Prehistoric Sociolinguistics: The Case for Hopi

Author(s): David Leedom Shaul

Proceedings of the Fifth Annual Meeting of the Berkeley Linguistics Society (1979), pp. 489-499

Please see “How to cite” in the online sidebar for full citation information.

Please contact BLS regarding any further use of this work. BLS retains copyright for both print and screen forms of the publication. BLS may be contacted via <http://linguistics.berkeley.edu/bls/>.

The Annual Proceedings of the Berkeley Linguistics Society is published online via [eLanguage](#), the Linguistic Society of America's digital publishing platform.

PREHISTORIC SOCIOLINGUISTICS: The Case for Hopi

David Leedom Shaul

University of California, Berkeley

0.0 Introduction.

If social selection is a major determiner of language change, such motivation should be inferable for the prehistoric past in some cases. In this paper, I will present data that suggests that Hopi, usually held to be a distinct subgroup of Uto-Aztecan (UA), does not represent a single line from Proto-Uto-Aztecan. Both grammatical and lexical evidence will be considered.

1.0 Grammatical Diversity Within Northern-most Uto-Aztecan.

Internal classifications of UA began with Brinton (1891), who classified UA into three major divisions: Shoshonean, Sonoran, and Nahuatlan. Buschmann (1859) founded UA studies, but did not recognize genetic affinity between the three divisions. The idea of a Sonoran branch was criticized by Kroeber (1934), Whorf (1935) and Mason (1936), as being an areal effect. Whorf also considered Shoshonean not to be a genetic grouping, and this view was supported by Swadesh's lexicostatistic study of this branch (1954). Criticism of internal diversity of UA led Lamb to posit nine separate subgroups (1964), reflecting "a complex dialect area shortly after the time of Proto-Uto-Aztecan, rather than a simple splitting into two or three branches" (1958:95-96).

To test grammatical internal diversity in northern-most UA, representative languages of the six northern-most subgroups of UA were sampled (Tl'ibatalabal, Hopi, Shoshone, Luiseno, Piman, and Yaqui). The sampling unit was the transitive clause, and only obligatory features were noted. Distinctive traits (one which is shared by two or more varieties but not by all) serve as a way of delineating possible intermediate groups. By totaling the number of such traits shared by a given language, a commonality index may be calculated. The results of the sample are given in Tables One and Two.

Only eight out of 26 traits (both drift -characteristic trends due to particulars of the design of a linguistic system- and less productive items) formed major contiguities (were shared by two or more languages in geographical succession), although "northern" and "southern" spheres of trait-sharing may be distinguished. The eight traits were: obligatory oblique case marking of S₂ in predicate chaining (1.4.1c), presence of a reflex of *-na as transitivizer (1.5.1a), imperf./perf. categories marked in verb stems (2.1a),

lack of a copula (2.3b), presence of absolutes (3.1a), presence of case distinctions (3.3a), possession of prefix only (4.2c) and independent auxiliary marking of actor (4.3a). The distributions of these may be found in Table One.

Similar findings concern UA lexical data (Hale, 1958:106-107; irregular rates of retention in compared vocabulary point to some sort of Sonoran unity) and UA phonology (Voegelin, Voegelin, and Hale, 1962:117-135). Northern and southern spheres are thus detectable through lexical, grammatical and phonological data, but as Heath (1977) noted, there is a need for careful reconstruction of each distinctive subgroup of UA.

The highest index was that of Hopi ($18/26 = .692$), with the average score being approximately $.423$ ($11.3/26$). One explanation for this high score is that Hopi stems from several UA traditions, or that it represents some other form of mutual borrowing. Evidence for a hybrid UA origin of Hopi are given below, in section two.

