

The Shadow Area: A Contrastive Review of the Syllabic Template and Syllabification in English and Fawi Arabic

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Received: April 27, 2013 Accepted: July 3, 2013 Published: August 21, 2013

doi:10.5296/ijl.v5i4.4158 URL: <http://dx.doi.org/10.5296/ijl.v5i4.4158>

Abstract

The syllable is thought of as the fundamental unit in the description of prosodic systems of languages and in verse forms based on prosodic patterns. The phonemic description of a language is not only complete if it is confined only to establish the phoneme inventory and to examine the distinctive features of its members. But, the phonemic description should also account for the phonemic combinations that occur or that may be expected to occur in the language. The present study aims at investigating the syllable and syllable templates in English and Fawi Arabic. It contributes to give more phonological facts and information about the syllable templates, syllabification and types of syllables in both dialects.

Keywords: Syllabic template, Syllabification, Phonotactics, Fawi Arabic

1. Introduction

The syllable and the vowel/consonant dichotomy have been used from the earliest times in linguistic analysis. While vowels and consonants have been employed in the anatomy of words, the syllable has been manipulated as the fundamental unit in the description of prosodic systems of languages and in verse forms based on prosodic patterns.

It is argued that the phonemic description of a language is not complete if it is confined only to establish the phoneme inventory and to examine the distinctive features of its members. For this reason, the phonemic description should also account for the phonemic combinations that occur or that may be expected to occur in the language. These combinations conform to certain patterns varying from one language to another and it is possible to formulate a number of more or less general statements which deal with these patterns when the data available on that language are sufficient.

The restrictions imposed on the phonotactic possibilities, which are permitted in every dialect or language, have been confirmed by many scholars. They suggest that the analysis of these restrictions and regularities is accomplished through studying the syllables of the dialect or the language concerned. It is proposed that the probabilities related to the various concatenations of phoneme are of immense value but they are easily achieved in the phonological description of the language. Such a difficulty is attributed to the problems inherent in selecting a representative sample of the language from which the possibilities of phoneme combinations can be identified in meaningful manner.

The present study aims at investigating the syllable and syllable templates in English and Fawi Arabic. It contributes to give more phonological facts and information about the syllable templates, syllabification and types of syllables in both dialects. The study hinges upon the syllable in BBC English - a dialect which gives little or no clue to the speaker's affiliation, and above all it is a dialect used in many textbooks and dictionaries on the one hand, and upon the syllable in Fawi Arabic - a variety of Arabic which is spoken in the town of Faw, in southern of Iraq. Moreover, the study has adopted the surveys of syllabic templates via recording speech samples of two informants representing a native English speaker and a native Fawi one (see Appendix 3 and Appendix 4).

2. The Syllable: A General Scrutiny

As a linguistic notion, the syllable has led to many arguments and disputes that have not been settled yet by phoneticians and linguists. Different approaches and models have been postulated to define the term syllable and to state certain criteria to identify the syllable boundaries. However, all of these attempts have been severely attacked along the history of linguistics where many controversies and negative issues are raised.

Providing a precise definition of the syllable is not any easy task (Abercrombie, 1967; Anderson, 1974; Ladefoged, 2006; Roach, 2009). Nevertheless, several definitions have been suggested and, in turn, can be classified into two major categories: purely phonetic definitions which imply acoustic-organic statements and phonological ones which are chiefly based on linguistic criteria. From a phonetic viewpoint, attempts have been made to identify

the syllables of a language on the basis of the articulatory effort needed to produce them. Among such theories is the chest pulse theory advocated by Stetson (1951). According to this theory, each syllable corresponds to an increase in air-pressure, but it fails to detect pulses of adjacent syllables, as when two vowels co-occur in “going” /gəʊɪŋ/ which has two syllables while it is usually articulated in a single muscular effort. The second theory in the phonetic approach is the prominence theory, but is nowadays known as the sonority hierarchy. The proponents of this theory remark that in a string of sounds some are more sonorous than others, i. e. each peak of sonority corresponds to the center of a syllable which is represented by the vowels. The less sonorous sounds are the consonants which constitute the marginal elements of the syllable. In short, the phonetic approaches to syllables seek to provide a definition of the syllable which is valid for all languages.

