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Architecture of Syllables in Lattakian Syrian Arabic

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□ ABSTRACT □

This paper provides a description of syllable structure in Lattakian Syrian Arabic. Results of a study conducted for this purpose revealed 14 basic syllable structures. It also illuminates the characteristics of syllable elements in this dialect. Some parameters, namely, the minimum sonority distance and the obligatory contour principle were investigated.

Keywords: syllable, sonority, constraints, onset, nucleus, coda

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بنية المقاطع الصوتية في اللهجة السورية اللاذقية

الدّكتورة بثينة شاهين*

(تاريخ الإيداع 13 / 8 / 2017. قبل للنشر في 26 / 12 / 2017)

□ ملخّص □

يقدم هذا البحث وصفاً لبنية المقاطع الصوتية في اللهجة السورية اللاذقية. أظهرت نتائج الدراسة التي أجريت لهذا الغرض أربع عشرة بنية للمقاطع الصوتية. كما و بينت الدراسة خصائص عناصر المقطع الصوتي في هذه اللهجة. و تم البحث في بعض المتغيرات: المسافة الأدنى لعلو الأصوات والحد الإجباري.

الكلمات المفتاحية: المقطع الصوتي، علو الصوت، قيود، البادئة، النواة، الخاتمة

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Introduction

This paper attempts to provide a description of syllable structure in Lattakian Syrian Arabic (LSA), never investigated before in this dialect. Results based on data collected from a speaker of this dialect revealed 14 basic syllable structures. It also yielded the possible co-occurrence patterns of clusters in both onsets and codas. The results also showed that i) there are branching codas in this dialect; ii) syllabic consonants are allowed both word initially and word finally; iii) there is absence of occurrences of certain permissible consonant clusters. Focus is also made on the parameterization of the minimum sonority distance and the obligatory contour principle (OCP).

The presentation of the present study in this paper is structured as follows. Section 2 briefly introduces the literature written about syllables in this dialect. The phonotactic constraints examined in this paper are illustrated in section 3. Section 4 starts by presenting the reasons behind this study. It introduces the reader to the implemented study and brings to their attention the main method used to collect and analyze the data. It also includes some information about the participant who took part in this study. This is followed by a detailed analysis of the structure of each segment within the syllable in LSA: onsets, nuclei, and codas. Later, it relates syllables to different bound morphemes. Section 5 presents the results of the study. Finally, section 6 provides a general conclusion for the work presented in this paper.

Literature review

Many linguists (Watson (2002) among others) referred to the dialects of Syria. The Damascene dialect is 'one of the best described Arabic dialects' (Lentin, 2006: 546). See Lentin (2006) and Cowell (1964) for some references on the grammar, syntax and phonetics of this dialect.

The Lattakian dialect is a newly investigated one. Very few studies investigated different aspects of LSA. Shaheen (2013) explored some aspects of the syntax of this dialect. Melhem (2016) is probably the first study to discuss some aspects of the morphosyntax and prosody of this dialect, very briefly though.

In her discussion of the syllabification in LSA, Melhem restricted the types of syllables to CV, CVC, CVV and CVG only. The study did not focus on the internal structure of constituents within the syllable, nor on what is permissible and what is not in a syllable. The evidence provided is based on her intuition and on what is claimed to be true about other Arabic dialects.

The present study addresses some of the questions raised in Albahra's (2002) descriptive study on Damascene Arabic. His study introduced the available sounds in the Damascene dialect, and presented a detailed description of the syllabification rules in this dialect. He did not, however, overtly refer to the parameterization of syllable structure. He basically drew on data he collected from a native speaker of this dialect.

Phonotactic constraints

Before moving to the empirical study, it is necessary to explain what the phonotactic constraints under study indicate. The only phonotactic constraints[1] tested for LSA are the following:

i. OCP: disallows adjacent partners which are similar. Thus, sounds under the onset should not belong to the same place of articulation. In a language such as English, onset

[1] **There are other restrictions imposed on the patterning of sounds such as Onset Maximization Principle and Onset First Principle (see Roca and Johnson (1999) for other constraints and details)**

constituents /bl/ in *blink* /blɪŋk/ obey the principle as they are not produced at the same place of articulation; the first being a bilabial, the second an alveolar.

ii. The principle of Minimum Sonority Distance: requires a minimal distance in sonority between constituent partners. For example, the sonority distance between sounds under a branching onset in English should be 2, while 0 or 1 in a branching coda.

