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PROTO-KERESAN PHONOLOGY

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1. Keresan is spoken in seven varieties at seven Indian Pueblos in New Mexico. Five of the Pueblos, Cochiti, Santo Domingo, San Felipe, Santa Ana, and Zia (listed from north to south) are located in or near the Rio Grande Valley. The two remaining Pueblos, Acoma and Laguna, are situated about seventy five miles to the southwest of the main Keresan area. The languages, or dialects, are closely related, and have a time depth of about five hundred years. No sharp internal subdivisions are found in the Keresan language family. The greatest differences are found between the two most distant Pueblos, Acoma and Cochiti; the two dialects are mutually unintelligible except to speakers who have had an opportunity to become accustomed to the speech of the other Pueblo.¹

It is possible to reconstruct the phonological structure of Proto-Keresan in great detail. The changes from the proto-language to the daughter languages are minimal, and reconstructed forms do not differ radically from the present-day forms. But since the Keresan languages have a complex morphophonemic system, it is possible to do some internal reconstruction, and achieve a deeper time depth.

The reconstruction of Proto-Keresan is based on the comparison of Acoma, Santa

Ana and Santo Domingo.² These three dialects constitute a fairly representative sample of the entire group, although inclusion of other dialects would undoubtedly result in greater precision of the historical statements.

In Proto-Keresan, every syllable began with a single consonant, or a sibilant consonant cluster consisting of *s plus an occlusive (2 and 3). There were no final consonants. The vocalic nucleus consisted of a single long or short vowel, or a vowel cluster (4). With the exception of a few enclitics, every word had at least one tonal accent (5).

2. Single obstruents and sibilant clusters are given in Chart 1. Parentheses enclose consonants that are the result of morphophonemic alternations, and are not found in basic forms. The arrangement of the table is suggested by internal reconstruction, as well as by comparisons of the Keresan dialects, and may represent a Pre-Keresan rather than a Proto-Keresan alignment. The internal reconstruction is based on three morphophonemic processes, aspiration, glottalization, and palatalization. The consonants in columns II and V are the palatalized³ forms of columns III and VI, respectively. These processes are found

² The Acoma material was collected by Miller, the Santa Ana and Santo Domingo material by Davis. The Acoma material will appear in *Acoma Grammar and Texts*, UCPL (hereafter *Acoma Grammar*), and the Santa Ana material will appear in *The Language of Santa Ana Pueblo*, BAE-B (hereafter *Santa Ana Grammar*).

³ 'Fronted' would be a more accurate term than 'palatalized,' since the palatalized forms of the palatal stop and affricates are dental stops. The term 'palatalized,' however, better suggests the nature of the process.

¹ For a fuller discussion of interdialect relations, see Irvine Davis, *Linguistic Clues to Northern Rio Grande Prehistory*, *El Palacio* 66.73-84 (1959), especially pp. 77-81.

CHART 1
PROTO-KERESAN OBSTRUENTS

	I	II	III	IV	V	VI
	labial	dental	palatal	retroflex	dental and palatal	velar
OCCLUSIVES						
unaspirated	b	d	dy	ʒ	z	g
glottalized	p̚	t̚	č̚	(č̚)	č̚	k̚
aspirated	pʰ	tʰ	čʰ	ʒʰ	c	k
unaspirated	sb	sd	sdʏ		(sdʏ)	sg
glottalized	sp̚	s̚t̚	s̚č̚		(s̚č̚)	s̚k̚
aspirated	spʰ	stʰ	(sčʰ)		(sčʰ)	sk
SIBILANTS		palatal	retroflex		dental	
unglottalized		š	ʂ		s	
glottalized		š̚	ʂ̚		(š̚)	

OTHERS: ʔ, h

primarily with the pronominal prefixes. Certain stems aspirate, glottalize, or palatalize a preceding pronominal prefix. The morphophonemic changes are illustrated by the 3rd person prefix *g- in sets 191, 216, and 378.⁴ Palatalization can co-occur with aspiration and glottalization (277, 299). Most stems with an initial front vowel are palatalizing stems. Some palatalizing stems have an initial *a, suggesting that such stems formerly began with *ia, or some similar sequence.

The retroflex affricates are somewhat aberrant in their morphophonemic behavior. The unaspirated affricate *ʒ is usually unaffected by the morphophonemic processes. It is occasionally glottalized, and occasionally palatalized, but never aspirated. The phoneme is aspirated in environments where unaspirated occlusives do not occur (see below), but this is a different morphophonemic process from that described here. The aspirated affricate *ʒʰ, found only in certain second person prefixes, is glottalized and palatalized before the appropriate stems. The palatalized forms of *ʒ and *ʒʰ are *d and *č, respectively. The glottalized affricate *č̚ is always a secondary form of *č or, less commonly, *ʒ.

⁴ The reconstructed sets are found in 6.

Of particular interest is the alignment of *dʏ-č̚-č̚. It seems probable that at an earlier time these three phonemes differed only in manner of articulation. A nonphonemic change divided the single series into two incomplete phonetic series: the palatal affricates lacked an unaspirated member, and the palatal stop lacked aspirated and glottalized members. The change probably took place before the breakup of the several dialects, because the two series are found in all three of the Keresan dialects under consideration. The gaps have been independently filled, either partially or completely, in the dialects. The unaspirated affricate /ʒ/ is found in all the dialects in Spanish loanwords. Only Acoma has /tʏ/ and /tʏ/: the aspirated stop is found as a development of *dʏ in certain environments (see below), and in the sibilant cluster /stʏ/ as an analogical reformation of *sč̚; the glottalized stop sometimes represents an aberrant development of *dʏ, other times an analogical reformation of *č̚.

The palatalized sibilant clusters of column VI fall together with the unpalatalized sibilant clusters of column III. The cluster *sdʏ is retained in all the dialects. The glottalized cluster *sč̚ remains in Santa Ana and Santo Domingo. In Acoma, it has

become /š/ in most cases (125, 211, 250–264), but it has been analogically shifted to /stʲ/ in pronominal prefixes: Acoma zá-zí stʲamá·kuʔi·tʲa *he didn't give me a handful*, Santa Ana zázi sčí·zúwa *he didn't pay me*, prefix *sč-, basic form *sdʲ-. The aspirated cluster *sč, found only as secondary forms of certain pronominal prefixes, remains in Santa Ana and Santo Domingo, but in Acoma it has usually been analogically shifted to /stʲ/: stʲá·múša *someone's beard* (palatalizing-aspirating stem, prefix sg-). The cluster remains in one allomorph of the distributive dubitative prefix: Acoma sčáuʔu, Santa Ana sčáuʔu *there was a crowd* (cp. 31). The distributive prefixes no longer undergo the productive morphophonemic alternations in any of the dialects, and therefore there was no opportunity for the analogical shift to take place in Acoma.⁵

Internal evidence indicates that unaspirated occlusives of Pre-Keresan became aspirated in certain environments by Proto-Keresan times. In general, it can be stated that this change took place before voiceless vowels (voiceless vowels are treated in 4.2): Acoma kúpe, Santa Ana kù·pe *he ate*: contrast Acoma kubéukuya, Santa Ana kù·beukuya *he is eating* (see 44). It is difficult to specify exactly the forms in which the change had taken place, because there are some problems in reconstructing voiceless vowels, and because the change has been extended to a larger set of environments in Acoma (see following paragraph). Instead of attempting to reconstruct the

⁵ Internal evidence suggests that the distributive dubitative allomorph *sč- was the aspirated form of *sdʲ- (see Acoma Grammar, section 211). In an earlier article (Wick R. Miller, Spanish Loanwords in Acoma: I, IJAL 25.147–153 [1959]), it was stated that the /sč/ cluster in Acoma was probably borrowed from another Keresan dialect, because the cluster is rare. It is clear now that /sč/ is the historically expected form.

It will be noted that the sibilant clusters of columns III and V become Acoma /sdʲ-š-sč/ by the regular sound changes. But in the pronominal prefix system, the morphophonemic alignment has been analogically changed to /sdʲ-stʲ-stʲ/.

unaspirated-aspirated contrast as it existed in Proto-Keresan times, we have reconstructed it as it existed at an earlier stage of the language. If, in a given word, any of the dialects have a morphophonemic alternation between the two types of occlusives, an unaspirated occlusive is reconstructed. If, on the other hand, any of the dialects have an aspirated occlusive in a position where unaspirated occlusives may occur, an aspirated occlusive is reconstructed. If both comparative and internal evidence is indecisive, an underlined aspirated occlusive is written.⁶ It should be observed that our procedure is subject to error, both in terms of the specific time levels in which the changes took place, and in terms of the reconstruction of specific words. In many cases an unaspirated or aspirated occlusive is reconstructed on the internal evidence of Acoma alone, because this dialect preserves certain morphological constructions, lost in the other dialects, that place the occlusive in a diagnostic environment. The reliance upon a single dialect is an unsure procedure, because this feature is especially vulnerable to analogical change.

For Acoma, internal evidence allows us to state with a high degree of accuracy the total set of environments in which the changes from unaspirated to aspirated occlusives have taken place since Pre-Keresan times.⁷ The environments cannot be stated in terms of voiceless vowels, because the

⁶ Since *č is restricted to certain second person prefixes, and since Proto-Keresan had no *tʲ or *ž, the occlusives *z, *dʲ, and *č can be accurately reconstructed in all cases. In Santa Ana and Santo Domingo there is no contrast between [tʲ] and [dʲ]; the former is found before voiceless vowels, while the latter is found elsewhere. In Acoma, a contrast has developed between the two palatal stops in sibilant clusters, and therefore the two stops are distinguished throughout. The change of [dʲ] to [tʲ] (and the subsequent change to /tʲ/ in Acoma) probably took place after *dʲ-č-č split into two phonetic series. Otherwise, we would expect *dʲ to have become *č before voiceless vowels.

