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ABSTRACT

This paper discusses the term "language universal" and posits a definition of a "counter-universal." It is proposed that the voiced aspirates of Bario Kelabit represent an exception to a posited phonological behavioral universal and are an important addition to the inventory of possible phonetic segments. (AM)

A DOUBLE COUNTER-UNIVERSAL IN KELABIT[1]

Robert A. Blust

In recent years an increasing number of linguists has yielded to the persuasion that beneath the impressive surface diversity of the world's languages lies an innate, relatively well-defined, species-specific capacity for language. Indeed, it can fairly be said that the adoption of this perspective was prerequisite to the beginnings of an interest in linguistic theory, and that the latter consists chiefly in attempts to formulate a coherent system of hypotheses about the defining characteristics of the assumed human faculté de langage. Thus, specific theoretical claims (as, for example, those inherent in the use of certain notational devices) are thought by their proponents to be isomorphic in some still poorly understood sense with properties of the neurophysiological mechanism which gives rise to linguistic behavior.

One of the most widely accepted bases for inferences about such properties is the evidence of what some linguists call language universals. Greenberg, Osgood and Jenkins (1963, Memorandum) recognize six types of synchronic language universals distinguished with respect to what they call 'logical structure'. These in turn are subdivided into three types which concern the absolute presence or absence of a feature in natural languages (unrestricted universals (UU), universal implications (UI), restricted equivalence (RE)) and three types which concern the probable presence or absence of a feature in natural languages (statistical universals (SU), statistical correlations (SC), universal frequency distributions (UFD)). In seeking to justify their inclusion of the latter three types of observations under the heading 'universals', the authors are careful to note (xviii) that

> ...it is important to include generalizations which tend to hold true in more than a chance number of comparisons... All phenomena which occur with significantly more than chance frequency in languages in general are of potential psychological interest.

More recently Howard (1971) has described four common conceptions of language universals. The first and most obvious of these, corresponding to the 'unrestricted universals' of Greenberg, Osgood and Jenkins, holds that a feature is universal only if it is found in all languages. The second view of universals recognized by Howard is equivalent to the 'statistical universals' (phenomena which occur with greater than chance frequency are of potential psychological interest) of the previously mentioned writers, except that their interest in statistical facts is portrayed as an end in itself rather than as a basis for

inferences about human psychology as stated in the above quotation. The third common conception of universals corresponds at once to the 'universal implications', 'restricted equivalence' and 'statistical correlations' (if a language has feature x it will, or probably will, also have feature y) of Greenberg, Osgood and Jenkins.[2] Howard's fourth notion of universal is different in kind from those already mentioned:

> In this view universals are properties of the human linguistic mechanism, that is, of the brain. As such they are shared by all human beings and are universal in the full sense of the word.

In the interest of greater generality, a conflation of the categories proposed by Greenberg, Osgood and Jenkins might prove to be of some use. The basic typology of universals recognized by these authors appears to be expressible in terms of two cross-cutting distinctions: 1) a distinction between 'unrestricted universals' and 'statistical universals' (the original terminology is retained here) and 2) a distinction between what might be called 'independent universals' (statements about the distribution of an observed linguistic feature with reference only to the homologous feature in other languages) and 'implicational universals' (if a language has feature x it will also have feature y). A matrix representation of these distinctions appear below:

Matrix A

	unrestricted	statistical
independent	UU	SU UFD *
implicational	UI RE **	SC

* Universal frequency distributions are visualized by Greenberg, Osgood and Jenkins as potentially derivable universal statistical measures (means, standard deviations, etc.), whereas statistical universals are regarded as greater-than-chance distributions of non-statistical phenomena.

** Universal implications are described as absolute implications holding between unrestricted universals; restricted equivalences are described as absolute implications holding between characteristics which are themselves not universal.

In the context of the above set of definitions it might be useful to ask what the term 'counter-universal' could mean. It seems clear that while a behavioral universal is falsifiable on the basis of a single contrary case, the proposed physiological universal which presumably underlies it can only be refuted by a body of counterevidence equal to the evidence on which the claim to universality was originally based. Given this understanding, a single counterexample cannot be said to refute a proposed physiological universal. Nonetheless, such a fact is worthy of attention by virtue of its very rarity. For this reason, a feature of the phonology of Kelabit, an Austronesian language spoken in the high plateau around the headwaters of the Baram river, northern Sarawak, is of particular interest, as it appears to be an exception both to a phonological behavior universal suggested more than 15 years ago and to a phonetic behavioral universal advanced quite recently.