2.0 Lexical Seriation in Hopi.

Hopi noun material was abstracted from a manuscript dictionary file. Only morphemes of the shape CV(:)CV were included in the sample.² Further exclusion was made of proper nouns and compounds.³ Comparison using Hale (1958), Davis (1966) and Miller (1967) revealed four groupings of nouns in Hopi: pan-UA, northern, southern, and residue. The percentage of nouns in each component are about: 16% (pan-UA), 14% (northern), 11% (southern) and 59% (residue). See Appendix B for the lexical data.

Domain analysis reveals nothing significant regarding the directionality of the UA material. Native tradition, however, indicates a founding group from the north and later immigration of clans from the south (Fewkes, 1900:633). Further additions to the ceremonial cycle and possibly to the linguistic repertoire of the community came from the East (Parsons, 1936:560), after immigration from the south. Phonological developments and dialectology may eventually give the relative order of the linguistic material; this may or may not turn out to support the tradition given by oral history.

More distant relations between Hopi and UA and Tanoan may be suggested by the data of Whorf and Trager (1937). Some terms are also shared with Keresan (these have been reconstructed for Proto-Keresan by Davis and Miller, 1963), Zuni and Havasupai, suggesting diffusion to or from Hopi. Due to space limitations, these data are not given here.

David Kelley (cited in Hymes, 1966:10) noted a disproportionate amount of nouns to predcatives in the pan-UA vocabulary. Hymes

suggests core vocabulary (the morpheme index) of a language, while only partially valid for dating purposes, may be diagnostic for a particular group of languages that are genetically related. Thus Goss (1965) was able to show a closer relation between Ute and Southern Paiute using the total morpheme index of both varieties, than was Hale (1958), who was restricted to a 100-word list.

The items that are expected to be selected as semantic primes for naming entities in UA are for the most part present in the Hopi data. However, the phonological sequence used to designate each may be either northern or southern, indicating an uneven descent from Proto-UA. In the case of Hopi, one must posit some mixture between northern and southern UA varieties.

3.0 Social Selection and Linguistic Prehistory.

In section one, it was inferred that Hopi has a higher commonality index with regards to grammar of transitive clauses than other northern-most UA languages sampled because it is to some degree a mixture of distinct UA varieties. In section two, lexical evidence was offered to support this inference.

In defining a language family, the notion of drift is assumed. Some features of grammar, vocabulary and phonology are expected to persist over time and space in daughter varieties as markers of the relatedness of the group. Without this fundamental assumption of drift, classification and subclassification along genetic lines (indeed, historical linguistics) would be impossible. In the Hopi case, it would appear that social factors have had a force in the formation of the present grammar and lexicon. The notion of drift and the idea of the morpheme as a tightly bonded unit are less useful in this sort of case, however. These ideas are more appropriate to instances where social usage has maintained a more or less single linguistic tradition. Yet there is no reason to suppose that there are not other cases like Hopi to be found in Americanist studies and elsewhere. It is therefore necessary to posit a model that accounts for both drift and residue on the one hand, and social selection and differentiation on the other.

NOTES

1 Nuclear categories, ordering and obligatory processes of simple clauses were contrasted in Yaqui, Piman, Luiseno, Tübatulabal, Hopi and Shoshone).

2 When cognacy was established for trisyllabic morphemes of the shape CVCVCV, inclusion was made.

3 Disyllabic compounding may result from several processes. It is possible that some seemingly prime noun morphemes are actually compounds.

TABLE ONE: Trait-Sharing as a Commonality Index in Northern UA.