⁷ See Acoma Grammar, section 210, rule no. 29.

contrast between the two types of vowels has been lost in Acoma. The environments include all the positions in which Proto-Keresan voiceless vowels occurred, as well as some additional ones. Quite clearly the aspiration did not take place at one time. The environments are: (1) after the last tonal accent (53, 267, 397); (2) before long unaccented syllables; and (3) before short unaccented syllables that are followed by a sibilant, an unglottalized occlusive, an unglottalized sonorant, or /h/ (49, 119, 295). Internal evidence can be cited for those environments that lack comparative support: *suwàuta·ʔáña we asked for it*, *siwí·dá·ʔání when I asked for him*; *séikayáu I set the trap*, *séigáyámí when I set the trap*. Alternatively, we could state that the change took place before unaccented syllables, unless the syllable was short, the following syllable was accented, and the following syllable had an initial glottalized occlusive, glottalized sonorant, or glottal stop. Again internal evidence can be referred to: *ʔú·biká·káci nail*, *guináyanikuya he made fun of him*, *ziʔúkačañá·ti when they saw them*.³

Before front vowels, Acoma has lost the contrast between palatal stops (106, 107, 149) and dental stops (26, 90, 91). In this environment the stops in Acoma are most often realized phonetically as palatal stops, although dental stops are sometimes heard as free variants. They are analysed as dental stops, however, because of morphophonemic considerations. This analysis also results in a neater historical account of the palatal stops.

There is a sporadic loss of *s from sibilant clusters (282, 287, 290, 292, 390). This loss follows no apparent pattern and is not confined to any one of the dialects. There is a suggestion in the Acoma forms of 247

³ There are a few cognate sets that do not support these formulations, e.g. 120. But since the internal evidence draws upon a much larger body of data than the comparative evidence, it is assumed that such forms are unexplained deviations.

that morphological considerations may be involved.

The glottalized sibilant *š is found only as a secondary form of *s in the first person prefix *s- ~ *si- (102). In Acoma, /š/ is found in other morphological positions, apparently as a development of *s before the glottal accent (271, 418). Set 428 may illustrate the development of Acoma /š/ from *š under similar conditions.

Voiced stops, which are written with small capitals to distinguish them from voiceless unaspirated stops, are found in the Rio Grande Keresan dialects in Spanish loanwords. In addition, the voiced dental stop /D/ is found in two native Santo Domingo words as unexplained developments of *s (5, 244).

The phonemes *ʔ and *h complete the roster of Proto-Keresan obstruents. In initial position, both phonemes are common and remain unchanged (3–8, 10–14, 122–164). In medial position, *h is rare, and only one cognate set can be cited (119). The glottal stop is common in medial position, and is usually flanked by identical vowels (31, 158, 286, 353). In a number of forms, a glottal stop corresponds to zero or to a glottal accent (2, 17, 18, 125, 163, 224, and others). Those words are reconstructed with a glottal stop, but the direction of change is by no means certain, nor are the conditioning factors evident.

Except for the changes given in the preceding paragraphs, Proto-Keresan obstruents are unaltered in the three dialects. Examples may be found in the alphabetized list of reconstructions.

3. Proto-Keresan had five plain sonorants, *m, *n, *w, *y, *r, and five corresponding glottalized sonorants. These phonemes generally remained unchanged in Santa Ana and Santo Domingo. In Acoma, plain sonorants (with the possible exception of *r) were glottalized after a high accent and before a Proto-Keresan voiceless vowel (19,

42, 77, 94, 114, 149).⁹ Contrast the following words in which the requirements are only partially fulfilled and the sonorants remained unchanged: 307, 328, 329, 344, 374. The Acoma form in 388 shows the development of a glottalized sonorant in a final syllable that was accented in Proto-Keresan, but is unaccented in Acoma. This suggests that in Pre-Acoma the final vowel was unaccented and voiceless.

The sonorants /r/ and /r̥/ do not occur initially in native words in Acoma. Initial *r, rare in Proto-Keresan, became Acoma /d/ (240, 241), or /z/ (243). There are no cognate sets with initial *r̥. Medial *r and *r̥ either remained unchanged in Acoma (182, 232, 239, 291, 294, 56, 199, 393, 424), or else became /d/ or /t/ (47, 84, 269, 290, 292, 254, 260, 289, 316). There is some suggestion that the following vowel conditioned the change to a stop: *r and *r̥ generally remained unchanged before /a/ and /u/, and became a stop before other vowels. But there are a number of exceptions to this formulation.

Examples of the other sonorants may be found in the alphabetized list of reconstructions.

4.1. The following section treats the five vowel qualities of the Proto-Keresan vowel system, *i, *a, *u, *e, *i̥, the vowel

⁹ The change is internally reconstructible in Acoma; *zí-zúwa he paid him*, *zí-zúwa-ña they paid him*. Compare Santa Ana *zí-zúwa he paid him*, *zí-zúwa-ñe they paid him* (see 378). Since Acoma does not contrast voiced and voiceless vowels, the morphophonemic rule must be stated in terms of the environments in which voiceless vowels were normally found in Proto-Keresan (see 4.2; and Acoma Grammar 210, rule 30). The exceptions to the morphophonemic rule include, for the most part, words that had voiceless vowels in environments where normally voiced vowels were found, in which case the sonorant is irregularly glottalized, or conversely words that had voiced vowels in environments where normally voiceless vowels were found, in which case the sonorant is irregularly not glottalized.

clusters and vowel length. The voiced-voiceless contrast is treated in 4.2.

The vowels *a and *u were retained in each of the dialects. Examples of *a are: 2, 4, 10, 40, 42. Examples of *u are: 15, 33, 55, 57.

The vowel *i remained unchanged in most of its occurrences (17, 18, 19, 26). In nonfinal position following *w or *w̥, it became /a/ in Santo Domingo; in most cases the vowel of the preceding syllable is /a/ (126, 144, 306, 313, 374, 413). But contrast 114 in which *i is in the same environment, and does not show this change. The vowel irregularly became Santo Domingo /e/ in 366.

The vowel *e sometimes became /a/ after palatal obstruents. The exact conditions under which the change took place are difficult to determine because there are so few examples. In Acoma, the change apparently always took place after palatal occlusives (77, 105), and sometimes after palatal sibilants (200; contrast 113). In these sets the vowel remained in Santa Ana, but always became /a/ in Santo Domingo. Word-final *e became Santo Domingo /i/ if it was accented and/or long in Proto-Keresan (135, 140, 143, 217, 221); but there are some exceptions (147, 194, 270). Word final *e also became /i/ sporadically in Acoma (101, 194, 272).¹⁰ In remaining environments *e was unchanged (12–16, 43–45, 348).

The high central to back unrounded vowel *i̥ is the least stable of the five vowels. In Santo Domingo it became /u/ after a bilabial consonant (51–54, 194, 196, 215). In Santa Ana unaccented *i̥ sometimes became /u/ after *m (195, 262, 311; con-

¹⁰ This change is probably related to an alternation between accented *e and unaccented *i̥ that is found with some morphemes: Acoma *mí-ti boy*, *mí-dé-zá he is a boy*; Santa Ana *śámí-ti my son*, *mí-dé boy*. The unexplained vowel correspondences may be the result of the inability to compare appropriate allomorphs.

trast 111). After a palatal obstruent, the vowel became Santa Ana and Santo Domingo /i/ in all cases, and became Acoma /u/ provided it was not followed by a sonorant (48, 49, 84, 260, 287, 308, 439).¹¹ In other environments, *i is normally unchanged if it is accented (29, 108, 169, 170, 192). There are, however, a number of unexplained sporadic changes, changes that are usually found in unaccented syllables: after a bilabial stop *i sometimes became Santa Ana and Santo Domingo /a/ (70, 253, 312); after a velar stop it sometimes became Acoma /a/ (182, 283), sometimes Acoma /u/ (172, 176); after a retroflex affricate it sometimes became Santa Ana /a/ (144, 146, 156, 337, 338). Because of its unstable nature, *i is reconstructed whenever any vowel corresponds to /i/, even though the correspondence may not be attested by other examples (e.g. 39, 317).

Vocalic assimilation of the pattern $V_1 - V_2 > V_1 - V_1$ is occasionally found (54, 91, 232, 306, 313, 362). The process was not common, and no conditioning factors can be determined.

Vowels occurred singly, with vocalic length, or in vowel clusters with other vowels. Any vowel could occur long, but the vowel clusters were limited. Four vowel clusters are reconstructed within single morphemes: *ai (204, 244), *au (141, 142), *ui (185, 318), and *ei (105, 200). Two other clusters, /iu/ and /eu/, are found within single morphemes in some of the dialects, but the clusters either are found in morphemes that do not have reconstructible cognates in other dialects, or else they are the result of unexplained vocalic changes (387, 396). These clusters do, however, occur in cognates across morpheme

boundaries (e.g. 267, 314). The Santa Ana cluster /ua/, found in one word (239), is apparently a development of *u. The cluster /ii/ is found in a few Acoma words, but these words cannot be reconstructed (e.g. 391).

Final unaccented long syllables were shortened in Acoma, and retained in Santa Ana (131, 133, 137, 191, 217). In other positions, length was sporadically lost in one or the other dialects (21, 132, 135, 153, 204, 362). Vowel clusters are normally retained in Acoma and Santa Ana, but the second vowel was sometimes lost (220, 226, 245). In Santo Domingo vocalic length and the second vowel of a cluster were lost in noninitial syllables (3, 4, 11, 18, 38, 56, 167), and occasionally in initial syllables as well (5). The vowel cluster is irregularly retained in 353.

4.2. Voiceless vowels are found in unaccented syllables, usually final syllables, in all three of the dialects. In Acoma voiceless vowels are predictable, and are allophonic variants of voiced vowels. In Santa Ana the voiceless vowels are almost predictable in terms of the preceding accent and consonant, but there is a limited contrast between both types of vowels. In Santo Domingo the contrast is more widespread because of the loss of noninitial accents (see 5.3). It seems likely that the contrast is a rather recent development, but it must be reconstructed in order to account for certain changes in Acoma, namely the glottalization of plain sonorants (see 3), and the development of falling accents from high accents on short vowels (see below).

Most of the contrasts between voiced and voiceless vowels were found in final short syllables. Four environments are relevant: (1) -C__, where C is an obstruent or glottalized sonorant, (2) - \check{V} C__, where V is a short vowel with a high accent and C is a plain sonorant, (3) - \check{V} ·C__, where V· is a long vowel or vowel cluster with any accent and C is a plain sonorant, and (4) -VC__,

¹¹ This conditioned change is reflected internally in Acoma: *kapišíní* *at night*, *kápišu* *it is night*. Many forms have been reshaped: *wi·ši·ni* *nose*, *či·ši* *his nose*. The irregular retention of /i/ in 9 may also represent a reshaping, but the internal evidence is lacking for this form.

where V is an unaccented vowel and C is a plain sonorant.