Kelabit has three series of stop phonemes: /p/, /t/, /k/; /b/, /d/, /g/ and /b^h/, /d^h/, /g^h/.[4] /p/, /t/, /k/ are voiceless, unaspirated labial, dental and velar stops respectively, except that /t/ is interdental in final position. /b/, /d/, /g/ differ significantly from the former only in voicing; /d/ further differs nonsignificantly from /t/ in being alveolar in all positions. /b^h/, /d^h/, /g^h/ are labial, alveolar and velar stops respectively, which are voiced at the onset, and unvoiced just prior to, during and just following the release of the constriction. Except in the environment following a stressed schwa, where most consonantal segments are gemirated, they have approximately twice the duration of the stops in the other two series. Each of these nine stops is illustrated below, both in the environment after schwa and in the environment following other vowels (no examples of /d/ were recorded after schwa):

1) a) /təpuh/ : [tə́ppuh] 'grandparent (t.o. reference)'
/bətik/ : [bə́ttIk] 'tattoo'
/təkap/ : [tə́kkap] 'search, searching'

b) /kapəh/ : [kápəh] 'how?'
/kitəh/ : [kĩtəh] 'lst pers., dual incl.'
/luka ?/ : [lúka ?] 'slip and fall'

c) /təbəl/ : [tə́bbəl] 'glans penis'
/mənəgəg : [mə̃nə́̃ggəg] 'mythical water monster'

d) /ubih/ : [?úbih] 'tapioca'
/ŋadan/ : [ŋá̋dan] 'name'
/siguk/ : [sĭ́gUk] 'tobacco'

e) /təb^{h}uh/ : [tə́bp^{h}uh] 'sugarcane'
/məd^{h}aŋ/ : [mə́̃dt^{h}aŋ] 'daylight'
/məg^{h}əl/ : [mə́̃gk^{h}əl] 'stay with a small child to make him sleep'

None of the categories defined by the above matrix takes account of Howard's fourth conception of universals. It seems clear, however, that some such conception underlies the proposed justification of statistical universals quoted above. Both statements thus recognize the need for a body of observations about what is common to natural languages, or to a sufficient number of natural languages to rule out chance as a possible explanation. Though differing considerably in their relative emphases and the specificness of their claims, both statements recognize further that these observations acquire significance only within the framework of a set of assumptions about 'human nature' (Greenberg, 1966) or 'the human linguistic mechanism' (Howard, 1971), that is, within the framework of a general theory of human language. Greenberg, Osgood and Jenkins apply the term 'universal' to the primary observations which such a theory is constructed to explain; Howard, on the other hand, uses this term for the hypothetical constructs out of which such a theory is built.

It would perhaps serve to avoid further confusion if these two fundamentally different uses of the term 'universal' were distinguished terminologically. The terms 'behavioral universal' and 'behavioral near-universal' might be considered as labels for the three types of unrestricted and statistical distributions described earlier.[3] The term 'universal' or 'physiological universal' would then be used exclusively to refer to those universal features of neurophysiological organization which are assumed to determine the form of human language. Since behavioral universals are presumably to be explained in the same manner as behavioral near-universals, it follows that the division into types of 'unrestricted universals' and 'statistical universals' is a behavioral distinction without relevance to the structure of the assumed underlying mechanism. The earlier classification of behavioral facts (Matrix A) can thus be collapsed into a simple typology of physiological universals very similar to that proposed by Howard:

Matrix B

independent	UU SU UFD
implicational	UI RE SC

f) /bub^{h}ə?/ : [búbp^{h}u?] 'door'
/lid^{h}a?/ : [lídt^{h}a?] 'saliva'
/ugh^{h}əŋ/ : [ʔúgk^{h}əŋ] 'spinning without wobbling, of a top'

Among his universal 'laws of implication', Jakobson (1957) pointed out that no language is known which has t, d and d^{h} in its inventory of phonemes without also having t^{h}.[5] As can be seen, the phonological inventory of Kelabit fails to conform to this proposed constraint. It might be asked, therefore, a) whether the aspirated stops are in fact unitary phonemes and b) if so, whether they are phonemically voiced or voiceless.

There are two known types of evidence which weigh against the interpretation of these segments as clusters. First, although consonant clustering is permitted across morpheme boundary with the infix /in/, consonant clusters never occur within a morpheme:

2) a) /kilu?/ : [kílu?] 'bend, curve'
a') /k+in+ilu?/ : [kinílu?] 'to have been bent'

b) /bada?/ : [báda?] 'advice'
b') /b+in+ada?/ : [binádа?] 'to have been advised'

c) /piŋur/ : [píŋũr] 'echo'
c') /tə+piŋur/ : [təpíŋũr] 'echoing back and forth'
c'') /t+in+ə+piŋur/ : [simpíŋur] 'to have been used to create echoes'

d) /bakaŋ/ : [bákaŋ] 'space between spread legs'
d') /tə+bakaŋ/ : [təbákaŋ] 'spread apart, of the legs'
d'') /t+in+ə+bakaŋ/ : [simbákaŋ] 'to have been spread apart, of the legs'

e) /ta?ut/ : [tá?Ut] 'fear'
e') /pə+ta?ut/ : [pətá?Ut] 'frighten'
e'') /p+in+ə+ta?ut/ : [pintá?Ut] 'to have been frightened by'

f) /kədaluh/ : [kədáluh] 'quarrel'
f') /k+in+ədaluh/ : [kindáluh] 'to have been made the object of someone's anger or quarrelsomeness'

g) /pəkupat/ : [pəkúpat] 'turned contrariwise, as a person with his head at the foot of the bed'
g') /p+in+ə+kupat/ : [pinkúpat] 'to have been turned contrariwise'

h) /pəgamuŋ/ : [pəgámŨŋ] 'twisted, tangled, of thread, hair, etc.