	<u>Yaqui</u>	<u>Piman</u>	<u>Luis.</u>	<u>Tüba.</u>	<u>Hopi</u>	<u>Shos.</u>
Factor						
1.1b		X	X			
1.2b		X		X		
1.3b			X		X	
1.4.1b	X				X	
1.4.1c				X	X	X
1.4.2a	X		X			X
1.4.2b		X			X	
1.5.1a			X	X	X	X
1.5.1b			X			X
1.5.2a	X			X	X	
1.5.2b	X				X	
2.1a		X	X	X	X	
2.2a	X				X	
2.2c		X	X			
2.3a	X	X				
2.3b			X	X	X	X
3.1a			X	X	X	X
3.1b					X	X
3.2a					X	X
3.2b		X			X	X
3.3a			X	X	X	X
4.1a					X	X
4.2c	X	X	X		X	
4.3a		X	X	X		
4.4a	X	X				
4.4b			X		X	
	<u>8</u>	<u>10</u>	<u>13</u>	<u>9</u>	<u>18</u>	<u>11</u>

EXPLANATION of the factors: 1.0 Components of Clauses. 1.1 Variability in word order: a. Most SOV, with exceptions in 1.2 (SH, Tü, Hp, YA), b. Free word order in Piman (SVO, VSO, SOVO and Lu. SVO; 1.2 NP movement: a. Actor_{iden} deletion, focal fronting (all), b. V-initial Tü adv. + V+ S; Pi); 1.3 Actor-predicate number agreement: a. Sporadic or absent (Sh, Tü, Pi, Ya), b. Obligatory (Lu, Hp); 1.4 Predicate Chaining. 1.4.1. S₂ in oblique case: a. Not applicable (Pi), b. occasional (Hp, Ya), c. Obligatory (Sh, Tü, Lu); 1.4.2 Aspect distinctions in actor marker: a. In both switch reference suffix and same actor suffix (Tü), b. In same actor suffix (Hp, Pi), c. In switch reference suffix (Sh, Lu, Ya); 1.5 Role-Shifting. 1.5.1 Transitivity: a. Reflex of *-na as a causative (Sh, Tü, Hp, Lu), b. reflex of *-kv as a causative (Sh, Lu), c. Other markers (Pi, Ya); 1.5.2 Intransitivity: a. Reflex of *-wa as

intransitivizer (Tù, Hp, Ya), b. Reflex of *-tV, 'gets Vb'd' (Hp, Ya), c. Other marking (Sh, Lu, Pi).

2.0 Verbal predicates; obligatory categories. 2.1 Aspect: a. imperf./perf. categories marked in stems (Pi, Lu, Tù, Hp), b. No stem aspect (Sh, Ya); 2.2 Tense: a. Future in -nV (Hp, Ya), b. other future marking (Sh, Lu, Tù, Pi), c. A different future is associated with the imperf./perf. stems (Lu, Pi); 2.3 Equational predicates : a. Presence of a copula (Pi, Ya), b. No copula (Sh, Tù, Lu, Hp).

3.0 Noun Morphology. 3.1 Absolutes: a. Presence of these (Sh, Tù, Lu, Hp), b. absolutes have anim./inanim. meaning (Sh, Hp), c. no absolutes (Pi, Ya); 3.2 Number as a marked category: a. sg.-dl.pl. (Sh, Hp), b. Pl. by reduplication (Sh, Hp, Pi), c. Pl. by various suffixes (Sh, Lu, Hp, Ya); 3.3 Case distinctions: a. Minimally, actor/oblique categories (Sh, Tù, Lu, Hp), b. no case marking (Pi), c. Sporadic, with marking in the sg. only (Ya).

4.0 Personals. 4.1 Number: a. sg.-dl.-pl. (Sh, Hp), b. sg.-pl. (Tù, Lu, Pi, Ya); 4.2 Case marking: a. Minimally, actor/oblique (Sh, Tù, Lu, Hp, Ya), b. actor/obj./possessive categories (Sh, Tù), c. Possession by prefixing only (Lu, Hp, Pi, Ya); 4.3 Actor marking: a. Independent marking and marking within an aux. (Tù, Lu, Pi), b. indep. marking only (Sh, Hp), c. incipient aux. (Ya); 4.4 Object marking: a. pre-verbal prefix (Pi, Ya), b. indep. pronoun (Lu, Hp), c. Suffixes (Tù), d. Both (a) and (b) (Sh).