Voiceless vowels were by far the most common type in the first and second environments (e.g. 2, 9, 10, 11, 19, 42). Voiced vowels contrasted with voiceless vowels in these environments, but they were not common. In Acoma, the contrast is reflected by an accent change. In the first environment, a final voiced vowel normally developed a high accent (12, 14, 41, 43, 71, 90, 92, 97, 246, 266, 298, 310, 340, 372, 376). In the second environment, the preceding high accent became a falling accent, in addition to the accent change of the final syllable (23, 103, 157, 210, 223, 412); this change gave rise to a contrast between the high and falling accent with short vowels, a contrast not found in Proto-Keresan. The accent change failed to occur with a few forms (22, 75, 158, 209, 346, 373).

In the third environment, the vowel was always voiced if the final syllable was part of the stem (e.g. 18, 25, 83, 88). Voiceless vowels could occur if the final syllable was a suffix (328, 344).

Voiced vowels were commonly found in the fourth environment (e.g. 17, 112, 129, 130, 132). Voiceless vowels did occur, but they were not common (66, 252, 265, 269, 338). In sequences of voiced unaccented vowel plus plain sonorant, the voiced vowel or vowels became voiceless in Santa Ana (66, 265, 338); the change is reflected distributionally in Santa Ana, viz. in sequences of final unaccented vowels separated by plain sonorants, the vowels are either all voiceless or all voiced.

Santa Ana and Santo Domingo usually agree in regard to voice of a final short vowel, but there are some exceptions (34, 56, 108, 181). In such cases a voiceless vowel is arbitrarily reconstructed in the first and second environments, a voiced vowel in the third and fourth environments.

There is some evidence to suggest that final voiced vowels in the first and second environments had a final glottal stop in

Pre-Keresan. A glottal stop is found in certain Acoma and Santa Ana verb forms, and a glottal accent or preceding glottalized consonant is sometimes found in Acoma: Acoma *śúdʷá-tí* *I caught it for him*, Santa Ana *ńídʷaʔ gu* *he will catch him* (cp. 97); Acoma *śíubeʔéní* *when I told him*, *śiupé-ńa* *we told him* (cp. 43). If the internal evidence has been interpreted correctly, final short voiced and voiceless vowels did not contrast in the first and second environments at an earlier stage of the language. But there is no internal evidence that will suggest the origin of the contrast in the third and fourth environments. In the latter environments the nature of the contrast is reversed; voiced vowels are common, and voiceless vowels are the exception. There is also no internal evidence that will account for the contrast in the environments discussed below.

Final unaccented vowel clusters were either voiced (152, 184, 211) or voiceless (219, 288). The development of the final vowel cluster in 173 is aberrant, probably because of special morphophonemic considerations (see Acoma Grammar, 210, rule 1.5). Long unaccented vowels were always voiced (131, 267, 307).

In forms with a final voiceless vowel, a short penultimate vowel before a glottalized consonant was always voiced (26, 79, 148, 162). But before other consonants, the penultimate vowel was either voiced (45, 95, 102, 337), or voiceless (114, 149, 176, 227, 269, 289) provided that the vowel followed an obstruent or glottalized sonorant, or a short accented syllable plus a plain sonorant (these are the same as the first two environments considered above with final short vowels).

Nonfinal voiceless vowels are sometimes found before syllables with voiced vowels in Santa Ana and Santo Domingo (32, 134, 308, 345, 350, 364). The two dialects do not always agree in regard to voicing, and there is sometimes a certain amount of arbitrariness in the reconstruction.

5.0. Proto-Keresan had four tonal accents: high (ˈ), falling (ˋ), breathy (ˊ), and glottal (ʔ). The high accent occurred with all types of vocalic nuclei, but the other three accents were restricted to long vowels and vowel clusters of nonfinal syllables.¹² Most words had one or two accents, on the first or first and second syllables, respectively. Words that had more than two accents were usually the result of accent ablaut, a process whereby all or almost all syllables took a high accent. This process, still productive in Acoma but not in Santa Ana or Santo Domingo, was usually conditioned by certain suffixes. The process is illustrated in 74 by the suffix *-ní, and in 291 by the suffix *-ná (this suffix also lengthens a preceding vowel; cp. 290). Accent ablaut is sometimes reflected in some but not all the cognates of a given set (139, 292). A number of forms appear to contain a suffix that conditions accent ablaut, but the underlying form does not otherwise occur (20, 37, 91, 182).

Santa Ana retains all four of the accents, whereas the other two dialects retain only three. The breathy accent fell together with the glottal accent in Acoma, and with the falling accent in Santo Domingo.

5.1. Acoma has undergone a number of accent changes. It is clear that the changes took place at several different times, and in order to account for them properly it is often necessary to place the changes in a temporally related sequence.

Initial high accents on short vowels were lost before accented syllables that began with an obstruent or glottalized sonorant (18, 21, 167, 193, 199, 264).¹³ But the loss

failed to occur with 208. This change took place before medial *r became Acoma /d/ (290), and apparently before final voiced vowels became accented (14, 97, 266; but cp. 41).

A high accent on final syllables was sometimes lost (27, 101, 110, 125, 128, 188, 194, 218, 220, 228, 274, 309, 317, 326, 357, 359, 364, 382), but the conditioning factors are not entirely clear. In most cases the change occurred after a long accented syllable and obstruent, or after a glottalized consonant. But these conditions are fulfilled in a few other forms that show no accent loss (13, 72, 245, 270, 369). There was also a sporadic loss of final accents with nonfinal syllables (126, 127, 277, 354). The loss of final accents must have taken place before the loss of initial accents described above, because in some forms the presence of the final accent would have conditioned the loss of the initial accent (101, 218, 228, 317, 354).

A number of forms that have an accented second syllable in Acoma are unaccented in Santa Ana (134, 187, 195, 199, 207, 233, 255, 289, 303, 316, 320, 348). These forms have been reconstructed with the second syllable unaccented, but the direction of change and the historical processes are not clear. In most cases the medial consonant was, in Proto-Keresan, a glottalized sonorant. An initial accent before an obstruent or glottalized sonorant is lost, indicating that the second syllable was accented when the loss of initial accents took place.¹⁴

evidence, namely that the preceding consonant must also be an obstruent (cp. 193, 200), and that the accent after rather than before a glottalized sonorant was sometimes lost (see Acoma Grammar 210, rule 22).

¹⁴ Many of the Acoma forms contain a variable length morphophoneme, a morphophoneme which has been set up to account for changes in the length of the initial syllable in certain forms (Acoma Grammar 210, rule 13). Under some conditions, the morphophoneme also conditions accent changes in which only the first syllable is accented if the syllable has a long vowel or vowel

¹² Cognate set 40, in which a final glottal accent has been reconstructed, is an exception. This reconstruction is suspect in light of the distribution of the accents.

¹³ Comparative evidence for the change is limited to initial syllables (except possibly in 41; but see below). Internal evidence indicates that the change applied to noninitial syllables as well. The internal evidence also suggests conditioning factors that are not born out in the comparative

In a sequence of a short unaccented syllable plus glottalized consonant plus unaccented syllable, the first syllable became accented (79, 145, 148, 162, 296).¹⁵ The loss of initial accents before obstruents and accented syllables took place before this accent change, because initial accents remained in forms that underwent the addition of the accent (26, 58, 331).

In all other environments, the high accent usually remained unchanged, but in a few forms it unaccountably became a glottal accent (29, 43, 140, 156, 211, 300, 360, 368, 376), or a falling accent (70, 115, 214, 288). The falling accent remained unchanged (18, 25, 28, 30, 31). The breathy accent (3, 38, 56, 57, 60) and the glottal accent (19, 22, 27, 34, 89) fell together as the glottal accent.

5.2. Santa Ana retains the tonal accent system of the proto language with very few changes. Those changes that did occur were sporadic and no regular rules can be formulated to account for them.

In 89, 143 and 319, the falling accent was replaced by a high accent and the vowel was shortened. In all cases the accent preceded a bilabial semivowel, but a general rule cannot

cluster, and the first and second syllables are accented if the first syllable has a short vowel: *siúmitica I killed him*, *gúmítica he killed him* (cp. 195; see also Acoma Grammar 210, rule 20). Internal evidence in Acoma indicates that this morphophonemic process goes back to Proto-Keresan, and probably reflects a phonemic contrast in Pre- or Proto-Keresan. But no phonemic or morphophonemic reflex of the Acoma phenomenon has been found in Santa Ana or Santo Domingo.

¹⁵ The accent change can be internally reconstructed: *siukača I saw him*, *šiukačáña we saw him* (see Acoma Grammar 210, rule 21). The descriptive order for the morphophonemic rules that reflect the addition of accents before a glottalized consonant, and the loss of accents before obstruents and glottalized sonorants is not clear, and the order that has been set up is the reverse of the historical order. There are some morphophonemic changes that cannot be fitted into this historical account (see Acoma Grammar 210, rules 21 and 22; and 223).

be made because the falling accent remained in this environment in 242 and 306.

The last high accent on short vowels is sometimes lost (28, 49, 135, 140, 143, 153, 216, 221, 330). The conditioning factors are not known.

5.3. In Santo Domingo, all noninitial accents were lost. Accents in initial syllables have undergone a number of changes.

There were a number of changes associated with the high accent on short vowels in initial syllables. There were no changes before a glottalized consonant, *h or *ʔ (21, 66, 119, 120, 237, 353). The accent remained but the vowel was lengthened before a plain sonorant that was followed by a Proto-Keresan accented syllable (6, 28, 37, 38, 83). In all other environments, the accent was replaced by the falling accent and the vowel was lengthened (3, 10, 23, 24, 25, 63, 73, 77). There are, however, a few exceptions to these rules (7, 12, 14, 76, 252, 293, 354).

An initial high accent with a long vowel or vowel cluster generally remains (11, 71, 72, 142), but in a few cases it is replaced by a falling accent (4, 40, 140, 170). The initial falling accent (30, 45, 65, 81) and breathy accent (57, 60, 62, 105) fell together in Santo Domingo as the falling accent. Initial glottal accents remain unchanged (19, 22, 27, 34, 47).

