

Non-Linearity and Feature-Based Phonotactics of Khasibi Arabic Syllable Templates: A Phonological Survey

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Abstract—This paper is intended to explore the study of permissible orders of Khasibi segments in formatting syllable templates (phonotactics). The treatment of phonotactic rules and representations of Khasibi syllables is touched on by means of two influential factors. One of them is the non-linear perspective that is used to cover the hierarchical mapping of the syllables. The other is greater exploitation of the theory of distinctive features to elucidate the phonetic properties of the sound segments of which the syllables are made up. The overall phonotactic scene of Khasibi Arabic is thus integrated by double phonological instruments to attain some sort of comprehensiveness and universality and simultaneously to manifest a degree of idiosyncrasy. Different results are objectively reached, and the most noteworthy one is that two X-position consonants (consonantal clusters) are formed uniquely whereby certain phonological phenomena like geminates and ambi-syllabicity are directly responsible for such a formation.

Index Terms—phonotactics, Khasibi Arabic, distinctive features, X-positions, non-linearity

I. INTRODUCTION

In phonological theory in general and in the phonology of the syllable in particular, phonotactics is deeply viewed as that aspect of phonology in which the syllable is not only its major domain, but the word, or more adequately the lexical item, also plays an exuberant part in holding various constraints as to how it is set up. This orientation inevitably lays the base for the phonological tie drawn between the syllable and the word even though the former is hierarchically considered a larger unit than the latter. Obviously, the less admissible a sequence of phonemes is to build up a syllable; the less potential it forms a mono-syllabic word. Hence, phonotactics is a pivotal representation of the well-organization of syllables and words. It is required to provide permissible segment clusters and to pinpoint their possible positional contexts.

In this spirit, the present paper is a detailed survey conducted to touch something considerably profound in the realm of how phonemes are symmetrically permitted to draw the phonotactic portraits of Khasibi Arabic word syllables. Khasibi Arabic on which this study is chiefly based is a sub-dialect of Iraqi Arabic spoken in the town of Abu Al-Khasib lying in Basrah, South of Iraq. The paper adopts the line of argument whose lucid exposition relies on the entire corpus of Khasibi words and expressions borrowed from both Daffar's M. A. thesis entitled *Sociolinguistic Variation in Khasibi Iraqi Arabic* (1990) and his paper entitled "Syntactic variation in Khasibi Iraqi Arabic: a sociolinguistic study" (2007). The word and expression examples are all subsumed under three commonly phonological procedures: they are tree-diagrammed, distinctively- featured and transcribed phonemically.

II. PHONOTACTIC CONSTRAINTS AND SONORITY SCALE

As being hinted above in the introduction, phonotactics is a phonological domain which typically highlights certain sequential constraints basically stated in a form of principled rules. Since phonotactic rules are postulated to govern the phonemes which are permitted and to ban those which are not permitted, the phonemes in question have to be explicated on the footing of the phonetic correlates of both openness and propensity of voice. Here, the acoustic output of segments is at stake because it is divergently ranked as far as sound segments are differently emitted: whenever phonemes are more sonorously articulated, they are more audibly perceived. This hierarchy is known as the Sonority Scale (Hooper, 1972, 1976; Roger, 2000; Carr, 2012).

In its former version (Hopper, 1976), the sonority scale or hierarchy is corporately worked out to show up a particularly optimal string of sound elements according to a syllable-nucleus based factor as in Figure 1.

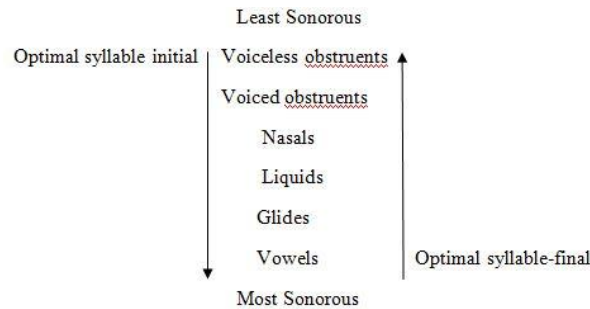


Figure 1 A General Version of Sonority Scale

A closer scrutiny of the sonority scale unveils that vowel segments take greater audible role than consonant ones and this is phonetically attributed to a couple of reasons. The first one is concerned with the degree of obstruction of airflow. Vowels are no doubt uttered with less or zero degree of stricture in comparison with consonants whose scale of stricture varies considerably in regard with their different manner of articulation. The second phonetic factor is a matter of phonation. Phonation is a process in which pulmonic airstream, when being pushed outside the lungs, is modified in the larynx, particularly between the vocal folds. This air-modification based mechanism yields two phonatory sets of segments: voiceless and voiced sounds (Laver, 1994; Cruttenden, 2014; Ashby, 2011; Ladefoged & Johnson, 2011; Ladefoged, 2012; Wayland, 2019).

It has been argued (Katamba, 1989; Parker, 2017; De Lacy, 2002) that the sonority hierarchy is partially overlaid with strength hierarchy. In fact, the latter phenomenon covers two distinct parameters, obstruction of the airstream and strengthening (fortis) /weakening (lenis) of segments. The very use of these two parameters is seen as being basically two opposite poles of the same ingredient. On the face of their relation, both sonority and strength hierarchies are clearly evident in investigating sound inventories of a language on synchronic and diachronic grounds.

The new version of the sonority scale is more elaborated and equipped with the binary opposition of distinctive features of the segments which are purely phonetically oriented (Giegerich, 1992, 2009; Martinez-Gil, 2001). Accordingly, it is designed in a form of a tree-diagram whose branches represent segment features. When fully manipulated to depict the typology of Khasibi Arabic phonemes within syllable templates, the feature-based sonority scale is tailored to the requirements of the phonotactics of such a dialect. Prior to cast a glance at the updated sonority scale, it is vitally important to consider the distinctive features of Khasibi phonemes (consonants and vowels) which are later employed to display phonotactic options of syllable components (see below).

In line with Chomsky and Halle's theory of distinctive features (1968), Khasibi consonantal phonemes are categorized into two classes of features (major and minor): consonantal sonorants as in Table 1 and consonantal obstruents as in Table 2. In addition to consonantal distinctive features, Table 3 illustrates vowel-feature classifications to complete the other two axes of a feature-viewed panorama.

