occurrences are few. For example, there are only 6 occurrences of [zˤ] in word initial onset position and only 13 occurrences of [z] for the same factor (Table 7).Therefore, we will avoid making large claims about the linguistic constraints on the realization of the strident variants in the discussion section. This might be a topic for further research.

3.2 The social findings

We turn now to a consideration of the social constraints on variant choice. As rural and semi-urban males categorically used the rural (interdental) variants and their data was thus excluded from these analyses, we have created a single social factor group, combining sex and urbanization, as there is only one male group.

(Table 9) below provides the findings for the analysis of the social factors. It shows that stopping is significantly favored by both the urban (weight =0.78) and semi-urban (weight =0.60) female groups. This effect is strongest for [t], with a range of 59. Urban males and rural females disfavor stopping, and there is a large gap between the two favoring groups and the two disfavoring groups.

Table 9: the contribution of **social factors** to the probability of stop realizations of (θ), (ð), and (ðˤ)

Factor group	**t vs. (θ and s)**			**d vs. (ð and z)**			**dˤ vs. (ðˤ and zˤ)**		
	weight	**%**	**N**	**weight**	**%**	**N**	**weight**	**%**	**N**
Urban females (from Amman)	**0.78**	79.4	344	**0.55**	39.9	158	**0.56**	50.8	177
Semi-urban females (from Irbid)	**0.60**	61.6	216	**0.63**	47.1	51	**0.62**	56.8	111
Urban males (from Amman)	0.19	20.0	190	0.27	16.7	48	0.36	31.3	163
Rural females	0.19	20.3	182	0.36	22.7	22	0.48	42.6	94
RANGE	*59*			*36*			*26*		
Total	932			279			545		
Corrected mean	0.51			0.35			0.45		

-Factor weights closer to 1 are interpreted as favoring the application value, whereas those closer to 0 are disfavoring (favoring weights are highlighted).
-[] = not selected as significant.
- () = a factor group or a variant was not included in the run due to a "knockout" or a "singleton group".

The strident variants are generally favored by the urban speakers (Table 10). [s] is favored by the male group (weight =0.88), whereas [z] (weight =0.57) and [zˤ] (weight =0.67) are favored by the female group.The strident variants were completely absent from the speech of the rural female speakers.

Table 10: the contribution of **social factors** to the probability of strident realizations of (θ), (ð), and (ðˤ)

Factor group	s vs. (T and t)			z vs. (ð and d)			zˤ vs. (ðˤ and dˤ)		
	weight	**%**	**N**	**weight**	**%**	**N**	**weight**	**%**	**N**
Urban females (from Amman)	0.44	4.4	344	**0.57**	43.7	158	**0.67**	20.9	177
Urban females (from Irbid)	0.20	1.4	216	0.32	21.6	51	0.48	10.8	111
Urban males (from Amman)	**0.88**	30.0	190	0.46	33.3	48	0.33	6.1	163
Rural females	()	()	()	()	()	()	()	()	()
RANGE	*68*			*25*			*34*		
Corrected mean	0.05			0.37			0.11		
Total	756			257			451		

-Factor weights closer to 1 are interpreted as favoring the application value, whereas those closer to 0 are disfavoring (favoring weights are highlighted).

- () = excluded due to a factor group or a variant was not included in the run due to a "knockout" or"singleton group".

4- Discussion

4. 1 Overview

We will turn now to an interpretation of these linguistic and social findings.We start by discussing the effects of preceding and following phonological environments, followed by a discussion of the findings for the social factors. The discussion of the findings for the other linguistic factor groups will be approached from a different perspective than the discussion of the preceding and following phonological environment, and we will show how these particular findings are compatible with the social findings.

4. 2Phonological environment

As shown in Table 3 above, [t] is favored in preceding consonant contexts (C-), while [s] and [θ] are favored in preceding vowel contexts (V-).The favoring of the fricative variants post-vocalically is presumably due to a post-vocalic spirantization process, a common phonological rule attested in Semitic languages such as Tigrinya (Schein 1981) and Tiberian Hebrew (Kenstowicz 1994) as well as in many of Spanish dialects such as Havana Spanish(Harris 1985) and Northern dialect (Gonzalez 2005).This comes as a result of the difficulty of articulating stop closures when the surrounding segments are not closed (Kirchner 1998).This effect also accounts for the favoring of [t] in both preceding and following [-cont] contexts. As fricatives are phonetically less energetic and less tense than stops (Spencer 1996, 61), choosing the fricative variants is linguistically more favored in non-closed surroundings.The findings in Table 5 further support this hypothesis, with both [t] and [d] disfavored in intervocalic position.With respect to the findings for word and syllable position as well as stress, we hypothesize that these findings reflect a relationship between salient linguistic variables and salient linguistic position.We return to this issue below.