The phonological views in relation to the syllable focus on the way sounds combine in individual languages to produce typical sequences. So, two classes of sounds are distinguished, i. e. vowels and consonants, and syllables can be identified by virtue of the way the sound segments of a language function. To minimize the difficulties encountered in starting an accurate definition of the term “syllable”, it is believed that two significant goals should be taken into consideration: First, an account has to be made of the words in which there is agreement on the number of their syllables. Secondly, an interpretation should be provided to unveil why there is disagreement on some other words. To achieve these goals, it is suggested that syllable has to be identified in terms of sonority (Giegerich, 1992; Cruttenden, 2007). However, the sonority theory has been doomed to failure to account for all the observed facts. This can be justified by a word such like “spa” /spɑ:/ which consists of one syllable, but it is composed of two peaks of sonority. This theory also fails to deal with the difference in the number of syllables in phrase like “hidden aims” and hid names”. It is presumed that each of these phrases is made up of the same sequence of segments, and therefore they contain the same number of peaks of sonority. Yet, the first phrase has three syllables while the second has two.

More importantly, the term “syllable” can be approached by means of the activities of the speaker. In other words, the syllable can be described via a measurable combination of respiratory and laryngeal activity (Ladefoged, 2006: 247). The alternative view is that a syllable must be conceived as an abstract unit that exists at some higher level in the mental activity of the speaker. This view is reinforced by two points of evidence; first, through the errors that people make when talking like slips of the tongue, and secondly, through the descriptions of the sound patterns that are permissible in languages.

To recapitulate, there are two types of theories attempting to describe syllables. The first type includes those theories that view the syllable in terms of properties of sound such as sonority (acoustic energy) or prominence (some combination of sonority, length, stress and pitch). The second type of theories refers to those which approach the syllable by virtue of activities of the organization of the sounds of an utterance.

MacCarthy (1978: 107) differentiates four types of syllables: physiological syllables, auditory syllables, acoustic syllables and phonological syllables. He defines a physiological syllable as

that part of an utterance which is produced with a single chest pulse. An auditory syllable is an utterance which has a single peak of auditory prominence. Thus, the number of auditory syllables is measured according to the number of peaks of prominence. The acoustic syllable is looked upon as the utterance which reveals a single electrical or other peak on an instrument for calculating these peaks. The phonological syllable is that part of a word that can be separated from other parts by means of the structural rules of the particular language.

3. Syllabic Template in English

In all languages, the sounds occurring in the chain of speech show a tendency to cluster or group themselves in such a way that the transition between members of such groups are usually distinguished by their greater degree closeness or tightness of combination (Brosnahan and Malmberg, 1970, 139). These clusters or groups are referred as “phonetic groups”, and it is claimed that the syllable represents the smallest unit the groups that exhibits the closest transitions between its component sounds. The syllable is, accordingly, considered the essential pattern in terms of which phonotactic rules are best stated. One of the most basic functions of the syllable is to regulate the restrictions through which phonemes can concatenate or combine together. These restrictions, which are language-specific, serve as a filter that allows only certain segment sequences to occur (Katamba, 1989: 165).

In more phonetic sense, the main principle underlines the syllabic template of English is the contrast of successive features within the syllable. It is mainly the contrast between vowels and consonants which is used to render one part of the syllable, i. e. the nucleus more prominent than the marginal elements (Jackobson and Halle, 1968). In other words, in the construction of its syllables, English shows a tendency to use some of its speech sounds as central elements and others as terminating ones. The former are sounds usually produced by open articulators or characterized acoustically as being resonant. The marginal elements of the syllable are those sounds that are produced by closing articulators or marked acoustically as being semi- or non-resonant. These physical differences between sounds reflect the basis for the traditional and the generally satisfactory classification of vowels and consonants.