TABLE 1
MAJOR AND MINOR DISTINCTIVE FEATURES OF KHASIBI CONSONANTAL SONORANT PHONEMES

Features	Phonemic Symbols					
	m	n	l	r	y	w
Consonantal	+	+	+	+	-	-
Continuant	-	-	+	+	+	+
Nasal	+	+	-	-	-	-
Lateral	-	-	+	-	-	-
Labial	+	+	-	-	-	+
Anterior	+	+	+	+	-	-
Coronal	-	+	+	+	+	-

TABLE 2
MAJOR AND MINOR DISTINCTIVE FEATURES OF KHASIBI CONSONANTAL OBSTRUENT PHONEMES

Features	Phonemic Symbols																		
	b	d	g	t	ʈ	k	f	θ	ð	ʒ	s	z	ʃ	ʒ	ɣ	x	ʕ	ʔ	h
Consonantal	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Continuant	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	-	+
Strident	-	-	-	-	-	-	+	-	-	-	+	+	+	+	-	-	-	-	-
Labial	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Anterior	+	+	-	+	+	-	+	+	+	+	+	+	-	-	-	-	-	-	-
Coronal	-	+	-	+	+	-	-	+	+	+	+	+	+	+	-	-	-	-	-

On the same vein, based once again on Chomsky and Halle's system of distinctive features, Khasibi vowel phonemes are arrayed on the following features:

TABLE 3
DISTINCTIVE FEATURES OF KHASIBI VOWEL PHONEMES

Features	Phonemic Symbols									
	i	ī	e	ē	a	ā	o	ō	u	ū
Consonantal	-	-	-	-	-	-	-	-	-	-
High	+	+	-	-	-	-	-	-	+	+
Low	-	-	-	-	+	+	-	-	-	-
Back	-	-	-	-	-	+	+	+	+	+
Tense	-	+	-	+	-	+	-	+	-	+
Round	-	-	-	-	-	-	+	+	+	+

As stated previously, the new sonority scale emerges binary features into sonority differences of Khasibi sound segments. Moreover, an emphasis is only placed on revealing principal classes of features which are tacitly assumed to include other classes as in Figure 2.

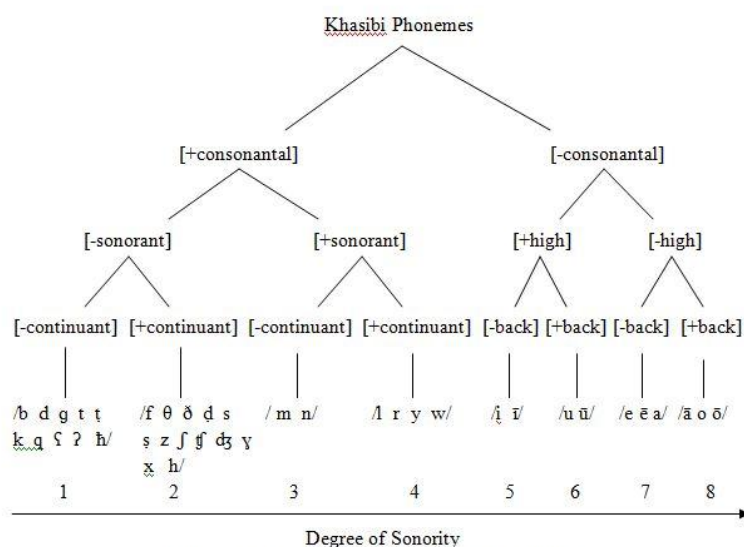


Figure 2 Feature-Based Sonority of Khasibi Phonemes

The offshoot of the foregoing discussion evinces that the syllable is viewed as the phonological melting-pot in which both phonotactic rules and the sonority scale parameters are patently amalgamated in such a way that the former is assigned to function as a 'filter' permitting particular sound sequences to manifest depending on the language or the dialect in question, while the latter is made up to combine the segments of the lower-level sonority (consonants) with those of the higher-level sonority (vowels) in a harmonic representation.

III. METHOD

As its title implies, this study is chiefly based on two analytic tools to trace the line of inquiry that leads to the nature of Khasibi phonotactics: distinctive features matrices and non-linear diagrams. The two tools are basically twined to give a two-dimensional template of how Khasibi syllable structure is phonologically designed. They are coincided to provide a two-in-one analysis of each word syllables. Thus, the purpose served by tree diagrams is to show up the non-linear layers of Khasibi syllables, while the advantage taken by offering features matrices is to expose the 'atomic' account of each segment of which the syllable in question is composed. No doubt, when strongly correlated with each other, these tools would make a big push into eliciting and inferring Khasibi phonotactic representations of syllables and this is what would be followed in the coming sections.

One prominent thing about the presentation of consonantal distinctive features in matrices is the quantity of redundancy they reveal. Some features or properties of sound segments are distinctive, particularly those of major classes. Others are not distinctive, especially those of minor sets, because they are only predicted by means of general principles. Thus, not all features of consonantal segments are listed in tree-diagrams of syllable structures. Major features would be obligatorily selected as in the case of [+consonant], [+sonorant] or [-sonorant]. Minor features are optionally chosen such as [+continuant], [-strident], [+nasal] and so on. The same technique would also be adopted in dealing with vowels and their features.

IV. DATA COLLECTION

As an early reference was made in the introduction, the raw data on which the paper has heavily relied are different sets of Khasibi Arabic lexical items taken from two studies skillfully conducted by the same author: Daffar (1990) and

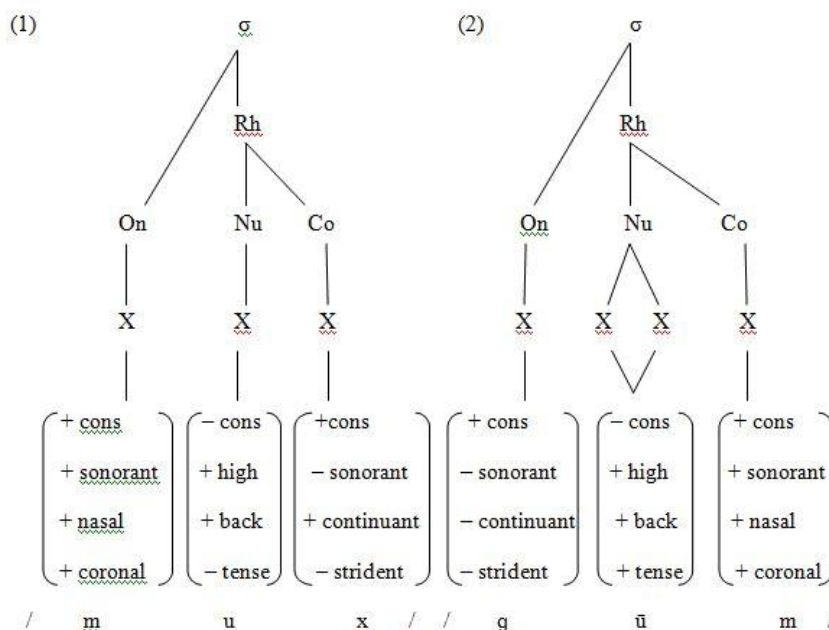
Daffar (2007). All lexical items under consideration of this study reflect the actual speech of Khasibi people who have lived in the town of Abu Al- Khasib, Basrah, south of Iraq. What marks the words and expressions of Khasibi Arabic is the fact that they are product of a variant amalgamation of two vernaculars: Iraqi Arabic in general and Basrah Arabic in particular.