The phonological environment findings reported for strident variants (Table 6-Table 8) are, in most cases, not very different from findings reported in Table 3-Table 5. For example, [s] is favored in the preceding [+cont] environment (Table 7), which is consistent with the finding that the non-stops ([s] and [θ]) are favored in the preceding [+cont] environment (Table 4). The only case where the findings for the

stridents are not consistent with the findings reported in the stop vs. non-stop analysis is with the preceding [–cont] factor. As shown in Table 7, [z] and [zˤ] are favored in preceding [–cont] contexts, which is not consistent with the findings reported in (Table 4) (in which the stridents are included within the non-stop group), which shows that non-stops are disfavored in preceding [–cont] contexts.This difference may be due to the small number of occurrences of [z] and [zˤ] in preceding [–cont] when doing the run for the stridents (Table 7). For example, only 9 occurrences of [z] are found to occur in preceding [–cont] contexts.We leave further claims about the linguistic conditioning of stridents for further research.

4.3Social factors

We turn now to the interpretation of the social findings.Table 9 and Table 10 are repeated here as Table 11 and Table 12, respectively, for convenience.

Table 11: the contribution of **social factors** to the probability of stop realizations of (θ), (ð), and (ðˤ)

Factor group	t vs. (T and s)			d vs. (ð and z)			dˤ vs. (ðˤ and zˤ)		
	weight	**%**	**N**	**weight**	**%**	**N**	**weight**	**%**	**N**
Urban females (from Amman)	**0.78**	79.4	344	**0.55**	39.9	158	**0.56**	50.8	177
Semi-urban females (from Irbid)	**0.60**	61.6	216	**0.63**	47.1	51	**0.62**	56.8	111
Urban males (from Amman)	0.19	20.0	190	0.27	16.7	48	0.36	31.3	163
Rural females	0.19	20.3	182	0.36	22.7	22	0.48	42.6	94
RANGE	*59*			*36*			*26*		
Corrected mean	0.51			0.35			0.45		

Table 12: the contribution of **social factors** to the probability of strident realizations of (θ), (ð), and (ðˤ)

Factor group	s vs. (θ and t)			z vs. (ð and d)			zˤ vs. (ðˤ and dˤ)		
	weight	**%**	**N**	**weight**	**%**	**N**	**weight**	**%**	**N**
Urban females (from Amman)	0.44	4.4	344	**0.57**	43.7	158	**0.67**	20.9	177
Semi-urban females (from Irbid)	0.20	1.4	216	0.32	21.6	51	0.48	10.8	111
Urban males (from Amman)	**0.88**	30.0	190	0.46	33.3	48	0.33	6.1	163
Rural females	()	()	()	()	()	()	()	()	()
RANGE	*68*			*25*			*34*		
Corrected mean	0.05			0.37			0.11		

-Factor weights closer to 1 are interpreted as favoring the application value, whereas those closer to 0 are disfavoring (favoring weights are highlighted).
- () = excluded due to a "knockout"

As shown in Table 11, all of the stop variants are favored by the urban and semi-urban female groups. However, the strident variants are only favored by the urban group: [s] is favored by the male speakers; [z] and [zˤ] are favored by the female group. In other words, the prestige variants are favored by the female speakers, consistent with major findings in the sociolinguistic literature (Labov 1972, Trudgill 1983, Haeri 1995, Al-Wer 1997, and Pappas 2008, among many others). In JA, variants such as [t], [d], [s], and [z] are often described as characteristics of women's speech, while interdentals are more characteristic of men's speech (Al-Khatib 1988, Abdel-Jawad and Awwad 1989, Sawaie 1994, 5-7, cited in Daher 1998, 170). Our results are largely consistent with these claims. Almost all the prestige forms are favored by the female speakers.