TABLE ONE: Appendix: Number of Traits Shared
Between Languages

	Ya	Pi	Lu	Tù	Hp	Sh
Ya	--	3	2	1	5	1
	Pi	--	5	3	4	1
		Lu	--	6	8	6
			Tù	--	7	5
				Hp	--	9

TABLE TWO: Geographical Distribution of Traits.

Those traits shared by two or more varieties in geographic proximity are given below.

	TU-Hp-Sh	1.4.1c
	Lu-TU-Hp-Sh	1.5.1a, 2.3b, 3.1a 3.3a
(Pi)	Hp-Sh	3.2b
	Hp-Sh	3.1b, 3.2a, 4.1a
	Pi-Lu-TU-Hp	2.1a
Ya-Pi-Lu	(Hp)	4.2c
	Pi-Lu-TU	4.3a
	Pi-Lu	1.1b, 2.2c
Ya-Pi		2.3c, 4.4c

In general, the following are northern trends: noun absolutes, a case system for nouns and pronouns, a possessive case, dual number, and Actor₂ of chained predicates being in oblique case. These are not, of course, present in every northern UA language.

Southerly traits include the following: lack of a case system, development of an aux., contexts of verb initialness, plurals by reduplication, and perfective/imperfective verb stems. Hopi and Taki languages (of which Luiseno is a member) are pivots to some degree; they tend to have both northern and southern characteristics.

APPENDIX A

Data on Nuclear Clause Relations.

1.1 PREDICATE AND NUCLEAR NP ORDER (AFFIRMATIVE TR. CLAUSE):

SH: rigid SOV; TU: SOV; HP: SOV; PI: SOV, VSO; YA: SOV.

1.2 MOVEMENT OF NP'S: SH: actor deletion, focus fronting; TU: obj.

fronting, adverbial + V + S; LU: order variable, V never first;

PI: free order, with some constraints; YA: actor deletion;

HP: focus fronting.

1.3 AGREEMENT BETWEEN ACTOR AND PREDICATE: SH: sporadic and only in old suppletive pairs; TU: lacking; LU: obligatory; HP: obligatory; PI: sporadic; YA: sporadic, with old suppletive pairs.

1.4 PREDICATE CHAINING, I. SUBJECT 2: SH: must be in obj. case;

TU: in obj. case; LU: in obj. case; HP: sometimes in obj. case;

PI: no case marking; YA: not usually in obj. case.

1.4 II. ASPECTUAL CATEGORIES IN SWITCH REFERENCE SYSTEM: (a=identical actor; b=different actor/switch reference): SH: a. no asp.,

b. 'when' vs. 'while'; TU: a. 'while', 'after', 'when/then',

b. same categories as in (a); LU: a. -nik, b. 'while', 'after', and simultaneous; HP: a. 'after', 'while', 'if', 'because', b. -qw;

PI: a. 'while' vs. disconnector, b. -ku; YA: a. -kai, b. various.

1.5 TRANSITIVIZATION: SH: -nke = benefactive and causative; TU:

-(i)n with intr. stems, -(a)n + intr.=tr./+ tr.=benefactive;

LU: -ni, -ki, -ka causatives; HP: -na both benefac. and caus. PI: stative

with -čud; YA: -tua = causative, -ria = benefactive.

1.5: 2. INTRANSITIVIZATION. SH na- intransitivize, meaning reflexive or reciprocal; Tŭ: -(i)w + tr. = 'got V'd', -(i)w + intr. = impersonal; LU: not clear; HP: -iwa alone and in combination, -ti 'gets V'd'; PI: tr. to intr. operations; YA: -iwa as a passive; na- preverbal objects, but not reciprocal or reflexive, -tu 'become verb'd', -tia transitive, -te intransitive.

2.0 VERBAL PREDICATES: OBLIGATORY CATEGORIES. Number has been treated in 1.3. Some object number marking is present in some suppletive verbs in some of the languages. This was not made use of in this study.