Data collection and analysis

A study of syllables such as this is motivated by several considerations. First, there is no bulk of descriptive and experimental evidence on the syllable phonotactics in the Syrian dialects, especially on LSA which was never explored before. Second, this study can provide further evidence for the parameterization of sonority distance and obligatory place of articulation. Third, this study focuses on syllable structures in connected speech (in their natural occurrence), not on separate individual words. Finally, results of this study can serve as a foundation for follow-up suprasegmental studies such as stress.

This study of syllable phonotactics can bring light to the issues of syllable structure in this dialect that are stated above. To achieve this goal, data was collected from a speaker of LSA (38 year old). (Unlike the majority of studies conducted on Arabic dialects where linguists depended on their own intuition about the dialects under study, this study did not only depend on the researcher's intuition (though a native speaker of LSA). The subject was asked to express her thoughts and opinions about different topics and she was recorded in all sessions. Sessions were 10 ranging between 20-60 minutes in length. The participant was also observed in the conversations she held with close acquaintances who were native speakers of LSA.

All recorded speech was decoded into words. Words were then transcribed. Transcribed words were parsed into syllables.

The method adopted in this paper differs from the one used in many other studies. For McCarthy ((1994) cited in Frisch (2008: 624)) descriptions in Arabic 'are generally based on dictionaries of Modern Standard Arabic, and so are based on a 'standard' Arabic inventory. This inventory is an idealized inventory that roughly corresponds to the historical basis of the modern Arabic dialects'.

The following section analyses the data collected.

a. Syllable patterns in LSA

Unlike what is claimed in the literature about most eastern Arabic syllable types (see Watson (2002)), namely that Arabic exhibits a restricted range of syllable types, LSA shows a more flexible inventory. Table (1) below shows the available syllable patterns in LSA with no bound morphemes added to them neither word initially nor word finally.

Table (1): Available bare syllables in LSA

Syllable	Examples	Syllable	Examples
CV	fɪ 'in'	CVV	ma: 'right?'
CVC	bas 'only'	CVVC	he:k 'this way'
CVCC	ʔent 'you'		
CCV	drasət 'I studied'	CCVV	xṣu:ṣɪ 'private'
CCVC	tlətttala:f 'three thousands'	CCVVC	hmu:m 'cares'
CCVCC	tnaʕʃ 'twelve'		
CCCV	stlaqa:ha 'catch'	CCCVV	stna:wal 'take'

When certain bound morphemes (such as relative l-, word initial gemination (which stands for the definite article), preposition b-, pronoun –t (first person, singular)) are added to a word, other more complex patterns result:

Table (2): Available syllables with bound morphemes in LSA

C	lfɪ: 'the thing in which'	C[2]	jbɪːʕ 'sell'
CCCV	zzɣɪrɪ 'the small$_{fem}$'	CCCVVC	ttraːb 'the soil'
CCCVCC	stʕant 'asked for help'	CCCVVC	stʕaːn ' he asked for help'
CCCVC	zzɣɪr 'the small$_{masc}$'		

Tables 1 and 2 uncover the following facts:

i. Syllables vary in their complexity: from a simple C[3] syllable to syllables with a complex onset, a complex coda or a long vowel.

ii. There are no syllables that start with a vowel[4].

iii. Syllabic consonants are allowed in this dialect (see 4.2).

b. Onsets in LSA

Analysis revealed the possible complex onsets as shown in table (3) below.