As stated above, syllabic template in English can be checked up via discrete units containing one vowel unit only functioning as a nucleus or peak preceded and followed by a number of consonantal units serving as marginal elements (onsets or codas). Strictly speaking, all combinations of zero to three consonants preceding the nucleus, and with zero to four consonants following the nucleus are permitted in English except the syllabic template of the pattern /vcccc/. That is, the maximum number of consonants allowable in word-initial position in English is three and the maximum number of consonants permitted in word-final position is four. However, the types of consonant combinations permitted in different word-positions are very restricted and reveal a definite template.

The syllabic template in English may begin with a vowel. This type of syllables is called “a syllable with a zero onset”. The syllable in English may also begin with one, two or three consonants but not more. When started with one consonant, the syllable accepts any consonant phoneme except /ŋ/. The syllable may terminate with a vowel only which is referred to as “a syllable with a zero coda”, and it may end with one consonant which is

known as the final consonant.

English syllables can be formed either by a pure vowel or a diphthong or by a combination of the two with one or more consonants. As such, English exhibits different types of syllables formed by the various consonant-vowel combinations. On the basis of these combinations, two main categories of English syllables can be recognized, namely, simple and complex. Complex syllables are derived from simple ones. Simple syllables are of four patterns: /v/ as in /ɑ:/ “are”, /cv/ as in /ti:/ “tea”, /vc/ as in /i:t/ “eat” and /cvc/ as in /sɪt/ “sit”.

Complex syllables are of twelve patterns: /ccv/ as in /tri:/ “tree”, /vcc/ as in /i:st/ “east”, /ccvc/ as in /stʊd/ “stood”, /cccv/ as in /stri:t/ “street”, /cccvcc/ as in /stri:ts/ “streets”, /cccvccc/ as in /streŋθs/ “strength”, /cvcc/ as in /sɪps/ “sips”, /ccvcc/ as in /tri:ts/ “treats”, /cvccc/ as in /depθs/ “depths”, /cccv/ as in /skru:/ “screw”, /vccc/ as in /ɑ:sks/ “asks”, and /cvcccc/ as in /teksts/ “texts”.

Certain problems arise as a result of adopting the model of English syllable template which is chiefly based on the notion that the syllable nucleus is generally stated to be a vowel, preceded by an optional onset and followed by an optional coda. The major problem is the one related to syllables that contain no peak, e. g. the second syllable of words like “bottle”, “muddle”, “button”, etc. One solution has been proposed to regard the syllabic consonant as a sort of “honorary vowel” and to class it with the peaks (Roach et al, 1992). The alternative solution is that the syllabic consonant can be analyzed as being the surface phonetic outcome of an elision process. In other words, there is an underlying vowel which is dropped and its syllabicity is transferred to the following consonant. In cases where the resulting syllabic consonant is prevocalic, a further process may occur in which the consonant loses its acquired syllabicity and becomes part of the onset of the following syllable as in /krekt/ for “correct”, /spəʊz/. In the case of “obligatory” syllabic consonants of the “bottle”, “button” type, an underlying vowel is deleted unconditionally, and this type of deletion is thought of as being undesirable. To solve such problems and the like, it is proposed that the syllable model should permit the parsing of any permitted string of surface phonemic segments into syllabic patterns allowable in English (Green et al, 1990).

4. Syllabification in English

The term “syllabification” is used to denote the division of words into syllables. It is for this reason words are classified into monosyllabic or polysyllabic depending on whether they are made of a single syllable or more than one syllable.

On linguistic grounds, syllabification has been viewed as a significant concept through which a proper study of the syllable can be accomplished (Varam, 1964). It is ascertained that since the syllable is an abstract unit, it should be tackled in accordance with the connection that holds among the syllables within the word-boundary. That is to say, a perfect study of the syllable as a linguistic unit is best achieved via syllabification.

