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Article Title: The Northern Caddoan Languages: Their Subgrouping and Time Depths

Full Citation: Douglas R Parks, "The Northern Caddoan Languages: Their Subgrouping and Time Depths," *Nebraska History* 60 (1979): 197-213.

URL of article: <http://www.nebraskahistory.org/publish/publicat/history/full-text/NH1979NorthernLang.pdf>

Date: 1/4/2012

Article Summary: This is one of a series of articles based on presentations at a mini-symposium "Toward Plains Caddoan Origins: A Symposium" held at the Smithsonian Institution in November, 1976. This article reviews the Northern Caddoan languages and dialects and their interrelationships, and then presents a set of impressionistic dates that would plausibly account for the separation of pairs of these languages.

THE NORTHERN CADDOAN LANGUAGES: THEIR SUBGROUPING AND TIME DEPTHS

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The comparative study of related languages, when based on sufficient data and a detailed comparison of the languages, is able to provide, among others, two kinds of information that are significant for the reconstruction of culture history. The more precise of the two is a genetic classification of the languages that portrays their historical relationships: how a group of contemporary speech forms have developed over time from a putative ancestral language. Usually this classification is illustrated by a "family tree" diagram which begins with the original (or *proto*) language at one end and then indicates the subsequent divisions in their relative chronological order. Although it is generally recognized that language change and the development of new languages do not always proceed in such a simple manner, the scheme does provide a reasonably accurate illustration of the major developments in the linguistic history of a language family.

In the absence of written records, linguistic study can also suggest approximate dates for the separation of pairs of related languages. However, while one can be fairly confident of the relative dating that a genetic classification provides, one must be extremely cautious of absolute, or metric, dates. There are two kinds of the latter type. One is an *impressionistic* date, where a worker gives an estimate of the number of years likely to account for the differences between two languages. It is based on his familiarity with the languages in question and is, simply, an educated guess. The other method, called *glottochronology*, is a statistical one. It compares a set of 100 or 200 words from the basic, or core, vocabulary of two or more related languages. From the number of words that are perceived to be cognate between two languages, one can calculate a date of separation based on a formula that assumes a uniform rate of

vocabulary change for all languages. This method, unfortunately, is fraught with many basic problems and yields controversial results. Hence, the dates that it provides must be viewed with a judicious skepticism, especially when they conflict with a different set of dates that are otherwise suggested.

Until recently, published data on Caddoan languages were scanty. The only significant materials, in fact, were the publications on Pawnee by Gene Weltfish (1936, 1937). Over the past decade this situation has changed. Each of the languages is now being studied, and eventually it should be possible to work out a detailed picture of the linguistic prehistory of the family. In the meantime, this paper will present some preliminary conclusions based on our current state of knowledge and work. First, I shall review the Northern Caddoan languages and dialects and their interrelationships, and propose a tentative subgrouping of them. Subsequently, I shall present a set of impressionistic dates that would plausibly account for the separation of pairs of these languages, and then give the data and results of a glottochronological study recently made by me. These sets of dates, while not congruent and not necessarily exact, should nevertheless indicate the approximate time depths underlying the linguistic divisions within the Northern Caddoan group.

Languages, Dialects, and Subgrouping

The first comprehensive classification of the Caddoan languages and discussion of the interrelationships within the family is a paper by Alexander Lesser and Gene Weltfish written in 1932 and entitled "The Composition of the Caddoan Linguistic Stock." In it they give a subgrouping of the languages and dialects and discuss the etymologies of the various tribal and band designations. The article still serves as an excellent survey of the family. The classification presented in it is accepted today and is given below in abbreviated form:

- I. Northern Caddoan
 - A. Pawnee
 1. South Band Pawnee
 2. Skiri Pawnee
 3. Arikara
 - B. Kitsai

- C. Wichita
 - 1. Wichita proper
 - 2. Tawakoni and Waco
- II. Southern Caddoan
 - A. Caddo
 - 1. Caddo proper
 - 2. Hainai
 - (3. Adai)

The Lesser and Weltfish scheme recognizes four languages: Pawnee, Kitsai, Wichita, and Caddo. Caddo is the most divergent of the four and consequently forms a southern branch of the family that contrasts with a northern one composed of the other three languages. Dialectal differentiation was, in addition, noted for three of the languages: Pawnee has three dialects, Caddo formerly had two or possibly three, and Wichita also probably had two.

