HOSTS OF PHONETICIANS HAVE ATTEMPTED TO DEFINE, IN PHONETIC TERMS, THE FUNDAMENTAL DIVISION WHICH WE RECOGNISE BETWEEN VOWELS AND CONSONANTS. K. L. PIKE, IN THE 6TH CHAPTER (CLASSIFICATION CRITERIA) OF HIS PHONETICS (ANN ARBOR 1944, P. 66F) EXAMINES THESE VARIOUS DEFINITIONS CRITICALLY, AND REPLACES THEM BY A DIFFERENT ONE OF HIS OWN. "ALL VOCOIDS ARE SIMULTANEOUSLY VOWELS AT THE TIME THAT THEY ARE FUNCTIONING AS SYLLABLE CRESTS... ALL CONTOIDS WHILE FUNCTIONING AS NON-SYLLABICS ARE CONSONANTS." (IBID. P. 145) HE INTRODUCES A FUNCTIONAL VIEW INTO THE DISCUSSION AND CONTRASTS HIS PURELY PHONETIC TERMS VOCOID AND CONTOID WITH THE TRADITIONAL TERMS VOWEL AND CONSONANT, WHICH IN HIS DEFINITION NOW REFER TO THE ROLE THEY PLAY IN THE SYLLABLE.


BUT THESE CONCLUSIONS WHICH WERE REACHED AFTER AN EMPIRICAL EXAMINATION OF A VERY LIMITED CORPUS OF DATA IS ONLY VALID FOR ENGLISH AND FRENCH, WHEREAS THE GENERAL ASSUMPTION IS THAT WE NEED VOWELS AND CONSONANTS IN THE DESCRIPTION OF ALL LANGUAGES. AS WE CANNOT HOPE TO INVESTIGATE SOME 3000 LANGUAGES SPOKEN ON THIS PLANET AS TO THEIR PHONEME DISTRIBUTION IN WORDS IN THE NEAR FUTURE ONLY A GENERAL THEORETICAL REFLECTION ABOUT THE CHARACTERISTICS OF NATURAL LANGUAGES WILL BRING US NEARER THE GOAL.

AS A CHILD IS ABLE TO "EXTRACT", IN AN EXTRAORDINARILY SHORT TIME, THE STRUCTURAL LAWS OF A LANGUAGE FROM THE CORPUS PRESENTED TO HIM THE RELEVANT DATA MUST BE OF SUCH A SIZE THAT THE CHILD CAN REALLY BE CONFRONTED WITH IT. IF NOW IN A LANGUAGE PHONEMES CAN BE COMBINED IN ANY POSSIBLE WAY TO FORM FORMATIVES THE NUMBER OF DIFFERENT COMBINATIONS (EVEN WITHOUT REPETITIONS OF PHONEMES) TAKES ON UNMANAGEABLE VALUES ONCE THE
set of phonemes goes beyond a certain limit. If there are 7 phonemes the result is 13692, which means that the child must come across at least 13692 formatives in the first six or so years of his life to discover the combinatorial law. This is impossible. Therefore a language must possess less than 7 phonemes if all the combinations are to be possible, but a language of this very simple kind is not known. Thus the simplest combinatorial rule finds no application in natural languages because it would in fact make the pattern extremely complex and phonologically irregular. It can be proved mathematically that the simplest and most efficient set-up is reached if there are always two groups of phonemes such that the combinations between the groups are very little restricted, whereas fairly strict and regular limitations are imposed on combinatorial possibilities within the groups, the degree of restriction depending on the particular language in both cases, but being always lower in the former than in the latter. We can now call that group consonants that contains the stops, the other vowels, and have thus arrived at a definition of a substantive universal for all natural languages.

The next question is whether something similar holds for the syllable. Like the previous two terms it has been given a great many different definitions, phonetic and phonological. The surveys by B. Hilla (La syllabe, sa nature, son origine et ses transformations, Orbis 10, 1961, 69ff.), G. Laucchini (Lehrbuch der Phonistik, Berlin, 1961, 156ff) and A. Rosetti (Sur la théorie de la syllabe, s'Gravenhage 1956) illustrate this diversity of theories. Like the other two terms the syllable has also been regarded as a substantive phonological universal, but it can be demonstrated that the syllable is either an unnecessary concept, because the division of the speech chain into such units is known for other reasons, or an impossible one, as any division would be arbitrary, or even a harmful one, because it obscures underlying structure.

If the syllable has any real status in phonology its boundaries must be discernible. A grammatical formative in any language can be rewritten as a sequence of elements like

\[ GF \rightarrow C_1VCVC\ldots VC_3 \]

where \( C_1 \) stands for any non-arbitrary pre-vocalic consonant (cluster), \( C_2 \) for any non-arbitrary post-vocalic consonant (cluster) and \( C \) for any consonant (cluster) between vowels. Any part to the right of the arrow may be zero.

\[ C \rightarrow C_1, C_2, C_3, C_4 \]

\((C \rightarrow C_4C_5 \text{ is impossible by definition).} \]

If \( C_1 \neq C_2 \) and if \( C \rightarrow C_1, C_2, C_4C_5 \), a non-arbitrary syllable division is possible but implicit in the definitions for \( C_1 \) and \( C_2 \); the syllable is therefore an unnecessary concept.

If some \( C_1 \rightarrow C_2 \) there are cases where a syllable division is not determinable, and the syllable is therefore an impossible concept. The same applies to \( C \rightarrow C_3 \), i.e. a consonant (cluster) that can only occur intervocalically and can, therefore, not be uniquely determined as pre- or post-vocalic.

If in any language the division into syllables obscures underlying phonological structures the concept of the syllable is harmful. English provides an example.

There intervocalic consonant sequences are of any degree of frequency only if they are either pre- and postvocalic at the same time (batter, master) or if one consonant is ambivalent, i.e. is part of a \( C_1 \) and part of a \( C_2 \) simultaneously (mattress, beetle). If there is clear separation between \( C_1 \) and \( C_2 \) the sequences are rare (esthetic, voracity). The underlying structure of devocalic words in English therefore depends on syllabic indeterminacy; the introduction of the syllable into the analysis can only obscure this fact.

In languages in which a non-arbitrary syllable-division is always possible because it is implicit in the consonant clustering and in which the division does not obscure the underlying structure it is still possible to use the syllable as a unit for quick reference, although it is not necessary because the syllable is then not an independent entity. In all other languages the syllable has no place in the phonology, and it is, consequently, not a phonological universal.