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The Phonological Differences between Modern Standard Arabic and Mosuli Arabic's Cardinal Numerals: A Descriptive Study

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Abstract

The Mosuli variety of Arabic is one of the *qeltu* dialects in upper Mesopotamia spoken by the inhabitants of Nineveh in the north region of Iraq. Various studies related to this *qeltu* variety have been conducted on the phonological, morphological, syntactic, and sociolinguistic levels. Although there are a number of noteworthy studies that address this variety of Iraqi Arabic, some scholars report that many of those descriptions were not satisfactory and contemporary ones lack clarity. As such, the study presents a detailed description that specifies the phonological differences found when comparing Modern Standard Arabic to Mosuli Arabic. Those differences are then scaled according to their frequency from the most frequent to the least frequent one. The sample of the present study comprises 50 native speakers of MA of different age, gender, and educational background so as to be inclusive. They are instructed to produce MA cardinal numerals in the range of 0 to 20 and their performance is recorded and analysed auditorily afterwards. It was concluded that MA usually favours having fewer syllables prioritizing it to ease of pronunciation. In addition, MA stress pattern is, to a certain extent, more predictable than in MSA.

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الملخص

تعد اللهجة الموصلية احدى انواع لهجات 'قلتو' في الجزء العلوي من بلاد الرافدين والتي يتحدث بها سكان محافظة نينوى في الجزء الشمالي من العراق. وقد اجريت العديد من الدراسات على الصعيد الصوتي والبنيوي والنحوي والاجتماعي لهذه اللهجة. وبالرغم من أن هنالك العديد من الدراسات الجديرة التي تناولت هذه اللهجة, اورد بعض العلماء بأن العديد من هذه الدراسات غير مرضية وأن الدراسات الحديثة تفتقر الى الوضوح. وبناءا على ذلك, فإن الدراسة الحالية تقدم وصفا مفصلا للفروقات الصوتية للاعداد الاساسية بين اللغة العربية الفصحى واللهجة الموصلية ليتم ترتيب هذه الفروقات تنازليا حسب تكرارها. وشملت الدراسة عينة من 50 متحدثا اصليا للهجة الموصلية من مختلف الاعمار والاجناس والمستويات العلمية والثقافية لضمان الشمولية, حيث تم توجيه العينة لاداء الارقام الاساسية من 0 الى 20 باللهجة الموصلية وتم تسجيل اداءهم حاسوبيا لكي يتم تحليله سماعيا بعد ذلك. وخلصت الدراسة الى ان اللهجة الموصلية, عادة, تميل الى استخدام عدد مقاطع اقل مما هو عليه في العربية الفصحى وكانت هذه الاولوية على حساب سهولة النطق. اضافة لذلك, فان اللهجة الموصلية تتسم بنظام تنبير متوقع على غرار اللغة العربية الفصحى.

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The cardinal numeral system is one of many other aspects in which the mosuli variety of Arabic show considerable differences as opposed to that of standard Arabic. In addition, the literature in this regard is few and contemporary descriptions lack clarity. This study is a descriptive one that seeks to investigate the differences between MSA and MA. It is concerned with the phonological differences between MSA and MA in relation to their cardinal numeral system. As such, it is the aim of this study to specify and describe those phonological differences as well as their impact on such phonological aspects as syllabification and stress placement among many others. This, in turn, is hoped to contribute to the slow growing literature of this specific variety.

1. Study Rationale

The study tackles the differences between MSA and MA in relation to cardinal numerals. It attempts to provide a detailed analysis of the various phonological differences found when comparing MSA and MA. The phonology of MA *qeltu* dialect is under-researched and its literature is lacking which is why the present study is triggered. Ahmed (2018, p49) states that "MA is still short of adequate studies compared to other *qeltu* dialects as the existing studies on this dialect are few and far between." Even contemporary literature available for MA lacks clarity (Michalski, 2016, p2).

2. Study Questions

The study attempts to answer the following questions:

1. What are the phonological differences between MSA and MA cardinal numerals?
2. Compared to MSA, how do those differences affect the syllabification and stress placement of cardinal numerals?

3. What other phonological phenomena can be observed when comparing MA cardinals to MSA cardinals?
4. What is the nature of those phonological differences as spoken by native speakers of both MSA and MA?