V. PHONOTACTIC OPTIONS OF THE KHASIBI SYLLABLE ONSET

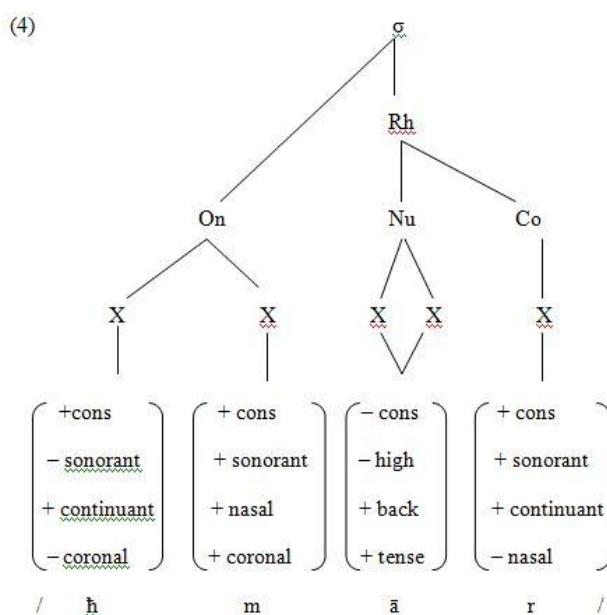
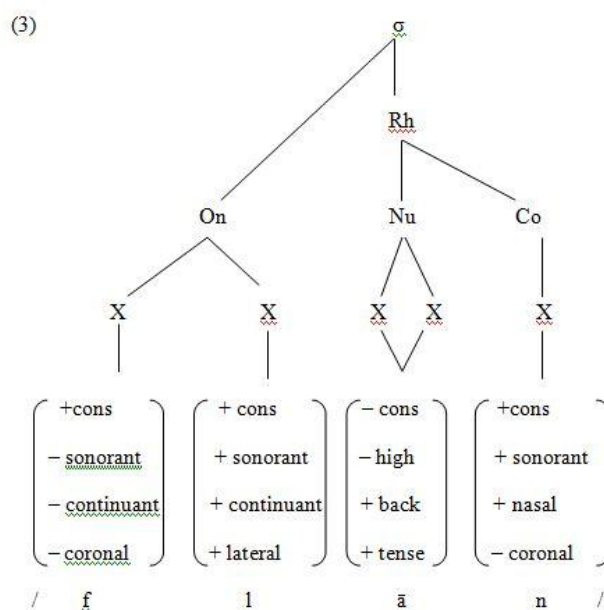
At first sight, onset consonants are generally compulsory in Khasibi Arabic and this, in turn, implicates that no syllable can commence directly with nuclei (vowels). Khasibi syllable templates exhibit rather innumerable modifications on the ground of the admissible phonotactic possibilities compared with those of Standard Arabic though the same regularities and principles operated in the standard norm can generally be found in Khasibi Arabic. The mishmash between Standard Arabic phonotactic options and those of Khasibi Arabic reasonably motivates the distinction forcefully made in the concept of syllable weight of the two varieties.

Before having something in detail to do with Khasibi syllabic onset template, it is of great significance to have a brief look at a notational device which would frequently be used in the coming tree-diagrams of syllable structures. In fact, the notation phonologically gives different terms such as X-position, X-tier, timing tier and auto-segmental tier, and all of them fortunately share the same underlying implications and interpretations. X-positions are abstractly a matter of segmental length making up the time tier. That is, each X-position or slot is occupied by a single consonant or a short vowel. Long vowels and diphthongs require a different treatment whereby two X-positions stand for their length which is twice as long as that of short vowels (see below). This is quite natural from an articulatory angle because uttering long vowels and diphthongs entails double time (Levin, 1985; Selkirk, 1990; Inkelas, 1993).

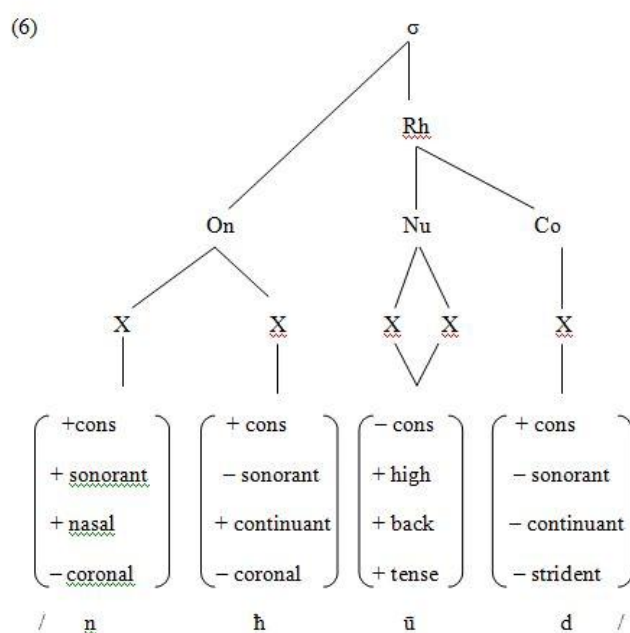
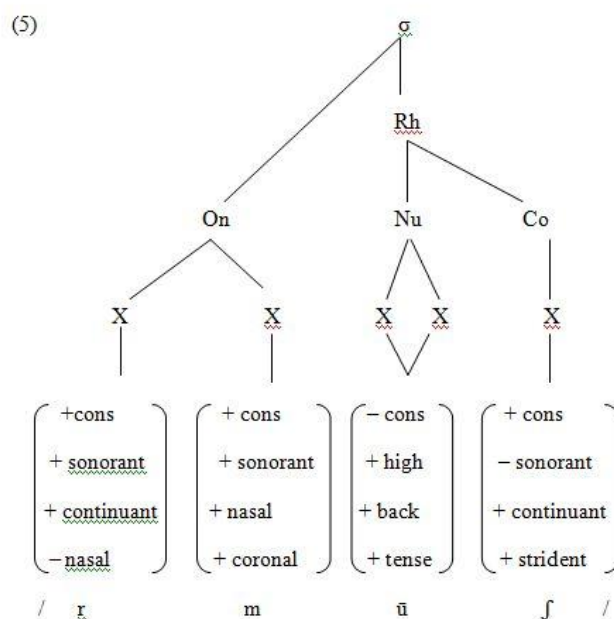
In khasibi Arabic, phonotactic constraints of the onset are very strict: two possible consonant phonemes (i. e. two X-positions) are only permitted in conformity with the sonority scale. This implies that the consonant of the first X-position is logically obligatory since the syllable, as stated previously, does have an onset. If the syllable onset is occupied by a single consonant (one X-position), then the sonority value of such a consonant does not undergo sonority-scale restrictions: it may be a consonant of any distinctive feature as shown in (1) /mux/ 'brain' and (2) /gūm/ 'stand up': (Note that (σ) is a syllable, (On) is an onset, (Rh) is a rhyme, (Nu) is a nucleus and (Co) is a coda)



