

THE CASE FOR ROOT EXTENSIONS IN PROTO-SIOUAN¹

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By far the largest class of active verbs in any Siouan language is the class of so-called "instrumentally-prefixed" verbs. These consist of a root, which is typically a bound morpheme, combined with one from about a dozen prefixes which are listed in Table I. In some Siouan languages, certain prefixes combine productively with free morphemes as well as bound; in some, a stem derived by the affixation of one prefix may then become a base for further derivation with another, so that prefixes become layered; and in some, stems are formed from compounds of bound morphemes, with prefixes attached only to the first.

	CR	HI	MA	LA	KS	QU	WI	BI	TU
striking	dak	raka	ka	ka	ga	ka	gi	dokur	laka
mouth	da	ra	ra	ya	ya	da	ra	da	la
sharp tool	a	ba	wa	wa	ba	pa	naa		
foot	ala	ara	ra	na	na	na	naa	na	na
hand	dd	rd	ru	yu	yu	di	ru	du	lu
pushing	pd	pd	pa	pa	ba	ba	wa	pa	pa
heat	ald	ard	ra		da	ta	taa	ada	na
distance	oo			wo	bo	po	boe		
pressure				pu	bu	bi		pu	
inner force				na			naa	na	
rubbing								di	

Table I: Siouan instrumental prefixes

Within the set of instrumentally-prefixed roots, two curiosities appear. The first is the tendency of roots containing spirants to have similar or identical meanings, as Mandan *rusap* 'peel,' *rusap* 'peel,' and *ruxap* 'peel or husk.' This phenomenon, which appears in all Siouan languages and is not limited to verbal morphology, is often termed "spirant gradation" and is a form of sound symbolism, the three members of a full set usually distin-

guishing intensity of state or action. The implication for Siouan comparative linguistics is that one should grant the cognacy of two morphemes which differ only in the place of articulation of a spirant, even when there is no phonological context to explain the difference.

The second curiosity in the root set takes us beyond what is so far commonly accepted and into the thesis of my study. Within some Siouan languages, and across others when they are compared, there remain a great number of synonyms or near synonyms which differ only in the number of segmental phonemes, as though one root contained an affix which the other lacked. Yet these putative affixes have, as yet, no identifiable meaning, and they do not seem to be productive.

Some of us studying Siouan languages have come to think of the putative affixes as "root extensions": that is, as elements which are not part of the synchronic derivational inventory of a language but which constitute an inherited set of alternative root forms. Presumably the root extensions, if they exist, result from processes of derivation or compounding in the proto-language, but these processes are now so extremely unproductive that their original semantic load cannot yet be recovered. In that root extensions, if they exist, create alternative root forms, the question of their existence bears directly on the application of the comparative method to Siouan languages, and may bear indirectly on such important questions as sub-family relationships. In addition, if they are real, root extensions undoubtedly enable us to glimpse a very early stage of the proto-language itself.

I am hedging here on the reality of root extensions because not all Siouanists are prepared to believe in them. Some point to undeniable homophony in monosyllabic verb roots and suggest that apparent root extensions are simply a converse case: synonyms which, by chance, have similar root forms. These linguists can accurately state that the evidence for root extensions to date is anecdotal and limited to individual languages or subfamilies, though it is worth noting that the same objections could once have been raised against the existence of spirant gradation. Until recently, it has not been possible to conduct a systematic survey of possible root extensions in Siouan verbs.

Thanks, however, to the Siouan Archive project at the University of Colorado, Boulder, a computer-assisted survey of instrumentally-prefixed verbs is now being conducted as part of the work toward a comparative dictionary of Siouan languages directed by David S. Rood. John E. Koontz, computer specialist on the comparative dictionary project, designed sorting programs which enabled us to pull out forms with potential instrumental prefixes from the masses of archived data on Siouan languages. In addition, several linguists contributed up-to-date dictionaries

or themselves culled instrumentally-prefixed verbs and sent the lists to Boulder. The data sources for this paper are listed in the references and include the languages Crow, Hidatsa, Mandan, Lakhota, Kansa, Quapaw, Winnebago, Biloxi, and Tutelo. Once the data had been assembled, Koontz, Rood, and the editors of the comparative dictionary--Richard T. Carter, Robert L. Rankin, and myself--began the task of weeding out extraneous forms. Subsequently, the further task of making a preliminary organization and comparison of the remaining data fell to me. This paper is an interim report on that work.