3. Sample and Data Collection

The study sample is a group of (50) native speakers of MA. It comprises a group of native speakers of different age, gender, and educational background so as to be representative of MA. Although, socio-linguistically speaking, variables such as age, gender, and educational background of individuals can have an impact in terms of differences within MSA and MA groups themselves, yet, for the purpose of this current study, they are neutralized so as to get a general idea of what the phonological differences are between MSA and MA. As such, the variables of age, gender, and educational background are of little concern for this study.

The sample is instructed to produce the cardinal numerals of both MSA and MA and their performance is recorded using PRAAT. The data is stored in the form of (.wav) file extension using PRAAT so as to be analyzed auditorily afterwards.

4. Literature Review

Abu Haider (2004) studied Rabī`a Arabic (RA) which is one of the varieties of the inhabitants of Mosul province. In her study, she provided a description of the phonology and morphology of RA comparing it to that of MA and Baghdadi Arabic (BA). The data collected is sampled from seven inhabitants of Rabī`a (two women and five men) in the form of direct interviews and audio recordings. She concludes that RA belongs to the *qeltu* Arabic of the Tigris branch and that one of the main differences, on the phonological level, is in the retention of MSA /r/ as opposed to [ɣ] allophone of MA.

On the morphological level, the main differences concluded were pronominal morpheme ending and past progressive modifier *ka* that are specific to RA. In addition, she stated that it is difficult to conclusively ascertain whether or not the verbal prefix *b-* is a characteristic property of RA.

Michalski (2016) conducted a study on agreement in MSA with cardinal numerals over ten. The study is triggered to provide a due description of the previously mentioned agreement relationship stating that such a relationship was not given due description. He states that the description by classical grammarians was not satisfactory and that contemporary descriptions were not presented clearly. The data analyzed in this study were extracted from journalistic texts. In his study, he states that, syntactically speaking, cardinals in the range of 11 to 99 constitute a separate category as opposed to one hundred and its multiplies. The study distinguishes four agreement cases three of which are classical and one is non-classical. It concludes that agreement varies in some types of qualifiers and that variables such as qualifier phraseology and their lexico-syntactic properties governs the choice of a particular agreement.

Al-Bataineh and Branigan (2020) conducted a descriptive study that analyses the morphological structure of Standard Arabic simple, compound, and complex numerals. The study is based on the idea that research in the syntax of numeral-noun constructions is challenging. This is because scholars, such as (Corbett, 1978:61), state that whether cardinals syntactically function the same way as adjectives or nouns remain unclear. Other scholars, such as (Hurford, 1975: 3), claim that cardinals form a distinct system and a unique component in a given language. The study concludes a recurrent pattern in complex numerals and in the numeral-noun structure. The pattern concluded serves a more principled accounts of cardinals' morphosyntactic complexities.

5. Background

The following provides a discussion of the phonological aspects involved in the analysis of the data which include: re-syllabification, assimilation, ‘imāla, ‘itbā`, creation of consonant clusters, change of consonant cluster position within words, breaking consonant clusters, and changes in stress placement. The reason for the inclusion of those aspects rather than others is attributed to their occurrence as phonological differences when comparing MA cardinals to those of MSA.

Re-syllabification is a phonological process whereby a word is reanalyzed and thus the location of the syllable boundary is altered as a result (Crystal, 2012, p467). Gussenhoven and Jacobs (2012, p179) view re-syllabification as an additional syllabification rule whereby a consonant which appear, from one point of view, in the coda of one syllable acts, from a different point of view, as the onset of the next syllable or vice versa due to particular phonological variables such as derivation, cliticization, elision, etc.

Assimilation, according to Collins and Mees (2008, p116), is the case when a phoneme gets replaced by another due to the influence of a third phoneme. For instance, in ‘broadcast’ [ˈbrɔ:dka:st] the final [d] of broad is replaced by [g] as it is influenced by the following /k/. Assimilation patterns are governed by the direction and type of influence. In terms of direction, when the preceding phoneme is influenced by the one that follows, regressive assimilation occurs. On the other hand, progressive assimilation occurs when the following phoneme is influenced by the one it precedes. In term of the type of influence, assimilation of place, manner, and voice occur when the assimilation involves a change in the place of articulation, manner of articulation, or voicing respectively. Roach (2009, p110) states that aspects of connected speech in general and assimilation in particular are products of natural connected speech.