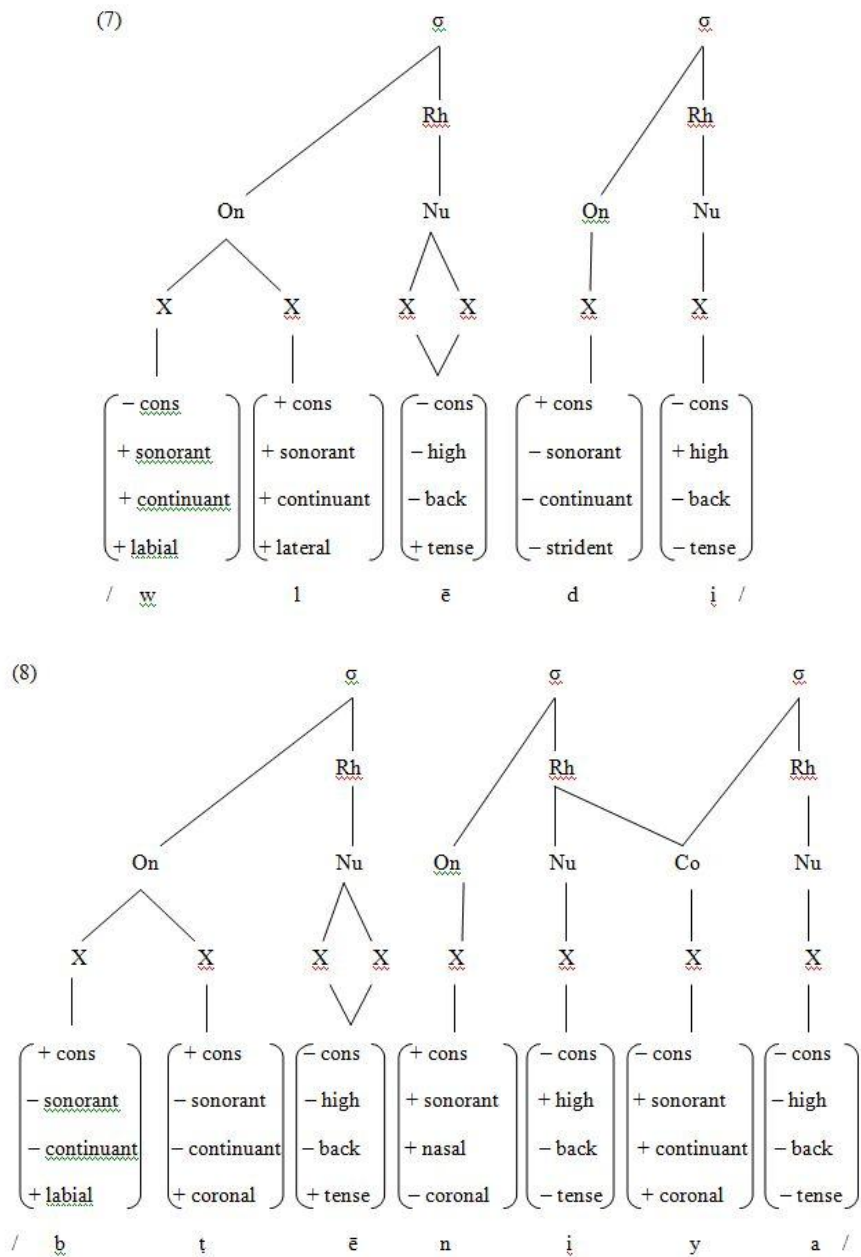
Turning to the onsets of two-consonant clusters (i. e. two X-positions) raises the following phonotactic filters: the first X-position consonant must be less sonorous than second one and that is why providing these two onset consonants with their underlying distinctive features would elucidate such a difference as /flān/ 'somebody' and /hmār/ 'a donkey' of (3) and (4) respectively:



Coalescing any less sonorant consonant with any more sonorant one to formulate a two-consonant cluster with two Xs should not be conceived of as the sonority generalization. In certain cases, some Khasibi syllable onsets do not comply with such a general phonotactic constraint and hence they are composed of two consonants whose major features are either both [+sonorant] or both [-sonorant]. This is an exception-based phenomenon which is termed as a negative onset filter (Giegerich, 1992). A negative onset filter is significantly a mirror image of a positive onset filter simply because the latter preserves "the status quo" of the consonantal clusters whose representation is really found in Khasibi word syllables as exemplified above. The former, however, refers to those clusters which stand for certain gaps in the phonotactic manifestation of Khasibi syllables – gaps that follow particular regularities and they can accordingly be accounted for as being something general. An example of a negative onset filter is the following two khasibi words: /rm̥u/ 'eyelids' and /nh̥uð/ 'breasts' as in (5) and (8) respectively:



So far, onsets of both a single X-position and two X-positions have been covered thoroughly in terms of Khasibi mono-syllabic words. In disyllabic and tri-syllabic words, Khasibi onsets are also constructed with either the sole consonant (one X) as in /zarif/ 'hole', /xāla/ 'an aunt' and /malāzim/ 'handouts' or with a couple of consonants (two Xs) as in /stayfar/ 'forgive me, my Lord', /wlēdi/ 'my son' and /bṭēniyya/ 'they are binge eating'. Consequently, the possible one X-position and two X-position onsets of Khasibi Arabic are evenly distributed in words of divergent syllable templates. Diagram (7) shows an instance of a disyllabic lexical item, while diagram (8) illustrates an example of a tri-syllabic one, i. e. /bṭēniyya/ 'they are binge eating' in which a common phonological phenomenon is manifested to be called ambi-syllabification (see below for a fuller account of ambi-syllabification).



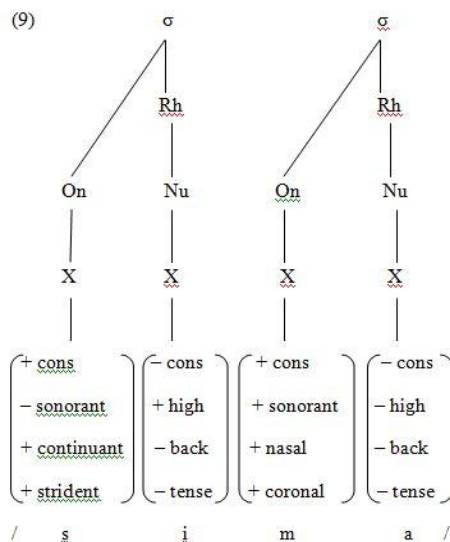
At the close of this discussion, Table 4 illustrates which consonantal clusters possibly occur in the onset set-up of the syllable. However, it seems that some of these cluster occurrences are severely depleted to nil since they are mostly more questionable than impossible:

TABLE 4
POSSIBLE TWO CONSONANTAL CLUSTERS IN KHASIBI ONSET SYLLABLES

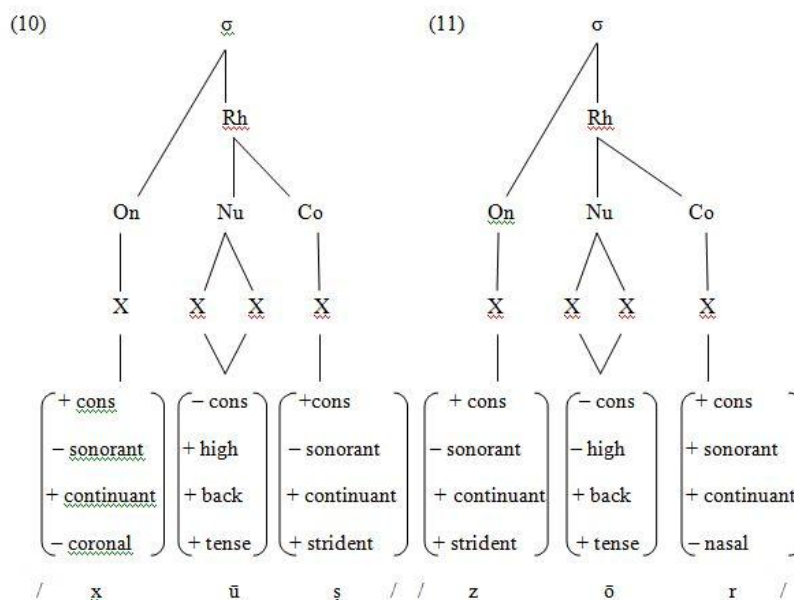
	m	n	l	r	y	w	Examples
b	+	+	+	+	+	+	bmāy/ 'with water', /bnār/ 'with a fire', /blōn/ 'with a color', /brāsa/ 'with his head', /byōm/ 'in a day', /bwāri/ 'pipes'
d	+	+	+	+	+		/dmāy/ 'brain', /dnān/ 'wheat impurities', /dlāl/ 'coffee pots', /drām/ 'a barrel', /dyūs/ 'breasts'
g	+		+	+		+	/gmāt/ 'baby swaddle', /glāṣ/ 'a cup', /grāb/ 'scabbard', /gwāma/ 'a tribal dispute'
t	+	+	+	+	+	+	/tmir/ 'she passed', /tnūf/ 'she reached it', /tlūl/ 'hills', /trāb/ 'soil', /tyūs/ 'goats', /twaṣṣat/ 'he mediated between two'
ṭ	+		+	+			/ṭmaʔ/ 'greed', /ṭlaʔat/ 'she left', /ṭumba/ 'a tap'
k		+	+	+			/knūz/ 'treasures', /klīl/ 'bridal veil', /krāʔ/ 'trotter'
q	+			+		+	/qmār/ 'gambling', /qriyyula/ 'a bed', /qwāṭi/ 'cans'
f		+	+	+	+		/fnūn/ 'arts', /flān/ 'someone', /frāf/ 'mattress', /fyāy/ 'shadow'
θ				+		+	/θrūb/ 'fish eggs', /θwāb/ 'reward'
ḏ		+		+	+		/ḏnūb/ 'sins', /ḏrūq/ 'chicken droppings', /ḏyāb/ 'a proper name'
ḍ		+	+	+			/ḍnūn/ 'doubts', /ḍlāl/ 'shading', /ḍrāt/ 'farts'
s	+	+	+	+	+	+	/smān/ 'fats', /snūn/ 'teeth', /slāl/ 'baskets', /srūḍ/ 'saddles', /syāt/ 'whips', /swār/ 'bracelet'
ṣ	+		+	+	+	+	/ṣmāx/ 'a head', /ṣlūx/ 'naked', /ṣrādṣ/ 'lamp', /ṣyāḥ/ 'shouting', /ṣwāb/ 'injury'
z	+	+	+	+	+	+	/zmāl/ 'an insult', /znād/ 'trigger', /zlābiya/ 'sweet', /zrāb/ 'excrement', /zyāra/ 'a visit', /zwāda/ 'addition'
ʃ	+	+	+	+	+		/ʃmāla/ 'what is wrong with him?', /ʃnān/ 'anabasis', /ʃlōnik/ 'how are you?', /ʃrāʔ/ 'sail', /ʃyāʔ/ 'a proper name'
ʒ	+	+	+	+	+		/ʒmāy/ 'a headdress cloth', /ʒnibar/ 'a street vendor', /ʒlāb/ 'dogs', /ʒyās/ 'bags'
ḍʒ	+	+	+	+	+	+	/ḍʒmāʔ/ 'consensus', /ḍʒnāb/ 'sides', /ḍʒlād/ 'a binding paper', /ḍʒrām/ 'criminal', /ḍʒyād/ 'a proper name', /ḍʒwāʔa/ 'hungry'
ɣ	+		+	+	+		/ɣmīḍʒ/ 'deep', /ɣlād/ 'thick', /ɣrāb/ 'a crow', /ɣyāb/ 'absence'
x	+	+	+	+	+		/xmār/ 'veil', /xnāq/ 'quarrel', /xlāl/ 'dates', /xrūm/ 'stupid', /xyūt/ 'threads', /xwārdā/ 'rich'
ʕ	+	+		+			/ʕmīn/ 'intelligence', /ʕnāf/ 'he reached it', /ʕyād/ 'a proper name'
ʔ	+	+	+	+	+	+	/ʔmāma/ 'turban', /ʔnād/ 'obstinacy', /ʔlān/ 'announcement', /ʔrād/ 'wide', /ʔyār/ 'gauge', /ʔwāza/ 'extra'
h	+	+	+	+	+	+	/hmār/ 'a donkey', /hnān/ 'pushy', /hlāq/ 'a barber', /hrād/ 'provocative', /hyāl/ 'a bluff', /hwāf/ 'edges'
ɦ		+	+	+	+	+	/ɦnāh/ 'here', /ɦlāl/ 'crescent', /ɦyāta/ 'here is it', /ɦwāya/ 'too much'