Initial unaccented syllables (which are rare, and hence suspect for Proto-Keresan) became accented (85, 182, 343). The few examples prevent a generalized statement as to the type of accent which developed.

6.0. Cognate sets that display regular correspondences are given below in **6.1**. Each set is headed by the reconstructed Proto-Keresan form, followed by the Acoma (Ac), Santa Ana (SA), and Santo Domingo (SD) forms. The gloss is placed after the Proto-Keresan form, and is understood to be the gloss for the forms in each of the three dialects except when a gloss is placed after one of the forms of the daughter dialects. The list is given in the following alphabetic

order: ʔ, a, b, c, č, ċ, d, dʷ, e, g, h, i, i, k, k, m, m̄, n, n̄, p, p̄, r, r̄, s, š, š̄, s̄, t, t̄, u, w, w̄, y, ý, z, z̄. Accents and length are ignored in alphabetizing, as are capital letters, used to indicate voiced stops and voiceless vowels.

Whole words rather than morphemes are reconstructed because of a complex morpho-phonemic system and the difficulty of isolating the fused morphemic units. Affixes are not indicated unless (1) the affix is present in only some of the cognates (e.g. 69, 76, 85, 94), or (2) the affix is a pronominal prefix. Forms with a pronominal prefix are given either with the first person prefix (basic forms *s-, *si-, *či-)¹⁶ or the third person prefix (basic form *g-). A pronominal prefix and a following thematic vowel are separated from the verb and noun, and the following consonant is used to establish the alphabetic order in the cognate list. The thematic vowel (which is either part of the stem, a thematic prefix, or a fusion of the stem vowel and a thematic prefix) often coalesces with the pronominal prefix to form a fused unit. Some forms are inflected by a postposed pronominal affix plus a thematic vowel¹⁷ (e.g. 8, 12, 13, 14, 50).

A number of inflected verbs and nouns show regular correspondences except in regard to the thematic syllable. In such cases two forms are reconstructed (e.g. 1, 44, 90), but it is not assumed that the proto language necessarily had two forms. It seems likely that analogical changes have taken place in some of the dialects, but we are not yet able to specify the nature or direction of such changes. In most other cases two reconstructed forms represent different morphological formations (e.g. 74, 109, 113).

¹⁶ Acoma has /śi-/ where Santa Ana and Santo Domingo have /či-/ (41, 92, 270). It is assumed that the form in Acoma is an analogical reformation.

¹⁷ These elements are analyzed in Acoma as a following auxiliary verb; see Acoma Grammar 460.

6.1. Instances of regular correspondences follow.

1. *ʔá·ʔA—*čáʔá·ʔA, záʔá·ʔA *it is closed*;
Ac čá·ʔa, SA záʔá·ʔA, SD záʔaʔA
2. *ʔáci—*záʔáci *he arrived*; Ac zaʔáci,
SA záʔáci, SD záči
3. *ʔádauši *cooking pot*; Ac ʔadáuši, SA
ʔádauši, SD ʔá·daši
4. *ʔá·dʷá·ni *tether*; Ac ʔá·dʷá·ni *wire*,
SA ʔá·dʷá·ni, SD ʔá·dʷaŋi
5. *ʔáisi *there*; SA ʔáisi, SD ʔá·di
6. *ʔánáizáni *lamp*; Ac ʔánázáni, SA
ʔánáizáni, SD ʔá·nazani
7. *ʔánamáti *chair, pillow*; Ac ʔánamáti,
SA ʔánamáti, SD ʔá·namati
8. *ʔáhé·za *it is tasty*; Ac ʔahe·zá, SA
ʔáhé·za, SD ʔáheza
9. *ʔáši—*gáʔáši *his knee*; Ac gaʔáši,
SA gá·ši, SD gá·ši
10. *ʔášani *wheat*; Ac ʔašáni, SA ʔášani,
SD ʔá·šani *grass*; cp. SA ʔášani *grass*
11. *ʔá·wá·ni *metate*; Ac ʔá·wá·ni, SA
ʔá·wá·ni, SD ʔá·wani
12. *ʔé·gu *he is willing*; Ac ʔégú, SA
ʔégu, SD ʔé·gu
13. *ʔé·gá *his name*; Ac ʔé·gá, SA ʔé·gá,
SD ʔéga·ša
14. *ʔéʔé·gu *he remembered*; Ac ʔeʔégú,
SA ʔéʔégu, SD ʔé·egu
15. *ʔégu—*zéʔégu *they went*; Ac zeʔéku,
SA zé·ku, SD zé·ku
16. *ʔésu·ga *he sneezed*; Ac ʔésuka, SA
ʔésuka, SD ʔésuga
17. *ʔiʔi·dʷawa *centipede*; Ac ʔiʔi·tʷawa,
SA ʔi·dʷawa
18. *ʔiʔiná·ni *liver*; Ac ʔiʔiná·ni, SA
ʔiʔiná·ni, SD ʔi·nani
19. *ʔi·bani *cholla cactus*; Ac ʔi·báni, SA
ʔi·bani, SD ʔi·bani
20. *ʔi·čánání *bark*; Ac ʔi·čánání, SA
ʔi·čánání, SD ʔi·čanani
21. *ʔiná·wí *flour*; Ac ʔiná·wí, SA ʔináwí,
SD ʔináwa
22. *ʔi·sa *excrement, manure*; Ac ʔi·sa, SA
ʔi·sa, SD ʔi·sa
23. *ʔisdúwa *arrow*; Ac ʔisdúwá, SA
ʔisdúwa, SD ʔi·sduwa

24. *ʔisga *one*; Ac ʔiska, SA ʔiska, SD ʔiska
25. *ʔišā·ni *meat*; Ac ʔišā·ni, SA ʔišā·ni, SD ʔišani
26. *ʔisati *grease, lard*; Ac ʔisāti, SA ʔisati, SD ʔisati
27. *ʔi·šá *porcupine*; Ac ʔi·ša, SA ʔi·šá, SD ʔi·ša
28. *ʔiyá·ní *life*; Ac ʔiyá·ní, SA ʔiyá·ni, SD ʔiyani
29. *ʔírí *hot*; Ac ʔidi, SA ʔírí, SD ʔí·ri·maza¹⁸
30. *·ʔ—*zâuʔ *he gave it (long or flat obj.) to him*; Ac zâuʔ, SA zâuʔ, SD zâ·ʔ
31. *·ʔ—*gâuʔ *he dwells*; Ac gâuʔ, SA gâuʔ
32. *ʔú·basdʔáni *leggings*; Ac ʔú·pasdʔáni, SA ʔú·basdʔáni, SD ʔú·pasdʔani
33. *ʔúkú·yá·mí, *ʔúkú·yá·ní *earring*; Ac ʔukú·yá·ni, SA ʔúkú·yá·ni, SD ʔú·kuya·ni
34. *ʔú·pi *warrior society*; Ac ʔú·pi, SA ʔú·pi, SD ʔú·pi
35. *ʔúšá·za *sun*; Ac ʔušá·ca, SA ʔúšá·ca, SD ʔú·ša·ca
36. *ʔútá·ni, *ʔútá·ni *basket*; Ac ʔutá·ni, SA ʔútá·ni, SD ʔútani
37. *ʔúwáistáni *bowl*; Ac ʔúwáistáni, SA ʔúwáistáni, SD ʔú·wastani
38. *ʔúwà·ka *baby*; Ac ʔúwà·ka, SA ʔúwà·ka, SD ʔú·waka
39. *ʔú·wísgízi *match*; Ac ʔú·wísgíci, SA ʔú·wísgíci
40. *bá·bá *grandparent, grandchild of the opposite sex*; Ac bá·bá, SA bá·bá, SD bá·pa
41. *·bádʔi—*éí·bádʔi *I woke him up*; Ac ší·padʔí, SA éí·bádʔu
42. *·báya—*súbáya *I built a fire*; Ac subá·ya, SA súbá·ya, SD sú·baya
43. *·be—*síube *I told him*; Ac siubé, SA síube
44. *·be—*kúbe, *kú·be *he ate*; Ac kúpe, SA kú·pe, SD kú·pe
45. *bé·rakA *toad*; SA bé·rakA, SD bé·rakA
46. *·bí—*súbí *I fetched wood*; Ac subí, SA súbí, SD sú·bí
47. *·bí·riza—*káubí·riza *he smoothed it*; Ac káubí·tica, SA káubí·rica, SD káubirica
48. *·bíš—*kábíš *it is dark, night*; Ac kápišu, SA kápaši, SD ká·paši
49. *bíší·ná *purple*; Ac piší·ná, SA bíší·na, SD bí·šina
50. *bíyá·za *it is lopsided*; Ac bíyá·zá, SA bíyá·za, SD bí·ya·za
51. *bí· west; Ac bí·, SA bí·, SD bú·
52. *·bí—*gúbí *he entered*; Ac gúpi, SA gúpí, SD gú·pu
53. *·binai·ʔ—*šáubinai·ʔ *I put it in*; Ac šáupinai·ʔ, SA šáubinai·ʔ, SD šaubuna
54. *bížá·mí *log*; Ac pižá·mí, SA bížá·ma, SD bú·žama
55. *búmú·ná *torso*; Ac búmú·ná, SA búmú·ná
56. *bú·ráiga *butterfly*; Ac bú·ráika, SA bú·ráika, SD bú·raga
57. *bù·šū·ga *it has an odor*; Ac bù·šuka, SA bù·šuka, SD bù·šuka
58. *búzuwísti *lightning*; Ac búzuwísti, SA búzuwísti, SD bú·zuwísti
59. *cá·ga *he breathed*; Ac cá·ka, SA cá·ka, SD cá·ka
60. *cà·ci *breath*; Ac cà·ci, SA cà·ci, SD cà·ci
61. *cá·pi *wing*; SA cá·pi, SD cá·pi
62. *cè·ci *wall*; SA cè·ci, SD cè·ci
63. *cína *turkey*; Ac cína, SA cína, SD cín¹⁹
64. *cúski *fox*; Ac cúski, SA cúski
65. *cá·pi *fly*; Ac cá·pi, SA cá·pi, SD cá·pi
66. *·cayawa—*kúciyawa *he is angry*; Ac

¹⁸ Probably borrowed from a Uto-Aztecan language: Comanche ʔíri·pi·ti *hot* (author's notes), Hopi ʔíti *weather's warm, hot* (Charles F. and Florence M. Voegelin, Hopi Domains, Indiana University Publications in Anthropology and Linguistics, 14 [1957]). Most likely Keres borrowed from a language of the Numic (Plateau Shoshonean) branch, such as Comanche, rather than from Hopi.

