PREDICTABLE AND UNPREDICTABLE TONES IN HEILTSUK WAKASHAN

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As first reported by Frite Kortlandt (1975), the phonemes of Heiltsuk Wakashan include a high tone /\/ and a low tone /\/. Illustrative are pairs such as /k\'as/ "mussala" and /k\'am/ "sit outside", /\'as\'as/ "chief" and its plural /\'as\'as\'. Nevertheless, most instances of the Heiltsuk tones have turned out to be predictable in terms of phonotactic and morphophonemic parameters, a brief account of which follows. I shall use the following abbreviations and special terms,

- \( T \) any obstruent
- \( R \) any unglottalized resonant (i.e., any one of /r, n, l, y, w, h/)
- \( V \) any glottalized resonant (i.e., any one of /\'r, n, l, y, w, h/)
- \( V \) any unglottalized vowel (i.e., any one of /\'o, a, i, u, e/)
- \( V \) any glottalized vowel (i.e., any one of /\'o, a, i, u, e/)
- \( \$ \) "disregarding tone"
- \( (T/\bar{R}/.../\bar{R}/...) \) word boundary
- \( (T/\bar{R}/V/\bar{R}/...) \) any \( V \) in the environments (\( T/\bar{R}/V/\bar{R}/.../\bar{R}/...) \)
- \( \) any \( V \) not adjacent to another \( V \) or an \( R \), not counting a word-initial \( R \)
- \( (T/\bar{R}/V/V/\bar{R}/...) \) any sequence \( VV \) in the environments (\( T/\bar{R}/V/V/\bar{R}/.../\bar{R}/...) \)
- \( (T/\bar{R}/V/V/V/\bar{R}/...) \) any sequence \( VVV \) in the environments (\( T/\bar{R}/V/V/V/\bar{R}/.../\bar{R}/...) \)

Actually, the distinction between a resonant and its corresponding vowel (e.g., between /\o/ and /\\o/, /\w/ and /\\w/, /\u/ and /\\u/) is not phonemic in Heiltsuk, each pair consisting of allophones of one phoneme. This matter, for details on which I refer to Rath (1965: 59-63), would however unnecessarily complicate the following discussion. Note that only with unglottalized vowels are the Heiltsuk tones distinctive, glottalized vowels always having an automatic low tone. Also, glottalized vowels occur only in the environments (\( T/\bar{R}/V/\bar{R}/...) \)

By 1974, when Heiltsuk research was still in its earliest stage, I had become aware of the following phonotactic rules. Rules whose number features an asterisk will below be replaced by other versions.

(1) No Heiltsuk word, lexical or combined with clitics, features more than 3 high tones;
(2) If there are 3 high tones, the last two occur in a tripleton, as e.g. in /\'ak\'ak\'a/ "operate an engine, engine", /\'aw\'in\'i/ "difficult, valued", /\'ap\'ap\'a/ "halibut skate";
(3a) A doubleton never features more than one high tone. Thus, /\'ep\'i/ "female", /\'u\'i/ "road", /\'n\'i/ "snow", /\'u\'k\'p\'a/ "body";
(3b) Aside from vocatives, if the first \( V \) in a doubleton is also the first \( V \) of the whole word, the doubleton must feature a high tone. In other words, the tones in /\'ep\'i/, /\'u\'i/, /\'n\'i/, /\'u\'k\'p\'a/ are predictable;
(3b-1*) Doubletons beginning in /\w/ always feature a high tone. Thus, the second high tone in e.g. /\'u\'k\'a\'i/ "float house" is predictable. This rule 3b-1* also predicts the high tone of /\'n\'i/ independently of rule 3b*.
(4a*) The possible tone configurations in a tripleton are as in the following, /\r\r\r/, /\r\r\u/, /\r\u\u/.
(4b*) If the initial \( V \) of a tripleton is the first \( V \) of the whole word, it has high tone (cf. /\'m\'a\'i/ "elder brother or sister"); except in vocatives (cf. /\'m\'a\'i/ "Oh elder brother/sister");
(5) No /\w/ can have high tone after a doubleton, sequence /\wV/, or tripleton.