As the subjects are of similar educational background (all undergraduate) and aged (19-22), the favoring of stopping as well as the other strident variants (particularly, [z] and [zˤ]) by the female speakers suggests that the sex of the speaker has a strong effect on the variation.This can be further

supported by the fact that the factor weights of stopped variants (particularly with variants [d] and [dˤ]) by the rural female speakers are higher than those of the urban male speakers. In addition, among the rural and semi-urban subjects, only the female speakers were found to use prestige variants.The adoption of the prestige variants by the female speakers within the rural and semi-urban informants implies that the female speakers are the innovators, creating "differences between themselves and men" (Labov 1990, 240).

Rural and urban female speakers do behave differently, however. Both urban and semi-urban female speakers use stopping more than rural females, and the strident variants were absent from the speech of rural female speakers.Thus, the urban speakers, including the semi-urban, conform to an "urbanness" social status by using more significantly prestige variants. Rural female speakers, on the other hand, also show their "urbanness" by switching to some prestige variants, but they lag behind the urban female speakers.

The wider spread of stopping among all the groups of speakers implies that stopping is a more salient prestige marker than sibilants.This conforms to the observation that stopping has become commonplace amongst speakers of non-urban dialects in Jordan (Al-Wer 1999, 50).One possible explanation for the absence of sibilants from the speech of rural speakers in this data and their restricted use among urban groups ([s] by the male and [z] vs.[zˤ] by the female speakers) might be "a strong stereotype of the sibilant variants as salient features of non-Jordanian dialects" (Al-Wer 1999, 51). The observation that "speakers of Jordanian varieties often use the sibilant variants in imitating Syrian and Egyptian speakers (politicians, news readers)" may explain why these variants are not successfully diffusing in the same way as the stop variants (Al-Wer 1999, 51). In other words, the wider spread of the stop variants as opposed to the strident variants helps to preserve a Jordanian identity. It also reflects how the hierarchy of urbanness between the urban and the semi-urban centers (Amman and Irbid, respectively) affects the variation.The wider variety of prestige variants among the urban speakers provides urban male speakers with an "escape-hatch" for avoiding two types of undesirable social associations. They are not in favor of using stopping due to its feminine associations, but neither do they want to use rural-associated interdentals. Therefore, they resort to strident variants as a better choice to show their urban identity. As shown in Table 12, urban males use more [z] than semi-urban women, and in the linguistically salient voiceless context, they show extremely high favoring effects for the [s] variant.

Although all the stop variants seem to be strongly favored by urban female speakers and are frequently used by the other groups, [t] seems to be the most salient prestige marker. As shown in Table 11, [t] is the most favored among all the other stops with the highest range of 59. The voicing-based contrast of saliency can also be observed in the fact that [s] is the most favored among the stridents, with the highest range of 69 (Table 12).Voicing-based difference of salient linguistic variants has been reported in the previous literature. [t] as opposed to [d] is argued to be the salient marker of the traditional Newfoundland identity (Van Herk et al. , 2007).

The saliency of [t] represents itself in an interactive relationship with salient linguistic positions. In other words, the salient variant, [t], seems to be more favored in salient linguistic positions. Linguistic

positions such as stressed syllables, syllable onsets, and initial syllables are perceptually prominent (Beckman 1997, 2). As shown in (Table 4), [t] seems to be more favored in such positions. It is favored in word initial onsets and in stressed syllables within lexical words. Although [dˤ] is also favored in the latter position (Tables, 3-5), the range for the [t] remains higher.

The last point to be raised about the linguistic findings is related to frequency. This factor group was selected as significant only with [dˤ]. Frequent words are assumed to be more likely to be realized with the colloquial variants (i. e. , not Standard) (Daher 1998,167). However, the finding for this variant is not consistent with this hypothesis. What we see here is that it is the stop variant that is favored in frequent words.While the alternation between an interdental and a stop/sibilant carries the social meaning of non-prestige or prestige, we assume that the alternation between [ðˤ] and [dˤ] need not follow this binary distinction. The only variety of Arabic that has both of the sounds in its phonemic system and maintains the distinction between the two sounds in both of the spoken and written forms is Modern Standard Arabic (Holes 2004, 71).Thus, it is possible that [dˤ] has two different evaluations by the speakers: a prestige form or a formal variant. As "the existence of M[odern] S[tandard] A[rabic] represents a refuge for people who want to hide or suppress localism and to modify or elevate their speech" (Abdel-Jawad1986, 57), we assume that the use of [dˤ] variant should not always be interpreted as an alternation between prestige and non-prestige.This can be supported by the fact that this variant is favored by both the rural female and urban male speakers more than the other stop variants (Table 11).The greater adoption of this variant by these two groups might be due to the duality of the social meaning associated with this variant, which makes these speakers feel more comfortable when using it.