VI. PHONOTACTIC OPTIONS OF THE KHASIBI SYLLABLE CODA

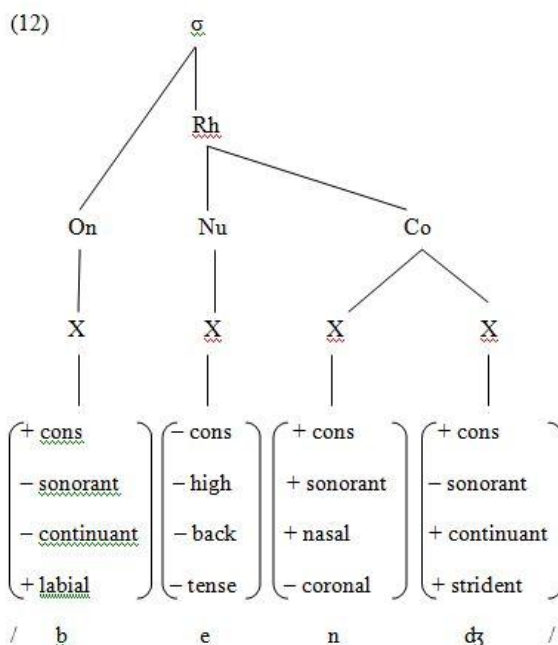
Close inspection of the Khasibi coda compositions of the word syllable reveals that like phonotactic parameters of consonantal onsets, Khasibi syllables may end with zero coda segments, i. e. only with vowel nuclei of the two possible durations: short or long vowels. Certain lexical restrictions are nevertheless imposed on whether a short or a long vowel is manifested to terminate the syllable (see section 7). Examples of syllables whose coda is nil are /sima/ 'the sky', /bura/ 'to be recovered' and /hima/ 'heated'. Diagram (9) represents the word /sima/ 'the sky':



It may also be concluded with a single consonant (i.e. one X-position). Here, as reported early in section (5), the sonority scale is extremely out of work since its relatively phonological values do not impose any constraints on a one-consonant coda. A single X-position is strictly off the hook of the sonority parameters. The consonant would thus be of any distinctive features though the major feature that almost highlights such a consonant is remarkably either sonorant or obstruent as in /xūs/ 'date leaves' and /zōr/ 'throat' / of (10) and (11) respectively: (Note that though the matrices of /s/ and /z/ below exhibit that they are identical in their features, they are, in fact, different at least in one property, i. e. that of voicing: the former is [– voice] whereas the latter is [+ voice])

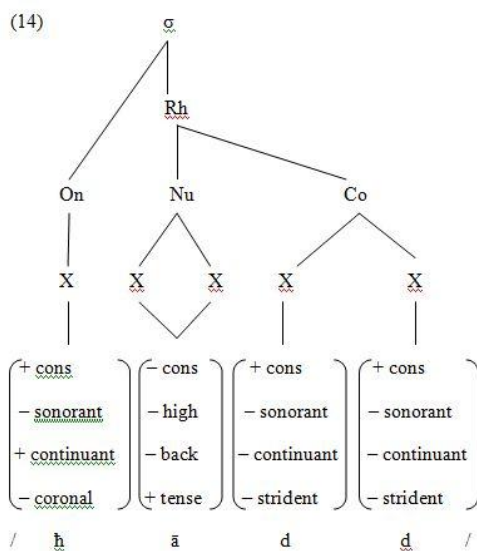
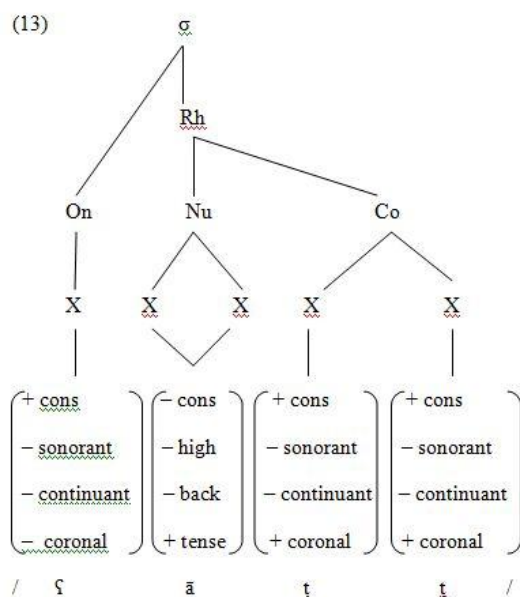


Referring back to the sonority generalization within Khasibi syllables leads us to the fact that a syllabic coda of two-cluster consonants (two X-positions) is usually mapped in three phonotactic formulas. In the first case, both the first consonant and the one followed decrease in sonority according to a left-to-right sequence. That is, X_1 is more sonorous than X_2 and exceptionally vice versa. Word examples which illustrate left-to-right shrinkage of sonority are /lendz/ 'a boat', /ʃamf/ 'the sun', and /karf/ 'paunch'. Diagram (12) displays the word /bendz/ 'anesthetic' among others:

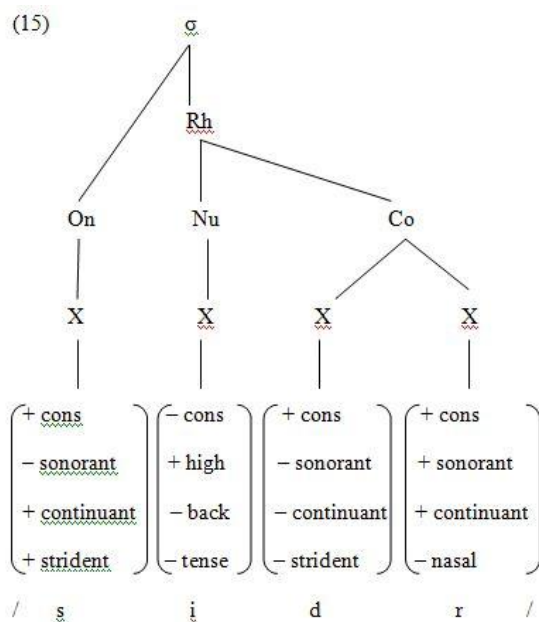


As argued with regard to onsets in which a precise look made at certain constraints on two-consonant clusters whose templates have the form of negative filters, the second formula stipulates that the coda is composed of two consonantal segments of equal sonority: both of them are either [+sonorant] or [–sonorant]. This formulaic restriction is considerably imposed on the coda of geminate (double) consonants simply because word examples ending in two-

consonant clusters of homogeneous sonority other than geminate consonants are impossible in Khasibi Arabic. However, as being part of their phonotactic restrictions, other languages, English among them, prohibit adjacent occurrence of geminate consonants in the same word syllable. The phenomenon of consonantal geminate utterly creates unsatisfactory states of affairs ripe to a tricky and wiry analysis based on whether or not a geminate consonant is a morphologically based oriented or a phonologically underlying behavior in words. It is worth-noting that because consonantal geminates occur word-finally, the syllable coda is branched into two X slots, whereas word-medially they are ambi-syllabified, a phenomenon which will be touched on below. Words such as /xānn/ 'a hotel', /mārr/ 'he passed by' and /šādd/ 'he hunted something' show codas of geminate consonants. The word /šātt/ 'furious'/hādd/ 'sharp', among different examples, are tree-diagramed in (13) and (14) respectively:

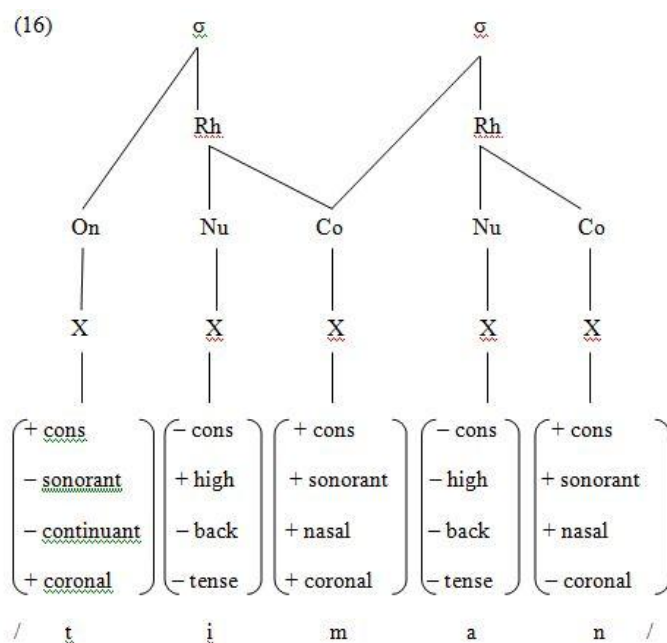


In the third phonotactic formula, there is an increasing tendency on the part of some Khasibi word syllables' codas to violate the principles of feature-based phonotactic generalizations. Here, the order of the major distinctive features of the final two-consonant clusters on which the restrictions are strictly placed would drastically be contravened in a way that [-sonorant] precedes [+sonorant] as in the case of words like /sidr/ 'wild jujube', /dʒidr/ 'a pot' and /buxl 'miserliness' whereby the first word is graphically shown in (15):



In fact, the restrictions on possible consonant clusters in the coda which serve the purpose of forming negative filters basically 'make amends' for the positive coda templates. Filters themselves do not exhaust the constraints that must originally be attached to both onset and coda templates. More restrictions that hold between the nucleus and the coda will be considered in the next section.

In Khasibi disyllabic words, the coda of a single X-position and the one of two X-positions are evenly distributed according to the following criteria: the coda of the former template is word-free (i. e. initially and finally) as in /ruṭba/ 'ripe-date'/ ʔinsān/ 'a human being'. The latter format only occurs word-finally as in /yibradd/ 'to be cold' and /sirdābb/ 'a cellar'. It remains to be seen here is that a further systematic issue may, at this point, arise as to how the facts of syllabification of Khasibi words are presented with a special reference to medial two-consonant clusters. When two-consonant clusters (two X-positions) occur word medially (particularly geminate consonants), they are syllabified vaguely with two syllables, and thus they become ambi-syllabic. As fully discussed by many theorists (Kahn, 1976; Gussenhoven, 1986; Carr 1993), ambi-syllabicity demonstrates that the first consonant belongs to the coda of the preceding syllable, whereas the second one is considered the onset of the following syllable as shown in such words as /ʔazzam/ 'a proper name', /baddal/ 'to be replaced' and /timman/ 'rice' (16):



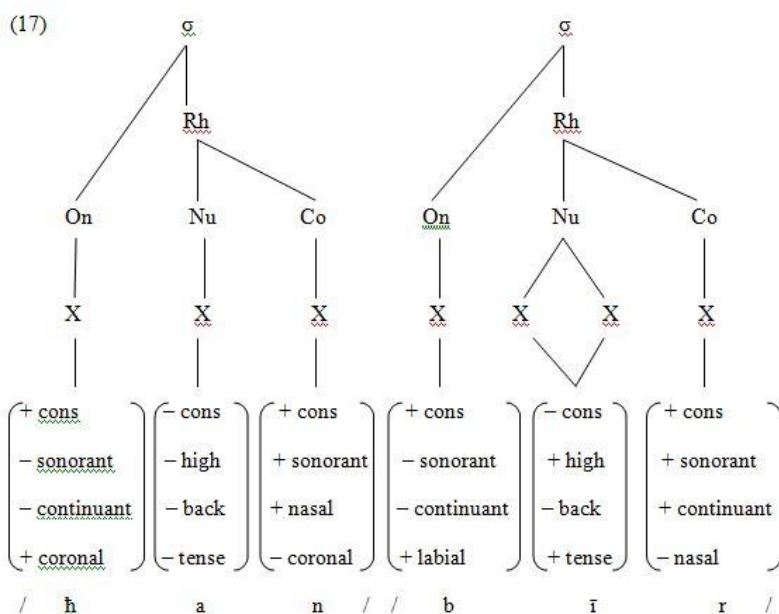
On the other hand, Khasibi tri-syllabic words show that one-consonant clusters are apparently limited in their word-distributions so that they can either be found word-finally as in the case of /mikātīb/ 'letters' and /ʔanāwīn/ 'addresses' or independently in mono-syllabic words.

VII. PHONOTACTIC BEHAVIOR OF KHASIBI SYLLABLE NUCLEUS

A solid grounding in the build-up of any syllable structure proclaims that no syllable comes into being without a central element or a peak which is usually occupied by a vowel segment (in few cases, the syllable peak may accidentally be dominated by certain consonantal segments). The centrality and the superiority of the peak is primarily based on hard evidence that it is the nucleus and hub of the syllable and everything beyond its compulsory occurrence is absolutely doomed to the distortion, albeit violation, of the general principle according to which the syllable template is set up. They are also acted as formatively influential facets that equip the nucleus with some sort of 'potency' to constraint the phonetic and the phonological status of the coda compositions.

On this basis, Khasibi monosyllabic words should not include segments other than vowels occurring as nuclei and in conformity with distinctive-feature system illustrated in Table (3) above, they have to be [-consonantal] and more sonorous than both their neighbors. The nucleus configurations of Khasibi syllables are entirely conditioned by two broad generalizations: sound quantity (length) and the notational device of X-positions. The former generalization is made to elucidate vowel-length distinctions which are provisionally expressed by such labels as short and long. However, short-long labels lack reliable and to-the-point phonetic description because vowels are only relatively short and only relatively long: their different lengths fluctuate considerably from context to context. Lax-tense dichotomy is best introduced as a viable alternative to replace the forgoing binary oppositions. Poorly described as they are, short and long labels are totally eschewed and banned from being a segmental feature [long]. As we saw in the previous tree-diagrams, distinctive features like [+tense] and [-tense] are agreeably adopted to treat vowel length as an attribute coped with syllable structure on the one hand and as a real reflection of length with respect to the realm of X-positions.