Since Lesser and Weltfish's paper was written, only three other papers have dealt with the family as a whole. One is Allan R. Taylor's (1963a) "Comparative Caddoan," which gives vocabulary samples for all of the languages except Kitsai and gives the sound correspondences obtaining among Arikara, Pawnee, Wichita, and Caddo. The paper was perforce a preliminary statement of the sound correspondences and a tentative reconstruction of the Proto-Caddoan sound system, but it is surprisingly accurate given many of the sources Taylor had at hand. One conclusion first reached by Lesser and Weltfish (1932:3) and corroborated by Taylor's study is particularly noteworthy: Arikara is not a branch of Skiri Pawnee, as both tradition and many writers in the past have claimed. The Arikara-Pawnee split was the first division within Pawnee, and later the Skiri-South Band division occurred. Taylor's study also supported the Lesser and Weltfish classification.

A second paper by Taylor (1963b) is "The Classification of the Caddoan Languages." It gives an historical survey of linguistic work with each of the languages in the family and provides a complete bibliography of published material through 1963. A recent article by Wallace L. Chafe (1976) is, in part, a more current version of what Taylor did: it discusses work up through the early 1970s.

Briefly summarized, modern linguistic work with Caddoan languages falls into two periods. The first was that of Lesser and Weltfish in the late 1920s and early 1930s, when they undertook extended field studies. Lesser collected a large amount of Kitsai material, mostly texts, shortly before the language became extinct. Weltfish at the same time worked with Pawnee, and later published a collection of texts and a sketch of the sounds and morphology of the South Band dialect together with an analyzed text. After their efforts, further significant field work with Caddoan languages did not commence again until the 1960s, when Wallace L. Chafe worked with Caddo, David S. Rood with Wichita, and Douglas R. Parks with first Pawnee and subsequently Arikara. Much of this recent work is unpublished yet, although grammars of Wichita (Rood 1976) and Pawnee (Parks 1976) are now in print as is also a volume of texts representing all of the languages in the family (Parks 1977).

Pawnee. Pawnee was, at least in recent historical times, spoken in two dialects, Skiri and South Band. The latter is composed of the three formerly autonomous Pawnee bands, the Chawi, Kitkahahki, and Pitahawirata. (Arikara, which is usually considered a third dialect, is treated separately below.)

Insofar as I am aware, there are no historical references to, or traditions of, dialectal differences among the Skiri. In a way this is surprising, since in the early historical period the Skiri lived in at least 15 different villages. According to James R. Murie (1914:550-551), though, 13 of these villages were confederated for ceremonial and political functions, while only two remained independent.

Lesser and Weltfish (1932:4) reported that all of the older speakers of the South Band dialect—members of the Chawi, Kitkahahki, and Pitahawirata bands—insisted that when each of the three bands had lived apart, there were differences in their speech. These two investigators were, however, unable to document any vestiges of differences, although they mention obtaining suggestions of a linguistic distinction between a group called the *kawara:kis* and the other south bands. According to Murie (1914:549), the *kawara:kis* was once one of the two separate Pitahawirata villages. According to Lesser and Weltfish's oldest informants, the two groups did not live apart: the *kawara:kis* were people within the Pitahawirata band who

had the *kawara*? bundle, one of the oldest tribal bundles and certainly the oldest among the Pitahawirata. These same sources did, however, assert that the *kawara:kis* people spoke differently. If they did in fact speak differently, this fact would lend support to Murie's contention.

It is, of course, now impossible to substantiate any dialectal differences that may have existed among the three southern bands, but it would seem, if the traditions given to Lesser and Weltfish have any validity, that there may have been some contrasts. Whether they were linguistically significant, however, is certainly unclear. For historical reasons, it is unfortunate that more is not known, because substantial differences at an earlier period would point to a greater time depth for the original separation of the three south bands. As it is, the names of these three bands do not appear in the ethnohistorical literature until the last quarter of the 18th century—long after references to the Pawnee begin. Thus one might conclude that, barring any significant dialectal differences, the separate identity of the Chawi, Kitkahahki, and Pitahawirata is not an old one.

We are left, then, with the two dialects, Skiri and South Band. The differences between the two as spoken since the late 19th century are not great, and speakers of both dialects have understood each other during late historical times, apparently without any real difficulty. The major contrasts that I have documented can be summarized briefly as follows:

1. Skiri has one vowel less than South Band.
2. There are two changes in Skiri when certain consonants come together; viz., South Band *hr* is reduced to *h* in Skiri, and South Band *kt* becomes *tt* in Skiri.
3. There are differences in lexical items, or words; e.g., Skiri *ra:harisu*? 'hoe' is *ka:tare:riwis* in South Band.
4. There are striking contrasts in accentual patterns.