Van Putten (2022, p23) states that ‘imāla, according to traditional Arab grammarians and many modern scholars, is the case whereby an original [a:] shifts towards /i:/ resulting in a vowel in between them which is [e:]. He argues that, from a historical perspective, this is only true for some but not all of what is collected under this term and this led some scholars to believe that ‘imāla is simply an allophonic variation that belongs to the realm of phonetics. He states that there are, nevertheless, clear examples that indicate the existence of phonemic distinctions. Sibawayh (1988, p117) views ‘imāla as one type of assimilation and states that [a:] shifts to [e:] when followed by [i:] or [i] and this is because [e:] is more homogeneous to [i:] and [i] than [a:] and as such *mafātīḥ* ‘keys’ [mafa:ti:ħ] becomes [mafe:ti:ħ]. Arabs use ‘imāla for ease of pronunciation and economy of effort. He also states that Arabs use imāla the same way they assimilate [sˁ] to [z] in *maṣdar* ‘reference’ [masˁdar] to [mazdar].

‘itbā` is the shifting or assimilation of one ḥaraka (diacritic) to completely match another within a single word. This phenomenon is used in speech so as to avoid moving between different diacritics. There are two types of ‘itbā`: regressive and progressive. Regressive ‘itbā` is when a following diacritic changes to match the diacritic that precedes it; whereas progressive ‘itbā` is when a preceding diacritic changes to match the diacritic that follows it (Al-Matlabi, 1984, p185). ‘itbā` is considered one type of assimilation in Arabic (Sibawayh, 1988, p196). Some Arab scholars, like Al-Suyuti (2008, p176), use the term *Wahm* to refer to the phenomenon of ‘itbā` and states that it may occur even when there is no [i:] or [i] preceding it. It is important to note that the terms ‘imāla and ‘itbā` are terms used by Sibawayh as different types of assimilation (Omar, 2016, p20). Other scholars used different terms such as medium ‘imāla (or ‘imāla mutawassiṭa) and strong ‘imāla (or ‘imāla shadīda) to refer to ‘imāla and ‘itbā` respectively stating that the former occurs medially whereas the latter occurs finally (Levins, 1998, p175).

A consonant cluster, also called consonant sequence, is a sequence of consonants that occur in word initial or final position. The following is a "generalized formula" which summarizes all syllabification possibilities in English:

$$(C_{0\text{-}3})\ \ V\ \ (C_{0\text{-}4}) \qquad \text{(Abercrombie, 1967, p74)}$$

As such, consonants occupy the margins of a syllable i.e. onset and coda. Syllable structure in English allows up to three consonants in its onset and up to four consonants in its coda (Collins & Mees, 2008: 74). Consonant clusters are broken in one of two ways: either by epenthesis i.e. the insertion of a vowel or by elision i.e. the deletion of segments (de Lacy, 2007, p169).

Epenthesis, according to Collins and Mees (2008, p314), is a process in which one or more than one segment is inserted in the middle of a word. Whereas Crystal (2012, p171) states that epenthesis falls under the umbrella of intrusion and is subclassified into two categories, namely: prothesis and anaptyxis. Prothesis is when a segment is inserted in word initial position as in *left turn* [ᵊleft tʒ:n]. On the other hand, anaptyxis is when a segment is inserted between two consonants as in *film* [ˈfɪləm]. Epenthesis is common in historical change as well as connected speech.

Elision is the deletion of a segment within particular phonological environments, a phenomenon related to the phonological process of compression whereby the number of syllables is reduced (Ashby, 2012, p114). Elision, or non-pronunciation, occurs for both consonants and vowels (Carr, 2013, p60).

Stress is a suprasegmental feature of an utterance which can be defined in terms of what a speaker does and what a listener perceives. As for the former, the speaker exerts greater respiratory energy or may even increase his laryngeal activity on a given syllable compared to other unstressed syllables and thus more air is pushed out of the lungs.

