Vowel Length in Copala Trique: An Abstract Laryngeal Analysis

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necessarily separate actions. Similarly, for the verb *ạho dos·ar* [pf.]/*depsar* [ipf.] 'climb down': many people climbing down was viewed as many separate actions, demanding the imperfective root in the plural. So also was the case with the verbs glossed 'fade', 'dry off', and 'get filled up'.[3]

The use of the imperfective in the Aorist (and in the Future) is thus not controlled by number, but by aspect. From the lexical meaning of the verb, we can predict whether the action it encodes may be performed by or on MORE THAN ONE SIMULTANEOUSLY or not. If an action involving more than one takes place as a single act, then the perfective root for the verb may be used felicitously with a plural subject/object in the Aorist; if not, it may not be.[4] That is, gaps arise not from grammatical constraints but from real-world facts.

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[3] Of course, the entire range of possibilities for a verb is not always obvious to informants at the time they make grammaticality judgments. When asked to consider an action with a plural intransitive subject or transitive object, the action which comes most readily to mind seems often to be a multiple one, thus calling for an imperfective root. Though this may be the usual way for actions involving many to take place, it is clearly not the only way. When informants were encouraged to consider other possibilities, the restrictions faded away. For example, (*3a*) was reported to me a number of times to be ungrammatical, but during later checking it was volunteered that one could say it, of course, if it meant that all the people piled on one sled and came down the hill together.

[4] Particularly relevant to analyses of North American languages, some authors have confused the verbs discussed above with a different group. Schiefner (1859:52–53), for example, mistakenly lists *ḥač'ar* 'look at [sg. Patient]' with the verbs discussed above. *Ḥač'ar* actually belongs to a small group of verbs (around twenty-five) suppletive for the number of their Nominative (intransitive subject/transitive object) argument. Both perfective and imperfective forms (*ḥač'ar* and *ḥeč'ar*) are used only with a singular subject in all tenses. The corresponding plural roots are *ḥapsar* and *ḥepsar*.

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VOWEL LENGTH IN COPALA TRIQUE: AN ABSTRACT LARYNGEAL ANALYSIS

Thirty years ago in this *Journal*, Eric Hamp published a restatement of Chicahuaxtla Trique syllable structure (Hamp 1954), in which he treated *ʔ* and *h*

as abstract syllable components when they interrupt a vowel. In what follows I present another abstract analysis involving Trique laryngeals, in this case a restatement of my earlier work on Copala Trique (Hollenbach 1977).[1]

Copala Trique does not have interrupted vowels, but it has a contrast that Chicahuaxtla lacks, one whose surface manifestation consists primarily of vowel length. Examples:

(1) *to*^{32} 'metate' vs. *to:*^{32} 'milk'

(2) *ya*^{13} 'true' vs. *ya:*^{13} 'Spanish moss'

A traditional analysis of this phenomenon would treat the "short" vowels as simple, unmarked vowels, and the "long" ones either as vowels that are specified [+long], as they are written above, or as geminate clusters, which would be written *too*^{32} 'milk' and *yaa*^{13} 'Spanish moss'.

I claim that the situation in Copala Trique is precisely the reverse. The "long" vowels constitute the simple, unmarked case, and the words for 'milk' and 'Spanish moss' should therefore be written *to*^{32} and *ya*^{13}, respectively. The length found on these vowels arises by means of a late phonetic rule that lengthens a vowel in word-final position. The "short" vowels, on the other hand, consist of a simple vowel checked by an abstract laryngeal *!*, which has the phonetic characteristics of a ballistic accent.[2] The words for 'metate' and 'true' should therefore be written *to*^{32}*!* and *ya*^{13}*!*, respectively. The presence of the laryngeal *!* blocks the application of the lengthening rule, allowing the vowel to appear on the surface as phonetically short. The laryngeal *!* is abstract because it has no phonetic content at the position I assign it to in underlying structure; its presence is detected mainly by the dynamic effects it produces on the preceding segment.

I present two kinds of evidence in support of this unorthodox analysis, phonetic and structural.

All of the following phonetic facts are unmotivated in a traditional length or gemination analysis, but are plausible manifestations of a ballistic accent. First, when words receive sentence stress, the average duration of V rises from 26 to 31 centiseconds, but the average duration of V! falls from 12 to 9 centiseconds. Second, the amplitude envelope of V shows an initial rise followed by a slow fade, while the envelope associated with V! shows only the rise, immediately after which the sequence terminates. And third, tone *4*, the next-to-highest level, is realized by an upglide [34] with V, but by a downglide [43] with V!.

I turn now to structural evidence for the abstract laryngeal analysis. I present three sets of structural facts that fall neatly into place when "short" vowels are analyzed as V!, and "long" vowels are analyzed as simple vowels that undergo a

[1] This article is a summary of a paper presented to the Summer Institute of Linguistics Linguistic Symposium held in Mexico City, May 2–3, 1984. A fuller version has been submitted to *S.I.L.-Mexico Workpapers*.

[2] The historical source of *!* is at present imperfectly understood, but it is not cognate with the ballistic syllables of Amuzgo and Chinantec, which developed from Proto-Otomanguean postvocalic *h* (cf. Rensch 1978:91–92). It appears to have developed within Trique by a split of simple V, probably conditioned by tone and stress.

lengthening rule, but which are completely unmotivated and/or more complex to describe if "long" vowels are analyzed as V: or VV.

First, all five vowel qualities (*a, e, i, o, u*) occur with V, but only three (*a, e, o*) occur with V!. (Apparently, V! does not last long enough to permit five distinct vowel qualities to be distinguished.)

Second, there is no "length" contrast before *ʔ* and *h*, and the vowels that precede *ʔ* and *h* show neither phonetic length nor any of the unusual features found in "short" vowels. For example, tone *4* is an upglide with V*ʔ*, and all five vowel qualities occur with V*ʔ* and V*h*.

The third kind of structural evidence is found in morphological alternations. Potential aspect is marked by lowering the stem tone of verbs; a few of the lowering rules also add or delete *h*. In each such case, the alternation is between V ("long" vowel) and V*h*, never between V! ("short" vowel) and V*h*. Examples:

(3) *kinã*^{5} 'washed' → *kinã*^{1}*h* 'will wash'

(4) *kirã*^{5}*h* 'bought' → *kirã*^{2} 'will buy'

To summarize, therefore, a number of disparate and apparently arbitrary phonetic and structural facts about Copala Trique "length" fall into a coherent pattern when "long" vowels are considered the unmarked case, and "shortness" is considered the surface manifestation of the abstract ballistic laryngeal *!*.

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DISTINCTIONS AND GENERALIZATIONS

One of the problems for linguists describing new languages (in spite of the alleged universality of all important categories) has been finding appropriate words (with appropriate definitions).[1] When speakers of Indo-European lan-

[1] Like me, Eric Hamp has long been interested in Indo-European—especially Greek—linguistic problems, and in linguistic terminology. This note concerns itself primarily with these things.