5- Conclusion

This paper reports findings from a token-by-token examination of the social and linguistic constraints on variation in the realization of interdentals among young speakers from three different areas of Jordan: rural, semi-urban, and urban.

We find that the sex of the speaker is a primary constraint on variant choice.This applies in two ways: whether a particular group uses a prestige variant at all, and whether differences in the rates of use between groups are statistically significant. All the female speakers from the three areas used at least stopping, whereas among the males, only the most urban speakers used prestige variants; both rural and semi-urban male speakers categorically preferred the interdental fricative variants. In addition, although they are at opposite ends of the urbanness hierarchy, rural female speakers used stopping at frequency rates identical to (with [t]) or higher than (with [d] and [dˤ]) the urban male speakers. Statistically, prestige variants were significantly favored by the female speakers. All the stop variants were significantly favored by both the semi-urban and urban female speakers, and two stridents ([z] and [zˤ]) by the urban female speakers. However, only one prestige variant [s] was favored by the (urban) male speakers.

Considering urbanization, we find that the urban speakers distinguish themselves from the other speakers by using more prestige forms. In addition to stopping, two more variants ([z] and [zˤ]) were favored by the urban female speakers, and the other strident variant, [s], was favored by the urban male

speakers. The unique choice of the strident variant by the urban male group as opposed to the stop and interdental variants is explained as an “escape hatch” to avoid the undesirable associations of [t] and [T] as being more feminine and rural/non-prestige forms, respectively.At the linguistic level, interdental variation appears to be constrained by the phonological environment: [t] is favored by preceding and following stop environments, while ([s] and [T]) are favored by non-stop surrounding contexts.The study also shows that there is a relationship between the salient linguistic variable and salient linguistic position.The salient linguistic variable [t] is favored in salient phonological positions such as stressed syllables within lexical words, word medial onset position, and word initial onsets. Not only do these findings show the effects of linguistic and sociolinguistic phenomena operating in other languages, such as intervocalic weakening or the strong correlation between prestige variants and female speakers, but they show how linguistic and social factors intersect to produce this variation. Socially, speaker sex and urbanization do not go on two parallel lines; rather they sometimes intersect to produce the array of variants. Linguistically, we see how salience is relevant to understanding the influence of factors from the phonological system such as stress and syllable/word position. In addition, we can understand how linguistic and social constraints can reinforce each other, as the linguistic salience of some variants (such as [t]) affects the social identifications that they can support. The findings of this study also show us how multivariate analysis can help understand the fine details of the factors constraining linguistic variation in JA.

دراسة لغوية اجتماعيّة للتعدد اللفظي للأصوات السنيّة في اللهجة الأردنيّة

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وجيرارد فان هرك: قسم اللغويات، جامعة ميموريال، نيوفواندلاند، كندا.

الملخص

يهدف هذا البحث الى دراسة العوامل اللغوية والاجتماعية التي تؤثر في تغير الأصوات السنية (الثاء والذال والظاء) إلى انفجارية أوصفيرية (تاء/سين ودال/زاي وضاد/زاي) في اللهجة الأردنية باستخدام برمجية "الجولدفارب". إذ تم استخلاص 1756 كلمة تحتوي على أي من هذه المتغيرات من عينة الدراسه التي تم جمعها من خلال مقابلات شخصية لتسعة أشخاص (7 إناث و2 ذكور) ممن يتحدثون اللهجة الأردنية بطلاقة. واشتملت عوامل الدراسة على السياق الصوتي ونبرة الصوت، وموقع المتغير في المقطع الصوتي، وتكرار الكلمة، وجنس المتحدث ودرجة مدنية السكن. وقد وجدت هذه الدراسة أن الأصوات الانفجارية أكثر تكراراً بين الإناث من سكان المدينة، في حين يستخدمسكان مدينة عمان أصوات الصفير فقط. أما من الناحية اللغوية، فيفضل استخدام صوت التاءعندما يسبق أو يتبع بصوت انفجاري، وفي السياقات اللغوية البارزه كبداية الكلمة، في حين تفضل أصوات الدال والضاد عندما تكون مسبوقة بصوت غير انفجاري.