¹⁹ Probably borrowed from a Western Algonkian language. Cp. Arapaho éénee *turkey* (Zdeněk Salzmán, Arapaho I: Phonology, IJAL 22.49–56 [1956]). The Arapaho form is cognate with the Proto Central Algonkian form *peleewa (form supplied by Mary R. Haas).

- kúçayawa, SA kúçAYAWA, SD kúçayawa
67. *čáyú-zɪ *it is broken*; Ac čáyúci, SA čáyúci, SD čáyuci
68. *-čē-naza—*káʔáucē-naza *he chewed*; Ac káučē-naca, SA káʔáucē-naca, SD káučenaca
69. *-čɪ—*káci *it is deep*; Ac káci, SA káci, SD mé·káci
70. *-čɪbɪ—*ziučɪbɪ *he needs it*; Ac ziučipi, SA ziučipa, SD ziučipa
71. *čɪ-ga *locust*; Ac čɪ-gá *bee*, SA čɪ-ga, SD čɪ-ga
72. *čɪ-yá *Zia Pueblo*; Ac čɪ-yá, SA čɪ-yá, SD čɪ-yá
73. *čɪzi *water*; Ac čici, SA čici, SD čɪ-ci
74. *čā—*ká·čā *it is raining*; Ac ká·čā, SA ká·čā; also *ká·čáni, Ac ká·čáni *when it is raining*, SD ká·čani *rain*
75. *čá·dʷa *side*; Ac čá·tʷa, SA čá·dʷa, SD čá·dʷa
76. *čámá *tomorrow*; Ac ná·čámá, SA čámá, SD čā·ma *early*
77. *čémɪ *three*; Ac čámi, SA čémɪ, SD čā·mɪ
78. *čídʷa *kiva*; SA čídʷa, SD čɪ·dʷa
79. *čɪnɪ—*kú·čɪnɪ *it is yellow*; Ac kú·čɪni, SA kú·čɪnɪ, SD kú·čɪnɪ
80. *čú·ga *he burped*; Ac čú·ka, SA čú·ka, SD čú·ga
81. *čā—*gā·čā *it is hot*; Ac gā·čā, SA gā·čā, SD gā·čā
82. *čáwa—*kú·čáwa *he stole*; Ac kú·čáwa, SA kú·čáwa, SD kú·čáwa
83. *čáyâ·ni *medicine man*; Ac čáyâ·ni, SA čáyâ·ni, SD čáyani
84. *čɪ·ríga *hawk*; Ac čɪ·díga, SA čɪ·ríga, SD čɪ·ríga
85. *dabínuska *horned toad*; Ac tabínuska, SA dabínuska, SD dā·banuska-tɪ
86. *-dáka—*sé·dáka *my heel*; Ac sé·dáka, SA sé·dáka, SD sé·dáka
87. *dámáyá *Santa Ana Pueblo*; Ac dámáyá, SA dámáyá, SD dā·maya
88. *dâ·ni *squash*; Ac dâ·ni, SA dâ·ni, SD dâ·ni
89. *dâ·wâ·zɪ *moon*; Ac dâ·wâ·çi, SA dâ·wâ·ça, SD dâ·wâ·ça
90. *-di—*ziudi, *gù·di *he gave it to him*; Ac ziudí, SA gù·di, SD gù·di
91. *dí·skámí *corn husk*; Ac dí·skámá, SA dí·skámá, SD dí·skami
92. *dí·ša (*dɪ·ša?)—čídɪ·ša *I fed him*; Ac šidi·šá, SA čídɪ·ša
93. *díya *dog*; Ac díya, SA díya, SD dí·ya
94. *dúwɪ—*kádúwɪ *it is a cliff*; Ac kadúwɪ, SA kádúwɪ, SD ká·duwi-mɪ *cliff*
95. *dúwimišɪ *stocking*; Ac dúwimiši, SA dúwimišɪ
96. *·dʷá—*kádʷá· *his pet*; Ac kadʷá, SA kádʷá·, SD ká·dʷa
97. *·dʷa—*zídʷa *he caught it*; Ac zídʷá, SA zídʷa, SD zɪ·dʷa
98. *dʷá·dʷu *bobcat*; Ac dʷá·tʷu, SA dʷá·dʷu, SD dʷá·dʷu
99. *dʷá·mí *eagle*; Ac dʷá·mí, SA dʷá·mí, SD dʷá·mí
100. *dʷá·na *four*; Ac dʷá·na, SA dʷá·na, SD dʷá·na
101. *dʷáné *deer*; Ac dʷáni, SA dʷáné, SD dʷáni
102. *·dʷašɪ; Ac šú·tʷašɪ, SA súdʷašɪ, SD sú·dʷašɪ (all meaning *I fasted*)
103. *dʷáwa *early*; Ac dʷáwá, SA dʷáwa
104. *dʷá·wí *gourd*; Ac dʷá·wí, SA dʷá·wí, SD dʷá·wí
105. *dʷèicɪ *piñon pine*; Ac dʷáici, SA dʷèicɪ, SD dʷáicɪ
106. *dʷídʷa *north*; Ac dítʷa, SA dʷídʷa
107. *dʷíní *above*; Ac díní, SA dʷíní, SD dʷí·ni·ya
108. *dʷí·ša *elk*; Ac dʷí·ša, SA dʷí·ša, SD dʷí·ša
109. *dʷû·wé·, *dʷû·mí· *two*; Ac dʷû·wé·, SA dʷû·mí·, SD dʷû·mí
110. *dʷú·bí *badger*; Ac dʷú·pi, SA dʷú·bí, SD dʷú·bí
111. *·dʷúmɪ—kádʷúmɪ *his brother*; Ac kadʷúmɪ, SA kádʷúmɪ, SD ká·dʷumu
112. *gánami *beans*; Ac gánami, SA gánami, SD gā·nami
113. *gášé, *gášé·ná *white*; Ac kašé·ná *albino*, SA gášé, SD gā·ša
114. *gáwɪcɪ *seed*; Ac gáwici, SA gáwici, SD gā·wici

115. *gá·yu *morning*; Ac gá·yu, SA gá·yu, SD gá·yu
 116. *gu *and*; Ac ku *or*, SA gu, SD gu
 117. *gũ—*gá·gũ *he bit him*; Ac gá·ku, SA gá·ku, SD gá·ku
 118. *gũ·ci *firewood*; Ac gũ·ci, SA gũ·ci, SD gũ·ci
 119. *gúháya *bear*; Ac kuháya, SA gúháya, SD gúháya
 120. *gúkúmišĩ *eight*; Ac kukúmišu, SA gúkúmišĩ, SD gúkumiše
 121. *gúya—zígúya *he sold it*; Ac cigúya, SA zígúya, SD zĩ·guya
 122. *há·- *east*; Ac há·-, SA há·-, SD há·-
 123. *há·áci *land*; Ac há·ci, SA há·áci, SD há·aci
 124. *há·áča·ni, *há·áča·nani *tooth*; Ac há·čani, SA há·áčanani, SD há·áčani
 125. *há·ásčá *yucca*; Ac ha·áša, SA há·sčá, SD há·sča
 126. *há·áwĩ·čá·ni, *há·áwĩ·čá·nani *finger-nail, claw*; Ac há·wĩ·čani, SA há·áwĩ·čánani, SD há·wačani
 127. *há·bánĩ *oak*; Ac há·pani, SA há·bánĩ, SD há·bani
 128. *há·bí *feather*; Ac há·pi *eagle feather*; SA há·bí, SD há·bi
 129. *hádáwini *navel*; Ac hádáwini, SA hádáwini, SD há·dawani
 130. *há·ka·ni *coals, embers*; Ac há·ka·ni, SA há·ka·ni, SD há·kani
 131. *há·mi· *tobacco*; Ac há·mi, SA há·mi·, SD há·mi
 132. *há·múša·ni *beard*; Ac há·múšani, SA há·múša·ni, SD há·mušani
 133. *háma· *long ago*; Ac háma, SA háma·, SD háma
 134. *hámasdĩ·ini *hand*; Ac hamásdĩ·ni, SA hámasdĩ·ini; cp. SD kámasdi *his hand*
 135. *há·mé· *ice*; Ac há·mé, SA há·mé·, SD há·mi
 136. *háná·mi *naked*; Ac háná·mi, SA háná·mi, SD há·nami
 137. *há·ni· *pine tree*; Ac há·ni, SA há·ni·, SD há·ni
 138. *hánũ *people*; Ac há·nu, SA hánũ, SD há·nu
 139. *há·šuwĩni, *há·šúwĩni *shoe*; Ac há·šú·wĩni, SA há·šuwĩni, SD há·šuwĩni
 140. *há·tawé *pollen*; Ac há·tawé, SA há·tawe, SD há·tawi
 141. *háu *who*; Ac háu, SA háu, SD háu
 142. *háu·ga *he yawned*; Ac háuka, SA háuka, SD háuga
 143. *há·wé· *snow*; Ac há·wé, SA háwe·, SD há·wi
 144. *háwĩzini *stalk*; Ac háwĩçini, SA háwĩzana, SD há·wazini
 145. *hážamĩni *prayer-stick*; Ac hážamĩni, SA hážamĩni, SD há·žamhuni
 146. *há·žĩni *hair*; Ac há·žani, SA há·žani, SD há·žini
 147. *hé·mĩšĩ·ci, *hé·mĩšĩ·zé *Jemez Pueblo*; Ac hé·mĩšĩ·ci, SA hé·mĩšĩ·zé, SD hé·mišize
 148. *hénatĩ *cloud*; Ac hénatĩ, SA hénatĩ, SD hē·natĩ
 149. *héyad·ĩ *turtle*; Ac héyati, SA héyad·ĩ, SD hē·yad·ĩ
 150. *héyà·ši *fog*; Ac héyà·ši, SA héyà·ši, SD hē·yaši
 151. *hĩnu *I, we*; Ac hĩnu·mé, SA hĩnu, SD hĩ·nu
 152. *hĩ·sgai *knife*; Ac hĩ·ska, SA hĩ·sgai, SD hĩ·sga
 153. *hĩ·stiya·ni *arrowhead*; Ac hĩ·stiyani, SA hĩ·stiya·ni, SD hĩ·stiyani
 154. *hĩšũ *you*; Ac hĩšũ·mé, SA hĩšũ, SD hĩ·šũ
 155. *hĩyá·ni *road*; Ac hĩyá·ni, SA hĩyá·ni, SD hĩ·yani
 156. *hĩ·žini *seed*; Ac hĩ·çini, SA hĩ·žani
 157. *hĩžiskáwa *willow*; SA hĩçiskáwa, SD hĩ·çiskawa; cp. Ac žukáwá
 158. *hú·?ũ·ga *dove*; Ac hú·?ũ·ka, SA hú·?ũ·ga, SD hú·?uga
 159. *hú·bĩni *saliva*; Ac hú·bíni, SA hú·bĩni, SD hú·buni
 160. *hũ·sénĩ *wool*; SA hũ·sénĩ, SD hũ·seni; cp. Ac hũ·seni *feathers*
 161. *hũ·škani *yucca fruit*; Ac hũ·škani, SA hũ·škani, SD hũ·škani
 162. *húwaka *sky*; Ac húwáka, SA húwaka, SD hú·waka

