

HANDBOOK OF PHONOLOGICAL DATA  
FROM A SAMPLE OF THE WORLD'S LANGUAGES

A Report of the Stanford Phonology Archive

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855 Pima	855 Pima	855 Pima
855 01 p	13 n [n-voiceless] <sup>61</sup>	55 i-bar-long <sup>04</sup> [i-bar-half-voice-long] <sup>63</sup>
855 02 p-lax [b] <sup>60</sup>	14 n-palatoalveolar [n-palatoalveolar-voiceless] <sup>61</sup>	56 a [a-voiceless] <sup>62</sup> [a-half-voice] <sup>65</sup>
855 03 t	16 l-flap [l-flap-voiceless] <sup>61</sup>	58 a-long <sup>04</sup> [a-half-voice-long] <sup>63</sup>
855 04 t-lax [d] <sup>60</sup>	18 glottal stop	59 u [u-voiceless] <sup>62</sup> [u-half-voice] <sup>65</sup>
855 05 t-retroflex-lax <sup>01 03</sup> [d-retroflex] <sup>60</sup>	19 h	60 u-long <sup>04</sup> [u-half-voice-long] <sup>63</sup>
855 06 t/s-hacek <sup>02</sup>		61 o-open [o-open-voiceless] <sup>62</sup> [o-open-half-voice] <sup>65</sup>
855 07 t/s-hacek-lax <sup>02</sup> [d/z-hacek] <sup>60</sup>		62 o-open-long <sup>04</sup> [o-open-half-voice-long] <sup>63</sup>
855 08 k	51 i [i-voiceless] <sup>62</sup> [i-half-voice] <sup>64 65</sup>	63 yod
855 09 k-lax [g] <sup>60</sup>	53 i-long <sup>04</sup> [i-half-voice-long] <sup>63</sup>	64 w [w-voiceless] <sup>61</sup>
855 10 s	54 i-bar [i-bar-voiceless] <sup>62</sup> [i-bar-half-voice] <sup>64 65</sup>	
855 11 s-retroflex <sup>01</sup>		
855 12 m [m-voiceless] <sup>61</sup>		
855 \$a Pima \$b Papago \$d Uto-Aztecan \$e S Arizona and N Mexico \$f 13,000 (Papago) \$g Jim Bauman \$g Marilyn Vihman (review) \$g John Crothers (editor)		
855 \$a Hale, Kenneth \$b 1959 \$c A Papago Grammar \$f (Indiana University Dissertation) \$q informants \$r 2 years		
855 \$a Saxton, Dean \$b 1963 \$c Papago Phonemes \$d IJAL 29.29-35 \$q informants \$r many years		
855 \$a INTONATION \$A A stressless sequence preceding juncture (a rise in pitch) is "low in pitch and exhibits a short drop in pitch from beginning to end." (p.4) A stressless sequence following a stressed vowel is low in pitch following a long drop in pitch on the stressed vowel itself. A stressless sequence between either utterance initial or juncture and a stressed vowel is as high in pitch as the stressed vowel.		
855 \$a LAX STOPS \$A Saxton (p.29) notes that some investigators have denied the existence of a tense/lax contrast in the stops of Papago. The phonetic nature of the contrast is not clearly indicated in either Saxton's or Hale's description. In initial position it is simply tense versus lax. Medially the tense stops devoice, or partially devoice (preaspirate) a preceding vowel or sonorant, while the lax stops do not. Hale gives voiced allophones for the lax stops while Saxton does not. The latter indicates preglottalized allophones for the lax stops occurring between a vowel and a following voiceless segment.		
855 \$a LONG CONSONANTS \$A Examples of medial consonant clusters include geminate clusters for every consonant except /yod/ and the lax stops. (p.28) Saxton (p.31f) gives examples with lax geminates too.		
855 \$a LONG VOWELS \$A Saxton analyzes long vowels as clusters, Hale as units. Reasons for the difference are not stated. Saxton's rules for vowel devoicing, which seem to differ in detail from Hale's, differ substantially in form, being stated only in terms of short vowels.		
855 \$a REDUPLICATION \$A Reduplication of the stem initial syllable is used for a variety of morphological processes. The details of the specific reduplication differ according to the morphological function being carried out. In addition, other morphological processes involve various deletions of stem components. The "non-present" form of a verb, for example, is characterized by the deletion of the stem final syllable with a subsequent lexically determined modification of the syllable now in final position. (Hale, p.56-59)		
855 \$a STRESS \$A Hale defines stress within the domain of the "contour." Within the contour the		

position of one or more stresses is not predictable. Stress is realized on a high pitched vowel by its relatively greater loudness. Stress cannot occur in word final position on a short vowel or on the second member of a vowel cluster. \$A Saxton (p.33) says that main stress generally falls on the first stem syllable, and that secondary stress is found (1) on the first vowel of a vowel cluster (except when the first vowel is /i, u/ followed by a different vowel, when it falls on the second), (2) on the first of two short unstressed syllables separated by a lax consonant, (3) on all other unstressed /a, u, o-open/.

- 855      \$a SYLLABLE \$A (C)CV(V)(:)(C)(C) \$A Syllable final consonants occur only in word medial position. It is not clear that vowel clusters are monosyllabic. \$A vowel clusters (VV(:)): /i, i-bar, u, a/ + /u/; /i/ + /o-open/; /i, u/ + /a, a-long/; /i-bar, o-open, a/ + /i/ (p.8)
- 855 01      \$A /t-retroflex-lax/ is described as "alveolar (with some retroflexion)" (p.13); /s-retroflex/ is "prepalatal (with retroflexion)." (p.9)
- 855 02      \$A /t/s-hacek, t/s-hacek-lax/ are identified as alveopalatal stops (not necessarily differentiated from affricates) in both sources; both use the symbol for [t/s-hacek] for the former.
- 855 03      \$A Hale gives /t-retroflex-lax/ a "preaspirated" allophone, treated here as part of the vowel devoicing process. (See n.65.)
- 855 04      \$A The long vowels are "extra-long when stressed and medium long when unstressed." (p.23)
- 855 60      \$A The lax stops are voiced after a nasal or unstressed vowel when an unstressed voiced vowel follows. (p.12)
- 855 61      \$A The nasals, /l-flap/ and /w/ are devoiced before any inherently voiceless segment /p, t, k, t/s-hacek, s, s-retroflex/. (p.15) (This rule operates together with the vowel devoicing rule to produce voiceless stretches ending at word boundary or an inherently voiceless consonant.)
- 855 62      \$A Short vowels are devoiced when unstressed (1) word finally, (2) before /p, t, k, t/s-hacek, s, s-retroflex/. (p.17ff) (There are some restrictions for /i, i-bar/, see rule 64.)
- 855 63      \$A Long vowels are partially devoiced (1) word finally, (2) before /p, t, k, t/s-hacek, s, s-retroflex/. (p.23)
- 855 64      \$A Unstressed /i/ is partially devoiced before /p, t, k, t/s-hacek, s, s-retroflex/ when a consonant other than /k, k-lax, w/ precedes. Unstressed /i-bar/ is partially devoiced after /glottal stop/ when /p, t, k, t/s-hacek, s, s-retroflex/ follows. (p.17ff)
- 855 65      \$A Short vowels are partially devoiced (1) when stressed before /p, t, k, t/s-hacek, s, s-retroflex/, (2) before /t-retroflex-lax/ followed by a fricative, (3) unstressed followed by /t-retroflex-lax/ plus a voiceless vowel. (p.13, p.17ff)