In the course of time the application of rule 5 was widened morphophonemically. Included in the definition of a doubleton were cases of a singleton resulting from the telescoping of two identical \( V \). For example, the low tone in /\'is\'im\'/, plural of /\'i\'is\'as/ (see above), is predictable by rule 5 because /\'is\'im\'/ derives from /\'i\'is\'as\/, in which /\'i/ is an inserted phonetically modified reduplicate
of initial /r/. This interpretation was corroborated (and historically speaking inspired) by the cognates of /yíːma/ and /yíːma/ in the closely related Oowegetyala language, sc. OO /yíːma/ and /yíːma/, respectively. Oowegetyala has accent instead of tones. In the large majority of words the accent is predictable at the phonemic level (and therefore not written by me) on the basis of the following rule, "The first /v/ of the phonemic word bears accent, allowing for some phonetic complications if the first /v/ is part of a doubleton (e.g. OO /tugilga/ "build a road") and/or if the first /v/ is preceded by a /u/ (e.g. OO /saluk'ila/ "create two")

The exceptions to this rule are practically all cases where the first /v/ of the word is a singleton deriving morphophonemically from */N/; see the example of OO /tun'ak'jA/w mentioned below. Practically only under the accent does Oowegetyala have opposition between /v/ and two consecutive instances of this same /v/, as illustrated by OO /yíːma/ and /yíːma/. The comparison with Oowegetyala has also suggested assuming teleoanalysis in Heiltsuk in cases where Heiltsuk itself does not provide direct morphophonemic clues. For example, clitics attached to /təmUT/ "press together with both hands", always feature low tones only; compare /təmUTm/ "You press together ..."). (And other meanings), and /təmUT/ "You pour water out" (i.e.). It is demonstrable that /ə/ in /təmUT/ is an insertion in /tə/ "push" required whenever the suffix -ə̂ "together" is joined to a root with the structure TT, HT, or HT. However, that this /ə/ is etymologically */ə̂/, is not demonstrable for Heiltsuk otherwise than by a circular reasoning: "Following tones are low because /ə/ derives from */ə̂/.

And /ə/ stems from */ə̂/ because following tones are low." The real evidence that /ə/ in /təmUT/ derives from */ə̂/, is the Oowegetyala cognate of the word, sc. OO /təsamUT/. Another example is HE /k'ə̂m/ mentioned above. Following clitics feature low tones only. Reason: the item derives from */k'ə̂m/, see OO */k'ə̂m/.

New rules detected after 1974 concerned singletons. Instrumental in the detection were morphophonemics and the comparison with Oowegetyala and, through the cooperation with Neville Lincoln in a North Wazhaan comparative project, Kwakwala. (Information on Haisla, the fourth North Wazhaan language, remained scarce until 1983.) Consider the above mentioned item /k'ə̂m/. It contains a root allomorph /k'ə̂/ "sit" which alternates with /kə̂/ and /kə̂/, see e.g. /kə̂l/ "sit/stay/be present indoors", /kə̂xə̂m/ "chair". Inspired by the fact that /kə̂/ corresponds to OO /kə̂am/ {*}, and knowing that in Heiltsuk no /v/ ever occurs in the positions */v*/ (/,), the Heiltsuk item /k'ə̂m/ can be assumed to derive from HE */k'ə̂m/.

Other examples following this pattern are HE /âl/ "dead" (from HE */âl/, see OO */âl/), HE /tx'â/ "jump up on ground out-
does not violate rules 1, 2, or 5.

This rule is also illustrated by e.g. /\ in /\exp/ "hand flat on one's hip", /\exp/ "knot (in rope)", /\exp/ "half". Again, alternation of a singleton with /\, as illustrated above by /\ of \exp/ and /\ of \exp/, diagnoses the singleton as deriving from /\/. To give a few more examples, /\ in /\exp/ (see above), which is governed by rule 6a, alternates with /\ in /\exp/ "place or time of jumping up on the ground outside". The /\ in /\exp/ (plural of /\exp/) alternates with /\ in /\exp/ (plural of /\exp/), joining certain enclitics, e.g. -\exp/ "the one there with you", to /\exp/,

