Reconstructing Proto-Muskogean Language and Prehistory: Preliminary results

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Recent years have seen an upsurge in interest in Muskogean linguistics, and considerable progress has been made in understanding the prehistory of these languages and in reconstructing a vocabulary for proto-Muskogean.[1] This paper will argue that this reconstructed vocabulary provides us with information about the branching order of the languages within the family, tentative dates for language separation, and evidence about the environment of the Proto-Muskogeans.

1. The classification of the languages

The Muskogean family contains four groups of closely related languages. Those spoken in this century are

a.) Choctaw and Chickasaw

b.) Alabama and Koasati

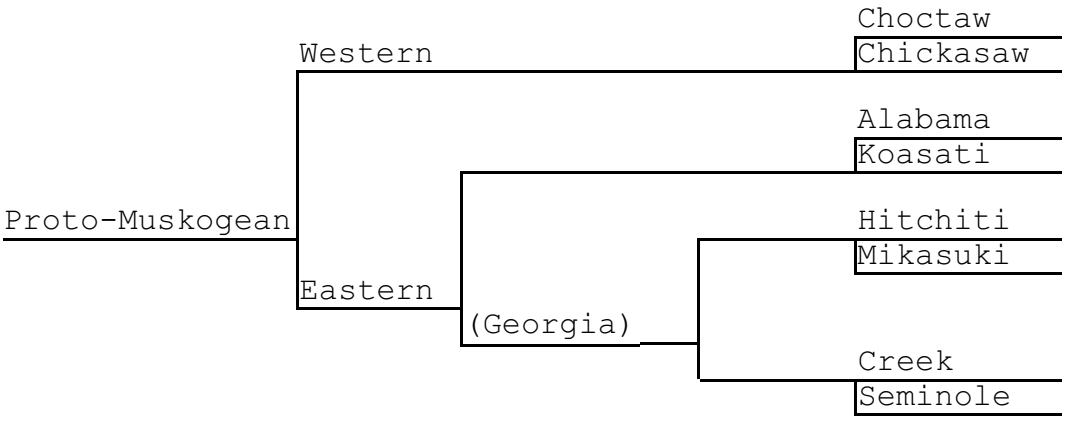
c.) Hitchiti (now extinct) and Mikasuki

d.) Creek and Seminole[2]

Classification above this level is controversial.

1.1 Theories of classification

The most generally known classification of the Muskogean languages is due to Haas (1941), who argued that the family contains two large groups -- Western Muskogean (consisting of Choctaw and Chickasaw) and Eastern Muskogean (composed of the other languages of the family). She was not explicit about the subgrouping of the Eastern Muskogean languages, but her remarks are generally interpreted as supporting the following tree:



Note that one of the subgroups, Creek-Seminole and Hitchiti-Mikasuki, has no generally accepted name in the literature. For ease of discussion, I suggest that we call this suggested subgroup Georgia Muskogean, since all of the languages in it were spoken in the modern state of Georgia (along with adjacent areas of Alabama and S. Carolina).

Munro (1987, 1993) discusses evidence for another

classification, which is essentially the mirror image of Haas's classification. It is shown below:

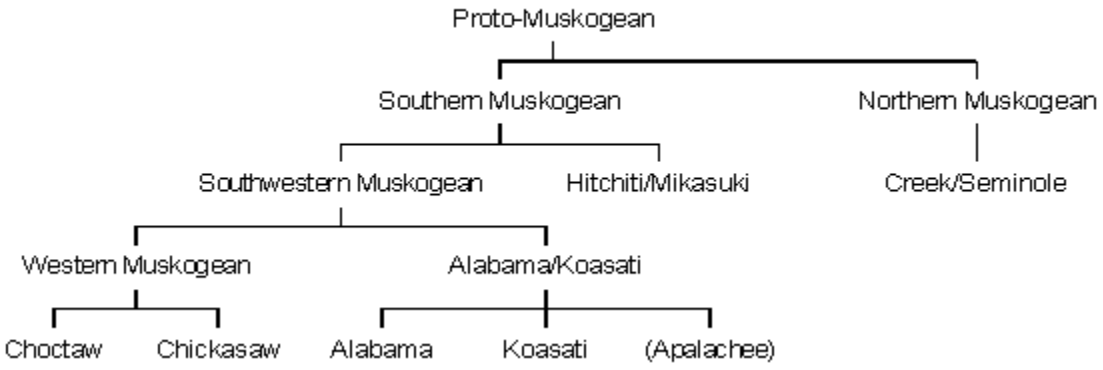


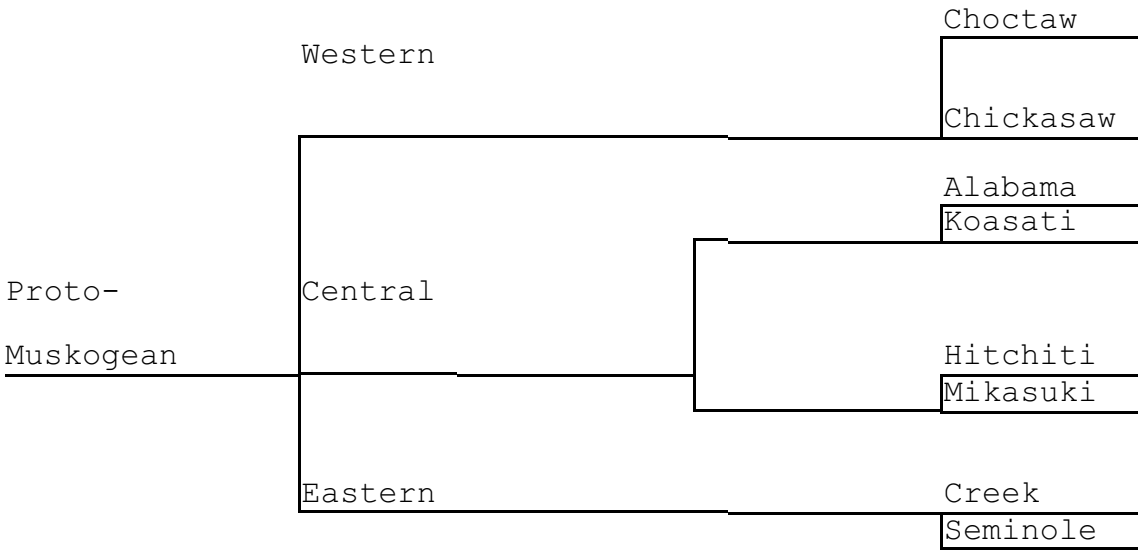
Figure 1 Munro's proposed classification of the Muskogean languages

A disclaimer with respect to the labels is perhaps needed here. The terms Northern and Southern Muskogean are from Swanton (1922), and are used because they have a prior history in the literature. These geographical terms are inappropriate for some of the languages involved (e.g. Koasati, which was spoken to the north of the other languages). They are merely intended as convenient ways to discuss the groups. Note that nothing in this argument hinges on the particular names assigned to the groups.[3]

The two classifications differ most in their treatment of the `central groups', Alabama/Koasati and Hitchiti/Mikasuki, so arguments for one or the other of

these classifications hinge on finding ways in which these groups resemble or fail to resemble the two most peripheral groups, Western Muskogean (Choctaw and Chickasaw) and Creek/Seminole.

A third suggestion for the classification of the family has been offered by Kimball (1989), who proposes that the Alabama-Koasati and Hichiti-Mikasuki groups form a subgroup which he calls Central Muskogean. Kimball suggests that Proto-Muskogean split into three branches: Western Muskogean, Central Muskogean, and Eastern Muskogean.[4] I will argue below that this hypothesis is less successful than either the Haas or Munro proposal.



Nicklas (this volume) argues that the theory underlying such family tree models (or stammbäume) has been shown to be invalid, and thus argument about which of the classifications is correct is pointless.

However, it is a clear overstatement to claim that family tree models are discredited in historical linguistics. A glance at any textbook of historical linguistics shows that such models are widely accepted and used in the discipline (Bynon 1977, Anttila 1989).

The true historical relationships between languages are always complex; our diagrams can only selectively model certain aspects of this history. Family tree models of the

sort shown above emphasize the relative chronology of change, and they are of course idealizations of linguistic history. When chronology is not the paramount consideration, other models of change may be more appropriate.

However, for the purposes of correlating linguistic and archeological prehistory, family tree models (in association with methods of estimating time depth) have clear advantages. They allow us to form hypotheses about the dates of prehistoric linguistic groups and to reconstruct elements of their culture and environment in ways which can be tested against the archaeological record.

1.2 Lexicostatistical data

Examining lexicostatistical data for the Muskogean languages provides us with information which is important both for deciding between alternate models of Muskogean prehistory and for correlating the results of historical linguistics with archaeology.

1.2.1 The concept of lexicostatistics.

Lexicostatistics (or glottochronology) is a method for estimating time depth in historical linguistics. It originated with Swadesh (1951, 1952, 1954, 1955) and is based on the analogy of carbon-14 dating. Swadesh

hypothesized that there is a core vocabulary in language which is resistant to borrowing, and that this vocabulary is retained at a constant rate, with about 14% lost per 1000 years. For two languages known to be related, the number of shared items is a function of the amount of time since they became distinct languages.