Perhaps anyone staring at thousands of verb forms across nine related languages would find all too many tantalizing candidates for interpretation as root extensions. Grant a bit of metaphor here, a plausible but irregular phonemic change there, and you begin to suspect that the entire pre-*proto-Siouan* vocabulary can be reduced to a single Asiatic syllable, presumably /om/. As a check on my own imagination, therefore, I have sought ways to control the variables by dividing examples of extension into three classes.

In Class I, I place simplex and extended forms which share essentially the same gloss and in which the segmental phonemes differ only in number and possibly in spirant gradation. In Subclass Ia, both simplex and extended forms appear in the same language. Examples for pre-extension /p/ and post-extension /p/ are shown in Table 2, where S stands for "simplex".²

[pre-extension P]

S. *túʒa*, pa- to bend over, lean forward, stoop down
to get something (Lakhota, Buechel 1970:436)

pS. *ptúʒa*, pa- to stoop, bend over (Lakhota, Buechel
1970:433)

[post-extension P]

S. *tká*, ka- to choke or be choked, as in eating; to
stick in the throat (Lakhota, Buechel 1970:293)

Sp. *tkápa*, ya- to eat e.g. something that is viscid or
sticks in the mouth (Lakhota, Buechel 1970:630)

Table 2: examples of Class Ia

In Subclass Ib, the simplex appears in one language, the extended form in another. Two examples are given in Table 3.

[post-extension T]

- S. **skaska**, ra- to tiptoe (reduplicated, Mandan, Carter n.d.)
 St. **ckaate**, ara- 'creep along, tiptoe, walk gingerly' (Hidatsa, Jones:1976-86, Harris, Voegelin, Voegelin 1938-1954)

[post-extension K]

- S. **cataa**, nû- 'put hand in mud, something soft, something sticky; squash sth.' (Hidatsa, Jones 1976-86; Harris, Voegelin, Voegelin 1938-1954)
cw[^]A, na- 'chew something sticky' (Hidatsa, Jones 1976-86; Harris, Voegelin, Voegelin 1938-1954)
sta', hiru- be covered or plastered with (Winnebago, Miner n.d.:1064)
sta, ába- patch, put on a patch (Kansa, Rankin n.d.1)
sta, áya- adhere, (one object), stuck ayasta (Kansa, Rankin n.d.1)
sta, ába- patch (Quapaw, Rankin n.d.2)
sta, ábi- plaster a house (Quapaw, Rankin n.d.2)
 Sk. **staka**, aká- throw or daub on e.g. plaster, to bespatter (Lakhota, Buechel 1970:69)
staka, oká- to throw on or in, make stick on, as in daubing a house (Lakhota, Buechel 1970:385)
stûkí, ádu- to adhere or stick to (Biloxi, Dorsey & Swanton 1912:180)

Table 3: examples of Class Ib

In Subclass Ic, no simplex form has yet been found, but different extensions appear, either in the same language or in different languages. Table 4 gives one example.

- [post-extension P]
 [post-extension T]
 S. [= *ko 'probe; pry']
 Sp. **koopE**, nú- drill by auger (Hidatsa, Jones 1976-86;
 Harris, Voegelin, Voegelin 1938-1954)
koopE, pá- try to pry in (Hidatsa, Jones 1976-86;
 Harris, Voegelin, Voegelin 1938-1954)
koopE, dúu- pierce (Crow, Graczyk 1990)
koopE, páa- punch a hole in (Crow, Bilingual Ma-
 terials Development Center 1987)
góp, ru- take, dig something out of something else
 (e.g., knife out of sheath, cork out of bottle)
 (Winnebago, Miner n.d.:2664)
góp, wa- pry out, v.tr. (Winnebago, Miner n.d.:
 3256)
 St. **kóta**, pa- to dig or take out marrow from a bone,
 to probe (Lakhota, Buechel 1970:429)
góje, ba- pick, probe, pick the teeth (Kansa, Ran-
 kin n.d.1)
kótte, di- dig out, probe (Quapaw, Rankin n.d.2)

Table 4: examples of Class Ic

In that their simplex and extended forms share glosses, Class I examples presumably contain sets in which the semantics of the proto-derivation have either collapsed or been reduced from denotative distinctions to connotative distinctions too subtle to appear in word lists and dictionaries.