Nevertheless, the identification of the syllable boundaries is one of the problematic areas in phonetics and phonology. Most of linguists and phoneticians who approach the syllable focus on the fact that though it is easy to identify the number of syllables in a word or phrase, it is

difficult to determine where a syllable begins or ends. MacCarthy (1978) goes further claiming that in certain cases the allocation of the syllable points of division is an impossible task.

The complexity involved in the identification of syllable boundaries is attributed to a number of factors. In the first place, it is the dialectal variations which are concerned with the articulation of certain words or phrases whereby the number of syllables varies considerably from one pronunciation to another. Next, it is the etymology of some words in which the native speakers of English do not agree on the historical origins of these lexemes. The third factor is the complication of the syllabic patterning exhibited by English. Hyman (1975) clarifies this issue by stating that whenever languages have syllable types other than /cv/, complications arise in the exact determination of syllable boundaries.

To account for the syllabification of the majority of English words, different approaches are advocated. One of these approaches is the phonological approach adopted by O'Connor and Trim (1973) and Hyman (1975). This approach endeavors to allocate the syllabic lines of division by means of the relative frequency of possible consonant combinations that occur word-initially and word-finally in English. To put it differently, the syllable is syllabified on the basis of the phonotactic possibilities or the sequential constraints permitted in English. Other approaches have suggested a number of universal principles to deal with syllabification of words in English (Pulgram, 1970).

5. Syllabic Templates in Fawi Arabic

5.1 Syllabic Templates in Arabic: Introductory Sketches

The syllable in Arabic usually but not always begins with a single consonant and terminates either with a vowel, a single consonant or two consonants. Hence, in terms of these segments with which they end, syllables in Arabic can be either open or closed. Open syllables terminate either with a short vowel as in /was^ʰala/ “he arrived”, or with a long vowel as in /fii/ “in”. Closed syllables end either with a single consonant such as that in /ʕilmun/ “science”, or with two consonants like those elicited in words like /faḏḏr/ “dawn”, /qat^ʰt^ʰ/ “never”. Arabic shows a tendency towards closed syllables rather than open ones (Anis, 1971).

According to the elements of which they are made up, Arabic syllables can be of five patterns. The first pattern /cv/ is the most common type in all languages including Arabic and it is word-free in that it can occur in different positions (Abu-Slim, 1987). It can be shown in words like /qaraʔa/ “he read” /ʔamara/ “he ordered”, /ʔaxbara/ “he told”. The second pattern /cvc/ can be illustrated by examples such as /mafhuum/ “understood”, /ʔarsaltum/ “you sent”, /maxzan/ “store”. Just like the first one, this pattern is very common in Arabic, and it is also word-free as indicated through the instances cited above.

The third category /cvvc/ can be represented by the first and the last syllables of the word

/qaarraat/ “continents”, the second syllable of a word like /mud^ʕaada/ “against”, and the last syllable of a word such as /ʕudwaan/ “aggressor”. This syllable can be found in different word-positions. However, there are some restrictions on its distribution in that such template is more frequent word-finally, or word-medially irrespective of the size of the word where it appears. In addition, it does not occur in the middle of words consisting of eight and more syllables, and it is never found in words containing more than eight syllables (Mitchell, 1975).

The fourth pattern /cvcc/ can be indicated by the word /faʔr/ “a rat”, the second syllable of /hubayyaba/ “diminutive of grain”, and the last syllable of /ʔalquds/ “Jerusalem”, for instance. This pattern, as in the previous one, has certain constraints on its distribution. T is never found word-initially for whatever size the word is. It occurs more frequently in word-final position rather than in word medial position in short words. It never appears in long vowels for nine or ten syllables (Al-Ani, 1970).

The last pattern /cvcc/ can be denoted by words like /haarr/ “hot”, /maarr/ “passer”, /mutahaabb/ “lovely”. It is the least common syllable in Arabic in that there are limitations on its distribution and on the type of consonants with which it terminates. As for its distribution, it occurs only word-finally in words of two, three and four syllables. It is not found in words of more than four syllables. It is used in pausal form only where it terminates with a geminate cluster.

