
Papers of Section Sessions

Proc. 5th int. Congr. phon. Sci., Münster 1964, pp. 201-206
(S. Karger, Basel/New York 1965).

The Relation of the Phoneme to Other Phonological Elements

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It is generally felt that the phonology¹ of a language may be analyzed in terms of phonemes, i.e. distinctive sound segments, on the one hand, and non-segmental or long sound elements, or prosodies, on the other. There is a tendency to regard the segmental phonemes, characterized by features of what Professor *Daniel Jones* would call *tamber*², as having a mainly distinctive or lexical function: they serve to distinguish words or morphemes. The non-segmental prosodies (normally length, stress, and pitch features) for their part have the principal function of marking off morphemic boundaries or types, or characterizing certain utterance types, such as Yes-no questions. This view seems in some ways to represent an oversimplification.

One pointer to the inadequacy of this simple dichotomy is the fact that some segmental elements seem to have no distinctive function but only demarcative value³; an example is the glottal stop in German, which, although a segment, is not distinctive, but does act as a marker of morpheme-initial position⁴. On the other hand some non-segmental elements do have distinctive value, e.g. Swedish tone patterns, Russian stress patterns; in such cases lexical meanings may be distinguished through prosodic features. Here we may justifiably speak of prosodemes.

A very important question is the length or scope of a prosodeme of prosodic feature. Some linguists invariably cut down their pro-

¹ In the narrower sense; also called by *Trubetzkoy* Darstellungsphonologie, i.e. excluding Lautstilistik, cf. Lit. 5, p. 17-29.

² Cf. Lit. 2, p. 108f.

³ Cf. Lit. 5, p. 29-30; *demarcative*, as used here, includes *Trubetzkoy's* delimitative and culminative.

⁴ Cf. *J. R. Firth*, Lit. 1, p. 134.

sodic elements as far as possible, i.e. to cover the shortest possible segments. What criteria should influence our decision to select a certain length of component? Our treatment of segmental phonemes may give us an insight. We class Spanish [tʃ] as a single phoneme, for example, because [ʃ] does not occur in Castilian Spanish anywhere except after [t], so that, as *Martinet* says⁵, [tʃ] represents one choice and not two successive choices. The case of English [tʃ] is not so clear-cut (although the analogy of [dʒ] is vital), but the criterion remains the same, the extent of the limitation in our choice. The most severe limitation in the paradigm at a given point in the syntagma occurs when one element implies another. In the case of segmental phonemes, we regard two such segments as one phoneme, normally with the proviso that they are phonetically similar or at least comparable.

We can follow a similar procedure with prosodic elements. If we have great freedom of operation, and all or most of the oppositions are valid for each position, then we make our cut, i.e. select elements, at that level. If, for instance, in a language most (root) morphemes are disyllabic, and the tone patterns [- -], [- -], [- -] and [- -] all occur, then we must select elements at the syllable level, i.e. [-] and [-]. If, however, only [- -] and [- -] are possible, then we should take these as compound elements, since the initial low tone implies a following high tone, and the initial high tone a following low tone.

Quite another question (although admittedly a related one) is the role or function of the phonological unit in question. It may have a mainly distinctive role, in which case we should want to class it as an oppositional phonological element, or *phoneme*: in this case it must be capable of distinguishing lexical or intellectual meaning. On the other hand, its role may be principally demarcative, and we should then simply class it as a contrastive⁶ unit, for which there is no generally agreed term. It is important to note that contrastive phonological elements do not *a priori* have to be any longer than a phoneme (witness the German glottal stop, or [ə] in some varieties of French); thus the term "long components" used by some linguists is not in many cases equivalent to our contrastive unit.

Yet a third dimension in the classification of phonological elements is introduced by the division between segments and fea-

⁵ Cf. Lit. 3, sections 2.6 and 3.8.