(I have been unable to find any significant grammatical differences.)

What the above divergences indicate is that the South Band dialect preserves the older, or more archaic, form of Pawnee and the Skiri dialect has been the more innovative, basically eliminating several phonological distinctions that South Band preserves. One cannot, however, draw any historical inferences from this contrast.

Arikara. Arikara has generally been treated as a very

divergent dialect of Pawnee. In a strict linguistic sense, this is accurate. It has undergone a number of phonetic changes and preserved several older morphological features that Pawnee has lost; there have also been many semantic shifts that have developed between the two. All of these changes "mask," as it were, the underlying similarities and create what on the surface seem like greater differences than are really there, for in fact the grammars of the two speech communities are nearly identical. Nevertheless, Arikara and Pawnee are not mutually intelligible today. Although some Arikara claim that they can understand Pawnee and vice versa, this intelligibility is probably due either to the recognition of many cognate words or one learning the speech of the other, since several mutual intelligibility tests that I have made among older speakers have shown the two dialects to be unintelligible.

Although it is possible to treat Arikara and Pawnee either as separate languages or as dialects of a single language, my own propensity is to view them as separate languages for two reasons: (1) they are not mutually intelligible, and (2) the Arikara were politically autonomous and geographically separated from the Pawnee.

Further, an important fact to note about Arikara is that it formerly consisted of several dialects. Only a precious few vestiges of these survive today, but tradition as well as historical statements support the existence of significant speech differences. Lewis and Clark, for example, mention that the Arikara were made up of 10 different, and formerly separate, tribes of Pawnee, and that after their population had been reduced and the groups had come together, the people of the formerly separate groups did not fully understand the speech of each other (Thwaites 1904:188). Tabeau, in 1803-1804, also wrote:

The Loups and all the different Panis now on the river Platte, made undoubtedly, with the Ricaras but one nation which time and circumstances have, without doubt, insensibly divided. The language was originally the same; but, like that of all nations, it has undergone such great changes that it has left many different dialects. Each of the tribes has its own particular one so that no one can say that he knows the Ricara language; for it would be necessary that he should understand ten different ways the greater number of words, in which the common etymology is scarcely to be recognized. The pronunciation especially differs markedly. Among some it is drawling and among others hurried. The latter pronounce in the throat. . . The alliances among the tribes, in which each party is jealous of its idiom, causes every child to adopt its language. The grandparents, the aunts, the uncles, and the nephews, who are brothers. . . , have all

their different *patois* and, as all live ordinarily in the same lodge as one family, it seems like the Tower of Babel and as if all speak without understanding. [Abel 1939:125-126]

What this and other ethnohistorical information indicate is that Arikara, as a single tribe and language, is a product of historical events: the smallpox epidemics, and perhaps other factors, so reduced their population that previously separate groups speaking different dialects coalesced into a single group ultimately speaking a single dialect. Since the dialectal differences were never recorded, one can only wonder if they were minor or major ones. If they were major differences, then the question arises, is Arikara, as a language, an amalgam or pooling of those dialects, or did one of them predominate and "absorb" the others? My own inclination, based on the preceding historical hints, is that there were probably at least two, and perhaps more, striking contrasts: some of the bands apparently spoke more like the Pawnee to the south while others spoke a more divergent form, one more like contemporary Arikara, that eventually predominated over the other one or ones.

Kitsai. This now extinct language was fortunately recorded before its demise by Alexander Lesser, whose materials are as yet largely unpublished. Early writers, like James Mooney (1896:1095) and George Dorsey (1904:1), considered Kitsai to be separate from Pawnee and Wichita, but more closely related to Pawnee. Lesser and Weltfish (1932:1) stated that comparisons of the three languages indicated that Kitsai is intermediate between the other two, although "Kitsai resemblances are clearest with South Band Pawnee." My own distinct impression, after working through a number of Kitsai texts, is that the language is indeed at least slightly more closely related to Pawnee; and, in fact, the glottochronological comparison that I made supports this feeling. Before the matter can be more precisely stated, however, a detailed comparison of the language with Pawnee and Wichita must be undertaken. (An analysis of Kitsai grammar and a dictionary are pressing prerequisites to this comparison.)