The method is imprecise and controversial (see criticisms in Hymes 1960, for example). However, lexicostatistics is the only quantitative method for estimating time depth in linguistics.[5] Since correlations between reconstructed proto-languages and archeological cultures require some way of dating proto-languages, lexicostatistical estimates are a useful part of the discussion.

Two common critiques of lexicostatistical methods seem valid to this author. First, lexicostatistics should not be used to establish language families; it is instead a method for estimating their time depths. Second, the items compared in a lexicostatistical count ought to be true cognates, not chance resemblances.

Neither of these criticisms applies to the data in this paper. The Muskogean languages are indisputably related to each other, and the items compared are only true cognates, established independently through the comparative method.

1.2.2 Methods for this paper

The appendix to this paper contains a lexicostatistical list for five Muskogean languages: Choctaw, Chickasaw, Alabama, Mikasuki, and Creek.

Four words had to be omitted from the list: bark (of a tree), feather, leaf, and moon. In all the languages, bark is `tree' + `skin', leaf is `tree' + `hair', and moon is `sun' + `night'. In Choctaw and Alabama, feather is `bird' + `hair'. Since inclusion of these items would lead to the same lexical item being counted twice, they have been excluded, and the total sample is 96 words.

The Choctaw (Ct.) and Chickasaw (Cs.) data contain an additional complication. There are two words for hair in these languages: Ct. pãshi, Cs. pãshi' refers to hair on the head, while Ct. hishi, Cs. hishi' refers to body hair, animal hair, and feathers. The second of the two words is clearly cognate to the words in other Muskogean languages, but it is not clear that `body hair' is the primary sense of `hair'.[6] Since deciding which Western Muskogean word to list affects the cognate count, I have counted the Western Muskogean as half cognate to the words in the other languages.

The Mikasuki data contain only 95 words because of the

lack of a Mikasuki word for `mountain'. Jack Martin (personal communication) tells me that it is not clear that there is a common Mikasuki word for `mountain'.[7]

In choosing the words for the list, I followed Swadesh's dictum that the most common conversational equivalent for the English word should be used. In several cases, this resulted in failure to list known cognates. For example, the usual Choctaw word for `mountain' is habik, which is not cognate with the other forms listed. There is a Choctaw word bokko which means `hill', and this is cognate to the Alabama form listed.

In determining whether the listed forms are cognate, I deferred in all cases to Munro et al (1991). I do not include words in that work which are cited as possible comparisons in the notes that follow the sets.

1.2.3 Discussion of the results

Assuming an 86% retention rate per thousand years (Swadesh 1954) for items on the 100 word list, the data yield the following dates of separation, rounded to the nearest decade:

Language Pair	Percentage of cognates	Estimated separation date
Choctaw - Chickasaw	85% (82/96)	540 BP (AD 1450) ± 140 yrs.
Choctaw - Alabama	61% (58.5/96)	1640 BP (AD 350) ± 260 yrs.
Choctaw - Mikasuki	56% (53.5/95)	1920 BP (AD 70) ± 290 yrs.
Choctaw - Creek	41% (39.5/96)	2950 BP (960 BC) ± 380 yrs.
Chickasaw - Alabama	66% (63.5/96)	1380 BP (AD 610) ± 230 yrs.
Chickasaw - Mikasuki	56% (53.5/95)	1920 BP (AD 70) ± 290 yrs.
Chickasaw - Creek	45% (43.5/96)	2650 BP (660 BC) ± 350 yrs.
Alabama - Mikasuki	63% (60/95)	1530 BP (AD 460) ± 250 yrs.
Alabama - Creek	51% (49/96)	2230 BP (240 BC) ± 320 yrs.
Mikasuki - Creek	55% (52/95)	1980 BP (10 BC) ± 290 yrs.

The range of error is computed at the 7/10 confidence level according to the procedures in Gudschinsky (1956).

1.2.3.1 Implications for subgrouping

Which of the three models of relationship do these figures most strongly support? We can decide by looking at

how similar the `central languages', Alabama and Mikasuki, are to Creek and Western Muskogean. Munro's model predicts that Alabama and Mikasuki should show the closest relationship to Western Muskogean, and further that Alabama should show the strongest similarities to Choctaw and Chickasaw; Kimball's model predicts that Alabama and Mikasuki should be equally close to Creek and Western Muskogean; and Haas's model predicts that Alabama and Mikasuki should be closest to Creek.

The figures above support the predictions of Munro's model. The situation is clearest with respect to Alabama, which shares 61% cognates with Choctaw and 66% with Chickasaw, but only 51% with Creek. Neither the Haas nor the Kimball model predict this degree of similarity.

Figures for Mikasuki are less conclusive. Mikasuki shares 56% cognates with Western Muskogean, but 55% with Creek. These results are unproblematic for the Kimball classification: his model predicts that the `central languages' are equally distant from Western Muskogean and Creek. The results are also unproblematic for Munro's model, since that classification claims that the relationship between Mikasuki and Western Muskogean is a more distant one than that between Alabama and Western Muskogean.