Whereas for the latter, a stressed syllable is often, but not always, perceived as being louder and on a higher pitch than other syllables. In addition, a listener perceives the vowel of a stressed syllable as being longer than the ones in unstressed syllables (Ladefoged & Johnson, 2015, p119). According to Yavas (2011, p156), stress is a term that includes under its umbrella a number of prosodic features, namely: duration, intensity, and pitch. Reetz and Jongman (2009, pp210-11) distinguish three levels of stress: primary stress, secondary stress, and unstressed as in *phonetician* [ˌfɒnəˈtɪʃn] in which a low vertical stroke is used to indicate secondary stress on the first syllable and a high vertical stroke to indicate primary stress on the third syllable.

6. Data Analysis

The data collected is auditorily analysed in terms of differences between MA and MSA in relation to different phonological aspects which include re-syllabification, assimilation, ‘imāla, ‘itbā`, creation of consonant clusters, change of consonant cluster position within words, breaking consonant clusters, and changes in stress placement. The analysis will then be used to scale the differences in phonological aspects in a descending order. As such, the phonological aspects discussed below are arranged from the most frequent to the less frequent ones. Table 1 below serves as a reference for MSA cardinal numerals in the range of 0 to 20 along with their numerical, spelling and transliterated forms, whereas Table 2 lists all MSA and MA cardinal numerals in the range of 0 to 20 along with their transliterated form, transcription, and number of syllables. The range chosen is representative of all other cardinals since their phonological characteristics are repetitive and consequently the analysis and discussion will be within this range.

Numerical Form	Spelling Form	Translitera ted Form	Gloss	Numerical Form	Spelling Form	Translitera ted Form	Gloss
0	صِفْر	sifr	zero	11	أَحَدَ عَشَرْ	‘ahada `ashar	eleven
1	واحِد	wāhid	one	12	إثْنا عَشَرْ	‘ithnā `ashar	twelve
2	إثْنان	‘ithnān	two	13	ثَلاثَة عَشَرْ	thalāthata `ashar	thirteen
3	ثَلاثَة	thalātha	three	14	أَرْبَعَةَ عَشَرْ	‘arba`ata `ashar	fourteen
4	أَرْبَعَة	‘arba`a	four	15	خَمْسَةَ عَشَرْ	khamsata `ashar	fifteen
5	خَمْسَة	khamsa	five	16	سِتَّةَ عَشَرْ	sittata `ashar	sixteen
6	سِتّة	Sitta	six	17	سَبْعَةَ عَشَرْ	sab`ata `ashar	seventeen
7	سَبْعَة	sab`a	seven	18	ثَمانِيَةَ عَشَرْ	thamāniyata `ashar	eighteen
8	ثَمانِيَة	thamāniya	eight	19	تِسْعَةَ عَشَرْ	tis`ata `ashar	nineteen
9	تِسْعَة	tis`a	nine	20	عِشْرون	`ishrūn	twenty
10	عَشَرَة	`ashara	ten				

Table (1): MSA cardinal numeral numerical, spelling, and transliterated forms

Transliterated Form	MSA	N. of syllables	MA	N. of syllables
sifr	[ˈsˤɪfr]	1	[ˈsˤəfər]	2
wāhid	[ˈwaːħid]	2	[ˈwaːħəd] or [ˈweːħəd]	2
ʻithnān	[ʔɪθˈnaːn]	2	[ˈθneːn]	1
thalātha	[θaˈlaːθa]	3	[ˈtlaːθa], [ˈθaːθi], or [ˈθeːθi]	2
ʻarba`a	[ˈʔarbaʕa]	3	[ˈʔarbaʕa]	3
khamsa	[ˈxamsa]	2	[ˈxamsa/ or [ˈxamsi]	2
sitta	[ˈsitta]	2	[ˈsitta] or [ˈsitti]	2
sab`a	[ˈsabʕa]	2	[ˈsabʕa]	2
thamāniya	[θaˈmaːnija]	4	[ˈθmaːnja] or [ˈθmeːni]	2
tis`a	[ˈtɪsʕa]	2	[ˈtəsʕa]	2
`ashara	[ˈʕaʃara]	3	[ˈʕaʃɣa]	2
ʻahada `ashar	[ʔaḥada ˈʕaʃar]	5	[ʔɪˈdaʕəʃ]	3
ʻithnā `ashar	[ʔɪθˈnaː ʕaʃar]	4	[ˈθnaːʕəʃ]	2
thalāthata `ashar	[θaˈlaːθata ʕaʃar]	6	[θalaˈtˤaʕəʃ]	3
ʻarba`ata `ashar	[ˈʔarbaʕata ʕaʃar]	6	[ʔarbaˈtˤaʕəʃ]	4
khamsta `ashar	[ˈxamsata ʕaʃar]	5	[xaməsˈtˤaʕəʃ]	4
sittata `ashar	[ˈsittata ʕaʃar]	5	[ˈsitˤˈtˤaʕəʃ]	3
sab`ata `ashar	[ˈsabʕata ʕaʃar]	5	[sˤabaːˈtˤaʕəʃ]	4
thamāniyata `ashar	[θaˈmaːnijata ʕaʃar]	7	[θəmənˈtˤaʕəʃ]	4
tis`ata `ashar	[ˈtɪsʕata ʕaʃar]	5	[təsaːˈtˤaʕəʃ]	4