Central to their length, Arabic syllables can be categorized into short syllables consisting of /cv/ elements represented by the three syllables of a word like /ʕulima/ “it was known”, medium syllables of /cvc/ or /cvv/ elements such as those in /fuztum/ “you have won”, and /laa/ “no”, and long syllables of /cvvc/, /cvcc/ or /cvvcc/ elements as in /maat/ “he died”, /baħr/ “sea”, and /ʕaadd/ “serious”.

Earlier in this section, it has been stated that the syllable in Arabic usually begins with a single consonant. So, when there are two consonants in the middle of a word, the first consonant should serve as a coda of the preceding syllable, and the second consonant as the onset of a subsequent syllable. Like English syllables, the syllable peak is the basic element in the syllabic template of Arabic, and in order to identify the syllable boundary, three steps must be taken into account: to point out the nucleus of each syllable in a word, to specify the onset of the syllable which is always a single consonant, and to specify the coda of the syllable. It is worth noting here that these phases have to be applied sequentially, i. e. to identify the nucleus first, then to identify the onset and finally to determine the coda. The application of these three rules in improper or different orders leads to inaccurate or false syllabification.

5.2 Syllabic Template and Syllabification in Fawi Arabic

Although the same principles of words structure applied to Arabic operate in Fawi Arabic, many modifications have affected the original syllabic template in this dialect. The distinction made in Arabic between open and closed syllables on the one hand, and between

short, medium, and long syllables on the other hand can also be elicited in Fawi Arabic. However, the lexeme in Fawi Arabic may begin with a single consonant as in /mus^ʕfi/ “filter”, or two consonants like /mda^ʕbal/ “round” in comparison with Arabic where the word always starts with a single consonant only. Syllables other than the first in Fawi Arabic always begin with a single consonant. Moreover, this variety shows more syllabic patterns resulting from the various modifications on the phonemic distribution or on the permitted possibilities of the standard norm.

Fawi Arabic exhibits ten syllabic patterns: /cv/ as in /mi^ʃa/ “he walked”, /mara/ “awoman”, /cvv/ such as that in /laazim/ “must”, /ʃaarib/ “moustache”, /ccvv/ represented in the first syllables of words like /hmaara/ “donky”, /slaaha/ “his weapon”, /cvc/ as in /ʃamʃam/ “He sniffed”, /mat^ʕrah/ “a place”, /ccvc/ like the first syllables in /tma^ʕmad^ʕ/ “he rinsed”, /ts^ʕbbar/ “be patient”, /cvcc/ as in /band^ʕ/, /ʃams/ “a proper name”, /cvvc/ as in /gaal/ “he said”, /zaad/ “it becomes extra”, /cvvcc/ like /raadd/ “he wanted”, /faarr/ “it boiled”, /ccvvc/ as in /ʔnuud/ “breasts”, /mhaad/ “cradle”, and /ccvcc/ exemplified by words like /bhagg/ “a skin disease”, /*wall/ “stupidity”.

Concerning the frequency of occurrence of the syllabic templates mentioned above, the first seven categories occur more frequently than the last three; the four open categories represent the most frequent patterns whereas the closed ones are the least frequent. The template /ccvcc/ is not very common in Fawi Arabic and it can be found in few lexemes most of which are loan words.

As for their distribution, the patterns /cv/, /cvv/, /cvc/, and /cvvc/ are word-free. This can be illustrated by examples like /balam/ “boat”, /maktaba/ “library”, /faala/ “a fishing instrument”, /malaazim/ “handouts”, /yimlii/ “he fills it”, /rut^ʕba/ “ripe-date”, /mithayyir/ “perplexed”, /xaas^ʕra/ “flank”, /xawaalhum/ “their uncles”, /ʔalbaar/ “dairy products”. The patterns /cvcc/ and /cvvcc/ may either occur word-finally as in /yihtarr/ “to become hot”, and /mud^ʕaadd/ “against”, or they can stand independently in monosyllabic words. Syllables of /ccvc/, /ccvv/ and /ccvvc/ types always appear word-initially as in /staslam/ “he gave in”, /m^ʕeedi/ “a marshman”, and /dreewliyya/ “chauffeurs”.