However, the failure of Mikasuki to show a particularly

close relationship to Creek does pose a problem for Haas's classification. Haas's model predicts that the closest relationship in the family ought to be that between Mikasuki and Creek, but the data do not bear that prediction out.

When the data for Alabama and Mikasuki are considered, the Munro model is the most successful model overall in predicting the degrees of similarity between the Muskogean languages. In the following sections I will discuss other evidence that also supports Munro's hypothesis about Muskogean linguistic pre-history.

1.2.3.2 Implications for dating

Accepting the most distant dates for each stage of the reconstructed proto-language, we arrive at the following figures:

1.)	Proto-Muskogean	2950 BP (960 BC) ± 380 yrs.
	Proto-Southern Muskogean	1920 BP (AD 70) ± 290 yrs.
	Proto-Southwestern Muskogean	1640 BP (AD 350) ± 260 yrs.

The dates above accord fairly well with the intuitive degrees of similarity between the languages.[8]

Although Alabama is somewhat more similar to Creek than Choctaw is, it is clear from these data that Alabama and Choctaw are most similar to each other. I suggest that the

similarities between Alabama and Creek are due primarily to culture contact between these two peoples. As members of the Creek Confederacy, the Alabama had intense contact with Creek language and culture, and are likely to have borrowed words that increase the apparent similarity between the languages.[9]

1.2.3.3 Non-lexical evidence

The discussion so far has focussed on lexical evidence for the relationships within the family. There is fairly extensive non-lexical support for both the Haas and Munro classifications.

Haas's (1941) classification was supported by several proposed sound changes, most notably the development of proto-Muskogean *N and the sibilants.

However, as Munro (1987) notes, there are also several phonological and morphological isoglosses that support the Munro classification:

> ... the four Southwestern languages share a number of phonological and morphological traits which all appear to be innovations. These include a very unusual assimilation rule affecting the /-li/ auxiliary suffix (Munro 1985); the development of an /-l-/ passive infix; the use of plural *ha in first-person plural I affixes (Booker 1980:30;

> ...) and in the second-person plural II affixes (Munro [1993]); the spread of initial /a-/ through the complex II paradigm (Munro [1993]) and considerable similarity in the system of aspectual grade formation...

Other phonological and morphological innovations that support a subgrouping of Southern Muskogean are the development of Proto-Muskogean *k^w (Haas 1947), and the presence of subtractive morphology (Broadwell 1987a, 1993). Discussion of this evidence would take us too far afield, but I will note that while the phonological, morphological, and lexical evidence are all supportive of Munro's classification, the lexical evidence is perhaps the strongest.

2. Reconstructing proto-Muskogean environments

The lexicostatistical data provide estimates of the time depth for various stages of the historical development of the Muskogean languages. It is now possible to ask what vocabulary is reconstructable at these dates, and what sort of correlations there are between the linguistic data and the archaeological record.

Munro et al (1991) contains a particularly detailed set

of terms for flora, fauna, and agriculture. Examination of these items allows one to draw several conclusions about Muskogean environments and the ways in which they have changed through history.

2.1 Flora and fauna

The Proto-Muskogean vocabulary has 107 reconstructible terms for flora and fauna, which provide a rich view of their environment.[10] The terms are given in (1) below. The names used are keyed to the names of the sets in Munro et al (1991), and additional information is provided in parentheses after some of the items.

2. Reconstructable Proto-Muskogean terms

apple (probably crab-apple or persimmon), bat, bee, beetle, bluejay, briar (blackberry), briar (smilax/arrowroot), buckeye, buffalo, chestnut, chicken snake, chickenhawk, chigger, chinquapin, chipmunk, civet cat (?), clam/spoon, copperhead, corn, cotton, crawfish, crane 1 (whooping crane), crane 2 (heron?), cricket, daddy-long-legs, deer, devil's shoestring, dove, duck 1 + 2, earthworm, falcon, flea, fly, frog 1, gizzard, gobble, goose, grape, grasshopper 1, grasshopper 2 (katydid),

hackberry, haw, hickory, hoe/plow, honey locust, hornet/wasp, horsefly, hummingbird, insect/worm, lamb's quarters, leech, lightning bug, lizard 1, locust/cicada, louse, martin, milkweed, mole, moss, mountain lion 2, muddauber, mulberry, muscadine, mushroom, oak 1 (postoak), oak 3 (white), onion, opossum, hoot owl, horned owl, screech owl, palmetto, perch, pigeon, plant sp. (cattail/beargrass), pokeweed, potato, prickly pear, pumpkin, quail, rabbit, redbud, ringworm, skunk, slippery elm, snake, spider, squirrel, stinging plant (poison ivy?), tadpole, thrush, trout, turtle 1, turtle 2 (soft-shelled), walnut, water lily, whippoorwill 1 + 2, wildcat, woodpecker 1, redheaded woodpecker, worm 1 + 2, wren 1, yellowhammer

In all the sets just listed, there is evidence that allows reconstruction of these items at the earliest point in Proto-Muskogean linguistic prehistory.