`ishrūn	**[ʕiʃˈruːn]**	2	**[ʕəʃˈʃiː n]**	**2**

Table (2): a phonetic transcription of both MSA and MA cardinal numerals

6.1 Re-syllabification

After comparing MA cardinal numerals to those of MSA, it is evident that most cardinals exhibit an instance of re-syllabification. Specifically speaking, in the range of 0 to 20, the cardinals that exhibit re-syllabification are 0, 2, 3, 8, and 10 to 19 i.e. fourteen instances. To the exception of the cardinal 0, the tendency is for MA to have fewer syllables compared to MSA. In the case of cardinal 0, re-syllabification is attributed to epenthesis whereby [ə] is inserted to form a second syllable **[**ˈsˤəfə**r]**. On the other hand, all other re-syllabification instances are attributed to elision and thus the number of syllables is reduced. The most frequent difference in the number of syllables is that of MA having 1 or 2 syllables, both equally most frequent, less than MSA and the least frequent one is that of MA having 3 syllables less than MSA. The following is a table that compares MA cardinals to MSA in terms of re-syllabification and only the cardinals that exhibit re-syllabification are listed:

Spelling Form	MSA	N. of Syllables	MA	N. of Syllables
sifr	**[ˈsˤifr]**	**1**	**[ˈsˤəfər]**	**2**
ʻithnān	**[ʔiθˈnaːn]**	**2**	**[ˈθneːn]**	**1**
thalātha	**[θaˈlaːθa]**	**3**	**[ˈtlaːθa], [ˈθeːθi], or [ˈθaːθi]**	**2**
thamāniya	**[θaˈmaːnija]**	**4**	**[ˈθmanja] or [ˈθmeːni]**	**2**
`ashara	**[ˈʕaʃara]**	**3**	**[ˈʕaʃɣa]**	**2**
ʻahada `shar	**[ʔaˈħad ʕaʃar]**	**5**	**[ʔiˈdaʕəʃ]**	**3**

‘ithnā `ashar	[ʔiθˈna: ʕaʃar]	4	[ˈθnaʕəʃ]	2
thalātha `ashar	[θaˈla:θata ʕaʃar]	6	[θalaˈtˤaʕəʃ]	3
‘arba`a `ashar	[ˈʔarbaʕata ʕaʃar]	6	[ʔarba:ˈtˤaʕəʃ]	4
khamsa `ashar	[ˈxamsata ʕaʃar]	5	[xaməsˈˤtˤaʕəʃ]	4
sitta `ashar	[ˈsittata ʕaʃar]	5	[səˈtˤaʕəʃ]	3
sab`a `ashar	[ˈsabʕata ʕaʃar]	5	[saba:ˈtˤaʕəʃ]	4
thamāniya `ashar	[θaˈma:nijata ʕaʃar]	7	[θəmənˈtˤaʕəʃ]	4
tis`a `ashar	[ˈtisʕata ʕaʃar]	5	[təsˤa:ˈtˤaʕəʃ]	4

Table (3): A comparison in terms of re-syllabification between MSA and MA

The following is a table that summarizes and scales the differences in the number of syllables between MSA and MA from the most frequent difference to the less frequent one:

N.	Cardinals affected by re-syllabification	Difference in Syllable Number	
1	2, 3, 10, 15, 17, 19	1 syllable less than MSA	Most frequent
2	8, 11, 12, 13, 14, 16	2 syllables less than MSA	
3	18	3 syllables less than MSA	Less frequent

Table (4): scaling MA cardinals based on the difference in syllable number compared to MSA

6.2 Change in Stress Placement

MA cardinal numerals, when compared to MSA numerals, exhibit a shift in stress placement as a result of re-syllabification. In the range of 0 to 20, there are eleven instances of stress shift viz, cardinals 2, 3, 8, and 12 to 19. In MA, in the range of 11 to 19, it is always the first syllable of the tens that receives stress except in the case of cardinals 11 and 12 whereas in MSA, within the same range, stress placement varies. The following is a table that lists all cardinal numerals in which an instance of stress shift occurs to the exclusion of other numerals in which stress placement remains the same:

Spelling Form	MSA	Stress Placement	MA	Stress Placement
‘ithnān	[ʔiθˈnaːn]	2nd syllable	[ˈθneːn]	1st syllable
thalātha	[θaˈlaːθa]	2nd syllable	[ˈtlaːθa], [ˈθaːθi] or [ˈθeːθi]	1st syllable
thamāniya	[θaˈmaːnija]	2nd syllable	[ˈθmanja] or [ˈθmeːni]	1st syllable
‘ithnā `ashar	[ʔiθˈnaː ʕaʃar]	2nd syllable	[ˈθnaʕəʃ]	1st syllable
thalātha `ashar	[θaˈlaːθata ʕaʃar]	2nd syllable	[θalaˈtˤaʕəʃ]	3rd syllable
‘arba`ata `ashar	[ˈʔarbaʕata ʕaʃar]	1st syllable	[ʔarbaːˈtˤaʕəʃ]	3rd syllable
khamsata `ashar	[ˈxamsata ʕaʃar]	1st syllable	[xaməsˤˈtˤaʕəʃ]	3rd syllable
sittata `ashar	[ˈsittata ʕaʃar]	1st syllable	[səˈtˤaʕəʃ]	2nd syllable
sab`ata `ashar	[ˈsabʕata ʕaʃar]	1st syllable	[sabaːˈtˤaʕəʃ]	3rd syllable

thamāniyata `ashar	[θaˈma:nijata ʕaʃar]	2nd syllable	[θəmənˈtˤaʕəʃ]	3rd syllable
tis`ata `ashar	[ˈtisʕata ʕaʃar]	1st syllable	[təsˤa:ˈtˤaʕəʃ]	3rd syllable

Table (5): comparing MSA and MA stress placement in cardinal Numerals

6.3 Assimilation

Another phonological change that occurs in MA is that of assimilation. In the range of 0 to 20, there are eight instances of assimilation viz. 3, 13, 14, 15, 16, 17, 18, and 19 all of which are due to elision. In the case of cardinal 3, [θ] is assimilated to /t/ whereas all other cardinals 13 to 19 have their [t] phoneme of the tens assimilated to [tˤ]. Both cardinals 15 and 17 have an additional instance of assimilation whereby [s] is assimilated to [sˤ]. The following is a table that lists MA cardinal numerals in which assimilation occurs. Some cardinals have more than one possible pronunciation and only the ones relevant to assimilation are listed:

Spelling Form	MSA	MA	Assimilation
thalātha	[θaˈla:θa]	[ˈtla:θa]	[θ] to [t]
thalāthata `ashar	[θaˈla:θata ʕaʃar]	[θalaˈtˤaʕəʃ]	[t] to [tˤ]
‘arba`ata `ashar	[ˈʔarbaʕata ʕaʃar]	[ʔarbaˈtˤaʕəʃ]	[t] to [tˤ]
khamsata `ashar	[ˈxamsata ʕaʃar]	[ˈxaməsˤˈtˤaʕəʃ]	[t] to [tˤ] and [s] to [sˤ]
sittata `ashar	[ˈsittata ʕaʃar]	[ˈsitˤˈtˤaʕəʃ]	[t] to [tˤ]
sab`ata `ashar	[ˈsabʕata ʕaʃar]	[sˤaba:ˈtˤaʕəʃ]	[t] to [tˤ] and [s] to [sˤ]

thamāniyata `ashar	**[θaˈmaːnijata ʕaʃar]**	**[θəmənˈtˤaʕəʃ]**	**[t] to [tˤ]**
tis`ata `ashar	**[ˈtɪsʕata ʕaʃar]**	**[təsˤaːˈtˤaʕəʃ]**	**[t] to [tˤ]**