In terms of their length and the final segments with which they terminate, Syllables in Fawi Arabic can be classified as follows: /cv/ ‘short, open’, /cvv/ ‘medium, open’, /ccvv/ ‘long, open’, /cvc/ ‘medium, closed’, /ccvc/ ‘medium, closed’, /cvcc/ ‘long, closed’, /cvvc/ ‘long, closed’ and /ccvcc/ ‘long, closed’.

As in the case in Arabic and other Arabic dialects, the number of syllables of a lexeme in Fawi Arabic is identical to the number of vowels that lexeme has. So, words like /fan/ “fine

art”, /t^hiin/ “mud” have one syllable, words such as /hawya/ “gust of wind”, /fnaaḏiin/ “coffee cups” contain two syllables, words like /madxana/ “chimney”, /ḥanaawiin/ “addresses” show three syllables, and so on.

Earlier in this section, it has been stated that the word in Fawi Arabic may begin with a single consonant or two consonants. Syllables other than the first should start with a single consonant. That is to say, when two consonants occur word-medially (whether they are geminate or non-geminate), the first consonant must function as a coda to the preceding syllable, and the second consonant as an onset of the following syllable. This can be clarified by the syllabification of lexemes like /ʔaṣbar/ “dull person”, /muḥḏiza/ “miracle”, /xazzan/ “he stored”, /hallaf/ “he made someone swear”, and /timman/ “rice”.

6. Conclusion

The present study shows that the concept of syllabic templates in English and Fawi Arabic are divergent as far as its nature and description are concerned. In the first place, the number of English syllabic patterns is more than those of Fawi Arabic; i. e. the former is twelve in number, whereas the latter is composed of ten patterns. Moreover, Some of English templates directly commence with a vowel segment, e. g. /vc/, /vcc/ and /vccc/, and above all, it is possible for an English template to have a vowel in isolation. Fawi Arabic, as a result of its idiosyncratic phonotactics, has to begin either with a single consonant or two consonants. What makes English and Fawi Arabic more variant is that English syllabic consonants are usually manipulated to occupy the place of a syllable nucleus which is already occupied by the vowel segment, while in Fawi Arabic there is a growing tendency on the part of geminate segments to share successive syllables. English-Fawi Arabic divergence is not only seen in terms of the nature and description of syllabic templates, but it can also be traced by virtue of how these templates are terminologically classified, namely, English syllabic templates are either simple or complex depending on the way that consonants and vowels are mapped, whereas Fawi syllabic ones are given different classificatory terms such as short, medium, open, and the like based on the procedures adopted by Arab scholars when applied to study Arabic phonology.

The foregoing points of difference between English and Fawi Arabic syllabic templates inevitably come into being since they are of a language-specific realm, and they reflect the extent that the sound systems of these dialects are not intersected. Notwithstanding differences, there is a small area of similarity gathering these varieties in relation to the construction of discrete units of the syllables. Both English and Fawi Arabic admit that an onset, a peak and a coda are the basic components of any syllable regardless of what is obligatory or marginal in a syllabic mapping. This is, in turn, quite natural because this phenomenon is universally oriented.

References

Abercrombie, D. (1967). *Elements of General Phonetics*. Edinburgh: Edinburgh University Press.