163. *húwanáʔani *eye*; Ac húwaná·ni, SA húwanáʔani (cp. 216)
164. *húwí·ni *milk*; Ac húwí·ni, SA húwí·ni, SD hú·wini
165. *ká—*káká· *he heard*; Ac kaká, SA káká·, SD ká·ka
166. *káčA—*gù·káčA, *gú·káčA *he saw it*; Ac gù·kača, SA gù·kačA, SD gú·kačA
167. *kášáidí *summer*; Ac kašáiti, SA kášáiti, SD ká·šati
168. *káyú·zì *it is broken*; Ac káyúci, SA káyúci, SD ká·yuci
169. *kí·ci *antelope*; Ac kí·ci, SA kí·ci, SD kí·ci
170. *kí·zì-gA *it burned*; SA kí·çika, SD kí·çika
171. *kú—*gá·kú *he is situated*; SA gá·kú, SD gá·kú
172. *kú·kí *winter*; Ac kú·ku, SA kú·kí, SD kú·kí
173. *kú·yau—*zíkú·yau *she threaded a needle*; Ac cikú·yáu, SA zíkú·ya
174. *ká—*cí·ka, *zì·ka *his mouth*; Ac cí·ka, SA zì·ka, SD zì·ka
175. *kákana *wolf*; Ac kákana, SA kákana, SD ká·kana
176. *kámaskí *spider*; Ac kámasku, SA kámaskí, SD ká·maskí
177. *kánani *heat of the sun*; Ac kánani, SA kánani, SD ká·nani
178. *kásdʷá·ci *rainbow*; Ac kasdʷá·ci, SA kásdʷá·ci, SD ká·sdʷá·ci
179. *káwina *moss*; Ac káwina, SA káwina
180. *kázì *ten*; Ac káci, SA káci, SD ká·ci
181. *kí·ni, *káukí·ni *his friend*; Ac káukí·ni, SA káukí·ni, SD káukini
182. *kišáirí *clown*; Ac kašáirí, SA kišáirí, SD kí·sari
183. *kú·, *kúwí *woman*; Ac kú·, SA kú·, kúwí·za *she is a woman*, SD kú·wi
184. *kui—*káukui *his wife*; Ac káukui, SA káukui, SD káukui
185. *kúizA—kákúizA *his sister*; Ac kakúiča, SA kákúiča
186. *kúmi—*cíukúmi, *kúkúminá *string*; Ac cíukúmi, SA kúkúminá, SD kúku·mina
187. *kúša *last night*; Ac kušá, SA kúša, SD kú·ša
188. *kú·tí *mountain*; Ac kú·ti, SA kú·tí, SD kú·ti
189. *kúyáiti *game animal*; Ac kúyáiti, SA kúyáiti, SD kú·yati
190. *kú·yáu·zá, *kú·yáu·za *old woman*; Ac kú·yáu·zá, SA kú·yáu·za, SD kú·yaza
191. *ma—*ká·ma· *his thigh*; Ac ká·ma, SA ká·ma·, SD ká·ma
192. *má·gí·za *it is a girl*; SA má·gí·za, SD má·giza; cp. Ac má·gí·zá *girl*
193. *má·sá·ni *leaf*; Ac masá·ni, SA má·sá·ni, SD má·sani
194. *mí·dé· *boy*; Ac mí·ti, SA mí·dé·, SD mú·de·za
195. *mí·dʷí·za—*gú·mí·dʷí·za *he killed him*; Ac gú·mí·tica, SA gú·mí·dʷí·za, SD gú·mí·dʷí·za
196. *mí·naga·ni *black*; SA mí·naga·ni, SD mí·naga·ni
197. *mú·čA—*gá·mú·čA *his buttocks*; Ac gá·mú·čA, SA gá·mú·čA, SD gá·mú·čA
198. *mú·kaizA *mountain lion*; Ac mú·kaiča, SA mú·kaiča, SD mú·kaiča
199. *mú·rá·zì *it is dented*; Ac mú·rá·ci, SA mú·rá·ci, SD mú·rá·ci
200. *mú·šéizA *buffalo*; Ac mušáiča, SA mú·šéizA, SD mú·šačA
201. *mú·ši *soapweed*; Ac mú·ši *soap*, SA mú·ši, SD mú·ši
202. *má—*gá·má *his house*; Ac gá·má, SA gá·má, SD gá·má
203. *mí·ci *clay*; Ac mí·ci, SA mí·ci, SD mí·ci
204. *máidʷa·na *seven*; Ac máidʷa·na, SA máidʷa·na, SD máidʷa·na
205. *má·ka *dipper*; Ac má·ka, SA má·ka, SD má·ka
206. *má·ní *word*; Ac má·ní, SA má·ní, SD má·ní
207. *má·pA—*gá·má·pA *palm of his hand*; Ac kámá·pA, SA gá·má·pA, SD gá·má·pA
208. *mí·dá *moth*; Ac mí·dá, SA mí·dá
209. *mí·ga *others*; Ac mí·ka, SA mí·ga

210. *mína *salt*; Ac mîná, SA mîna, SD mî·na
 211. *mîsčai *ashes*; Ac mî·sai, SA mîsčai, SD mîsča
 212. *mîstî *alkali*; Ac mîsti, SA mîstî, SD mî·stî
 213. *mî·za *hummingbird*; Ac mî·ça, SA mî·ça, SD mî·ça
 214. *·mî—*zé·mî *it is salty*; Ac zê·mî, SA zé·mî
 215. *·mî—*gú·mî *he left*; Ac gú·mî, SA gú·mî, SD gú·mî
 216. *·ná—*ká·ná *his eye*; Ac ká·ná, SA ká·na, SD ká·na (cp. 163)
 217. *ná·ce· *new*; Ac ná·ce, SA ná·ce·za, SD ná·ci·za
 218. *ná·cí *food*; Ac ná·ci, SA ná·cí, SD ná·ci
 219. *·načai; Ac kúnáčai, SA kú·načai, SD kú·nača (all meaning *his stomach*)
 220. *·nás·gái—*gánás·gái *his head*; Ac gá·ná·ska, SA gánás·gái; cp. SD ná·sgani *head*
 221. *·náwé—*ká·náwé *his mother's brother, his sister's son*; Ac ká·náwé, SA ká·náwe, SD ká·nawi
 222. *·ná·ya—*káná·ya *his mother*; Ac ká·ná·ya, SA káná·ya, SD ká·naya
 223. *·ni—*gú·ni *he knows him*; Ac gú·ni, SA gú·ni, SD gú·ni
 224. *ní·ʔi·ʔi *rubber*; Ac ní·ci, SA ní·ʔi·ʔi, SD ní·ʔi·ʔi
 225. *ní·ti *prairie dog*; Ac ní·ti, SA ní·ti, SD ní·ti
 226. *núwáiná *separate*; Ac núwáná, SA núwáiná, SD nú·wana
 227. *·há·má·za—*kíná·má·za *he survived*; Ac kíná·má·za *he is grown*, SA kíná·má·za, SD kíná·má·za
 228. *·ní—*síní *my body*; Ac síní, SA síní, SD síní
 229. *ní *down*; Ac ní, SA ní, SD ní
 230. *pánaci *lung*; Ac pánaci, SA pánaci, SD pánaci
 231. *pá·ni *bag*; Ac pá·ni, SA pá·ni, SD pá·ni
 232. *pesé·cúru *bedbug*; Ac pesé·cúru, SA pesé·cúru, SD pē·se·cúru
 233. *pétá·ga *it got cracked*; Ac petáka (?), SA pétáka, SD pétáka
 234. *·pî—*kù·pî, *gù·pî *his forehead*; Ac kù·pî, SA gù·pî, SD gù·pî
 235. *pì·ci *buckskin*; Ac pì·ci, SA pì·ci, SD pì·ci
 236. *písčá·zi *it is flat*; Ac písaci, SA písčaci, SD písčaci
 237. *píščánani *skin*; Ac pišanani *peeling*; SA písčánani, SD písčánani
 238. *·pù·za—*síup·za *I blew*; Ac síup·ca, SA síup·ca, SD síup·ca
 239. *págura *salamander*; Ac pákura, SA páguara
 240. *ráwá· *good*; Ac dáwá·, SA ráwá·, SD rá·wa
 241. *rè·d·a *rabbit*; Ac dê·t·a, SA rè·d·a, SD rè·d·a
 242. *rî·wagañi *fat*; SA rî·wagañi, SD rî·wagañi
 243. *rí·- *small*; Ac zí·-, SA rí·-, SD rí·-
 244. *sái *all*; Ac sái, SA sái, SD dáí
 245. *·sbí—*gá·sbí *there are sun rays*; Ac gá·sbí, SA gá·sbí
 246. *sbíga *woodpecker*; Ac sbígá, SA sbíga
 247. *sbí·ná *chicken*; SA sbí·ná, SD sbí·na; cp. Ac bí·sbí·ná *bird*, sbí·sbí·ná *baby bird*
 248. *·sbí·za—*kús·bí·za *he strung beads*; Ac kusbí·ca, SA kús·bí·ca, SD kú·sbu·ca
 249. *sbú·ná *jug*; Ac sbú·ná, SA sbú·ná, SD sbú·na
 250. *ščá·ci·ga *it burst*; Ac šácika, SA ščá·ci·ka, SD ščá·ci·ga
 251. *ščá·ná *meadowlark*; Ac šá·ná, SA ščá·ná, SD ščá·na
 252. *·ščánawa—*kúsčánawa *he cut his hair*; Ac kušanawa, SA kúsčánawa, SD kú·ščánawa
 253. *ščá·pî·ga *it is twilight*; Ac šápika, SA ščá·paka, SD ščá·paga
 254. *ščári *grasshopper*; Ac šáti, SA ščári, SD ščári
 255. *ščá·wî·zi *it is tender (of vegetables)*; Ac šáwici, SA ščá·waci
 256. *·ščazáñi — *wí·ščazáñi, *ʔá·ščazáñi *trousers*; Ac wí·ščazáñi, SA ʔá·ščazáñi