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Table (6): assimilation instances in MA cardinal numerals

6.4 ‘imāla and ‘itbā`

Another phonological difference between MSA and MA is that of ‘imāla and ‘itbā`. In the range of 0 to 20, there are seven instances of ‘imāla and ‘itbā` viz. cardinals 1, 2, 3, 5, 6, 8, and 20. As for ‘imāla, cardinals 1, 2, 3, 8, and 20 have one of their vowels raised for ‘imāla wherein [a:] is raised to become [e:] and [u:] to [i:]. In the case of ‘itbā`, cardinals 5, 6, and 8 have their [a] assimilated to [i]. Cardinal 3 is a special case in which both of ‘imāla and ‘itbā` occur. In this cardinal, there are three possible pronunciations only two of which exhibit an instance of ‘imāla and ‘itbā` namely: [ˈθaːθi] and [ˈθeːθi]. The former has one instance of ‘itbā` wherein [a] is raised to become [i] whereas the latter has both instances of ‘imāla and ‘itbā` wherein [a:] is raised to become [i:] and [a] to [i]. It is worth mentioning that ‘imāla and ‘itbā` are one of the phonological aspects that distinguishes MA variety of Arabic from others i.e. it is embedded within this variety of Arabic. This embedding of ‘imāla was reported by Jastrow (2006, p417) stating that [i] and [u] were historically coalesced to form /ə/ and that MA has only two short vowels [ə] and [a]. The following is a table that lists all cardinals that have ‘imāla and ‘itbā` in the previously mentioned range to the exclusion of other cardinals that don’t. Some cardinals have more than one possible pronunciation and only the ones relevant to ‘imāla and ‘itbā` are listed:

Spelling Form	MSA	MA	‘itbā`	‘imāla
wāhid	[ˈwaːhid]	[ˈweːhəd]	N/A	[a:] to [e:]
‘ithnān	[ʔɪθˈnaːn]	[ˈθneːn]	N/A	[a:] to [e:]
thalātha	[θaˈlaːθa]	[ˈθaːθi] or [ˈθeːθi]	[a] to [i]	[a:] to [e:]
khamsa	[ˈxamsa]	[ˈxamsi]	[a] to [i]	N/A
sitta	[ˈsitta]	[ˈsətti]	[a] to [i]	N/A
thamāniya	[θaˈmaːnija]	[ˈθmeːni]	N/A	[a:] to [i:]
`ishrūn	[ʕiʃˈruːn]	[ʕiˈʃiːn]	N/A	[u:] to [i:]

Table (7): ‘imāla and ‘itbā` in MA cardinal numerals

6.5 Creation of Consonant Clusters

Compared to MSA, MA cardinals have consonant clusters that are otherwise not evident in MSA. In all cases, the clusters formed are attributed to elision and some of those clusters are created in syllable initial position which is something that MSA doesn’t allow. This is because, in MSA, consonant clusters are only found in syllable medial and final positions. There are five instances of consonant cluster creation viz, cardinals 3, 8, 10, 13, and 15. In all of these instances, one consonant cluster is formed to the exception of cardinal numeral 8 wherein two consonant clusters are formed. Unlike other cardinals, cardinal numeral 15 already has a consonant cluster in MSA which is [ms] and in MA the cluster changes to become **[sˤtˤ]** as a result of re-syllabification. The following is a table that lists all instances of consonant cluster creation in MA. Some cardinals have more than one possible pronunciation and only the ones relevant to consonant cluster creation are listed:

Spelling Form	MSA	MA	Consonant Cluster Created
thalātha	[θaˈlaːθa]	[ˈtlaːθa]	[tl] initially
thamāniya	[θaˈmaːnija]	[ˈθmeːni] or [ˈθmanja]	[θm] initially and [nj] medially
`ashara	[ˈʕaʃara]	[ˈʕaʃɣa]	[ʃɣ] medially
thalāthta `ashar	[θaˈlaːθata ʕaʃar]	[θlaˈtˤaʕəʃ]	[θl] initially
khamsata `ashar	[ˈxamsata ʕaʃar]	[ˈxaməsˤˈtˤaʕəʃ]	[sˤtˤ] medially

