

CONSONANT VOWEL AND SYLLABLE IN MOROCCAN ARABIC

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In his paper "Sur la théorie des affinités phonologiques entre les langues", presented to the Fourth International Congress of Linguists at Copenhagen in 1936, Roman Jakobson dismisses articulatory phonetics as an auxiliary discipline which is fundamentally extrinsic to the science of language. In a single sentence he dismisses the traditional importance accorded to articulatory phonetics as a mistaken historical encumbrance dating back to Schleicher.¹

It has been almost twenty-five years to the day since Professor Jakobson made this pronouncement, and if the preponderance of work done since then may be taken as evidence, it would seem that most linguists have agreed with him. Both theoretically and descriptively the last generation of linguists has been concerned mainly with grammar. In the field of phonology, phonemics has taken precedence over phonetics, often with so much theoretical sophistication that it is impossible for the reader to gain much of an idea of what a language sounds like from a purported description of it. Finally, in our own step-child field of phonetics, the truly dramatic advances in acoustic studies have pushed articulatory phonetics into a relatively neglected corner.

The position of this paper is that Professor Jakobson's estimate of the place of phonetics in linguistic science is fundamentally mistaken. It is not plausible to attribute the interest and labor of so many linguists in this field to nothing more than an antique misconception perpetuated by tradition. It is only in an artificial theoretical sense that an abstract pattern can be separated from the physical medium in which it occurs, and ultimately it would seem that there is no such thing as a completely isomorphic transduction of pattern from one medium to another. No architect, for example, would think of treating design independently of the physical nature of structural materials. Similarly, this author, like Schleicher, cannot conceive of understanding language without a minute consideration of the physical medium in which it uniquely manifests itself, namely human physiology.

¹ The passage reads: "La doctrine de Schleicher ... est ébranlée depuis longtemps, mais on en trouve maintes survivances. C'est à sa thèse sur la physiologie des sons comme 'base de toute grammaire' qu'est due la place d'honneur qui reste réservée dans la science du langage à cette discipline auxiliaire et à proprement parler extrinsèque." Roman Jakobson, "Sur la théorie des affinités phonologiques entre les langues", reprinted in N. S. Troubetzkoy, *Principes de phonologie* (Paris, Klincksieck, 1949), p. 251, translated into French by Jean Cantineau.

On the basis of knowledge acquired by the last generation in the fields of phonemics and acoustics, now would seem a propitious time for an attempt at a truly detailed articulatory study of languages, an attempt to overcome finally the unconscious prejudices based on the phonological system of western European languages, an attempt to acquire a catholic perspective of what the natural range of human speech is.

One of the greatest deficiencies of traditional Western phonetics has been a failure properly to define the concepts of consonant, vowel, and syllable. In most European phonemic systems, particularly in the Romance languages, syllabicity has an exceedingly high percentage of correlation with certain phonetic norms describable in purely supra-laryngeal articulatory terms. This quite arbitrary phonemic pattern lay behind the traditional, and mistaken, treatment of syllabicity purely in terms of supra-laryngeal articulatory formations. The function of liquids and nasals, especially in the Germanic and Slavic languages, gave rise to talk about consonants functioning as vowels, vowels functioning as consonants, and debate as to whether the liquids and nasals were "really" consonants, "really" vowels, or some separate something in between.

The work of Pike and Stetson² particularly has provided a theoretical framework which resolves part of the traditional consonant-vowel-syllable problem by separating the function of syllabicity from the level of supra-laryngeal articulatory shape. We now know that any supra-laryngeal articulation can be correlated freely with syllable function, although the languages of the world show a high degree of statistical correlation between vocoid articulation and syllable center as opposed to contoid articulation and syllable margin.