In Class II, extensions are formed using the same segmental phonemes discovered in Class I, but simplex and extended forms differ in meaning. I have tried to limit myself to semantic differences which might plausibly be derivational, but "plausible" is a relative term over which competent linguists might agree to differ. Perhaps as a result of my hesitancy, Class II contains the fewest examples. One set is given in Table 5 (next page), where Sro is a cover symbol for /sro/, /šro/, and /xro/.

[post-extension T]

[post-extension K]

- S. [= Sro 'hollow out; empty out --> cause to slip out']
- xló**, ba- crawling, stooping while pushing through. baxlo (Kansa, Rankin n.d.1)
 - xlo**, ogá- chip or cut out the inside v. ogaxloxla ogaxlo (Kansa, Rankin n.d.1)
 - xlóya**, ga- enlarge, cut a larger hole gaxloya (causative, Kansa, Rankin n.d.1)
 - xdó**, ba- pierce, stab, perforate (Quapaw, Rankin n.d.2)
 - xdo**, od- take food from a cache (Quapaw, Rankin n.d.2)
 - xdo**, pó- oze, penetrate, as water from the ground (Quapaw, Rankin n.d.2)
 - xdó**, di- to hull beans or green nuts (Biloxi, Dorsey & Swanton 1912:219)
- St. **xlóje**, ba- peel sthg, push the skin off shed skin (Kansa, Rankin n.d.1)
- xdótte**, di- peel sthg. off a surface (Quapaw, Rankin n.d.2)
 - xlota**, ina- to be blistered or chafed (Tutelo, Dorsey n.d.)
- Sk. **xlóka**, pa- 435 to push or shove off e.g. one's coat sleeve (Lakhota, Buechel 1970:435)
- xlóka**, yu- to pull off e.g. a garment; to pull out e.g. a cork. (Lakhota, Buechel 1970:652)
 - xlógya**, waná- to hull corn, i.e. with ashes as the old Indians did; to make hominy (Lakhota, Buechel 1970:539)
 - xlóka**, yu- to make a hole, using the hand (Lakhota, Buechel 1970:638)
 - xloka**, oká- to make its way through, as water through cloth, to come through (Lakhota, Buechel 1970:382)
 - xlóge**, ga- holes, make in an object (Kansa, Rankin n.d.1)
 - xlók 'a**, ba- hollow out, empty out (Kansa, Rankin n.d.1)
 - xlók 'a**, bu- empty contents by pressing (Kansa, Rankin n.d.1)
 - xlók 'a**, ya- ; -xlók 'a suck out contents of a bottle or bone. (wnsa, Rankin n.d.1)
 - xlók 'a**, yu- empty, pull out the contents (Kansa, Rankin n.d.1)

Table 5: examples of Class II

In Class III, simplex and derived forms share essentially the same gloss, but there are more phonological differences between them than mere extension. Class III examples are messy Class I sets. I have not found it necessary, in what I want to be a conservative presentation of the evidence, to set up a Class IV of phonologically messy, semantically different forms. Table 6 gives one example of a Class III set in which the nasal/oral correspondences are not completely regular.

[post-extension K]

- S. *htaa*, *pá-* tip sth. over (Hidatsa, Jones 1976-86; Harris, Voegelin, Voegelin 1938-1954)
pta'pta, *yu-* to turn or roll back and forth with the hand, to rock. *čičiyuptapta*. (reduplicated, Lakhota, Buechel 1970:648)
ttaya, *obá-* roll something, roll over, like a tumblebug. (causative, Kansa, Rankin n.d.1)
ttatta'da, *odf-* roll sthg. over and over (reduplicated causative, Quapaw, Rankin n.d.2)
 Sk. *ptak*, *pa-* to roll s.t. over (Mandan, Carter n.d.)