Table (8): creation of consonant cluster in MA

6.6 Breaking Consonant Clusters

As opposed to MSA, few MA cardinals break their consonant cluster by means of epenthesis or elision. In the range of 0 to 20, there are five instances whereby a consonant cluster is broken, two of which are caused by epenthesis whereas the other three are caused by elision. In the case of cardinal 0, the cluster [fr] in final position is broken by means of epenthesis wherein the vowel [ə] is inserted and hence a second syllable is formed. The same occurs for cardinal 15 wherein the cluster [ms] in medial position is broken by the insertion of [ə]. As for the remaining three cardinals 17, 19, and 20, the clusters [bʕ], [sʕ], and [ʃr] respectively are broken by the deletion of the second consonant in the cluster. The following is a table that lists all instances of consonant cluster breaking:

Spelling Form	MSA	MA	Consonant Cluster in MSA	Broken by Means of
sifr	[ˈsˤɪfr]	[ˈsˤəfər]	[fr]	Epenthesis
khamsata `ashar	[ˈxamsata ʕaʃar]	[ˈxaməsˈtˤaʕəʃ]	[ms]	Epenthesis
sab`ata `ashar	[ˈsabʕata ʕaʃar]	[sˤabaːˈtˤaʕəʃ]	[bʕ]	Elision
tis`ata `ashar	[ˈtɪsʕata ʕaʃar]	[təsaːˈtˤaʕəʃ]	[sʕ]	Elision
`ishrūn	[ʕiʃˈruːn]	[ʕəˈʃiːn]	[ʃr]	Elision

Table (9): breaking consonant clusters in MA

6.7 Change of Consonant Cluster Position

Some cardinals in MA, compared to MSA, exhibit a change in consonant cluster position caused by the phonological process of re-syllabification. The change in consonant cluster position, in those instances, results in an initial consonant cluster which is something MSA doesn't allow since MSA allows clusters to be positioned either medially or finally but not initially. Nevertheless, compared to the previously discussed phonological processes, the change of consonant cluster position is not as frequent. In MA, in the range of 0 to 20, only two instances are found viz. cardinals 2 and 12. In both cardinals, the cluster that undergoes a change in position is [θn]. The following is a table that lists those two instances and the change in their consonant cluster position:

Spelling Form	MSA	Consonant Cluster Position	MA	Consonant Cluster Position
‘ithnān	[ʔɪθˈnaːn]	Medial	[ˈθneːn]	Initial
‘ithnā `ashar	[ʔɪθˈnaː ʕaʃar]	Medial	[ˈθnaːʕəʃ]	Initial

Table (10): change of consonant cluster position in MA cardinals

7. Conclusion

The study concludes the following:

1. MA is, characteristically but by no means always, in favour of having fewer number of syllables as opposed to MSA.
2. MA, usually, prioritizes having fewer number of syllables to ease of pronunciation. This is because the re-syllabification that occurs due to elision results in the creation of initial consonant clusters as opposed to MSA, wherein consonant clusters occur only in medial and final positions.
3. Although MA cardinals exhibit instances of consonant cluster breaking which results in an increase in the number of syllables, almost all cardinals involved have fewer number of syllables compared to MSA.
4. In the range of 0 to 20 cardinal numerals, MA exhibits a considerably predictable stress pattern as opposed to that of MSA. Specifically, in the range of 0 to 10, it is the first syllable that tends to receive stress, whereas in MSA stress placement varies, i.e. some cardinals have their first syllable stressed and others have their second syllable stressed. In the range of 11 to 20, MA tends to stress the first syllable of the tens /tˤa/ except in the case of cardinals 11, 12, and 20, whereas in MSA stress placement varies.

5. In MA, the re-syllabification of cardinals as a result of elision or epenthesis causes their phonological environment to change which in turn causes the assimilation of certain phonemes.
6. MA, as opposed to MSA, exhibits many cases of ‘imāla and ‘itbā`, the former in medial position and the latter in final position.

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