Wichita. Wichita today is dialectally undifferentiated. The tribe formerly consisted of eight or nine bands which Lesser has named (Lesser and Weltfish 1932:2). He stated in 1932 that there was no evidence of former dialects; but that by tradition, as well as some casually remembered words and expressions, it

seemed probable that at least two of the bands spoke somewhat differently from the other groups. The two that were presumably dialectally distinct were the Tawakoni and Waco, the westernmost groups of the Wichita and ones somewhat removed geographically from the others. Mutual intelligibility, nevertheless, seems to have always been the case.

Remarks. One point that cannot escape the linguist who looks at the historical literature as well as listens to older informants is that the linguistic picture for Northern Caddoan was more complex than it is today or was 50 years ago. Arikara was undoubtedly dialectally differentiated, and Wichita, too, seems to have had at least some internal diversity. However, due to the early periods when the cultures of these peoples were disrupted—indeed nearly annihilated—it is impossible to recover the extent of the former differences. South Band Pawnee may also have had some speech variation, although it would seem that it was not great. The only two groups for which there is neither historical statement nor tradition of internal speech differences are the Skiri and Kitsai. In all likelihood, Skiri never did have any significant diversity within it. The Kitsai, however, were so reduced when Lesser recorded the language—they were literally down to their last speaker—that it would have been unlikely that any former diversity would have survived.

Figure 1 below is a portrayal of the history of the Northern Caddoan languages and summarizes the preceding discussion. It shows that there was an indeterminate number of dialects at each of the earlier stages in the history of the family: that the Northern Caddoan territory was probably a dialect continuum, reflecting the small, widely dispersed settlements in which these peoples formerly lived. Molded by the uncontrollable and disruptive events of the eighteenth and nineteenth centuries, the historically attested languages developed from these dialects when the remnants of the once larger populations regrouped themselves into a few concentrated villages.

Time Depths of Separation

Impressionistic dates. Of the two methods for dating language separation, the impressionistic one is purely subjective. It is based on a variable number of factors, including the linguist's knowledge of the languages in question and his familiarity with instances of actually datable language and

dialect separations for comparison. With this proviso, I would suggest for the Northern Caddoan languages the set of dates in Table 1. They are based on an intimate knowledge of Arikara and Pawnee and a more than casual familiarity with Kitsai and Wichita. The phonological processes and morphological structures are known in detail for all of the languages except Kitsai, but even for it the author is acquainted with the grammar in outline form.

TABLE 1
IMPRESSIONISTIC DATES FOR NORTHERN CADDOAN SEPARATIONS

Language/Dialect Pair	Years of Separation
South Band-Skiri	200-300
Pawnee-Arikara	500
Pawnee-Kitsai	1,000-1,200
Pawnee-Wichita	1,200-1,500
Wichita-Kitsai	1,200-1,500

Glottochronological dates. In contrast to the factors on which impressionistic dates are formed, a glottochronological study is restricted to a comparison of a basic vocabulary sample and thus measures lexical change only. It is, furthermore, based on the unfounded assumption that this change proceeds at a constant rate for all languages; viz., a 20 percent loss every thousand years in the "core" vocabulary. There is a vast literature on the methods and results of glottochronology, which at one time seemed to be a promising new means of dating. It appeared to be for linguistics what carbon 14 dating was for archeology. Over the years, however, the methodology has not been developed or refined in such a way that it can provide reliable dates. Thus it remains only a statistical means for measuring lexical replacement.

TABLE 2
RESULTS OF GLOTTOCHRONOLOGICAL COMPARISONS

Language Pair	Shared Cognates	Date of Separation	
Pawnee-Arikara	88	300 years	1650 A.D.
Pawnee-Kitsai	60	1200 years	750 A.D.
Arikara-Kitsai	61	1200 years	750 A.D.
Pawnee-Wichita	45	1900 years	50 A.D.
Arikara-Wichita	43	2000 years	150 B.C.
Kitsai-Wichita	44	1950 years	0