⁶ In *Martinet's* sense, i.e. with syntagmatic function - as opposed to oppositional.

tures, e.g. between, for instance, [p] or [a] or [ʔ] on the one hand, and, say, a rising tone, on the other. It might be objected that a segmental phoneme is no more a segment than a feature such as high pitch, especially if a suprasegmental contour has already been "extracted" which cuts right through the "segment" in question. For example are [a] and [ə] segments in Swedish [ˈandən] *anden*, 'the spirit', when the [ˈ] has been cut out? We can perhaps best overcome this difficulty by reinterpreting the distinction as one between a complex of distinctive features (applying to, or characterizing, the same segment) and a single distinctive feature.

What criteria do we consider in coming to a decision between a segment (or feature complex) and an independent single feature, i.e. non-segmental unit? Let us consider some concrete examples. No one apart from the thorough-going prosodist seriously considers extracting voice as a phoneme: we prefer to keep it as a distinctive feature applying to phonemes. If, in a language, pitch or length operates at the phoneme level [i.e. its recurring distinctive patterns extend over one (vocalic) phoneme], can we ever be justified in extracting tonemes or chronemes? We must not demand that the prosody in question should apply to all phonemes (i.e. to the consonants as well), since voice is only normally distinctive with stops and fricatives. So why should it not be possible in the assumed conditions to regard tone (high, low, falling, etc.) simply as a distinctive feature of a whole series of vowel phonemes? We are not even as justified in extracting it as a separate phoneme (or toneme) as we are when we isolate /h/ in a language which possesses a complete series of aspirated and unaspirated stops, because (i) /h/ would also have to occur independently⁷ for us to accept this interpretation (this is hardly possible for a tone), (ii) /h/ can be cut off in time as a segment (it might be considered as a voiceless vowel), while tone is a simultaneous feature. (There is more of a case here for units of length, i.e. chronemes⁸.) We may generalize and say that a distinctive feature is only to be considered as an independent element when it applies to a segment to which no other distinctive feature applies, i.e. to a supraphonemic segment. A complex of distinctive features which characterize the same segment form a segmental phoneme.

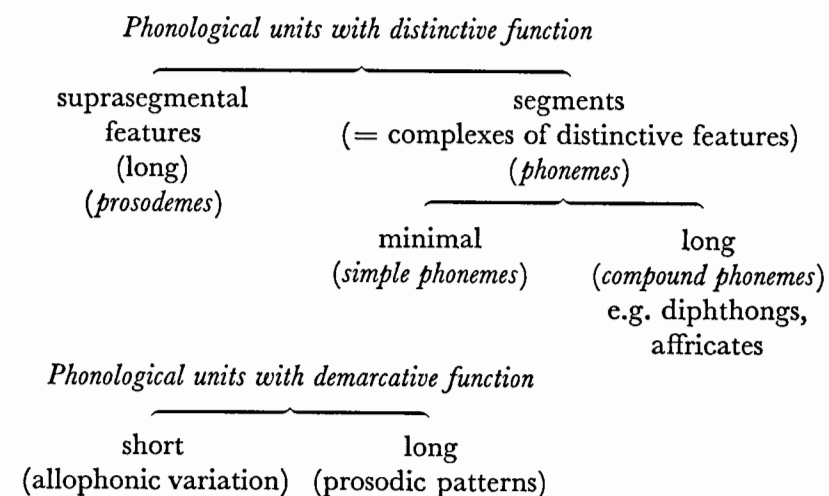
Thus although there are apparently three intersecting criteria for classifying phonological units, viz. distinctive v. demarcative,

⁷ I.e. not automatically attached to one particular type of phoneme, e.g. vowel, stop.

⁸ Cf. *Moulton*, Lit. 4, p. 379.

minimal v. long, and "segment" v. suprasegmental feature, there are cases where one criterion does not apply. For example, prosodic features should only be considered as prosodemes, when they are long; otherwise they should be classed simply as distinctive features of segmental phonemes. Demarcative units, when long, are never segments but always features, e.g. stress patterns in the word (in languages with fixed stress); but when short, i.e. subphonemic, they may be either single features, e.g. the frontness of English /l/ initially, or segments, e.g. the aspiration of English /p, t, k/ initially, although both types come under the head of allophonic variation besides their demarcative role.

An overall classification might be presented diagrammatically as follows:



It is important to observe that one and the same unit may have both distinctive and demarcative function, e.g. the English /h/ phoneme, which beside its purely oppositional role, is important as a marker of morpheme-initial position in all native English words.