- Abu-Salim, I. (1987). Syllabic Structure in Arabic. *Journal of Jordanian Society of Arabic*, 33, 45-63. Amman: Royal Association Press.
- Al-Ani, S. H. (1970). *Arabic Phonology: An Acoustical and Physiological Investigation*. The Hague: Mouton.
- Anderson, S. R. (1974). *The Organization of Phonology*. New York: Academic Press.
- Anis, I. (1973). *fil lahaɖʒaatil ʃarabijja* (On Arabic Dialects). Cairo: maktabatul ʔan*lo l misriija.
- Bronsnahan, L. F., & Malmberg B. (1970). *Introduction to Phonetics*. Cambridge: CUP
- Cruttenden, A. (2007). *Gimson's Pronunciation of English*. London: Edward Arnold.
- Giegerich, H. J. (1992). *English Phonology: An Introduction*. Cambridge: CUP. <http://dx.doi.org/10.1017/CBO9781139166126>
- Green, P. D. et al. (1990). The SYLK Project: Foundations and Overview. *Institute of Acoustics*. 12 (10), 249-258.
- Hyman, L. M. (1975). *Phonology: Theory and Practice*. New York: Holt, Rinehart.
- Jackobson, R., & Halle M. (1968). Phonology in Relation to Phonetics. In B.Malmberg (Eds.), *Manual of Phonetics*. (pp. 411-449). London: Longman.
- Katamba, F. (1989). *An Introduction to Phonology*. London: Longman.
- Ladefoged, P. (2006). *A Course in Phonetics*. Boston: Thomson.
- MacCarthy, P. (1978). *The Teaching of Pronunciation*. Cambridge: CUP.
- Mitchell, T. F. (1975). *Principle of Firthian Linguistics*. London: Longman.
- O'Connor, J. D., & Trim J. L. M. (1973). Vowel, Consonant and Syllable: a Phonological Definition. In W. E Jones, & J. Laver (Eds.), *Phonetics in Linguistics: A Book of Readings*. London : Longman.
- Pulgram, E. (1970). *Syllable, Word, Nexus, Cursus*. The Hague: Mouton.
- Roach, P. (2009). *English Phonetics and Phonology: A Practical Course*. Cambridge: CUP.
- Roach, P. et al. (1992). Syllabic Consonants at Different Speaking Rates: A Problem for Automatic Speech Recognition. *Speech Communication*, 11, 475-479. [http://dx.doi.org/10.1016/0167-6393\(92\)90054-B](http://dx.doi.org/10.1016/0167-6393(92)90054-B)
- Stetson, R. H. (1951). *Motor Phonetics*. Amsterdam: North-Holland.
- Varam, S. (1964). Syllabification in the Kashmiri Language. In D. Abercrombie (Eds.), *Honor of Daniel Jones*. London: Longman.

Appendixs

Appendix 1. English Segmental Symbols

The vowels:

ɪ as in bit /bɪt/	ʊ as in put /pʊt/	ə as in ahead /əhed/	əʊ as in load /ləʊd/
i: as in beat /bi:t/	u: as in suit /sju:t/	ɜ: as in word /wɜ:d/	aʊ as in cow /kaʊ/
e as in bet /bet/	ɒ as in pot /pɒt/	eɪ as in face /feɪs/	ɪə as in ear /ɪə/
æ as in bat /bæt/	ɔ: as in more /mɔ:/	aɪ as in nice /naɪs/	eə as in fair /feə/
ɑ: as in arm /ɑ:m/	ʌ as in blood /blʌd/	ɔɪ as in coin /kɔɪn/	ʊə as in poor /pʊə/

The consonants:

p as in pray /preɪ/	ʃ as in she /ʃi:/
b as in bee /bi:/	ʒ as in measure /meʒə/
t as in tame /teɪm/	h as in heat /hi:t/
d as in door /dɔ:/	tʃ as in choice /tʃɔɪs/
k as in kid /kɪd/	ʒ as in jam /ʒæm/
g as in go /gəʊ/	m as in mood /mu:d/
f as in feed /fi:d/	n as in night /naɪt/
v as in view /vju:/	ŋ as in sing /sɪŋ/
θ as in theft /θeft/	l as in less /les/
ʌ as in this /ʌɪs/	r as in read /ri:d/
s as in sense /sens/	w as in we /wi:/
z as in zoo /zu:/	j as in yes /jes/

Appendix 2. Fawi Arabic Segmental Symbols

The Vowels:

i as in ʔibin “son”	ii as in bziim “buckle”	ee as in ween “where”
a as in matʕax “kitchen”	aa as in waasʕa “medium”	oo as in xoof “fear”

u as in duʃbul “marbles” uu as in hduum “clothes”