الكلمات المفتاحيّة: الأصوات السنية، التنوع اللغوي، العربية، اللغويات الاجتماعية.

End Note

1 Emphatics are produced with a secondary articulatory feature known as pharyngealization (Kenstowicz 1994, 42)

2 The following is a list of the sounds relevant for this study along with their equivalent Arabic sounds:

1- θ: ث
2- t: ت
3- s: س
4- ð: ذ
5- d:د
6- z: ز
7- $ð^ʕ$: ظ
8- $d^ʕ$: ض
9- $z^ʕ$: N/A

3 A preliminary analysis excluded the frequent words that have the same linguistic environments to see if they would skew the linguistic findings; the results continue to hold even after excluding them.

4 The assimilation of the [l] of the definite article occurs before coronals, a common phonological process in Arabic dialects (Watson 2002); the [l] was coded as [+cont].

5 -A knockout means that "there is a 0 percent value or a100 per cent value in one of the cells in [the] analysis", and a singleton means that "there is only one factor in a factor group" (Tagliamonte 2006:152-53).

6 Cross tabulation for this particular run showed that there is interaction between word/syllable position and intervocalic position, as many of the variants that occur in intervocalic position also occur in word medial onset position. Therefore, a rerun was made excluding the word and syllable position factor group.

References

Abdel-Jawad, Hassan. 1986.The Emergence of an Urban Dialect in the Jordanian Urban Centers. *International Journal of the Sociology of Language* 61: 53-63.

Adel-Jawad, Hassan & Mohammad Awad. 1989. Reflexes of Classical Arabic Interdentals: A Study in Historical Sociolinguistics. *LinguistischeBerichte* 122: 259-282.

Adel-Jawad, Hassan & Sale Suleiman. 1990. Lexical Conditioning of Phonological Variation. *Language Sciences* 12(4): 291-330.

Al-Khatib, Mahmoud. 1988. Sociolinguistic Change in an Expanding Urban Context: A Case Study of Irbid City. PhD Diss., University of Durham.

Al-Sughayer, Khalil. 1990. Aspects of Comparative Jordanian and Modern Standard Arabic. PhD Diss., Michigan State University.

Al-Wer, Enam (1997). Arabic between Reality and Ideology.*International Journal of Applied Linguistics* 7(2): 251-265.

Al-Wer, Enam. 1999. “Why do Different Variables Behave Differently? Data from Arabic”. In *Language and Society in the Middle East and North Africa,* Ed. Suleiman, Yasir, 38-56. Richmond, Surrey: Curzon.

Assiri, Ahmad. 2008. Sociolinguistic Variation in Rijaal Almaʕ, Saudi Arabia. Memorial University. 152.

Bailey, Guy & Erik Thomas. 1998. “Some Aspects of African-American Vernacular English Phonology”. In African-American English: Structure, History, and Use, ed. Mufwene, S., Rickford, J., Bailey, G. & Baugh, J., 85-109. London: Routledge.

Beckman, Jill. 1997. Positional Faithfulness, Positional Neutralization, and Shona Vowel Harmony. 14:1-46.

Chambers, Jack. 1992. Linguistic Correlates of Gender and Sex. *English World-Wide* 113: 173-218.

Chambers, Jack & Peter Trudgill. 1986. *Dialectology*. Cambridge: Cambridge University Press.

Daher, Jamil (1998). Linguistic Variation in Damascus Arabic. PhD Diss., Georgetown University.

Dubois, Sylvie & Barbara Horvath. 1998. Let'sTink about Dat: Interdental Fricatives in Cajun English. *Language Variation and Change* 10: 245-261.

Ferguson, Albert (1996). *Sociolinguistic Perspectives: Papers on Language in Society*, 1959-1994. New York: Oxford University Press.

Gonzalez, Carolina. 2005. “Constraint Re-Ranking in Three Grammars: Spirantization and Coda Devoicing in Peninsular Spanish.” In *New Perspectives on Romance Linguistics: Selected Papers from the 35th Linguistic Symposium on Romance Languages*,ed. Nishida, C. & Montreuil, J.-P., 97-111. Amsterdam: John Benjamins.