Although the independence of supra-laryngeal shape and syllable function is now widely agreed upon, this author has yet to see a phonological description done consistently in terms of it. Also, no linguist has yet broached the possibility of a functional synchronic phonological typology in terms of correlation between supra-laryngeal articulations and syllable function. However, there would seem to be a fundamental structural cleavage among a language where only vocoids function as syllable centers, a language where both vocoids and resonants function as syllable centers, and a language where vocoids, resonants, and contoids all three function as syllable centers. Similar typological considerations apply for other dimensions such as voice versus voicelessness, stop versus fricative, etc.

The phonology of Moroccan Arabic provides material for an interesting comparison with the prevailing phonological phenomena of western European languages. There points are offered for consideration: Voiceless shwa, the transition of homorganic contoids, and tripled consonants.

Aside from the cases of whispered speech or particularized style levels, a universal phenomenon in European languages is the correlation of frictionless musical resonance (voiced vocoids, nasals, and liquids) with syllable centers. The overall auditory

² Kenneth Pike, *Phonetics* (Ann Arbor, University of Michigan Press, 1943); R. H. Stetson, *Motor Phonetics* (Amsterdam, North-Holland Publishing Co. [for Oberlin College], 1951).

impression is of a remarkably uniform sequence of musical pulsations demarcated by brief bursts of noise. A fundamentally different situation exists in Moroccan Arabic. Sequences of non-homorganic contoids usually occur in open transition; that is, the formation of a given contoid is in process of dissolution before the following contoid is formed, e.g., the clusters /tk/ and /tb/ in /matkətbuš/ "don't (2nd person pl.) write!" If both adjoining contoids are voiceless, the transition between them is voiceless, as the /tk/ in the example above. In the case of fricative plus fricative, the friction noise of the first blends continuously into the following, e.g. /mašafš/ "he didn't see". In the case of stop plus stop, the release noise of the first continues decrescendo into the occlusion of the following, e.g. /matkətbuš/ above. The same phenomena occur with stop plus fricative and fricative plus stop, e.g. /matxafš/ "don't (2nd pers. sg.) be afraid", /šəftu/ "I saw him" This kind of transition may be referred to as *minor transition*. In addition to the particular noise timbres involved, which are entirely a function of the contoid formations, minor transition has two important further characteristics: It is quite short and is not accompanied by a syllable pulse. Contrasting with minor transition is another type which may be called *major transition*. Major transition differs from minor transition in two features: It is syllabic and somewhat longer, although still quite short.³ There is a similar contrast between minor and major transition between all combinations of non-homorganic contoids in Moroccan Arabic. Minor transition is phonemicizable as a non-significant function of a consonant cluster, and major transition is phonemicizable as a vowel, which can conveniently be referred to as shwa, e.g. /təktəb/ "she writes". The frequency of voiceless allophones of shwa gives Moroccan Arabic an overall auditory impression quite different from that described above as common in European languages. Instead of the sequence of musical pulsations to which the European ear is accustomed, the Moroccan sentence, depending on which morphemes happen to occur in sequence, often features relatively long sequences of voiceless noise; e.g. /xəšək tətətəš fəšətta/ "you (msc. sg.) have to inspect at six o'clock", an utterance of seven syllables of which the first six are voiceless in ordinary conversational delivery. The impression on the western ear is startling, as if the speaker had suddenly begun to choke or spit in mid-sentence.

Traditional western phonetics would until recently have had difficulty recognizing major transition between voiceless contoids as a vowel: It has no idiosyncratic resonance characteristics, only those of the surrounding consonants. An interesting example of structural misunderstanding and hearing at cross purposes is the transcription "šftk" 'I saw you', phonemically /šəftək/, by Kampffmeyer some fifty years ago.⁴ Within the theoretical framework provided by the phonetics of his day, he could hear only a sequence of consonants, and one would suspect that the question of syllabicity never entered his mind.

Under certain storable conditions major transition is accompanied by voice even though between voiceless contoids. The precise facts are not pertinent to the present argument.

⁴ G. Kampffmeyer, *Marokkanisch-Arabische Gespräche* (Berlin, Reimer, 1912).