References

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4. Moulton, W. G.: Syllable nuclei and final consonant clusters in German, in: For Roman Jakobson (Mouton & Co., s'Gravenhage 1956), p. 372-381.

5. Trubetzkoy, N. S.: Grundzüge der Phonologie. 3. Aufl. (Vandenhoeck & Ruprecht, Göttingen 1962).

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Discussion

Valdman (Bloomington): It is often difficult in linguistic description to distinguish amongst the various functions of phonic material. In French, for instance, vowel length seems to operate as a segmental phoneme since in careful style it distinguishes *maitre* from *mettre*, but for many vowels it is allophonic. Thus, the vowels /a o œ/ are long in checked final syllables as are all nasal vowels. Furthermore since in French [:] occurs only in the final syllable of a phonemic phrase it also has demarcative function.

The same distinctive feature can also serve as a short or a long component. In Haitian Creole nasalization differentiates segments, e.g. [ʃe] *chien* vs. [ʃɛ̃] *cher*, but it also appears on segments adjoining a nasalized segment. For instance *la chatte* is [ʃɛn la] in citation style but [ʃɛnnə] in normal style.

Answer Allerton: Perhaps I did not stress enough that distinctive and demarcative functions often apply to the same phonological element. I concede that this may even be so in the majority of cases.

With regard to Mr. *Valdman's* claim that nasalization is both a long component and a distinctive feature of phonemes in Haitian Creole, I feel that this is in no way in conflict with the proposed classification.

Krámský (Praha): I should like to express my strong approval with the speaker's opinion on the so-called tonemes and chronemes. Why should we complicate the phoneme inventory by separating the distinctive features of tone or length? There is no reason for it and there were some good arguments against it in the lecture. In American structural descriptions of languages it is quite current to speak about a "length phoneme". It can be argued that if length is a phoneme then the other distinctive features are phonemes too, because nobody can deny that length is a distinctive feature. Further, phonemes must be separable: how can we separate length from a sound? Similar is the problem of the so-called prosodic phonemes, i.e. pitch phonemes, stress phonemes, and juncture phonemes. This problem, however, differs from the problem of length by the fact that length pertains to one phoneme only, whereas prosodic phonemes can extend over more than one phoneme. Of course, this is not characteristic of either phonemes or distinctive features. Formerly we spoke simply about "prosodic qualities" and did not try to make phonemes of them. At the end the lecturer has made a compromise in the case of prosodemes: as he writes, "prosodic features should only be considered as prosodemes, when they are long, otherwise they should be classed simply as distinctive features of segmental phonemes". I do not regard this compromise as necessary. The problem evidently needs a more thorough examination.

My second remark concerns the classification of phonemes into simple and compound phonemes (e.g. diphthongs and affricates). According to my opinion, the question of complexity or compoundness cannot be the criterion of classification. It does not play any distinctive role in the classification, apart from the fact that it is not adequate to the classification into suprasegmental features and segments. It is not on the same level.

Answer Allerton: Mr. *Krámský* has raised the question of juncture, and I ought to explain how it would fit into my scheme. Since juncture phenomena are demarcative in

their function, they should be considered under this head, whether they are examples of conditioned allophonic variation or of long prosodic features such as accentual patterns.

I do not feel my treatment of prosodic features to be a compromise. When their patterns extend over segments longer than a syllable they must be considered as occurring independently of phonemes.

The term "compound" phonemes is in some ways unsatisfactory. All that is meant is a segment which is considered as one phonemic segment, even though it might be analyzed into two elements either in the language in question or in some other language. It is not my term but a conventional one which I have explained in terms of my own classification of phonological elements.

Buyssens (Bruxelles): In tone languages distinguishing between 4 tones in disyllabic words you consider the pitch as a feature of the vowel; but I do not see how that is possible, for the pitch can only be determined if another syllable precedes or follows; provisionally I can only consider tone as a prosodic feature.

Answer Allerton: I do not consider the pitch of a syllable to be determined in such a language, since the selection of high or low onet for one syllable or vowel still leaves the possibility of high or low in the other.