Table (3): possible consonant clusters in the onset

	1w	j	r	l	m	n	ʔ	h	ʕ	ħ	ɣ	q	x	k	ʒ	ʃ	s	ṣ	z	ẓ	d	ḍ	t	ṭ	b	f
2w	n		+	+	+	+		+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
j		n	+		+	+			+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	
r			+	n	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
l			n	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
m					n	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
n					+	+			+	+	+	+	+	+	+	+	+	+	+		+		+	+	+	+
ʔ							n	n									+		+					+		
h							n	n				+		+	+	+	+	+	+	+	+	+	+	+	+	+
ʕ									n	n		+		+	+	+	+	+	+	+	+	+	+	+	+	+
ħ									n	n		+			+	+	+	+	+	+	+	+	+	+	+	+
ɣ											n	n				+				+	+		+	+	+	
q									+	+	n	n			+	+	+		+		+		+	+	+	+
x													n			+	+	+	+		+	+	+		+	+
k								+		+				n		+	+		+	+	+		+		+	+
ʒ								+	+	+		+	+		+	n	+					+	+			+
ʃ									+	+	+	+		+	n	+							+	+		+
s										+	+	+	+	+	+		+	n			+		+		+	+
ṣ									+	+	+	+	+					+					+		+	+
z								+	+	+	+	+	+		+				+				+		+	+
ẓ															+					+			+			

[2] C here stands for a semi-consonant.

[3] Glides and liquids are conflated as simple C syllables. This means that these are both syllabic consonants in the same way as the nasals mentioned in a different context in this paper.

[4] This is further supported by Melhem (2016: 130). She claims that LSA requires onsets, consequently syllables are never of the type (*VC-). Watson (2002: 65-66) and Broselow (to appear) among others argue that Arabic dialects do not allow onsetless syllables.

d							+	+	+	+	+	+	+	+	+	+	+			+				+	+
ḍ							+	+	+	+	+	+					+				+			+	+
t							+	+	+	+	+	+	+	+	+	+						+		+	+
ṭ								+	+	+	+	+			+	+	+						+	+	+
b							+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	n	
f							+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+		n

The horizontal line represents the first consonant in an onset, the vertical line the second. (+) stands for available clusters. (n) stands for the impossibility of occurrence. Blank cells stand for unavailability of examples.

Table (3) reveals the following facts about the occurrences of consonants with regards to the place of articulation:

i. Emphatic sounds (ṭ, ẓ, ḍ) do not occur with other emphatic sounds in the onset. The only exception is emphatic (ṣ) which co-occurred with (ṭ and ḍ)

ii. Geminates in onset position such as zzɣɪrɪ 'the small$_{fem}$' are only allowed in definite article followed by coronal-initial words (l + s-z-t- ʃ -ʒ-etc)[5].

iii. There are very few occurrences of /g/ as it does not belong to the phonemic system of this dialect; it only shows in words borrowed from other dialects.

iv. Glottals do not occur with other glottal sounds and pharyngeals. The same is true of pharyngeals which do not occur with other pharyngeal sounds and with glottals. In other words, non-oral and non-nasal sounds (i.e. glottals and pharyngeals) do not occur together.

v. Uvular, velar, post alveolar, and bilabials[6] do not occur with other sounds that belong to the same place of articulation.

vi. Alveolar sounds stand as an exception in that some of them do occur with sounds that belong to the same place of articulation.

Table (3) also reveals some facts about the occurrences of consonants with regards to the sonority distance in complex onsets:

i. Fricatives occur with fricatives, nasals, laterals and glides

ii. Nasals occur with nasals, laterals and glides

iii. Laterals occur with glides

Table (3) shows the following facts about the unavailability of consonant complexes in the onset:

i. There are no instances of glottals with uvulars and velars.

ii. There are no instances of pharyngeal with uvular /ɣ/ and velar /x/.

iii. There are no instances of uvulars /ɣ/ with glottals, pharyngeals and velars. There are no instances of /q/ with velars.

iv. There are no instances of velars with uvulars.

v. There are no instances of /ṣ, z, ẓ, d/ with post-alveolars. There are no instances of /s/ and /ḍ/ with /ʒ/.