2.1 ASPECT: STEM MARKED FOR IMPERF./PERF. DISTINCTIONS.

SH: various; Tŭ: telic(completive) vs. atelic (durative); LU: perf. and imperf. (each with an associated future); HP: perf. and imperf. in stems; PI: perf. and imperf. in stems (each with an associated future); YA: various.

2.2 TENSE: FUTURE CATEGORIES. SH: -tu'ih fut.; past tenses as well; Tŭ: a fut.; LU: fut. (c.f. 2.1), past tenses; HP: -ni fut., habitual tense; PI: fut. (c.f. 2.1); YA: -ne fut.

2.3 EQUATIONAL PREDICATES. SH: A=B; Tŭ: A=B; LU: A=B; Hp: A=B; PI: A=B, with copula; YA: A=B with copula su.

3.0 NOUNS.

3.1 NOUN CLASSIFIERS. SH: -pɛ, -tsi, -pi, with clear semantic marking; Tŭ: -t(a), -l(a) and -ø with no clear semantics; LU: -ch(a), -l(a) and -t(a) with no clear semantics; HP: some animate:inanimate traces survive in pl. formation; PI: alienable:inalienable possession, and mass:count:aggregate (for Obj. marking), but no classifiers; YA: no clear classifiers.

3.2 NUMBER AS A MARKED CATEGORY. SH: sg./dl./pl.; Tŭ: no obligatory number; LU: sg./pl. in -mu; HP: sg./pl. (a dl. is done periphrastically), pl. is by redup. and -tu or -mu; PI: sg./pl. (redup.): YA: sg./pl. with -m.

3.3 CASE DISTINCTIONS. SH: subj./obj./poss.; Tŭ: subj./obj./poss.; LU: subj./oblique; HP: subj./oblique; PI: no cases; YA: sg. subj./oblique distinction.

4.0 PERSONALS.

4.1 NUMBER. SH: sg./dl./pl.; Tŭ: sg.pl.; LU: sg./pl.; HP:sg./pl.; PI: sg./pl.; YA: sg./pl.

4.2 CASE. SH: subj./obj./poss.; Tŭ: subj./obj./poss.; LU: subj./oblique; HP: subj./oblique; PI: no cases; YA: subj./obj./poss./clitic.

4.3 ACTOR MARKING. SH: indep. (sg. attached); Tŭ: suffix to verb or pre-verbal word, some specialized aux.'s; LU: indep. and a attached, aux. system; PI: indep. pronouns, obligatory marking

with aux.; YA: indep. pronoun or clitic attached to pre-verbal word.

4.4 OBJECT MARKING WITH PERSONALS. SH: sg. forms attached as a prefix, dl./pl. indep.; Tŭ: suffixed; LU:indep.; HP: indep.; PI: verbal prefix; YA: verbal prefix or clitic suffixed to pre-verbal word.

APPENDIX B Hopi Noun Morphemes Showing Directionality.

Only those noun morphemes of Hopi that were found to have directionality are given below. Tanoan, Zuni, Keresan and Havasupai cognates have not been given, due to space limitations. **FORMAT:** English gloss is given in caps. Then Numic (either a reconstruction or in the order Shoshone, Southern Paiute, Mono/Paviotso) is given. After a semicolon, reconstructed or single citations from Sonoran languages will be given. The Hopi citation is underscored, and placed following the Northern or Southern form. **ORTHOGRAPHY:** Hopi spelling has the following values: a = [a], e = [ɛ], i = [i], o = [o], ʉ = [ɤ] with rounding, and u = [u]. Long vowels are spelled as VV (double vowel). In Voegelin, Voegelin and Hale and Miller, c = [ts]. **ABBREVIATIONS:** VVH = Voegelin, Voegelin and Hale; M = Miller. Language abbreviations are transparent.