Of particular interest to this discussion, however, are terms which are not evenly distributed across the entire family, but only in some subset of the languages. Historical linguistics labels grammatical, phonological, or lexical features shared by some subgroup of a family as

isoglosses. In general, the more isoglosses two languages share, the more closely related they should be. There are 81 terms which are reconstructable only at the level of some subgroup within Muskogean. They thus constitute lexical isoglosses, and they are listed below.

3. Southern Muskogean (19 items)

   axe, bullfrog (2), butterfly, buzzard, cardinal, catfish 2, crow, cypress, fern, mosquito, mountain lion/panther, oak 2 (blackjack), persimmon, raccoon, sassafras, snail, tobacco 1, turkey, wolf

4. Southwestern Muskogean (35 items)

   acorn 2, alligator 1, ant, ash (tree), bear 1, beech, bobcat, bottom land, bumblebee, cached food, catfish 1, cedar 1, cherry, corn silk, dogwood, eagle 2, elder, flying squirrel, frog 2, grass 1, huckleberry 1, lizard 2 (skink), lizard 3 (amphiuma), magnolia, meadowlark, mimosa, mint, oak (overcup), robin, strawberry, sycamore, tick 1, toad, winnow, wren 2

5. Georgia Muskogean (11 items)

   acorn 1, bear 2, bullfrog 1, button snake root, cedar 2 (a possible loan from Cherokee), eagle 1, eel, gourd 1, tea (probably ilex vomitoria),

thistle, tobacco 2.

6. Eastern Muskogean (6 items)
   alligator 2, cottonwood, grass 2, mouse, pelican, red bay tree

7. Central Muskogean (2 items)
   crane, pygmy rattlesnake

8. Creek/Seminole and Alabama/Koasati (8 terms)
   adze, buttonbush, catfish 3, doodlebug (pillbug), gourd 1, kingfisher, passion flower, woodtick

No sets show an isogloss for Western Muskogean plus Hitchiti/Mikasuki, the only other logical combination of languages.

2.2 Implications for classification

The genetic subgrouping implied by the the Munro classification is strongly supported by the terms for flora and fauna. Of the 81 isoglosses, those for Southern Muskogean and Southwestern Muskogean support the Munro classification, and constitute 66% (54/81) of the sample. Those terms that are reconstructed for Eastern Muskogean or

Georgia Muskogean support the Haas classification, but constitute only 21% (17/81) of the sample. Even if one adds the sets with Creek/Seminole and Alabama/Koasati cognates, there are only 24 sets (30%).

Munro's classification is supported by more than twice as many isoglosses as Haas's classification is. The results here correlate well with the results reached in the previous section. There is thus very strong evidence for the existence of a Southwestern Muskogean group.

Kimball's Central Muskogean hypothesis fares far worse than either the Haas or the Munro classification. Only two items, constituting 2.4% of the data, support his position.

2.3 Directions of borrowing

Isoglosses are valid data for subgrouping only when we can be reasonably sure that the features which languages share are not the result of borrowing. Just as a historically oriented study of the English lexicon would attempt to discern French loan words, so too we must try to determine what portion of the isoglosses identified above are invalid due to borrowing.

I will use two interrelated criteria for identifying suspected borrowings:

a.) lack of a cognate in the most closely related language. For example, if a cognate set consists only

of a Chickasaw and an Alabama word, then it is more likely to be a borrowing than a set that contains Chickasaw, Alabama, and Koasati cognates.

b.) identical or nearly identical words in the languages. Of course, this is a necessary but not a sufficient criterion for identifying a loan.

It is likely that the isoglosses most affected by borrowing are those for Southwest Muskogean and Georgia Muskogean, since in both cases there was close contact between the speakers of some of the languages within the subgroup. The isoglosses for larger groups such as Eastern Muskogean and Southern Muskogean are less likely to be contaminated by borrowing, since a lexical item which is so widely distributed through the family is unlikely to be borrowed.

2.3.1 Borrowing in Southwest Muskogean

By the criteria just mentioned, the following nine Southwest Muskogean isoglosses seem suspicious:

9.) ALLIGATOR (1). Al. haconcoba; Ct. hachõchobah, Cs. hachõ'choba'
BEECH. Al. tomalaaha; Ct. hatõbalaaha

CHERRY. Al. ittotalikco, itocalikco; Ct. itti alikchi, Cs. itti' alikchi'.