One point worth mentioning here is that there are certain consonant clusters that might be mistaken as coming off the onset when they are not. In words such as **rʒ**a:l 'men' and **nh**a:s 'copper', the initial consonant clusters cannot both branch off the onset as that would suggest that sonority falls onset internally. The initial sound cannot be a degenerate syllable by itself (a syllable in which the nucleus dominates no segment (Teeple, 2009: 389))

[5] This idea is discussed in Melhem (2016: 124) where she argues that 'the definite article l- assimilates to the word initial coronal, thus resulting in a geminate onset, as in: [l-]+[sama] → [s-sama] 'the sky''

[6] No two successive bilabials in a word were observed, however there are instances of preposition /b/ followed by a word starting with m as in /bmai: with water/, and aspectual /b/ followed by a /m/ /bmu:t dying/.

as there are not contexts in which these words are followed by a vowel. In other words, there is no syncopated vowel. The first consonant rather behaves as a syllabic consonant. This is supported by the facts that the first constituent is sonorous.

c. Nuclei in LSA

What occupies the nuclei position can be a monophthong, a diphthong or a syllabic consonant.

i. The inventory of monophthongs in this dialect is shown in table (4):

Table (4): monophthongs in LSA

ɪ	ʃɪ 'thing'	ɒ	mɪnħeṭṭɒ 'we put it'
ɪ:	kɪ:f 'how'	ɔ:	fɔ:q 'above'
e	betnʒa:n 'aubergine'	ʊ	mafrʊʃa:t 'furniture'
e:	se:f 'summer'	ʊ:	tʊ:m 'garlic'
æ	katab 'he wrote'	ə	mənba:ʃər 'we start'
a:	rʒa:l 'men'	ʌ	ṣʌr 'happened'

What is noticeable in this table is the existence of a long /e:[7]/.

ii. The diphthongs found in this dialect are the following:

Table (5): diphthongs in LSA

eɪ	weɪʕətta 'I promised her'	əʊ	ʔəʊf 'exclamation'
aɪ	ʃaɪ 'tea'	ʊə	jəstʊə 'get cooked'
ɔɪ	bɔɪjə 'polish'	ɪə	faʕalɪət 'events'
aʊ	faʊḍə 'disorder'		

iii. There are many instances of syllabic consonants both word initially and word finally. The /l/ in 'metl' (like) is a word final syllabic consonant. The /m/ in 'mʃa:n' (in order to) and 'mbareh' (yesterday) is a syllabic consonant.

d. Codas in LSA

Analysis uncovered the possible complex codas as shown in table (6):

Table (6): Possible consonant complexes in the codas

	1w	j	r	l	m	n	ʔ	h	ʕ	ħ	ɣ	q	x	k	ʒ	ʃ	s	ṣ	z	ẓ	d	ḍ	t	ṭ	b	f
2w	+	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
j	N	+	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
r			+		n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
l				+	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
m			+	+	+	+	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
n			+		+	+	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
ʔ																									+	
h																									+	
ʕ			+	+	+	+			+								+					+			+	
ħ			+	+	+					+							+						+		+	

[7] **/e:/ occurs in Scottish and Yorkshire English. Hammond (1999) claims it also occurs in American English although it is not clear whether this applies to all dialects of American English or just his own.**

ɣ					+																		+	
q			+	+		+						+				+		+							+
x			+										+												
k			+	+										+		+	+								
ʒ			+	+	+	+		+							+			+								
ʃ			+		+				+	+						+					+			+	+
s			+	+	+	+	+		+	+				+	+		+							+	+	+
ṣ			+		+				+		+		+					+								
z			+		+	+					+				+				+						+	+
ẓ					+															+					
d			+	+		+			+			+	+	+	+			+			+				+	+
ḍ			+						+													+				
t				+	+	+				+							+						+			
ṭ			+							+	+		+			+									+	+	
b			+	+	+		+	+	+			+	+	+	+	+	+	+	+		+				+	
f			+	+				+	+			+		+		+				+			+	+		+

Horizontal line represents the first consonant in a coda, the vertical line the second. (+) stands for available clusters. (n) stands for the impossibility of occurrence. Blank cells stand for unavailability of examples.