But there is possibly another and even more interesting reason for Kampffmeyer's mishearing. In all the phonetic literature this author has encountered, discussions of syllabicity involve talk about syllable centers, also variously referred to as crests or peaks or nuclei. Such discussions generally assume some particular supra-laryngeal articulation as occurring at the nucleus of syllables. Moroccan Arabic is offered as a possible example of a language which has syllables without centers.

Transition among homorganics offers examples of syllabic contoids. Apical articulations are numerous and offer convenient examples. Syllabic [n] and [l], in the conventional sense, are common, e.g. [tɪdəm] "you (sg.) regret", wherein the [t] is velically released, the [d] is velically imploded, and the entire oral cavity remains stopped from the beginning of the [t] until the release of the [d]; [tɪt] "three", wherein apical contact is maintained throughout, the first [t] is laterally released, and the second [t] is laterally imploded.

The examples just given fit easily enough into the traditional western phonetic framework, although [tɪt] is unusual since it offers a syllabic resonant as the sole vowel of a word pronounced in isolation. Such a form as [tɪto] "they multiplied by three" is somewhat more interesting since it offers an example of a long syllabic [ɪ], clearly contrasting with the short [ɪ] of [tɪt] "three". A length contrast in both consonants and vowels is fairly common in the languages of the world, a contrast between long and short syllabic resonants is not.

Moroccan contoids, however, not only show a contrast between long and short, e.g. /mən/ "from", /mənn/ "to boast", but also a contrast among short, long, and extra long, e.g. [səmha] "her name" [səm·ha] "her poison", and [səm : ha] 'he poisoned her'. This contrast occurs with non-resonants also, e.g. [xəf·o] "they hurried", [xəf : o] 'he made it light'; and even with voiceless stops, e.g. the different lengths of the velar stop in [hka] "he related", [hək·o] "he rubbed him", and [hək : um] "he rubbed you (pl.)".

The long contoids in the examples above, which can be interpreted phonemically as geminates, function as consonants and are of no particular theoretical interest. The extra long contoids, however, provide an example of the rare phenomenon of a regular distinction of three degrees of contoid length in a language. Except for voiceless stops, where there is nothing but silence between implosion and release, the extra long contoids have the further interesting feature that a syllable pulse is audible midway in the articulation. It is possible that closer investigation would disclose some rhythmic or dynamic aspect of the extra long voiceless stops which could be interpreted as syllabicity. The behavior of the other contoids would lead one to suspect such a possibility.

Two factors, one historical and the other structural, tempt the investigator to a phonemic interpretation of the syllabic resonants and the extra-long contoids as sequences of consonants and the vowel shwa. The historical reason is that all forms showing such phenomena are demonstrably reflexes of earlier forms showing sequences of consonants and vowels. Sequences of consonants and /ə/ also sporadically

occur in free variation with syllabic resonants and extra-long contoids in the speech of many, perhaps all, contemporary Moroccans.

A structural reason for interpreting Moroccan syllabic resonants and extra-long consonants as consonant plus /ə/ lies in the phonetic nature of /ə/ as described above. Since, for non-homorganic contoids, /ə/ is defined as a type of transition, it could be argued that syllabic resonants and extra-long contoids are simply special cases of transition in a consonant system, between similar consonants in the first instance and identical consonants in the second instance. Such speculations are tempting, but this author lacks the data for a logically convincing demonstration either one way or the other.

The points raised in this paper are not primarily subjects for speculation. They call rather for observation and experimentation. They bring linguists back, once again, to the problem of a precise phonetic definition of the syllable, which is still largely an auditory perceptual intuition. Perceptual intuitions are important in the study of linguistics, but even more important are the fruitful results of matching them up with objective physiological correlates. No present day linguist would forego the observational framework whereby he is able to talk of various perceptual impressions in terms of such features as stop-fricative, voice-voiceless, etc. Perhaps the future will provide an equally useful set of terminology and observations for discussing syllabicity.

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