/m\exp/, /\exp/ results in /\exp/ and /\exp/. The high tone of /\ in these latter three cases is discussed further below. However, there are exceptions to rules 6a and 6a-1. Final /\ of, for example, /\exp/ "split in two (log, canoe)" and /\exp/ "halved, divided in two", derives from */\ as can be diagnosed by joining the enclitic -\exp/; cf. /\exp/, /\exp/. Then why do /\exp/ and /\exp/ not follow rules 6a and 6a-1, respectively? This problem of Heiltsuk morphophonemics has never really been solved but can be avoided by giving rules 6a and 6a-1 their following final versions,

(6a) If the first /\ of a phonemic word is a singleton deriving from */\/, it has low tone (as in /\exp/ deriving from */\/, /\exp/ deriving from */\exp/), except when it is suffix-final and either the last phoneme of the word or followed by an enclitic beginning in T or \, in which case it has high tone (as in /\exp/ and its diminutive-hypocoristic plural /\exp/).

(6a-1) If both the first and the second /\ of a phonemic word are singletons deriving from */\/, they both have low tone (as in /\exp/ deriving from */\exp/), except when the second /\ is suffix-final and either the last phoneme of the word or followed by an enclitic beginning in T or \, in which case the second /\ has high tone (as in /\exp/ and its diminutive-hypocoristic plural /\exp/).

As the reader may have noticed already, final /\ in /\exp/ and /\exp/ is the same suffix allomorph meaning "apart" that occurs in /\exp/. Rule 6b can now be given the following final version,

(6b) The first /\ that is both phonemically and morphophonemically a singleton, has high tone (provided rules 1, 2, and 5 are not violated), whereas following V-s satisfying the same condition, have low tone.

Rules 6a, 6a-1, 6b, and 6c predict the tones of practically all singletons in Heiltsuk lexical words, disregarding singletons that are telescoped identical V-s. The cases where these rules fail are discussed below.

Turning now first to doubletons, the following rule, which replaces 3a* and 3a-l*, predicts their tones exhaustively,

(3b) A doubleton, including the case of a singleton resulting from the telescoping of two consecutive identical V-s, always has a high tone if this does not violate rules 1, 2, or 5. Except from this rule are vocatives, interjections, foreign words (borrowings), onomatopoeias, and cases of complete root reduplication (e.g. /\exp/ "bell").

The tones in tripletons are governed by the following rule which replaces nos. 4a* and 4b*.

(4) In a tripleton V1V2 both V1 and V2 have high tone except in the following cases,
(a) If two high tones in V1V2 would violate rules 1, 2, or 5, both V1 and V2 have low tone, as in /\exp/ "make a halibut skate", /\exp/ "create a knot", /\exp/ "build a road";
(b) If V1 stems from telescoping of *V1V1, the tone of V1 follows rule 3b as if V1 were a doubleton, whereas V2 has low tone, as in /\exp/ "crew (etc.)", which stems from */\exp/, cf. 00 /\exp/;
(c) If V1 is not the first /\ of the whole phonemic word, and stems from */\/, the tone of V1 follows rule 6c as if V1 were a singleton, whereas V2 has low tone, as in /\exp/ "a knot not long ago". Vocatives are exempt from this rule no. 4.