ARM pida, pita, pita; M *seka; no matching Hp. form; ASHES kusi, kitsa, esi-, Hp. qũtsa 'white'; M *mat; BADGER/BEAR M *huna, Hp. honan- and honaw 'badger' and 'bear'; M *pos, po; BEE M *pis, pic for Numic and Takic; M *mumu, Hp. momo; BRAINS --, (sa)piki, (co)piki, Hp. piiki 'wafer bread', but tsũkya from pan-UA *co(ni) 'head-hair'; various Sonoran forms. BLOOD pĩhpi, paipi, paapi; M *et (Sonoran), *ew (Takic), Hp. ungwa; BELLY/STOMACH sapĩ, sapĩ, --; Yaqui tomo, Pap. wook, Hp. pono connected to Ya. (?): BLUE --, sagwa, --, Hp. sakwa-; (various); BUZZARD --, wiqu, --, possibly Hp. wisoko 'turkey buzzard'; (various); CHEST nĩnapĩ, nĩabĩ, nĩngabĩ; M *tawi, Hp. tawits-ga; CACTUS FRUIT (lacking); M *yun, Hp. yũngũ; DRESS/SHIRT kwasu, kwasu, kwasĩ, Hp. kwasa 'dress'; DRYpasa, basu, pasa-, Hp. paasa 'field', Southern Paiute paasI 'field'; CORN REFERENTS Shoshone haanĩbi; Yaqui san-, M *sunu, Hp. sami 'fresh corn'; CORNMEAL (lacking); Yaqui -tusi, Hp. toosa; COYOTE M *is, Hp. isawu; M *kwa, *wa; CATERPILLAR Shoshone pi'akĩ, Hp. pi'aku; (no cognate in literature); CHOLLA CACTUS Hp. ũsũ, cognates in Tŭb. and Southern Paiute; ELBOW kiipĩ, kipĩ, kiibĩ; M *cu, Hp. tsũvi; EYEBROW (lacking); M *sup (Takic, Tŭb., S.P., Sonoran), Hp. suuvu; FRIEND hainci, --, haiĩ; Pap. nawoj; but Hp. kwatsi; FEATHER/WING kasa, kĩĩsi, kasa; M *masa, but Pap. a'an, Hp. masa 'wing'; FAT/GREASE yuhu,

