UNIVERSALS AND PHONETIC HIERARCHY

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1. The Presumed Theoretical Basis for Some Past Avoidance of Syllable and Stress Group

In the mid 50's I cited evidence (Pike 1955, 66-68, amplified in 1967, 409-23) that on the American scene--and sometimes elsewhere also--the syllable had been often ignored, or denied theoretical status, or occasionally used without theoretical justification to support statements about the distribution of phonemes. Specifically, we might add that in Bloch and Trager (1942), in the chapter on phonetics, there is no section for the syllable (although there is one page--28--on 'Syllabic consonants' in which the syllable concept is used as background to the analysis). Similarly in the section on 'Semivowels' (22) syllabics are related to sonority, and syllables to syllabic sounds, with vowels treated as sometimes--but not always--syllabic. Later, in the chapter on phonemics, in the subsection on 'Vowels' (50) the syllable is used as a basis for discussing the distribution of simple vowels with strong stress, and related matters. But nowhere does the syllable as such get specific treatment in its own right as a basic unit of the system.

The reason: The underlying theoretical construct moved from the phoneme level to the morpheme level and on up to syntax, without the concept of syllable entering in as a level. They felt that a morpheme could be adequately described, in so far as its physical components were concerned, as made up of a sequence of phonemes. But if they had brought in the syllable as a basic unit of the system, there would have been much greater difficulty in justifying their descriptions, since oftentimes in ordinary speech a morpheme may be found which is either less than a syllable or more than a syllable, so that this leads to borders between units of the lexicon which would have been skewed with reference to those of the phonology. Thus the plural allomorph -s, is a single nonsyllabic consonant; but cups is a single syllable of two morphemes; and the morpheme ticket is a single morpheme of two syllables. Therefore, there could have been no direct mapping of (phonological) part to (morphological) whole if the syllable had been treated as a unit in its own right.

2. A Theoretical Basis for Allowing Syllable, Stress Group, and Higher Level Phonological Units

In order to allow syllable, stress group, and even higher level units into our practical description, as units appropriate to that description, we need to have a theory of hierarchy which is multiple. Instead of a single hierarchy from phoneme to morpheme to syntactic unit, we need a hierarchy of phonology in its own right (from phoneme to syllable to stress group to phonological paragraph to phonological discourse--or something related to such a construct), and we need a hierarchy of grammatical units (from class of morphemes, to class of words, to class of clauses, class of sentences, class of paragraphs, and ultimately up to discourse classes); and in addition we need a referential hierarchy (of participants, episodes, and events as spoken about). The grammatical hierarchy (the telling order) may be distinct from the referential hierarchy (the happening--or logical--order; see Pike and Pike 1977, 363-410). Such a set of hierarchies in the theory allows us to have the syllable present in our description, and to draw upon it without apology (and without "bootlegging" it into the description).

This approach also allows us to specify openly some universals (e.g. no language is made up wholly of vowels) even though in some of them we may not find syllables composed of vowel plus following consonant. On the other hand, it does not insist that every possible level be present in every possible language. It insists, rather, that there be some hierarchical structure above the phoneme, without demanding that the syllable as such must inevitably be an emic unit. My personal suspicion would be that the syllable should be such a universal emic unit. But we have to leave room to the contrary, unless or until someone shows that the material on Bella Coola by Newman (in which the syllable is not treated as relevant) is not a satisfactory description (for preliminary discussion see Pike 1967, 420-21). Similarly, the work of Kuipers on Kabardian would have to be shown as better re-analyzed from a syllabic point of view (possibly by showing that he, like Bloch and Trager, relied on syllable without making adequate place for it in his theoretical system; for references see Pike 1967, 423).

The hierarchical approach also opens the door to the handling

of phonological markers of units much larger than a sentence (for example, the phonological paragraph). And in between the stress group and the phonological paragraph there may be emic sequences of stress groups (sequences of intonation contours) which have some overriding rising or falling general drift (or "tangent") within clause or sentence (see Bolinger 1970). And, above this, one may expect to find phonological units which signal the audience that a speaker is getting under way, or is finishing, or is changing focus. It should also be noted that there is strong evidence (overwhelmingly persuasive to me) that the kind of dynamic crescendo (or decrescendo) pattern of stress groups may in some languages be sharply contrastive within the styles of a single system. A greeting style, or a chanting style, or narrative pattern may, for example, affect these shapes; see Pike 1957, for example, for abdominal pulse types in inland Peru. A mark for juncture, plus a stress mark, is far from adequate to represent these contrasts; there must be both contrastive peaks and contrastive slopes leading down toward an end point (not just a stress mark followed by a final fade into some kind of "juncture").

3. Pairing in the Phonological and Grammatical Hierarchies

But the phonological hierarchy is not as simple as it sounds. There is no one direct sequence from phoneme to phonological discourse which meets some of the requirements for describing certain kinds of data which have an impact on us. Specifically, one of the most interesting developments--from my point of view--is that of Tench (1976). Tench was going beyond preliminary work on paired levels of the grammatical hierarchy (see now Pike and Pike 1977, 21-28) in which there was a sharp difference between units which are isolatable in the sense that (like an independent clause or an independent sentence) they could come at the beginning of a monologue, or at the beginning of a conversation after the greeting forms; and these would be in sharp contrast to responses to utterance, when the responses might sometimes be single words or phrases. This had led Pike and Pike to the setting up a difference between independent clause or sentence (as serving the function of serving as a proposition) versus word or phrase serving as a term. Tench showed a parallelism of these facts with the phonology, in which the syllable is the minimum independent item analogous to clause, while the rhythm group is the analogue of the

independent complex sentence. Similarly, he showed that the single phoneme (e.g. a single consonant), is analogous to a word (which is not isolatable in the same way) and that the consonant cluster would be the expanded version of that item, analogous to the phrase.

4. On Digital Versus Analogic Elements

More work needs to be done, also, to check out possibilities of digital versus analogic phonological structures. The digital ones (as pointed out by Martin and Pike 1975) are contrastive (either-or) units, the analogical elements have gradient (less to more) relation to the referent. My expectation would be that in every language we would find some analogic features of intonation and voice quality, in which length, loudness, rate, pause, decrescendo, crescendo (or features such as intensity, key, tenseness of vocal chords, breathiness), might be relevant in a gradient way, emphasizing the involvement of the speaker to a greater or lesser degree, or associated analogically with excitement or intensity of attitude.

But we would have to avoid assuming that such features were automatically to be found as digital in every language. For example, in Comanche (U.S.A.) no digital (contrastive, "segmentally phonemic") intonation elements have been found (Smalley 1953, 297).

The English-speaking actor on the stage, furthermore, is likely to make much greater use of the analogic types (change of key, for example), than is the ordinary person in a non-emotional setting. Yet our study of the systemic nature of contrastive quality is still in a very primitive state. It is astonishing that changes in voice quality seem to me to be empirically universal, but that a systemic handling of these materials is still only vaguely present with us. A "list" of voice qualities is far from satisfactory in handling the n-dimensional space which seems to be implicit in the possibility of simultaneous voice qualities, overlapping with pitch of various kinds, and interrupting (noncoterminus) units of the segmental phonological hierarchy from phoneme through syllable on up to phonological discourse. A vast amount of work seems to me to be awaiting us on the theoretical and empirical facets of these matters.

A final note: I am aware that there are difficulties in

finding physical correlates for perceived syllables. But I am
convinced that any failures to do so in the past should not pre-
vent us from continued search for something which is so obviously
present in field work--since I cannot believe that a characteris-
tic so universal can have no relation to some concomitant physical
reality (no matter how complex the relation may prove to be).

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