Together, the various rules without an asterisk would predict the tones in both lexical words and their combinations with enclitics (proclitics always have low tone(s)), if it were not for the following complication. A word may contain a singleton with a high tone that is governed only by the limiting rules 1, 2, and 5. The cases concerned are either (1) allomorphs, or parts of allomorphs, of certain suffixes and enclitics, including some of the most frequent grammatical enclitics. These are cases of a lexical high tone; (2) original word-final singletons not derivable from */\/ or telescoped identical V-s, which have become followed by initial /\, /\, or /\ of certain allomorphs of enclitics. These are cases of an unpredictable morphophonemically caused high tone, the unpredict-
ability obviously being relative to the preceding tone rules. One example of a lexical high tone in the suffix allomorph /uə/ "point or end of something long" (and other meanings) in for instance /həbə'/ "seaward end/point". Whereas joining the above mentioned enclitic -ᵻᵻ to e.g. /mɑk'ə/ results in /mɑk'əux/’, thus revealing that /i/ alternates with /ː/ and that tone rule 6c applies, joining this same -ᵻᵻ to /həbə/ does not result in /həbəux/’ but in /həbəux/’, which reveals that final /ɑ/ in /həbə/ is not governed by rule 6c. Nor can the final /ɑ/ result from */ə/ so that rule 3b applies, because one has /həbəmə’/ a yɨs ... / "I /mʌg'/ am the namesake (/həbə/) of yɨs ...” and not */həbəmə’/ yɨs .../. The Oowekyala counterpart of the latter is 00 /həbəmə’, yɨs .../, with single /ə/. Another example of a lexical high tone is the allomorph /ʊə/ of the enclitic to which I refer in this paper as -ʊə”. Attaching the clitic to, for example, /yək’/ "bad” and /qəxəl/ (see above) gives /yək’ux/’ and /qəxəlʊə’/, in which the second high tone is not predictable by the preceding rules because /ʊə/ is not derivable from */ʊə/ or */uə/’. One cannot posit */ʊə/’ because attaching the clitic to /ču/ "short” should then result in */ču’ux/’ (with low tone by rule 6a); the Oowekyala counterpart would be 00 */ču’ux/’. The attested forms are, however, HE /ču’ux/’, 00 /ču’ux/’. This latter Oowekyala form also rules out placing */uə/’. Direct Heiltau evidence against */uə/’ is not available because the allomorph /ʊə/ in /həbə/ is incompatible with further high tones. An example of an unpredictable morphophonemically caused high tone, is /ə/ in /qəxələ/ "too fresh (food)”, which derives from /qət’/ “Fresh (food)”. The high tone of /ə/ in /qəxələ/ could not be subsumed under rule 3b (by interpreting /ə/ as */ə/’ because /ə/” slippery” plus the enclitic as in /qəxələ/’, results in /qəxələ/’. If */ə/ resulted from */ə/’, it would be */qəxələ/’. The Oowekyala counterpart to HE /qəxələ/’ is 00 /qəxəlʊə/, with single /ə/’ after /ə/. Admittedly, it is technically possible to subsume /ə/ of /qəxələ/, and the first /ə/ of /qəxələ/’, under rules 6c and 6a, respectively, because /ə/ is a suffix allomorph in both cases (see the stipulations in rules 6a and 6c). However, the implied assumption that the /ə/’ derived from */ə/’ is not supported by Oowekyala or Kwakwala evidence, and the preceding tone rules are partly based on this support. More important, the comparison with Haisla suggests a connection between the unpredictable high tone in /qəxələ/’ and the Haisla segmental element /ə/. For example, whereas from HE /həsə’/ "rigid” one derives HE /həxələ/”too rigid” (without the epenthetic element /ə/’ present in HE /qəxələ/’), from HA /həkə’/ "rigid” one derives HA /həkəkələ’/ “too rigid”. As mentioned in passing, the study of Haisla is very young and it is not real-
To conclude this paper I should like to point out that the morphophonemic analysis of a singleton */N/ as */N/ which analysis is the basis of rules 6a, 6a-1, and 6c, does not imply that */N/ has to be the end point of the analysis. Take Heiltsuk examples nos. 13-17, in all of which */N/ derives from */N/ by tone rule 6a. Both this */N/, and phonemic */N/ of examples 18 and 19, can be understood as due to unglottalized */N/ coalescing with some morphophonemes, let us indicate it as */N*. Thus, for instance,

13 k°i'á < k°i'á < k°i'á
16 k°i'á < k°i'á < k°i'á
18 k°i'á < k°i'á

This analysis reduces the variety of root allomorphs in examples 12-21 (see */N/, */N/, */N/, meaning "to lie (said of animate beings)") to just the one canonical form k°i-. Obviously this type of analysis presupposes that there is a way of proving that */N/ in */N/ (no. 12) and */N/ (no. 20), and */N/ and */N/ (no. 21), are not the result of */N/ losing its glottalization due to coalescence with some morphophonemes other than k°i-. As obviously, the proof consists of two parts, (1) a procedure to diagnose which one of a set of allomorphs of the same morpheme, e.g. the root allomorphs */N/, */N/, */N/ in examples ...