yuu-, yuhu; pan-UA *wi, Hp. wi-hu; FOOT nampa/ nape, naⁿpa, --; M *ta (Takic) and *kuku (Sonoran), Hp. kuku; FOOD REFERENCE (label is lacking); Pap. bi'i, Hp. kwiivi 'boiled food'; FISH penkwi, pa^gi, pakwi, Hp. paakwi; M *kuyu, *kucu (this word develops in Numic as 'buffalo': kwicu, ku^ucu, kucu); FOAM M *ko (in Hp. and Serrano), Hp. q^uu^tu; FOREHEAD Shoshone ka'i, Hp. qala '1.forehead, 2.edge, 3.sharp'; Pap. ko'a (?); GRANDCHILD *M (in Pap., Yaqui, Hp.), Hp. -m^uyi; GRASS M *so (Hp., Serrano, Panamint), cf. *soni, soho-pin ('cottonwood'), Hp. s^uh^u- (grass and cottonwood reference); GUM/STICKY sana, sana-, sana-, Hp. sana; Pap. ki'iwii; GRAY/DARK --, asⁱs-, --, Hp. masi-; GOPHER M *meye, Hp. muuyi; Pap. jⁱwho; GUTS --, siu-, sihi, Hp. siihu; Yaq. suu-, Pap. hiihi; HOUSE/DWELLING/BUILDING kahni, qani, --; Pap. kii, Hp. kii-hu; HEAD pampa, pampⁱ, --; M *mo'o; but Hp. q^uu^tu; HIP Shoshone ciⁱmpi; Yaqui huba-ria, Hp. hoovi; HAWK SP. Shoshone ki-ni 'chicken hawk', Hp. kii-sa; HEART pihi, piyⁱ, piwⁱ; Pap. iibdag; but Hp. unangwa; JAY --, aanga-, --, Hp. a'a; KNIFE wihi, wii(ci), wihi; M *napa; but Hp. poyo; KANGAROO RAT Shoshone pⁱ-hyaⁿ, Hp. pehu; LIZZARD --, cⁱgiⁱ, --, Hp. kuukutsi (?); LOUSE pasia, pu'a, puzi'i; pan-UA M *ate, Hp. aat^u; LOCUST Shoshone mⁱ-soN ('cricket'), Hp. maa-hu (?); LUNGS Numic songo, Hp. tsungu; MOTHER pia, pia, pia, but Shoshone y - 'mother-in-law', Hp. yu-; M *ye, Hp. yu-; METATE (lacking); M *mata (Southern Paiute, Hp. Cahuilla, Sonoran), Hp. mata; MOCKING BIRD --, yampa, --, Hp. yaapa; (various); NOSE muubi, mubi, mubi, Hp. motsivu 'proboscis': M *yaka, Hp. yaqa; OAK/ACORN Southern Paiute kwiya-s, Hp. kwingvi (T^ub., Luiseno, Cahuilla, and Southern Paiute list this as 'acorn'); ONION kⁱⁿka, --, kⁱga; T^ub. siiwi-l, Hp. siiwi; OPUNTIA M *muhu; M *nap (Takic, Sonoran), Hp. naavu; OLD MAN Shoshone tsⁱkⁱ, Hp. tsuku 'clown'; PINE NUT tiba, tⁱba, tⁱpa, Hp. tuva; PINE CONE --, qa'o, --, Hp. qa'u 'dry corn'; PORCUPINE yⁱhnⁱ, yⁱngⁱ, Mono mⁱhi, Hp. mⁱngyawu; PLANTS (lacking); Pap. t-s, Hp. uu-yi 'plant, cultivated'; RIDGE Shoshone muttu 'end of hill', Hp. mur^u; RED eka/engka, aka, aqa; M *set; but Hp. pala- : RAIN tⁱma, ungwa, (pa)ma; M *yuk, Hp. yooki : RAT M *ka, *kawa, Hp. qaala; Cora-Huichol naika, Pap. nahagio; ROUND poni, -pu/-pⁱ, pono, cf. Shoshone pohto- 'round/spherical', Hp. p^ula; ROCK pan-UA *tem in Hp. tumke 'edge of cliff' and Hp. tuuma 'stone griddle', the Hp. form for 'rock is owa; RATTLE/GOURD (lacking); Serrano ay-t, Yaqui aya-m 'calabash', Hp. aaya; RABBIT tabu, tabu-, t bu'u, Hp. taavo; M *pa (Luiseno, Yaqui-Mayo); RIBS wa-, angwa, awa, but Hp. tsungu; Pap. hoho'onma (the Hp. form is from *songo, which developed as 'lungs' in Numic; see lungs, above); ROOT (tⁱ)dⁱna, tⁱna-, tⁱna; M *na, Hp. nga-hu '1.medicine 2. root' (2. in compounds); RIVER (lacking); Papago mⁱl (this is related to mⁱd 'run' ?), Hp. muu-na 'watercourse'; STAR (ta)ci, (puu)ci, (ta)si; M *su, *cu (Takic, Sonoran), Hp. soo-hu;