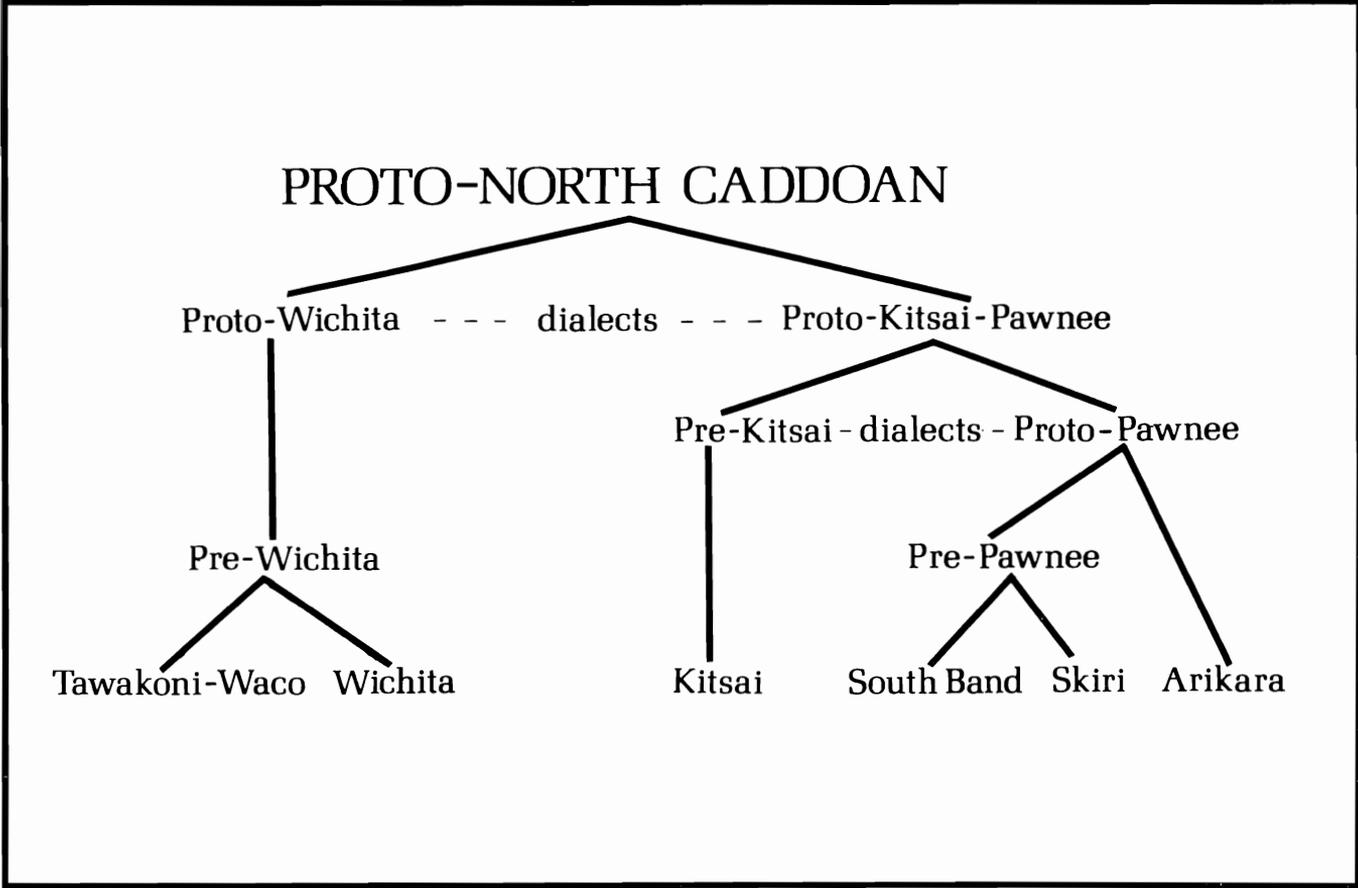


Figure 1. Northern Caddoan subgrouping.

Table 2 gives the results of my comparisons for pairs of Northern Caddoan languages. (The data on which the results are based are given in the Appendix below.) In several cases the results were disappointing. The 300 year date of separation for Pawnee-Arikara seems to me to be clearly too low, since it would leave too short a period for the Skiri-South Band split, which must date back to 1700 at the very least and may possibly extend even further back. The dates for the Pawnee/Arikara-Wichita and Kitsai-Wichita separations seem to be excessively high. The Pawnee/Kitsai dates, however, appear quite plausible—the only satisfying ones in the study.

Although most of the dates that it yields do not appear realistic, the glottochronological study does lend support to the subgrouping presented above. It shows that at least in the basic vocabulary there is a significantly closer relationship between Pawnee and Kitsai than between Wichita and Kitsai; viz., a 15 percent difference. Firm substantiation of this subgrouping, however, must await a thorough comparison of the Northern Caddoan languages and a reconstruction of the proto language.