Table 6: an example of Class III

A group of associated simplex and extended forms is what I am calling a data set. In examining the raw data for potential sets, I made several assumptions. For example, I assumed that a canonical proto-Siouan verbal root had the shape CV and, consequently, that roots with the shape CCV were potential cases of pre-extension; roots with the shape CVC, potential cases of post-extension. I also assumed that extensions would not be infixes but always affixes, that pre-extensions would generally be nonsyllabic (except in those languages which break up obstruent-resonant clusters), and that post-extensions would either create consonant-final stems or would be followed by a vowel distinct from the preceding vowel of the root in cases which might otherwise be interpreted as reduplication. These assumptions were search strategies only and do not reflect my beliefs about the actual canonical structure of proto-Siouan simplex roots.

The 137 sets discovered to date are tallied in Table 7 by phoneme and sorting class. Before summarizing their distribution, I must emphasize that the numbers are undoubtedly influenced by my assumptions, both known and unknown, and by the limits of my endurance. I have been through the data repeatedly in a variety of ways, each time finding a few more sets, but the verb files are not yet completely tidy and there are likely to be a few more sets as yet unnoticed. With that caution then, let me point out that the post-extensions /k/ and /S/ are clearly the best attested, with /p/, /h/, /w/, and /r/ each occurring about one third as frequently, /t/ about two thirds as frequently. Only /p/ and /k/ appear as pre-extensions.

	totals	Ia	Ib	Ic	II	IIIa	IIIb	IIIc
pre-ext. /p/	8	3	1			1	1	2
post-ext. /p/	12	4	3	4			1	
post-ext. /t/	15	3	2	5	2			3
pre-ext. /k/	8	3	4	1				
post-ext. /k/	34	13	11	6	2	1	1	
post-ext. /S/	28	10	3	8	1	2		4
post-ext. /h/	13		9	3		1		
post-ext. /w/	9	4	2	2				1
post-ext. /r/	10	1	6	2	1			
totals	137	41	41	31	6	5	3	10

Table 7: extensions by sorting class

It is tempting to cast about for candidate affixes to explain away these extensions. In the case of post-extension /k/, for example, one thinks of the nominalizing suffix -ka found in several of the languages and is tempted to propose that all instances of post-extension /k/ are denominative verbs. But compounding is also plausible in several cases. For pre-extension /p/, one is tempted to invoke that most general of all Siouan indefinite pronouns, *wa, and to assume an irregular loss of syllable peak. But layering of prefixes on top of one of the labial instrumental prefixes is easily as plausible. It seems most likely to me that what are here termed extensions have a number of distinct sources which we may never be able to sort out. For that reason, I

prefer simply to call them extensions rather than to pretend to any morphological and semantic certainty about their history.

Table 7 is a simple tally, enabling us to form broad impressions of root extension across a good selection of Siouan languages considered together. But it is also possible to examine the distribution of extensions across individual languages, a possibility made manifest in Tables 9 and 10 (next pages). In preparing these, I counted the number of instances of a given extension in a given language. The raw counts appear in Table 8. They total to much more than 137 because two or more languages may have cognates in a single set--the single set was counted for Table 7, the several languages were tallied for Table 8.

	CR	HI	MA	LA	KS	QU	WI	BI	TU
pre-ext. /p/	2	4	3	5	2	1	0	1	0
post-ext. /p/	3	3	3	7	2	1	5	1	0
post-ext. /l/	0	3	2	7	5	6	0	1	2
pre-ext. /k/	1	2	1	3	0	0	2	1	0
post-ext. /k/	6	6	5	19	9	5	8	6	0
post-ext. /s/	5	10	7	12	9	6	11	0	2
post-ext. /h/	4	6	6	0	3	1	1	1	1
post-ext. /r/	0	0	4	0	1	5	1	2	0
post-ext. /w/	2	1	0	1	3	2	0	1	0

Table 8: extension examples by language

In Table 9, each language's instances of a given extension were divided by the total count of all extensions for that language. Thus Mandan has three instances of pre-extension /p/ and a total of 31 instances of extension. The number .10 at the intersection of pre-extension /p/ and Mandan in Table 9 indicates that about ten per cent of all noted Mandan root extensions are pre-extension /p/. The figures add up to more than 100% in some instances due to rounding errors, but the table gives us a good view of distribution by individual language. It is evident, for example, that post-extension /h/ is significantly better attested in the three upper Missouri River languages and Tutelo than elsewhere, though it appears everywhere except in Lakhota.