257. *sčázi- *fast*; Ac šazi-, SA sčázi-, SD sčázi
258. *-sčè-_{ZA}—*gú·sčè-_{ZA} *it squealed*; Ac gú·sé·ca, SA gú·sčè·ca, SD gú·sčeca
259. *sčísa *six*; Ac šísa, SA sčísa, SD sčí·sa
260. *sčírá *crow*; Ac šúta, SA sčírá, SD sčíra
261. *sčú·se *I swallowed*; Ac šú·se, SA sčú·se, SD sčú·se
262. *sčúmi *wild honey*; Ac šúmi *bumble-bee*, SA sčúmu, SD sčú·mu
263. *sčúš·se *I coughed*; Ac šúšuse, SA sčúšuse, SD sčú·šuse
264. *sčúyúná *mosquito*; Ac šuyú·ná, SA sčúyúná, SD sčúyuna
265. *-sdaya—*zè·sdaya *there is a breeze*; SA zè·staya, SD zè·sdaya
266. *-sdi—*kásdi *his foot*; Ac kásdí, SA kásdi, SD ká·sdi
267. *-sdu—*sèusdu *my temple*; Ac sèustu, SA sèusdu, SD sèusdu
268. *-sd^{ya}—*zí·sd^{ya} *he sucked*; Ac zi·st^{ya}, SA zí·sd^{ya}, SD zí·sd^{ya}
269. *-sd^{yiri}—*kùisd^{yiri} *it is brown*; Ac kùistiti, SA kùisd^{yiri}
270. *-sé—*čí·sé *I filled it*; Ac ší·sé, SA čí·sé, SD čí·se
271. *sé·ga *sure*; Ac sé·ka, SA sé·ka
272. *-sé·né—*kúsé·né *his fur*; Ac kusé·ni·ši, SA kúsé·né, SD kú·señi
273. *sgízi-_{zi} *it is twisted*; Ac sgíci, SA sgíci, SD sgí·ci
274. *sí·ʔi *ant*; Ac sí·ʔi, SA sí·ʔi, SD sí·ʔi
275. *sí·d^{ya} *squirrel*; Ac sí·t^{ya}, SA sí·d^{ya}, SD sí·d^{ya}
276. *sínani *flesh*; Ac sínani, SA sínani, SD sínani
277. *-sípa—*cí·sípa *his eyelash*; Ac cí·sipa, SA cí·sípa, SD cí·sipa
278. *sírú· *bird, sp.*; SA sirú·, SD sirú²⁰
279. *síyañi *mouse*; Ac síyaña, SA síyañi, SD sí·yañi
280. *sì·zi *wrong doing*; Ac sì·ci *it is rough, ugly*, SA sì·ci, SD sì·ci
281. *sína *middle*; Ac sína, SA sína, SD sí·na
282. *skà·sku *bighorn sheep*; Ac skà·sku, SA skà·sku, SD skà·sku
283. *skí- **kùiskí it is blue, green*; Ac kùiska, SA kùiskí, SD kùiskí
284. *skú·yú *giant*; Ac skú·yú, SA skú·yú, SD skú·yú
285. *ska—*gí·ska, *gí·ska *he drank*; Ac gí·ska, SA gí·ska, SD gí·ska
286. *ská·ʔá·d^{yú} *bullsnake*; Ac ska·ʔá·t^{yú}, SA ská·ʔá·d^{yú}
287. *skà·ši *fish*; Ac ská·šu, SA skà·ši, SD ká·ši
288. *skí·ʔí·ʔai — *sàiskí·ʔí·ʔai *I turned around*; Ac sàiskí·ʔí·ʔai, SA sàiskí·ʔí·ʔai, SD sàiskí·ʔí·ʔai
289. *skí·ʔi-_{zi} *it is round*; Ac skídici, SA skí·ʔici, SD skí·ʔici
290. *skúrú-_{zi} *it is spherical*; Ac kúdúci, SA skúrúci, SD skú·ruci
291. *skúrú·ná *peas*; Ac skúrú·ná, SA skúrú·ná, SD skú·runa
292. *spérá·ná, *péraziši *plate*; Ac pétaciši, SA spérá·ná, SD spé·rana
293. *spíníni *dwarf corn*; Ac spíníni, SA spíníni, SD spí·nini
294. *spúrú·ná *chicken pox*; Ac ʔú·spúrú·ná, SA spúrú·ná, SD spú·runa
295. *spékuza — *kúspékuza *it (chicken) pecked*; Ac kúspékuca, SA kúspékuca, SD kúspékuca
296. *-stamučaza—*částamučaza *his hair got singed*; Ac částamučaca, SA částamučaca
297. *-stá—*kústá *he got water*; Ac kústá, SA kústá, SD kú·sta-ni
298. *-sti; Ac zístí, SA gústi (both meaning *he gave him liquid*)
299. *-stítu—*čístítu *it melted*; Ac čístitu, SA čístitu, SD čístitu
300. *stí·zi *it is straight*; Ac stí·ci, SA stí·ci, SD stí·ci
301. *-stú—*kú·stú *he died*; Ac kú·stú, SA kú·stú, SD kú·stú
302. *stúku-_{zi} *it is pointed*; Ac stúkuci, SA stúkuci, SD stúkuci

²⁰ Cp. Hopi *círo bird* (Voegelin, op. cit.). No plausible cognates of the Hopi form have been found in other Uto-Aztecan languages.

303. *stúwī-zī *it is sharp*; Ac stuwíci, SA stúwici, SD stúwaci
304. *súwá, *sú *yesterday*; Ac súwá, SA súwá, SD sú
305. *ša—*káša *he stepped*; Ac káša, SA káša, SD káša
306. *ša-wiṭa *parrot*; Ac ša-wita, SA ša-witi, SD ša-wati
307. *šina *flea, louse*; Ac šina, SA šina, SD šina
308. *šiba; Ac gáišupa, SA gášipa, SD gášiba (all meaning *his hip*)
309. *šú-dá *goose*; Ac šú-ta *crane*; SA šú-dá, SD šú-da
310. *šú-ga *snake, sp.*; Ac šú-gá, SA šú-ga, SD šú-ga
311. *šú-mi *corpse*; Ac šú-mi, SA šú-mu, SD šú-mu
312. *šúpī-se *I spit*; Ac šúpise, SA šúpase, SD šúpase
313. *šúwimu *turquoise*; Ac šúwimi, SA šúwimi, SD šú-wamu
314. *šī-za—*súšī-za *I borrowed*; Ac súšī-ca, SA súšī-ca, SD súšī-ca
315. *šámá *scattered*; Ac šamá, SA šámá, SD šamá
316. *šáři-ga *it got torn*; Ac šádika, SA šárika, SD šárika
317. *šící *raw*; Ac šici, SA šící-za, SD šící-za
318. *šúisi *bluejay*; SA šúisi, SD šúisi
319. *šú-wi *snake*; Ac šú-wi, SA šú-wi, SD šú-wi
320. *šúwī-zī *it is crooked*; Ac šuwíci, SA šúwici, SD šúwici
321. *tā-ma *five*; Ac tā-ma, SA tā-ma, SD tā-ma
322. *tā-ni-za—*kútā-ni-za *he worked*; Ac kútā-ni-za, SA kútā-ni-za, SD kútā-ni-za
323. *téné-gu *he esteems it*; Ac téné-gú, SA téné-gu, SD ténigu
324. *tī—*zā-tī *his teeth*; Ac zā-ti, SA zā-ti, SD zā-ti-ša
325. *tīd^{ya} — *kátīd^{ya} *his back*; SA kátīd^{ya}, SD kátīd^{ya}
326. *tá—*gí-tá *it is full*; Ac gí-ta, SA gí-ta, SD gí-ta
327. *tā—*zī-tā *he stepped on it*; Ac zī-ta, SA zī-ta, SD zī-ta
328. *tā-ne—*gú-tā-ne *he visited*; Ac gú-tā-ne, SA gú-tā-ne, SD gú-tā-ne
329. *tīwa—*ká?ā-tīwa *he ground it*; Ac ká?ā-tīwa, SA ká?ā-tīwa
330. *wá-čini *tongue*; Ac wá-čini, SA wá-čini; cp. SD káwači *his tongue*
331. *wágiṇi *dress, shirt*; Ac wágiṇi, SA wágiṇi, SD wágiṇi
332. *wá-si *bird snare*; Ac wá-si, SA wá-si, SD wá-si
333. *wá-sti *young of animal*; Ac wá-sti, SA wá-sti, SD wá-sti-ča
334. *wáša-zi *it is soft*; Ac wášaci, SA wášaci
335. *wá-wá *medicine*; Ac wá-wá, SA wá-wá, SD wá-wa
336. *wá-wáiziṇi *root*; Ac wá-wáiziṇi, SA wá-wáiziṇi, SD wá-wáiziṇi
337. *wazi—*káwazi *her brother*; Ac ká-waci, SA káwaci
338. *wáziša — *síwáziša, *síwázišaya *I stirred it*; Ac síwáziša, SA síwázišaya, SD síwázišaya
339. *wiči — *gáwiči *his chest*; Ac gáwiči, SA gáwiči, SD gáwiči
340. *wí-za — *gáwí-za *his neck*; Ac gáwí-za, SA gáwí-za, SD gáwí-za
341. *wa—*kúwa, *kúwawi *his face*; Ac kúwawi, SA kúwawi, SD kú-wa
342. *wá-bini *abalone shell*; Ac wá-bini, SA wá-bini, SD wá-buni
343. *wábú-sča *eagle down*; SA wábú-sča, SD wá-busča
344. *wā-ne—*súwā-ne *I hunted*; Ac suwā-ne, SA súwā-ne, SD súwā-ne
345. *wasdá — *káwasdá *it is sour*; Ac káwasdá, SA káwasdá, SD káwasta
346. *wá-ti — *káwá-ti *his male in-law*; Ac káwá-ti, SA káwá-ti; cp. SD wá-ti *male in-law*
347. *wá-yuša *duck*; Ac wá-yuša, SA wá-yuša, SD wá-yuša
348. *wē-?e—*kúwē-?e *it is sweet*; Ac kúwē-?e, SA kúwē-?e, SD kúwē-?e
349. *wī—*ká-wī *his child*; Ac ká-wi 'his clan relative', SA ká-wi, SD ká-wi
350. *wínusga *heart*; Ac wínuska, SA wínuska, SD wínusga