FROG (2). Al. cooto; Cs. chõ'ti'.

HUCKLEBERRY (1). Al. osakohci, sosakohci; Cs. osakokchi'.

MAGNOLIA. Al. kasaha, kaslhaha-hatka `white magnolia', kalhâaha; Ct. kolhaha.

MINT. Al. sonok kilhâyli, sinoktilhâyli, snoktilhâyli; Ct. shinoktilhiili, MCt. anoktilhiili `medicinal plant used for fever', Cs. sholop tilhi'li', shoptilhi'li' `horsemint'.

TICK (1). Al. satani; Ct, Cs shatanni, Ct. shitanni.

WINNOW. Al. immaska; Ct. mashichih, Cs. mashka.

These sets are suspicious in that the Alabama word closely resembles the Western Muskogean, but there is no Koasati cognate. Additional problems in the etymologies of some sets also suggest borrowing.[11]

As Munro et al. (1991) notes, ALLIGATOR appears to be composed of the words for `tail' (Al., K haci; Ct. has bish, Cs. hasimbish) plus the word for `big' (Al, K coba; Ct. chito, Cs. ishto). However, this etymology is only

available for the Alabama form; neither `tail' nor `big' has the right form in W. Muskogean. This suggest that Western Muskogean borrowed the word from Alabama.

CHERRY and HUCKLEBERRY (1) have etymologies in the Western Muskogean languages, but either no etymology or an implausible one in Alabama. CHERRY is composed of the words for `tree' and `doctor' in the Western Muskogean languages, but this etmology will not work for the Alabama forms. The first form, ittotalikco, appears to be `tree' plus `tie', while the second has no etymology. It seems plausible that the Alabama words are borrowed from Western Muskogean, and subjected to folk etymological restructuring.

Similarly, HUCKLEBERRY (1) is analyzable as `hickory' + `juice' in Chickasaw, but has no etymology in Alabama.

Excluding these nine suspicious sets reduces the number of isoglosses supportive of Munro's classification to 45.

2.3.2 Borrowing in Georgia Muskogean

When we examine the reconstructable terms for Georgia Muskogean, there are also several sets that look suspiciously like borrowing. I think the following seven sets are possible borrowings:

10.) BEAR. Cr, S, OS nokosi; H, Mk nokos-i.

BULLFROG (1) Cr. apatana; H. apatan-i.

BUTTON SNAKE ROOT. Cr, OS paassa; H, Mk pas-i.

CEDAR (2). Cr, S, OS acina; H, Mk acin-i.

GOURD (1). Cr. ifipi; Mk. ifip-i.

THISTLE. Cr. akaaca, akaaco; H. akac-i.

TOBACCO (2). Cr. hici; H. hic-i.

A set is suspicious if the Creek word is identical or nearly identical to the Hitchiti or Mikasuki word, and more suspicious if it is attested only in Hitchiti or Mikasuki, but not both.

Further information makes some of the sets additionally suspicious. The ordinary word for tobacco in Hitchiti and Mikasuki is akcomi. The only instance of the Hitchiti word hici `tobacco' occurs in Swanton (1929) in a myth about the origin of tobacco. The myth is nearly identical to a Creek myth, in which the word hici is compared to the verb hicita `to see'. Since the story does not make sense unless the Creek word is used, we should be suspicious that hici is a true Hitchiti word.

CEDAR was identified by Haas (1941) as a loan from Cherokee, and therefore should also be discounted.

It is also clear that several of the isoglosses for Georgia Muskogean involve items important to Creek culture.

`Bear', `eagle', and `eel' are the names of Creek clans (Swanton 1946:658), and cedar, button snake root, ilex vomitoria (or `tea'), and tobacco all have ritual and medicinal purposes.[12] Hitchiti or Mikasuki speakers would have certainly been familiar with the Creek words for these items.

Excluding the seven suspicious sets mentioned above reduces the number of isoglosses supportive of the Haas classification to 17.

2.3.3 Revised figures for isoglosses

If we exclude the 16 suspicious sets identified for Southwest Muskogean and Georgia Muskogean, then we still have 65 isoglosses. 69% (45/65) of the isoglosses support the Munro model, 25% (18/65) support the Haas model, and 3% (2/65) support the Kimball model.

2.4 Implications for the environment of the Proto-Muskogeans

The reconstructable terms for flora and fauna give us a relatively rich view of the environment of the Muskogeans at different points in history.

Since cultigens are the plants whose chronologies are best understood, the appearance or lack of appearance of terms for particular cultigens gives us the opportunity to

correlate the dates provided by the lexicostatistical estimates with archaeological findings.