Another glottochronological comparison of the Caddoan languages was made by Morris Swadesh and Gene Weltfish in 1955. It has remained unpublished, but Jack Hughes reported on it in his dissertation (1968:81-84). The comparison included Arikara, Pawnee, Wichita, and Caddo. All of the data were furnished by Weltfish. There were a number of acknowledged problems with the data as well as an incomplete list of words for Arikara (viz., a total of only 47 items). Hence the results were admittedly provisional. Nevertheless, Swadesh got more plausible dates than I did, in spite of the less complete data. The two figures that are pertinent are the Pawnee-Arikara date, which showed a five century separation date; and the Pawnee-Wichita, which yielded a 14 century split. Both of these dates coincide with my impressionistic dates for the separations of these two pairs. (Except for an Arikara-Wichita separation date of 20 centuries, the other comparisons in the study were with Caddo, which is not of immediate interest.)

Remarks. The two sets of dates presented above, while not identical, do conform sufficiently closely to each other to give a notion of the approximate time depths of each pair of languages. (Such dates, however, cannot take into account any former language diversity that has not survived to the present.)

The significant discrepancies between the impressionistic and the glottochronological dates are the ones for Pawnee-Arikara, Pawnee-Wichita, and Kitsai-Wichita. The glottochronological date for the first pair seems too low, while the glottochronological dates for the latter two seem too high. Thus, in each of these cases the impressionistic figure seems the more likely.

Appendix

The 100 word list on which the glottochronological count was made is presented in Table 3 below. The linguistic data in it come from three unpublished sources. The Wichita forms were provided by David S. Rood, who collected them in the late 1960s. The Kitsai forms were taken by the author from the field notes and texts collected by Alexander Lesser in 1929 and 1930. The Pawnee and Arikara words come from the author's files and were collected between 1965 and 1975. All of the forms are cited in modern phonemic transcriptions, except for the Kitsai words which are given in a broad phonetic transcription.

The following lists give the words that were judged *not* to be cognate for each language pair. The numbers in the lists correspond to those under the English gloss in Table 3.

Pawnee—Arikara: 6, 9, 16, 22, 24, 36, 52, 54, 67, 77, 83, 92.

Pawnee—Kitsai: 6, 8, 9, 11, 15, 16, 17, 18, 21, 22, 23, 24, 25, 28, 34, 36, 42, 44, 45, 49, 52, 54, 55, 61, 66, 69, 70, 73, 74, 79, 82, 86, 87, 88, 89, 92, 95, 96, 97, 98.

Pawnee—Wichita: 5, 6, 7, 8, 9, 12, 13, 15, 17, 18, 20, 21, 22, 23, 24, 25, 28, 31, 32, 33, 34, 36, 38, 42, 44, 49, 50, 52, 53, 54, 55, 56, 57, 58, 60, 69, 70, 71, 73, 74, 75, 76, 77, 81, 82, 83, 84, 87, 88, 89, 94, 95, 96, 98, 100.

Arikara—Kitsai: 6, 8, 9, 11, 15, 16, 18, 21, 22, 23, 24, 25, 28, 36, 42, 44, 45, 52, 54, 55, 61, 66, 67, 69, 70, 73, 74, 79, 82, 83, 86, 87, 88, 89, 92, 95, 96, 97, 98.

Arikara—Wichita: 5, 6, 7, 8, 9, 12, 13, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 28, 31, 32, 33, 34, 36, 38, 42, 44, 49, 50, 52, 53, 54, 55, 56, 57, 58, 60, 67, 69, 70, 71, 73, 74, 75, 77, 81, 82, 83, 84, 87, 88, 89, 90, 94, 95, 96, 98, 100.

Wichita—Kitsai: 5, 6, 7, 8, 9, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 31, 32, 33, 34, 36, 38, 42, 44, 45, 49, 50, 52, 53, 54, 56, 57, 58, 60, 61, 66, 69, 70, 71, 73, 74, 79, 81, 84, 85, 86, 87, 88, 89, 92, 94, 95, 97, 98, 100.