351. *wì·spì *cigarette*; Ac wì·spì, SA wì·spì
 352. *-yá—*cíyá *he was born*; Ac cíyá, SA cíyá, SD cí·ya
 353. *yáʔái *sand*; Ac yaʔái, SA yáʔái, SD yáʔai
 354. *yábášì *corn silk*; Ac yápaši, SA ya-bášì, SD yá·baši
 355. *yá·čínì *corn*; Ac yá·čínì, SA yá·čínì, SD yá·čínì (cp. 79)
 356. *yê·tu *mesquite*; Ac yê·tu, SA yê·tu
 357. *yúʔúbí *worm*; Ac yuʔúpí, SA yù·bí, SD yù·bu
 358. *yáʔáwá·ni *intestines*; Ac yaʔáwá·ni, SA yáʔáwá·ní, SD yá·wani
 359. *yá·bí *staff of office*; Ac yá·pi, SA yá·bí, SD yá·bí
 360. *yáiba — *zíyáiba *he looked for it*; Ac ziyáipa, SA ziyáipa, SD ziyaba·ní
 361. *yáihā—*zíyáihā *he found it*; Ac ziyáihā, SA ziyáihā, SD ziyāhā
 362. *yà·sbù·za·ni *brains*; Ac yà·sbù·za·ni, SA yà·sbù·zani, SD yà·sbuzuni
 363. *yáuni *stone*; Ac yáuni, SA yáuni, SD yáuni
 364. *yáwastí *stick*; Ac yáwasti, SA yáw·astí, SD yáwasti
 365. *yá·yu *crippled*; Ac yá·yu, SA yá·yu, SD yá·yu
 366. *yù·mì — *cíyù·mì, *gáyù·mì *his arm*; Ac ciyù·mì, SA gáyù·mì, SD gáyume
 367. *yù·ni *song*; Ac yù·ni, SA yù·ni, SD yù·ni
 368. *yù·sbì·ni *shoulder*; Ac yù·spi·ni, SA yù·sbì·ni
 369. *yù·skúmá *corn cob*; Ac yù·skúmá, SA yù·skúmá, SD yù·skuma
 370. *yù·ta — *súyù·ta *I sang*; Ac suyù·ta, SA súyù·ta, SD súyuta
 371. *zá *no*; Ac zá, SA zá, SD zá
 372. *-za — *káza *he said*; Ac kázá, SA káza, SD ʔé·kaza
 373. *zà·dʷa *plains*; Ac zà·tʷa, SA zà·dʷa, SD zà·dʷa
 374. *záwini *old*; Ac záwini, SA záwini, SD zâ·wani
 375. *zê·ni; Ac zê·ni *language*; SA zê·ni *talkative*
 376. *-zi—*káʔáizi *he lay down*; Ac kaʔáizi, SA káʔáizi
 377. *zù·gu *he went*; Ac zù·ku, SA zù·ku, SD zù·ku
 378. *-zúwa — *zí·zúwa *he paid him*; Ac zí·zúwa, SA zí·zúwa, SD zí·zuwa
 379. *-za—*záza *its horn*; Ac záça, SA záça, SD zâ·ça
 380. *-zá·čúwa—*kí·zá·čúwa, *kízá·čúwa *he awoke*; Ac kízá·čúwa, SA kí·zá·čúwa, SD kí·začuwa
 381. *zàici *club*; Ac zàici, SA zàici, SD zàici
 382. *-zí—*ká·zí *her husband*; Ac ká·çi, SA ká·zí, SD ká·zi·ša
 383. *-zi—*kázi *it is a house*; Ac káçi, SA káçi, SD ká·çi
 384. *-zika—*ká·zika, *kázika *he smoked*; Ac káçika, SA ká·çika, SD ká·çika
- 6.2.** Irregular correspondences are given without reconstructions.
385. Ac ʔú·biká·káci, SA ʔaugúbáʔakáci, SD ʔaugubakáci, *nail*
 386. Ac ʔú·piká·wáni, SA ʔugupáwani, SD ʔú·kupawani *ax*
 387. Ac ʔú·súsudʷáni, SA ʔúsiwisdʷáni, SD ʔú·siwisdʷani *rope*
 388. Ac cé·bína, SA cé·bíná *it is bitter*
 389. Ac číná, SA čí·ná, SD čí·na *river*
 390. Ac čái, SA sčái, SD čéiya *last*
 391. Ac díi, SA di·, SD di·ya *here*
 392. Ac dʷáiyá·ni, SA dʷáyaʔani, SD dʷá·yani *piñon nut*
 393. Ac guřářaka, SA kúřářaka *smoke*
 394. Ac guwá·, SA guwa·, SD guwe *how*
 395. Ac háçicai, SA háçice, SD há·çize *man*
 396. Ac háráméuša, SA máréu, SD ʔí·mařu *tortilla*
 397. Ac há·skani, SA hà·sgini, SD háisgini *bone*
 398. Ac há·tʷani, SA há·dʷani, SD há·dʷayani *soapweed*
 399. Ac hí·ši, SA hí·sčí, SD hí·sča *sunflower*
 400. Ac hí·zá·ʔai, SA hízáʔai, SD hí·zaʔani *cottonwood tree*
 401. Ac husdʷá·ka, SA wísdʷá·ka, SD wí·sdʷaka *bow*

402. Ac kiwá, SA kiwá, SD kiwá? *plant*
 403. Ac ká·ka·ti, SA ká·ka·dʷI, SD ká·kadʷI *plaza*
 404. Ac kúi-zé, SA kúi-ze *it is spoiled (food)*
 405. Ac śíumá·caní, SA śíumá·záni *I helped him*
 406. Ac máyúku, SA máyuku, SD má·yaka *nine*
 407. Ac sé·múca, SA sé·múcu, SD sé·muči *my toe*
 408. Ac má·ci, SA má·ʔací, SD máci *blood*
 409. Ac zíná, SA zína·, SD zí·na? *it is cloudy*
 410. Ac kánáisdíya, SA kánáisdʷU, SD kánasdʷU *his father*
 411. Ac náwá·ʔai, SA náwáiyá, SD ná·waʔI *middle-aged*
 412. Ac núwé, SA núya, SD nú·ya *night*
 413. Ac ná·wí·ka, SA náwiʔíka, SD ná·waka *egg*
 414. Ac ši·pe, SA séyù·pe, SD séyupe *my ear*
 415. Ac pé·ca, SA pé·ša *jack rabbit*
 416. Ac gáupáñici, SA gáipakuci, SD pákuci *he is pigeon-toed*
 417. Ac síupí·ñaca, SA síupíñaca *I massaged*
 418. Ac sécúma, SA sáiču, SD sáiču *day*; Ac sétʷu *all day*
 419. Ac si·bú·ka, SA ši·buʔuku, SD ši·buku *cotton*
 420. Ac kasi·šu, SA ká·si·ša, SD ká·sišu *his name*
 421. Ac skáci 'toad', SA ská·çi, SD ská·çi *frog*
 422. Ac skasgáuka, SA gasgáuga, SD sgá·sgasga *quail*
 423. Ac spá·ti, SA spá·ʔáci, SD spá·atí *mockingbird*
 424. Ac stárára-ci, SA sté·re-ci, SD sté·re-ci *it is soft*
 425. Ac kustémica, SA stémimi-ka, SD stē·mi-gaŋi *it is shiny*
 426. Ac šá·ska, SA šá·ska, SD šá·ska *roadrunner*
 427. Ac šá·wá·, SA sčá·wá·, SD sčáwa *soft speech*
 428. Ac šídi·ta, SA šid·i·ta, SD šid·atí *star*
 429. Ac šúzúwai, SA sčúzuwí *stinkbug*
 430. Ac té·ʔe, SA tíyé·, SD tí·ya *far*
 431. Ac tá·wa-ka, SA tá·awa-ka, SD tá·awa-ga *it boiled*
 432. Ac tí·ca, SA tí·ca, SD tí·çu *springtime*
 433. Ac zítʷapi, SA zídʷupi, SD zídʷupi *it is a forest*
 434. Ac síwátyáipa, SA síwáté·pa, SD síuwatépa *I looked for them*
 435. Ac gúwískica, SA gúwískica *he scratched*
 436. Ac wí·ska, SA wí·sga *robin*
 437. Ac sú·wá·ká·ʔaca, SA sú·wá·ká·ʔa, SD súwakaʔaca *I hollowed it out*
 438. Ac sú·wá·míca, SA súwé·emíca, SD súwamuca *I braided*
 439. Ac wí·ši·ni, SA wíši·ni *nose*; Ac či·ši, SA gáwí·ši, SD gáwíša *his nose*
 440. Ac záiša, SA záičú, SD záiča *field*
 441. Ac séizé·ša, SA séizé·šu, SD séizešu *I dreamed*

6.3. English index is now given for **6.1** and **6.2**, above.

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