THE ULTIMATE PHONOLOGICAL UNIT AS THE SMALLEST MORPHEME SHAPE

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ABSTRACT

The phoneme is divisible not only because it consists of ultimate constituents traditionally known as distinctive features, here termed kinakemes, but also because morpheme boundaries can run through phonemes. This is made possible by the ability of a kinakeme not only to participate in distinguishing morpheme shapes as a phoneme constituent, but also to provide such a shape by itself. Instances of inflectional and derivational affixes with shapes consisting of a single kinakeme are found in various languages, e.g., Estonian, Gaelic, Latvian, Nivkh (Gilyak), Romanian, Russian. A morpheme boundary can also run through a phoneme when an affix shape consists of a kinakeme cluster smaller or larger than a phoneme; the boundary then disconnects the phoneme in question or its neighbor.

Ever since the notion of the phoneme as the basic unit in the sound system of language came into being, the problem of its divisibility has been present, though not always explicit in phonological theory. The insistence on the unquestionable absolute indivisibility of the phoneme, so characteristic of phonology's early days, soon gave way to the recognition of the existence within the phoneme of smaller truly ultimate constituents, named distinctive features /11, 272, 422-5; 12, 25/, merisms, phonemes, subphonemes etc. For reasons explained elsewhere /14, 82-3/ the best term in Baudouin's coinage 'kinakeme' /1, 199, 290/.

Recent research has demonstrated that these entities possess all the fundamental properties of language units:

1. They are language-specific and cannot therefore be items in a universal inventory, Jakobsonian /11, 484-6/ or Chomskyan /8, 336/, any more than phonemes, syllables or words could be listed in /9, 152/.

2. In each language they are paradigmatically united in a kinakemic system whose structure follows universal principles, but provides, like any other language sys-

tem, a unique way of segmenting and organizing extralinguistic substance, which is not sound, linguistically organized by the phonemic system, but the speaker's cerebral activity in initiating sound and the listener's subsequent perceptive culation /14, 83 ff.; 15, 277-83/.

3. Each language has its specific syntactic patterns for kinakemic combination in phonemes, which is basically non-linear simultaneous /15, 283-7/.

4. Kinakemic systems play a leading role in the phonological evolution of languages and determine the direction of phonemic change /7/.

The establishment of the kinakeme as the ultimate language unit does not, however, take the question of phoneme (in)divisibility off the phonological agenda, for the problem has more than just one facet. An analogy may be appropriate here with the atom, whose very name reflects its indivisibility: despite its decomposition into a host of particles it remains the ultimate quantum of a chemical element and is indivisible on that level. Likewise, the phoneme is segmentable in certain aspects and indivisible in others.

The discovery of the phoneme in 20th century phonology was in a sense a rediscovery, for the original discovery dates back to the invention of alphabetic writing, when letters were created as symbols for phonemes. As long as the sound substance behind them was not analyzed, they were treated as representing indivisible units of sound. The advent of phonetics in the 19th century put an end to the notion of integral sound units symbolized by letters and led to a two-pronged attack against them, pointing out the wide range of their variation and the complexity of their production and perception. The emergence of phonology was stimulated above all by the urgent necessity to uphold the notion of sound quanta and to protect them from being disintegrated in a continuum of variable phonetic realizations. Hence the firmness with which the founders of phonology rejected every infringement on the principle of phoneme indivisibility. The two questions concerning the unity of
the phonemes with its variability, its articula-
tory and auditory complexity, have been systematized by phylo-
togy. Allomorphic variation has found its place in phonemic theory and no longer in the inner complexity of phoneme structure, the dis-
covered by some linguists constitutes a-very large and 
has of course shown the phones to be di-
vented in the immediate layer of the language. But there 
is another aspect of phoneme struc-
ture which it is important to mention and which, in connection with the problem of phonem- ic variability, the question of monophonemic-
ity for sounds with temporally varying ar-
ticulation, i.e., diphthongs and affricates. It 
must be stressed that kinematical divis-
ibility of the phones does not affect their monophonemic-
ity if it is established by the well-known criteria of a-phonemic phonology which remain valid. Since kinematical 
combination in a phoneme is non-linear and the kinemes, clustered to form a phoneme, are activated more or less simultaneously, monophonemic-
ity cannot have a temporal segment of its own.