TABLE 3. 100 WORD GLOTTOCHRONOLOGICAL LIST FOR THE NORTHERN CADDOAN LANGUAGES

<i>English</i>	<i>Arikara</i>	<i>Pawnee</i>	<i>Kitsai</i>	<i>Wichita</i>
1. I	-t-	-t-	-t-	-c-
2. thou	-x-	-s-	-s-	-s-
3. we	-sir-	-cir-	-ci- (in. du.)	-cí:y-
4. this	ti	ti	tiʔi	tiʔi
5. that	i	i	i-, anini 'by that'	ha:rí:h
6. chest	wa:ku:káuʔ	awa:ki:suʔ	nikokí:su	khi:kʔa
7. not	ka-	ka-	ka-	kírih
8. all	čitú:ʔ	kitu:	ak ^W ác	assé:hah
9. many	ranihu:n	kari	nirahkina 'there is _ '	iyarhah
10. one	áxkux	ásku	arísku	ass
11. two	pítkux	pítku	cásu, cúsu	wicha
12. big	rihu:n	rihu:r	nikin	tac; Riwa:c
13. woman	sápat	cápat	cak ^W ákt	ka:hi:kʔa
14. man	wí:ta	pí:ta	wí:ta	wi:c
15. person	sáhniš	cáhriks	kírika	iha:s
16. fish	čiwáhtš	kací:ki	nitát	ka:cʔa
17. bird	níkus	ríkucki	ku:cáke, kucáki	ichir
18. dog	xá:tš	ása:ki	anú:sa	kiciye:h
19. tree	nahá:pi	raha:pe	yáku (wood); ayák ^W i	tiya:hk ^W
20. seed	načirí:kuʔ	rákiri:kuʔ	nikirí:kʔu	niki:sʔa
21. leaf	sče:kará:kuʔ	kské:kara:kuʔ	yakánu	kíʔinca:cʔa
22. root	kasuka:wíuʔ	rákaphcuʔ	ayakakunayahkasa	ʔaski:cʔa
23. bark	ha:kiskú:xuʔ	rá:kicku:suʔ	yakatakuác	tí:kʔacʔiya:cʔa
24. skin	sahnišskú:xuʔ	ckári.tuʔ	arahkita	kitha:rʔa
25. meat	tsástš	kísacki	ne:tana:s, awánas	ʔarasʔa

26. blood	pá:tuʔ	pá:tuʔ	k ^W á:tu	wa:ckicʔa
27. bone	čí:šuʔ	kí:suʔ	kí:su	ki:sʔa
28. grease	čisahítš	kicahihtuʔ	yahtkiríyu ‘hot’ kinasí:tu ‘lard’	kira:sʔa
29. egg	nipí:kuʔ	ripí:kuʔ	nik ^W i:ku	nik ^W i:kʔa
30. horn	arí:kuʔ	pa:rí:kuʔ, arí:kuʔ	arí:ku	ʔarikʔa
31. tail	nitkú:ʔ	ritku:ʔu	nitkúhu	ki:ya:kʔa
32. feather	hí:tuʔ	í:tuʔ	hí:tuʔ	ni:sʔa
33. hair	ú:xuʔ	ú:suʔ	ickó:su	tiya::cʔa
34. head	páxuʔ	páksuʔ	k ^W itácuʔ íckoʔo ‘about head’	weʔekʔa
35. eye	čírí:kuʔ	kírí:kuʔ	kiri:kʔu	kirikʔa
36. nose	siní:tuʔ	icú:suʔ	icú:su	tisʔa
37. mouth	ha:káʔuʔ	há:kauʔ	há:ku	ha:kaʔa
38. tooth	á:nuʔ	á:ruʔ	anhí:suʔ	a:kʔa
39. tongue	há:tuʔ	há:tuʔ	há:tuʔ	hacʔa
40. fingernail	šwí:tuʔ	kspí:tuʔ	ksk ^W i:tu	isk ^W icʔa
41. foot	áxuʔ	ásuʔ	asúʔ	asʔa
42. knee	pa:čí:šuʔ	pá:ki:suʔ	kirikisnayus	ki:sk ^W asʔa
43. hand	íšuʔ	íksuʔ	íksuʔ	iskʔa
44. neck	čí:suʔ	kí:cuʔ	natí:nu	kiticʔa
45. breasts	é:tuʔ	é:tuʔ	isá:tu	e:cʔa
46. liver	karí:kuʔ	karí:kuʔ	karí:ku	karikʔa
47. drink	či:ka	kí:ka	kí:ka	-kikʔa
48. eat	wa:wa-a	wa:wa-a	wawaʔánu, wáwaʔa	-wa:waʔa
49. bite	kaʔus	kauc	takocóhu ‘_ it’	-taʔa
50. see	ut . . . e:rik	ut . . . e:rik	tuciʔe:riksu ‘he _ it’	ʔi::s