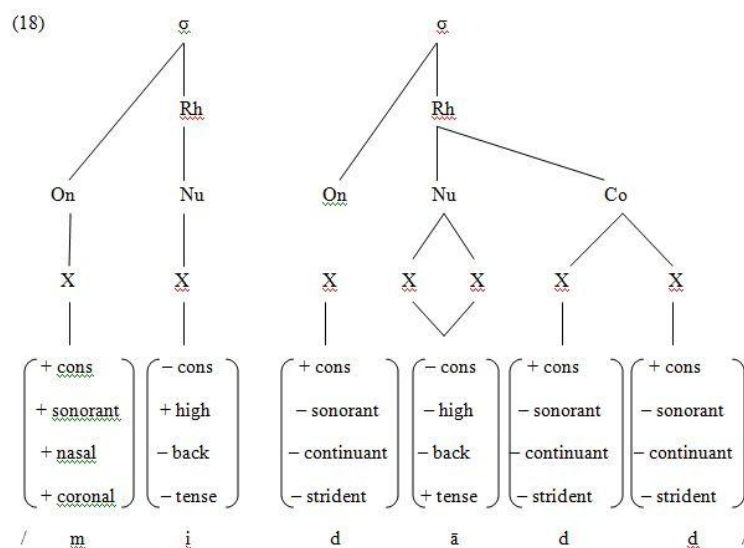
The latter generalization finds its way in view of the forgoing one. Once again, as noted previously in syllable tree-diagrams of Khasibi syllabic words, X-positions and onset or coda consonants are somewhat created in terms of one-to-one associations. X-positions are designed to strike a chord with the clustering of consonants, i. e. the minimum or the maximum number of consonantal segments that are used to constitute the marginal parts of the syllable. On a different vein, the scope of vowel X-positions are basically extended to denote the 'timing unit' which is regularly employed to measure the length of lax (short) and tense (long) vowels. The length of lax vowels is expressed by its attachment to a single X-position, whereas that of tense vowels is represented by its association with two X-positions as shown in /han/ 'yearning' and /bīr/ 'a well' of (17):



The phonotactic constraints of nuclei placing on Khasibi syllables are conclusively of two sorts: the first sort pivots on whether the morpho-phonological 'tissue' of a word allows the nucleus to be manifested in monosyllabic, disyllabic or tri-syllabic lexemes. Here, the morphology of Khasibi words partially 'exercises some control' over which nucleus configuration is permissible to be articulated: lax vowels, tense vowels or both of them. As a general rule of thumb, both lax and tense vowels can never be found in monosyllabic words with zero codas. They can only be uttered without codas in across-word syllables. Hence, in a word such as /ʃara/ 'he bought something', the two nuclei of lax vowels are terminated with no coda and any attempt to segregate the first syllable /ʃa-/ from the second one /-ra/ definitely leads to

distort, albeit spoil, the morphological pattern of the word based greatly on a two-bound-morpheme coinage. By analogy, a word such as /ʔālim/ 'a scientist' behaves on the same footing: there is no way to separate the initial syllable /ʔā-/ from the final one /-lim/ unless the word morphology is completely violated. However, from a phonological point of view, all syllables of the above-mentioned examples can stand alone. They are exclusively part of a stress-based classification of syllables – a classification which primarily implies a binary difference of light and heavy syllables in the light of prominence (i. e. stressed and unstressed syllables). The above-drawn diagrams, e. g. (15), (16) or (17), show how different nuclei of word syllables are associated with different X-positions and different segmental features.

The second type of phonotactic restriction imposed by nucleus on Khasibi syllables constantly resides within the question of whether the choice of a particular syllable coda comes under the influence of nuclei. As stated earlier in the previous section, following the line of phonotactic generalizations of coda entails that the first and the second consonants of two-position coda must be [+sonorant] and [-sonorant] respectively though some of exceptions are quite possible and tenable. One of the notable exceptions is already made when there is an increasing possibility to terminate a Khasibi syllable with a geminate-structured coda of two X-positions. Here, the phonotactic constraints play a pivotal role in determining the type of a nucleus, i. e. lax or tense vowels, which accepts geminate codas. It is easily noticeable that tense-vowel peaks (+ tense ones) commonly tend to have a consonant cluster (X-positions) of a geminate type as shown in the following monosyllabic words: /hābb/ 'he loved someone or something', /fārr/ 'boiled', /hādd/ 'sharp' and so on and diagrams (13) and (14) above illustrated how mono-syllabic words of geminate codas are drawn. This phenomenon can also be found in disyllabic words like /midādd/ 'outrigger', /murhādd/ 'a toilet' and /murādd/ 'a proper name'. Diagram (18) illustrates the word /midādd/:



Nevertheless, some few contexts demonstrate that a lax-vowel nucleus, particularly the /a/ vowel, may be followed by a geminate-based coda as in the case of /xdarr/ 'he anesthetized' and /hwall/ 'he transferred some money'.

VIII. DISCUSSION OF RESULTS

It is fair to say that Khasibi phontactic treatment of word syllables considerably vary according to the nature and the number of X-positions of which the syllable onsets, nuclei and coda are composed. Such a wide variety, as we saw, brings with it two controversial issues. At one extreme, the phonotactic generalizations and principles with which some Khasib word syllables are fully compliant go the normal way without contravention. Following and obeying phonotactic rules is really a natural tendency on the part of some words to cope with 'universal aspects' of the field of syllable phonotactics and to be fallen within the orbit of the non-linear theory of phonology. This result is illustratively exemplified in a so-called phonotactic filter whose feature-distinctive employment determines particular arrangements of segments: in the case of consonantal onsets, [-sonorant] is required to prioritize [+sonorant, while consonantal codas entail reverse order.

At the other extreme, conforming to phontactic constraints does not necessarily cancel 'the legitimacy' of the act of violation with which phonotactic behaviors of some Khasibi syllables are accompanied. Geminate and ambi-syllabic consonants with their shading ordering on sonority scale of an overall Khasibi syllable scene are striking examples. In fact, phonotactic contravention is not a matter of distorting 'the rules of game' which is normally imposed by the phonological theories of distinctive features and syllable structure. Rather, it is, to a considerable extent, a product of peculiar rules and principles with which each vernacular is characterized. Hence, like any other dialects, Khasibi Arabic undergoes such a phenomenon.

IX. CONCLUSION

It is of prime significance to state that phonotactic parameters of Khasibi syllable templates are governed by certain underlying representations that are essentially required to be posited in an attempt to draw close relationships among sound segments. When setting them up morphologically and phonologically, Khasibi syllable structures tend to be at the best synchronically valid rather than at worst arbitrary one. They are brought about as de jure manifestations of a phonologically dialect-specific snapshot. They are not at all coincidental or merely nihilistic, however.

Based mainly on distinctive-feature classifications and hierarchal analyses of sound segments, Khasibi syllable structures virtually seem to be scale-balanced designs instead of being dichotomy-organized representations. Nevertheless, a notorious difficulty, which may be popped out of syllabic builds-up of some words, is that any attempt made to establish an absolute cut-off point of the degree of phonotactic violations becomes somewhat an intolerable burden. Whether complying with phonotactic constraints or contravening them, Khasibi syllables would never proscribe some kind of 'ghost' representations underlying certain syllable templates as in the case of ambi-syllabicity on the one hand, and determining particular sequences like geminate X-position consonants.

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