Some general observations about complex codas are:

i. Almost all CC complexes alternate with CVC; the latter being more frequent than the former. For instance, a word such as /ræmz/ ‘symbol’ is sometimes pronounced as /ræmɪz/.

ii. Complex codas were not observed word internally.

iii. Geminates are allowed.

iv. Due to that consonant clusters in codas are few, it was difficult to decide if there are other acceptable co-occurrences of consonants from same and different places of articulation.

v. Not all allowed clusters have corresponding examples.

Table (6) reveals the following complexes with regards to the place of articulation:

i. There are instances of bilabials and alveolars occurring with sounds of the same place of articulation.

Table (6) reveals some facts about the consonant complexes with regards to the sonority distance in codas:

i. Laterals occur with nasals and fricatives

ii. Nasals occur with nasals and fricatives

iii. Fricatives occur with fricatives

e. Syllables and bound morphemes

Some bound morphemes get attached to different word classes word initially. They might be mistaken as illegal onsets as they constitute a violation of the sonority hierarchy. In fact, they cannot be part of the onset. They constitute syllables by themselves. Here are some examples that clarify the point:

j-mer ‘present masculine-pass’ (passes)

l-raːħ ‘who-went $_{\text{past masculine}}$’ (who went)

l-mɪʃklɪ ‘the-problem’ (the problem)

w-ra:ħ ‘and-went $_{\text{past masculine}}$’[8]

Some other bound morphemes behave as though they are part of the onset as in b-serʕə ‘with speed’ (quickly), but they are not. *b-* cannot be syllabic as it is not sonorous. *b-* can be a degenerate syllable. This can be justified by the fact that there are contexts where b-serʕə is produced as bɪ-serʕə; the vowel /ɪ/ can be lost or syncopated.

2. Results

The above analysis shed light on the following results and findings:

i. LSA is flexible in the sonority distances it allows in both its onsets and codas as shown in table (7). It also allows consonants that belong to the same place of articulation to be sisters for the same mother; be it the onset or the coda. This is unlike the situation in a language such as English which is more conservative in the distance and the place it permits (see Roca and Johnson (1999) for details).

Table (7): sonority distance and contour principle

	Onsets	Codas
Sonority distance	0 bha:ra:t ‘spices’ 1 hmu:m ‘cares’ 2 dru:b ‘ways’ 3 tja:b ‘clothes’	0 baʕd ‘some’ 1 bənt ‘girl’ 2 fəls ‘penny’
Obligatory contour principle	Not completely obeyed: mba:rəħ ‘yesterday’	Not obeyed: bənt ‘girl’

ii. There is inconsistency in the behavior of some sounds that belong to the same place of articulation; not all sounds which share the same place of articulation behave similarly with regards to the sounds with which they occur, alveolars in particular.

iii. Certain phonemes are uncommon in LSA. Thus the fact that they might not co-occur with other phonemes does not seem to suggest that there is a restriction against their patterning. Kessler and Treiman (1997: 299) argue that ‘some possible combinations may fail to exist just because they do not have a reasonable chance to occur. A count of zero co-occurrences does not mean there is a principled constraint against a sequence. On the other hand, finding a few co-occurrences does not mean that the phonemes combine freely. Some phonemes may be so common that one would expect them to appear together dozens or hundreds of times.’

Conclusion

In this descriptive study of the architecture of syllables, no attempt was made to explain the facts about syllables in LSA. Further analytic research is needed to investigate these facts. For example, the inconsistency in the behavior of alveolars in branching onsets with regards to the place of articulation requires an explanation. It is not clear whether what seems to be complex codas are licensed by the coda itself or whether they are licensed directly by the syllable itself.

[8] It is argued that a phonological word is different from a syntactic word, and that syllable edges do not always correspond with word edges (see Harris and Gussmann, 1998). A function word such as conjunction /w/ ‘and’ is part of the phonological word w-ra:ħ ‘and-went $_{\text{past masculine}}$’. Selkirk (1996: 188 cited in Melhem (2016: 116)) argues that ‘[a] function word can also be represented as a prosodic clitic which is a morphosyntactic word that cannot be an independent PWd’.

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