Contd. TABLE 3. 100 WORD GLOTTOCHRONOLOGICAL LIST FOR THE NORTHERN CADDOAN LANGUAGES

<i>English</i>	<i>Arikara</i>	<i>Pawnee</i>	<i>Kitsai</i>	<i>Wichita</i>
51. hear	atka-ʉ	atka-u	âtkarahkus ' _ it'	?a:ckhé'e
52. know	ut. . .re:si:š	ir. . .ra:ʔi:ta	atihayaki 'I _ it'	wickaʔa
53. sleep	itka	itka	itka	-hiʔinck
54. die	ko:t	hurahac	hí:ksta 'died'	-teʔes
55. kill	ko:tik	ku:tik	ki	ki
56. swim	hu:se:ri:tik	hu:ce:ri:tik	nutoceri:tik 'he _ s'	-arhiya 'to bathe'
57. fly	awanu	awari	niahak, -a-	?i:to: (+loc.)ʔa
58. laugh	awaxk	awask	awas naʔaʔa 'comes in air'	-wakharikik ^W
59. come	in. . .a	in. . .a	ináhu 'he is _ ing'	u-a. . .ʔa
60. lie	ša	sa	sa	?irhawi
61. sit	kux	ku	wi	?icaki
62. stand	arič	arík	áriki	ariki
63. cut	kakatk	kakatk	kakatk	-kack
64. say	wa:ko	wa:ku	wáku	wakʔa
65. sun	šakú:nuʔ	sakú:ruʔ	sakú:nu	sa:khirʔa
66. moon	páh	pá	cúhk ^W á	wá:h
67. star	sáka:ʔa	ú:pirit	nik ^W irik	hí:k ^W irikʔa
68. water	tstó:xuʔ	kí:cuʔ	akicó:nu	kicʔa
69. rain	tsuhí:nuʔ	ácuhu:ruʔ	nahacaʔa	a. . .hiriʔa (verb only)
70. stone	kaní tš	karítki	kátanu	?ika:ʔa
71. sand	čiwíhtuʔ	kíwiktúʔ	kiwiktú	ki:cha:rʔa—
72. earth	huná:nuʔ	hurá:ruʔ	huná:na	hira:rʔa
73. cloud	skarahkatahá:nuʔ	ckáuʔ	nácton	keʔe:rʔa
74. smoke	na:wí:šuʔ	rá:wi:suʔ	a:ros:	ick ^W eʔe:kʔa
75. fire	če:káʔuʔ	ke:kauʔ 'flame'	akiak	yecʔa (n.); -keʔe 'be a _'

76. ash	itkanahtú:su?	karáktuhcu?	itká.nu	ickha:r?a ‘dust, sand’
77. burn	in. . .kunista?a	kahu:riktik, ir. . .kunista?a	nahúniku, -hurik	-hiri
78. path	hatú:nu?, -sat-	hatú:ru?	nuhya:táta ‘path goes’	hachir?a; -yac ‘to be _’
79. mountain	wá:’u?	wá:u?	arakauh	nawa:re?erhárih ‘where there are mtns.’
80. red	paha:t	paha:t	k ^W ahtn ^Y ú	k ^W a:c
81. blue	tare:’u:x	tare:’u:s	arayós:	kaw?a:c
82. yellow	rahkatá:n	rahkata:r	kísís:, kwanis	narisís
83. white	či:sawatá:n	ta:ka:r	kahcnú	khac
84. black	katí:t	katí:t	katinuk	ka:r?i:s
85. night	nitkahá:nu?	rátkaha:ru?	natki-	ckha:r?a
86. hot	in. . .awiristo	ir. . .awirictu	rahtátkiu ‘it’s _’	wari:ckha:r?a
87. cold	in. . .ra:nana:xitu	ir. . .rara:situ	nahenó:ku ‘it’s _’	-hkwic
88. sated	ka:wáči:t	ka:waki:t	ahino.sana ‘becomes _’	tawa:wi
89. good	un. . .he:r	ur. . .he:r	ickuru:ku, ickorók	acs
90. round	riwiru	riwiru	ariwíok	táriwi:k
91. three	tawihk-	tawihk-	táwihko	tawha:
92. grass	hú:nu?	í:ru?	ací:u	hí:ya:kha:r?a
93. guts	né:su?	ré:cu?	kiré:cu, kiriacu	niya::c?a
94. wind	hutú:nu?	hutú:ru?	hutú:nu	niwe?é:r?a
95. foggy	pihu:	pihu:	rúscá	-?isk ^W a:wi
96. urinate	ka:su:	ka:cu:	wíahas ‘he_’s’	-a:has
97. tie	ut. . .tare:pi	ut. . .tare:pu	atonocakósk ‘I_it’	-thiyaki
98. sing	ra:karo:k	ra:karu:k	kurawáknu ‘he is_ing’	kira:h
99. spit out	hawát	hawát	ahatkicowati ‘he_’s’	hawati
100. cry	čikak	kikak	akikakóhu	?iriki

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