h') /p+in+ə+gamuŋ/ : [piŋgámŨŋ] 'to have been twisted or made tangled'

i) /lakut/ : [lákUt] 'bending, inclination, as of the tips of bamboo stalks'

i') /bə+lakut/ : [bəlákUt] 'to bend, incline'

i'') /b+in+ə+lakut/ : [binlákUt] 'to have been bent or pulled over'

j) /riər/ : [říyəř] 'rolling, of a log'

j') /bə+riər/ : [bəříyəř] 'to roll a log'

j'') /b+in+ə+riər/ : [bindríyər] 'to have been rolled, of a log'

If [bp^h], [dt^h], [gk^h] were interpreted as sequences they would violate an otherwise general constraint against consonant clustering. Second, if the aspirates are in reality clusters of plain voiced stops plus the homorganic voiceless stop, it is difficult to explain why the voiceless release feature carries into the onset of a following vowel (i. e. why there is aspiration), since the voiceless stops are invariably unaspirated. There seem to be fairly strong arguments, then, that the Kelabit aspirates are unit phonemes. A third type of evidence which might be taken as support for this analysis can also be used to demonstrate that these segments are most convincingly interpreted as voiced. Thus, [bp^h], [dt^h], [gk^h] never occur before a stressed vowel or word boundary, and when placed in one of these environments as a result of affixation, are neutralized with their plain voiced counterparts:

3) a) /təb^{h}əŋ/ : [tə́bp^{h}əŋ] 'felling of a tree'

a') /təb^{h}əŋ+ən/ : [təbə́ŋŋə̃n] 'fell (imper.)'

b) /b^{h}o/ : [ʔə́bp^{h}o:] 'act of soothing someone's emotions, as those of a crying baby'

b') /b^{h}o+ən/ : [bóən] 'sooth (imper.)'

c) /kəd^{h}a/ : [kə́dt^{h}a:] 'ability to withstand pain'

c') /kəd^{h}a+an/ : [kədáan] 'suffering'

d) /ələg^h/ : [ʔə́lləg] 'cessation'

d') /ələg^h+an/ : [lə́gk^{h}an] 'cease (in questions of reason)'

Finally, while /t/ is dental or interdental, /d^h/, like /d/, is alveolar. There also seem to be strong reasons, then, to regard the aspirated stops as voiced. It follows from the conjunction of these two conclusions that these segments are most reasonably interpreted

as voiced unit phonemes which share the majority of their component features with /b/, /d/, /g/, but are distinguished from the latter by at least one feature. The question arises what this feature might be.

Adopting a definition of aspiration proposed by Kim (1970) (viz. that aspiration is a function of the degree of glottal opening during consonant constriction and hence delay in the onset of voicing of a following vowel as a result of increased closure time), Ladefoged (1972) has claimed that segments traditionally cited as examples of 'voiced aspirates' (as Hindi bh, dh, gh) involve a phonation type distinct from that used in the production of aspirated stops. He calls this phonation type 'murmuring' and stops of the Hindi type 'murmured stops'. Ladefoged then points out (p. 9) that given the above definition of aspiration a voiced aspirate would be

> ...a sound in which the vocal cords were vibrating during the articulation and then came apart into the voiceless position during the release of the stricture. Such a sound has not yet been observed in any language (underlining mine).

Despite the lack of instrumental studies to date, it seems clear beyond any doubt that the Kelabit aspirates begin voiced and end voiceless. The traditional mission-based orthography reflects this fact in its symbolization of these consonants as bp, dt, gk. Furthermore, while delay in the onset of voicing of a succeeding vowel is negligible with some speakers, with others it is auditorily very distinct. The voiced aspirates of Bario Kelabit appear, then, to meet Ladefoged's definition exactly.

There is thus evidently no serious alternative to the interpretation that Bario Kelabit b^h, d^h, g^h represent the first reported case of 'true voiced aspirates', and that as such they constitute an exception to a behavioral implicational universal of phonology proposed by Jakobson (1957) and simultaneously fill an important gap in the inventory of phonetic consonant types reported to date in natural languages.

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NOTES

1. I would like to thank Irwin Howard for commenting on an earlier version of this note. He, of course, bears no responsibility for any of its defects or shortcomings.

2. As observed by these writers, implications are, in general, unilateral.

3. An objection could be raised to the term 'behavioral near-universal', since Greenberg, Osgood and Jenkins hold only that types of statistical universals occur with 'significantly more than chance frequency'. It is conceivable that a distribution which might be regarded as significantly greater than chance would not be regarded as near-universal.

4. All statements refer to the dialect of Bario.

5. Jakobson's remark was made with special reference to the reconstruction of Proto-Indo-European. There seems to be no reason to believe that any inaccuracy would be introduced by a paraphrase of this claim which stated that voiced aspirates in general universally imply voiceless aspirates.

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