2.4.1 Proto-Muskogean cultigens

While we cannot conclude from the presence of a word for a plant in the vocabulary of a proto-language that speakers of that language cultivated that plant, we can reasonably conclude that speakers of the langauge were familiar with the plant. Reconstructable for Proto-Muskogean are lamb's quarters (chenopodium), squash (cucurbitacea) and corn (zea mays).

Lamb's quarters is reconstructable on the basis of the following set:

11.) LAMB'S QUARTERS. Cr. taahwa; Cs. taani'.

In this case, we only have the word from two languages, but the correspondence is excellent. The linguistic results are fully in accord with generally accepted archeological estimates for the domestication of chenopodium (Muller 1978).

Squash/pumpkin is reconstructable on the basis of the following set:[13]

12. PUMPKIN. Cr/S/OS casi; H cosk-i; A/K coksi; Ct/Cs shokshi `watermelon', Ct. shokshobok `gourd'

Once again, the linguistic evidence is compatible with archaeological evidence for relatively early cultivation of squash in the Southeast (Muller 1978).

However, the date for corn correlates less well. The cognate set in question is given below:

13.) CORN. CR, S, OS aci; H, Mk asp-i; Al, K cassi; Ct. tãchi, Cs. tanchi'.

This is not a perfect set, by any means, but it seems likely that it is a valid one. I would tentatively reconstruct *(t/c)aci.

The Creek/Seminole and Hitchiti/Mikasuki forms are the most easily comparable, since the H/Mk forms appear to include a bound form of the noun <u>api</u> `body, stalk, cob'. The occurrence of /as/ rather than /ac/ can then be explained by a rule common to many Muskogean languages which turns / / to /s/ or /sh/ in syllable final position.

The Western Muskogean forms are also quite similar, the chief problem being the initial /t/.

I am inclined to regard the Alabama/Koasati word as non-cognate with the rest. However, if we accept the

Western Muskogean forms as cognate with the Creek and Hitchiti/Mikasuki forms, then clearly the set is reconstructable at the level of Proto-Muskogean.

How can we reconcile the presence of a word for corn with the generally accepted archaeological position that corn was not present in the southeast until considerably later, ca. A.D. 700?

Riley, Edging, and Rossen (1990) survey the evidence and find some evidence for positing corn as early as 200 B.C. At this early date, corn was not the staple crop it later became, but it might well have been present and familiar to the proto-Muskogeans. The lexicostatistical data support a date for Proto-Muskogean of 900 BC ± 380 years, so the linguistic evidence points to an earlier presence of corn in the southeast than the archaeological evidence does.

Two other reconstructable items strengthen the conclusion that the proto-Muskogeans knew corn. The first is the verb to SHELL CORN, and the second is a noun meaning corn riddle (BASKET 3).

A common approach in dismissing linguistic evidence that does not correlate with the archaeological results is to suggest that the reference of the words has changed through time (cf. Renfrew 1988). For example, the word for corn might have originally referred to some other grain.

When corn was introduced to the southeast the word for the older grain might have been applied to the new-comer.

However, it seems unlikely that speakers of all the different languages in the family would have coincidentally decided to call the new grain the same thing. Once a language has split into two mutually unintelligable daughter languages, the speakers do not consult with each other about naming new phenomena.

The unlikeliness of this hypothesis increases when we realise that we must also assume that the words for shucking corn and corn riddle originally applied other actions and objects, and that once again widely separated people have coincidentally chosen the same words for actions and objects associated with the new grain.

I therefore conclude that presence of a word for corn in Proto-Muskogean constitutes a genuine conflict between the linguistic and archaeological data.

2.4.2 Tobacco as a Proto-Southern Muskogean cultigen

Tobacco is reconstructable at the level of Southern Muskogean, as shown in the following set:

14.) TOBACCO (1). H, Mk akcom-i; Al, K hakcomma, K hakcommi, Ap hakcoma; Ct. hakchoma, Cs. chomak.

The Creek word for `tobacco' is hici, a word which is also found in Hitchiti. As argued in section 2.3.2, it likely that the Hitchiti word hici is a borrowing from Creek, and that akcomi represents the native Hitchiti word.

Fortunately, there is some additional information on the Creek word. Swanton (1929) recorded three myths of the origin of tobacco, and the first two of these give us a native explanation of the etymology of the Creek words. In these two versions, a couple have had sexual intercourse at a place where tobacco is later found to be growing. The people must decide what to call the plant.

The first version states ``the first name of the plant was `coeuns' (haisa). After they learned of it and came to value it, they made it a warrior (tasikaya) and gave it the name hitci (`finding') as a war name."

In the second version, the people discover the plant and say ``We shall call it hitci, and when we smoke we shall call it the same as quum coimus (haisa)."