	CR	HI	MA	LA	KS	QU	WI	BI	TU
pre-ext. /p/	.09	.11	.10	.09	.06	.04	0	.07	0
post-ext. /p/	.13	.09	.10	.13	.06	.04	.18	.07	0
post-ext. /t/	0	.09	.06	.13	.15	.22	0	.07	.4
pre-ext. /k/	.04	.06	.03	.06	0	0	.07	.07	0
post-ext. /k/	.26	.17	.16	.35	.26	.19	.29	.43	0
post-ext. /s/	.22	.29	.23	.22	.26	.22	.39	0	.4
post-ext. /h/	.17	.17	.19	0	.09	.04	.04	.07	.2
post-ext. /r/	0	0	.13	0	.03	.19	.04	.14	0
post-ext. /w/	.09	.03	0	.02	.09	.07	0	.07	0

Table 9: L_N/L_T --distribution of examples in language L

In Table 10 (next page), each language's instances of a given extension were divided by the total count of that extension across all nine languages. This gives us another view of the degree to which a given language exhibits a particular extension. Where Table 9 shows us, for example, that 35% of Lakhota extensions are post-extension /k/, Table 10 shows us that 56% of the examples of post-extension /k/ include Lakhota forms. Thus Table 9 is labeled 'distribution of examples in language L' while Table 10 is labeled 'proportion of examples from language L.' Table 10 shows us, for example, that very few examples of extension come from Tutelo and suggests that the Tutelo figure for post-extension /h/ in Table 9 may not be significant. Figures for post-extension /h/ in the three Upper Missouri River languages remain strong, however, and Kansa begins to look more interesting.

	CR	HI	MA	LA	KS	QU	WI	BI	TU
pre-ext. /p/	.25	.50	.38	.63	.25	.13	0	.13	0
post-ext. /p/	.25	.25	.25	.58	.17	.08	.42	.08	0
post-ext. /t/	0	.20	.13	.47	.33	.40	0	.07	.13
pre-ext. /k/	.13	-.25	.13	.38	0	0	.25	.13	0
post-ext. /k/	.18	.18	.15	.56	.26	.15	.24	.18	0
post-ext. /s/	.18	.36	.25	.43	.32	.21	.39	0	.07
post-ext. /h/	.31	.46	.46	0	.23	.08	.08	.08	.08
post-ext. /r/	0	0	.4	0	.1	.5	.1	.2	0
post-ext. /w/	.22	.11	0	.11	.33	.22	0	.11	0

Table 10: $L\sqrt{E}_T$ --proportion of examples from language L

I have no claims to make as yet about the details which might be discerned in Tables 9 and 10. Rather, my goal is to establish the broader argument that root extensions are part of the data of Siouan historical linguistics and not mere products of a single investigator's fancy. If that claim can be accepted, we will have a powerful tool for simplifying comparisons, one which may enable us to relate many similar verbs in principled ways. I would caution, however, that the concept of root extension is so powerful that its injudicious invocation can relate virtually anything to virtually anything else. For that reason, I suggest that we be very conservative about the semantics of related forms and that we admit new extension positions or new extension phonemes only when a reasonable number of clear examples support the proposal. What "conservative" and "reasonable" may mean in this work, I leave to future argument.

NOTES

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²The data sets which this paper summarizes print out to nearly thirty pages, single-spaced. Complete listings of the sets were distributed at the conference in photo-reduced form, but cannot be included here for reasons of space. Copies may be obtained from the author at: Humanities Division/University of Mary/7500 University Drive/Bismarck, ND 58501/USA.

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