SHIRT (lacking); Tarahumara napaca, Hp. napna; SNOW --, n~~a~~ba'i, n~~i~~ba, Hp. nuva; Pap. gew; BE COLD (Lacking); M *yu (Takic), Hp. -yoho'o; SHOULDER (lacking); M *seka (Mono, Serrano) , Hp. s~~i~~kyak-tsi 'shoulder blade' ; SUPERNATURAL POWER poha, pua-, puha, Hp. powa; SPIDER --, uq-wa, --, Hp. kookyangw (?); SORE M *eya, Hp. uya; SUNFLOWER REFERENCE Southern Paiute aqi-, Hp. a'gawi, Shoshone akk~~i~~-N; TAIL Numic kwasi, Hp. kwasi 'penis'; M * suru, Hp. suru; TOBACCO Shoshone pam-; M *pipa, Hp. piiva ; TONGUE eku, egu, igo; M *neni, Hp. lengi; THIGH (lacking): M *kasi, Hp. qaasi; TURKEY Shoshone koyongo, Hp. ko-yongo; Pap. toowa, Cora s~~i~~i~~i~~pi; WINTER tomo, tumu, tomo, Hp. t~~8~~m~~8~~; WIND Shoshone ni- t; M *heka, Hp. huukyangw; WOMAN/GIRL --, mama'n, --. Hp. momoyam 'women'; WART Shoshone m~~i~~tsa, 'Mam-millaria cactus sp.', Hp. mutsa 'wart; YUCCA --,ca'ma-vi, --, Hp. samowa.

REFERENCES

- Brinton, Daniel C. 1891. The American Race. New York.
- Buschmann, J.K.E. 1859. Die Spuren der aztekischen Sprache. Berlin: Royal Academy of Sciences.
- Davis, Irvine. 1966. "Numic Consonantal Correspondences." IJAL 32: 124-140.
- and Wick R. Miller. 1963. "Proto-Keresan Phonology." IJAL 29: 310-330.
- Fewkes, Jesse Walter. 1900. Tusayan Migration Traditions. Annual Report, BAE: 573-633.
- Goss, James R. 1965. "Ute Linguistics and Anasazi Abandonment in the Four Corners Area." American Anthropologist 31:73-81.
- Gumperz, John and R. Wilson. 1971. "Convergence and Creolization: a Case from the Indo-Aryan/Dravidian Border." In Dell Hymes, ed. 1971. Pidginization and Creolization of Languages. Cambridge: Cambridge University Press.
- Hale, Kenneth. 1958 and 1959. "Internal Diversity in Uto-Aztecan." IJAL 24:101-107 (1958) and 25:114-121 (1959).
- Heath, Jeffery. 1977. Review of Langacker, 1976. Language 53:457-461.
- Hymes, Dell. 1966. "Lexicostatistics So Far." Current Anthropology 1:3-44.
- Kroeber, A. L. 1934. "Uto-Aztecan Languages of Mexico." Ibero-Americana 8.
- Lamb, Sydney. 1958. "Linguistic Prehistory in the Great Basin." ----- . 1964. "The Classification of Uto-Aztecan Languages." UCPL 24:95-100.
- Langacker, Ronald W. 1976. Non-Distinctive Arguments in Uto-Aztecan. UCPL 86.
- Mason, J.A. 1936. "The Classification of the Sonoran Languages." In Essays in Anthropology, 183-198. Berkeley: University of California Press.
- Miller, Wick R. 1967. Uto-Aztecan Cognate Sets. UCPL 48.
- Parsons, E. C. 1936. "Early Relations Between Hopi and Keres." American Anthropologist 38:554-560.
- Swadesh, Morris. 1954. "Algunas Fechas Glotocronologicas Importantes para la Prehistoria Nahuatl." Revista Mexicana de Estudios Antropológicos 14:173-192.
- Voegelin, C. F. and F. M. Voegelin and K. L. Hale. 1962. Typological and Comparative Grammar of Uto-Aztecan: I (Phonology). IJAL Memoir 17.
- Whorf, B. L. 1935. "The Comparative Linguistics of Uto-Aztecan." American Anthropologist 37:600-608.
- , and G. L. Trager. 1937. "The Relationship of Uto-Aztecan and Tanoan." American Anthropologist 39:609-624.