Gordon, Matthew. 2000. Phonological Correlates of Ethnic Identitiy: Evidence of Divergence? *American Speech* 75(2): 115-136.

Haeri, Niloofar.1991. Sociolinguistic Variation in Cairene Arabic: Palatalization and the 'qaf' in the Speech of Men and Women. Ph.D. Thesis, University of Pennsylvania.

Haeri, Niloofar. 1995. “Why Do Women Do This?Sex and Gender Differences in Speech”. In *Towards a Social Science of Language: Papers in Honour of William Labov*, ed. Guy, J., Feagin, C., Schiffrin, D. & Baugh, J., 101-114. Amsterdam: John Benjamins..

Haeri, Niloofar. 2000. Form and Ideology: Arabic Sociolinguistics and Beyond. *Annual Review of Anthropology* 29: 61-87.

Harris, James. 1985. AutosegmentalPhonolgy and Liquid Assimilation in Havana Spanish.In *Papers from the 13th Linguistic Symposium on Romance Languages*, ed. King, L. &Maley, C., 127-148. Amsterdam: Benjamins.

Holes, Clive. 2004. *Modern Arabic: Structures, Functions, and Varieties*. Washington, D.C.: Georgetown University Press.

Ibrahim, Muhammad. 1986. Standard and Prestige Language: A Problem in Arabic Sociolinguistics. *Anthropological Linguistics* 28 (1): 115-126.

Kenstowicz, Michael. 1994. *Phonology in Generative Phonology*. Cambridge: Blackwell.

Kirchner, Robert. 1998. An Effort-Based Approach to Consonant Lenition. Ph.D. Thesis, University of California, Los Angeles.

Labov, William. 1972. *Sociolinguistic Patterns*. Pheladelphia: University of Pennsylvania Press.

Labov, William. 1990. The Interaction of Sex and Social Class in the Course of Linguistics Change. *Language Variation and Change* 2: 205-254.

Miller, Catherine. 2003. "Variation and Change in Arabic Urban Vernaculars". In *Approaches to Arabic Dialects: Collection of Articles Presented to Manfred Woidich on the Occasion of his Sixtieth Birthday*, ed. Haak, M., de Jong, R. &Versteegh, K., 177-206. Leiden: Brill.

Milroy, James. 1992. *Linguistic Variation and Change*. Oxford: Blackwell.

Pappas, Panayiotis. 2008. Stereotypes, Variation and Change: Understanding the Change of Coronal Consonants in a Rural Variety of Modern Greek. *Language Variation and Change* 20: 493-526.

Sankoff, David, SaliTagliamonte, and Eric Smith. 2005. Goldvarb X: A Variable Rule Application for Macintosh and Windows. Department of Linguistics, University of Toronto.

Sawaie, Mohammad. 1987. Speaker's Attitudes toward Linguistic Variation: A Case Study of Some Arabic Dialects. *LinguistischeBerichte*107-112: 3-22.

Schein, Barry. 1981. Spirantization in Tigrinya. In Borer, H. &Aoun, Y. (Eds.), *Theoretical Issues in the Grammars of SemeticLanguages*(MIT Working Papers in Linguistics 3.). Cambridge: Dept. of Linguistics and Philosophy, MIT.

Spencer, Andrew.1996. Phonology: Theory and Description. Oxford: Blackwell.

Tagliamonte, Sali. 2006. Analysing Sociolinguistic Variation. Cambridge: Cambridge University Press.

Trudgill, Peter. 1983. On Dialect: Social and Geographical Perspectives. New York: New York University Press.

Van Herk, Gerard, Becky Childs, & Jennifer Thorburn. 2007. Identity Marking and Affiliation in an Urbanized Newfoundland Community. NWAV 36. Philadelphia.

Walters, Keith. 1992."A Sociolinguisitc Description of (u:) in Korba Arabic: Defining Linguistic Variation in Contact Situations and Relic Areas". In *Perspectives on Arabic Linguisitcs IV: Papers from the Fourth Annual Symposium on Arabic Linguisitics*, ed. Broselow, E., Eid, M. & McCarthy, J., 181-217. Philadelphia: John Benjamins.

Watson, Janet. 2002. *The Phonology and Morphology of Arabic*. Oxford: Oxford University Press.