The Consonants:

b as in bhaam “thumb” s as in sʰalʃa “blad” w as in wlaaya “city”

t as in taʃbaan “tired” z as in zibid “butter” y as in ynaam “he sleeps”

ṭ as in ṭʰiin “mud” ʃ as in ʃaʃar “hair”

d as in dmuuʃ “tears” x as in xaadim “servant”

d as in dʰaabuṭ “officer” v as in vaali “expensive”

k as in kital “he killed” h as in hilim “dream”

g as in gwaani “sacks” ʕ as in ʕgaal “headband”

q as in qamiisʰ “shirt” h as in hnaak “there”

ʔ as in ʔamal “hope” tʃ as in tʃaay “tea”

f as in fazʃa “effort” dʒ as in dʒibin “cheese”

* as in *aani “second” m as in moot “death”

♣ as in ♣eel “tail” n as in nahar “river”

♣ as in ḏʰaruf “envelop” l as in liga “he found”

Appendix 3. The first text

The text is a bicycle rider’ speech recorded in one of London streets. The informant expressed his opinions about traffic:

The text

It wəz rɑ:♣ə fraɪtnɪŋ bɪkɔ:z ♣eə skɔ:z əv ♣i:z baɪsklz ju ri:lɪ hæv tə hæv jə wɪts əbaʊt ju
ɔ:l ♣ə taɪm bɪkɔ:z jə nəʊ ♣eɪ stɒp sʌdnlɪ ɪts ɔ:kwəd bɪkɔ:z ♣ə træfɪk regjələɪfɪnz ɑ: mɔ:
ʊnəd ɪn ♣ə brɪ:ʃ ♣ən ♣ɪ əbzɜ:vəns aɪm nɒt ri:lɪ ʃɔ: wɒt regjələɪfɪnz ♣eər ɑ: fər ɪnstəns

❖i: træfɪk laɪts red laɪts də nɒt əplaɪ ɪf juə tʃ:nɪŋ raɪt wɪtʃ mi:nz ❖ət ɪf juə kʌmɪŋ ʌp tu
ə træfɪk laɪt ən ❖eəz sʌmwʌn stɒpt hu wɒnts tə ɡəʊ streɪt ɒn ɔ: tʃ:n left ən ju: wɒnt tə raɪt
❖en ju pul aʊt əʊvətɪk ❖əm ən ❖en kʌt əkrɒs ɪn frʌnt

Translation

It was rather frightening because there are scores of these bicycle and you really have to have your wits about you all the time because you know they stop suddenly and it's awkward because the traffic regulations are more honored in the breach than the observance I'm not really sure what regulations there are for instance the traffic lights red lights do not apply if you're turning right which means that if you're coming up to a traffic light and there's someone stopped who wants to go straight on or turn left and you want to turn right then you pull out overtake them and then cut across in front.

Appendix 4. The second text

The text is a Fwai farmer' speech recorded in the city of Faw. The informant described how water is distributed among other farmers:

The text

naʃam ɪlmayy yɪɕi min ɪlʃatʃʃ killa sʃaar makaayin karxaanaat killman hamma yaaxi❖
haqqa ʔabaara min ɪlmayy bil- karxaana maalta wagaaʃ ɪyzirʃuun killa ziraaʃat makaayin
laa xeer hassa hi maaku maaku siduud eeh min heetʃ ɪlmayy qaliil hassa haa❖a ɪlʃatʃʃ ɪlɕayy
min foog mittisʃil minnaak yaay min sʃafihteen min tʃarafeen aku makaayin bambat may

Translation

Yes, the water comes from the river. All of it is now by machines and powerhouses. Each person also takes his share approximately of the water at his own machine, and they are all farming. All of it is mechanized farming. No, now there aren't any, there are no dams. Yes, because there is very little water. This river which comes from overseas uninterruptedly coming from over there, there are on both sides of it water pumps.