The kinematic level is ultimately responsible for the conversation of sense into sound and the reconstruction of sound into sense. Sound as the physical vehicle for the externalization of the speech signal is obviously so different from the cerebral 
activities with which the kinematic system is associated that it has to be represented in the language system by its own level. Deprived of its classical status as ultimate phonological (inde-
finable, linguist) unit, the phoneme retains its ultimate phonological functions, particularly the property of identity, which is dependent on its kinematic divis-
ity or over-length is in itself a morpheme shape - a kind of case in-fix. As such it must occupy a certain fixed position in the stem shape and therefore must be able to join any morpheme in that position. The phoneme that incorporates the infix always-along-a slot in the syllabic peak and may be a vowel: it is either different from the syllabic vowel and forms a ditrigraph cluster with it (par.-sg. mu-ad 'sage'); or it may be identical with it and form a single morpheme: the affix -ing is added to the infix (see: small, hóne above). The latter can also be seen as an allomorph (par.
-um 'smith' - gen. sg. sp. -um) or as a single morpheme (par.
-um 'branch' - gen. sg. sp. -um) and forms a ditrigraph cluster with the suffix (above).

In general, in prepositions, genitives, etc., case and dispositional distinc-
tions are not confined to phonological level, but rather to the
phonemic level. However, the phonemic level is in itself a morpheme shape - a kind of case in-
fix. As such it must occupy a certain fixed position in the stem shape and therefore must be able to join any morpheme in that position. The phoneme that incorporates the infix always-along-a slot in the syllabic peak and may be a vowel: it is either different from the syllabic vowel and forms a ditrigraph cluster with it (par.-sg. mu-ad 'sage'); or it may be identical with it and form a single morpheme: the affix -ing is added to the infix (see: small, hóne above). The latter can also be seen as an allomorph (par.
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The ability of single kinemes to serve as metalinguistic functions is not confined to morphological level, but rather to the phonemic level. It may also function as indicators of syntactic rela-
tions: when it is used in conjunction with the preposition in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "einem", it becomes "einem", "einem", "einem", "einem", in connection with the word "eine

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and Russian abound in affix shapes that expand beyond the inflexional phonemes and penetrate into the phonemes of the stem. For instance, the Irish possessive noun prefix of the 3rd person contains, besides the entire phoneme /θ/, the kinakeme of constriction for the masculine sg. /θ/ - a short /θ/ (his port), /θə/ - a chota \'his coat\', the kinakeme of voicing for the plural (a bport \'their port\', a gocota \'their coat\'). In contrast the corresponding prefix for the fem.sg. is equal to the phoneme /θ/ (a port \'her port\', a cota \'her coat\')/2, 73-83/.

In Russian the vowel /e/ is unable to begin a suffix shape alone and is therefore always accompanied in it by the kinakeme of palatalization implanted into the final consonant of the stem: loc.sg. OTOC, dat.sg. TPEAZE, inf. TPEAZEE, where the palatalization kinakemes in /l'/, /y'/, /d'/ do not belong to the stem shapes, but to the affix shapes together with the vowel /e/. As a morpheme boundary separates the kinakeme of palatalization from the rest of the phonemes it joins, the stem shapes by themselves do not undergo any changes on the kinakemic level despite the changes in the kinakeme structures of their final consonants.

The Russian vowel /i/ is not always accompanied by the kinakeme of palatalization in suffix shapes. It equals the suffix shape in some noun inflexions (nom.pl. ПИЛД), but in verb inflexions beginning with the same vowel phoneme it is accompanied by the kinakeme of palatalization placed in the last consonant of the stem: ПИЛТ. Affix shapes may also be smaller than a phoneme, which then has to fill the resulting gap in its structure by admitting a certain kinakeme from the stem shape. This is the essence of synharmonism. For instance, in Finnish the kinakeme of vowel fronting or its negative counterpart is carried over from the stem vowels into the vowel of the suffix: inf. puuhumaan \'speak\' - leikkinan \'play\'.

In English the suffix shape in \'hopes\', \'moves\' contains only the kinakemes common to both phonemes /θ/ /d/ /y/, and the suffix shape in \'hoped\', \'moved\' likewise contains only the kinakemes common to /θ/ /d/. In other words, the suffix shapes do not show any variation determined by the phonetic context. The kinakemes of voicing and devoicing which enter the suffixal contexts, belong to the stem shapes and not to the suffix shapes /13/.

Affix shapes larger or smaller than phonemes have a special role to play in strengthening the unity of the derived word, as the penetration of one morpheme shape into the phonemes that otherwise belong to the other morpheme, the resulting participation of a phoneme in two morpheme shapes at once are factors which help to cement the ties between the morphemes. But each direction of penetration has a typological significance of its own. When the affix shape is larger than the affixal phoneme and spills over into the stem, it serves to emphasize the constitutive role of the affix in the structure of the word and accordingly reduces the discernibility of the stem; this is a characteristic trend in synthetic languages. On the other hand, analytic languages show a typological propensity to emphasize the pivotal role of the stem by its easy separation from the affixes, and that requires the stability of the stem, well-defined morpheme boundaries; the unity of the word is also enhanced by morpheme boundaries running through phonemes, but the phonemes affected in such languages belong to affixes, whose shapes are smaller than the phonemes. It can be said that in the former type of languages the unity of the word is based on the power of its affixes, whereas in the latter type it uses the stem as its bulwark.

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