Both versions of the story state that tobacco has two names: haisa and hitci, and both names have etymologies.

Haisa probably means `penis'. It is translated by `quum coimus' and `coeuns', Latin euphemisms for `penis', and the word Swanton cites, haisa, looks rather similar to the modern Creek word haswa `penis'. An etymology that

relates the word for tobacco to the word `penis' is also supported by the plot of the story.

Hici is derived from the verb hic-ita `to see', and in one version this is described as a war name for the plant. Since war names typically described attributes of the named person, it may be that tobacco is called `seer' because it causes visions. Alternately, the stories may mean that tobacco is the `seen' thing.

Speck (1909) records a similar Yuchi story of the origin of tobacco, in which the plant grows from sperm that falls on the ground (cited by Lankford 1987).

The folkloric connection between tobacco and sex found in Creek and Yuchi surprisingly corresponds to forms found in the Southern Muskogean languages. Consider the following forms for `penis', and compare them to the words for `tobacco' above:

15.) PENIS. H. akc-i; Al, K cici, ikci; Ct, Cs hakchin, Cs. inkilish.[14]

The additional syllable /om/ that appears in words for tobacco bears a similarity to an auxiliary meaning `like' in most of the Muskogean languages (Booker 1980). This suggests `penis-like' as an etymology for `tobacco'.

This rather surprising connection seems to be worth pursuing. Are phallic representations of tobacco to be

found in the southeastern archaeological record or in the folklore of other regions of the Americas?

Since there is not a reconstructable word for 'tobacco' in Proto-Muskogean, the family was probably split into mutually unintelligeable Northern and Southern languages when tobacco was introduced into the region.

Riley, Edging, and Rosen (1990) cite use of tobacco in the eastern U.S. as early as A.D. 100, and this correlates well with a date of about 1900 years for the split between Northern and Southern Muskogean.

Note that the term for `tobacco' sheds light on the difficulty we encountered with the word for `corn'. The linguistic evidence argues that the Muskogeans have been familiar with corn for a longer time than they have been familiar with tobacco, since `corn' is reconstructable at an earlier level.

The term for tobacco also demonstrates that the problem posed by the word for `corn' cannot be solved by simply recalibrating the time calculations for various stages of the proto-language. If we argue that Proto-Muskogean is significantly younger than the 960 BC (± 380) estimate, then we encounter the problem of explaining why `tobacco' is not reconstructable.

2.4.3 Non-reconstructable cultigens

In contrast to the other cultigens discussed, there is no reconstructable word for `bean'. Consider the following words from Ulrich (1986):

16.) BEAN. Cr. talaako; Al. castoki, K. palana; Ct. tobi (beans in general), bala (a particular variety), Cs. bala'.

Our inability to reconstruct a word for bean is compatible with the view that beans were introduced into the southeast about 1000 years ago (Muller 1978). Note that the terms are different even in Alabama and Koasati, which are closely connected languages. We might therefore view the split between these two groups as predating the introduction of beans, perhaps not long after the split of Southwestern Muskogean into its two constituent groups, Western Muskogean

and Alabama/Koasati.

2.4.4 Correlating linguistic and archaeological time depths

The dates for various stages of the break-up of the Muskogean family can be correlated with the archaeological dates as follows:

Estimated date	Linguistic events	Other events
960 BC ± 380	Proto-Muskogean	(early) corn, chenopodium, squash
AD 70 ± 290	Northern and Southern separate	introduction of tobacco
AD 350 ± 260	Southwestern and Hitchiti/Mikasuki separate	
AD 700?	Alabama and Koasati separate	
AD 1000		introduction of beans
AD 1450 ± 140	Choctaw and Chickasaw separate	

There are two crucial anchor points here. First, Northern Muskogean and Southern Muskogean must have become distinct prior to the introduction of tobacco, since they have different reconstructable words for the plant.

Second, since all of the languages except Choctaw and Chickasaw have different words for beans, they were probably already been separate and mutually unintelligeable before the introduction of beans about 1000 years ago.

3. Conclusion

The work represented here is a preliminary effort towards applying the data from ongoing efforts in Muskogean historical linguistics to problems of history in the Southeast. I hope that the dialogue now beginning between linguists, archaeologists, ethnologists, and ethnohistorians of the Southeast will continue to explore these connections.

Appendix: The 100 Word list[15]

(Items identified as cognate are co-boldfaced or co-underlined)

English	*Chickasaw*	*Choctaw*	*Alabama*	*Mikasuki*	*Creek*
all	**mõma**	**mõma**	óyha	**maamos-**	omalka
ashes	**hottok**	**hitokchobi**	**histo**	tolhambi	**iisso**
belly	ittakoba'	**iffoka**	**ikfi**	lampi	nalhki
big	**ishto**	**chito**	coba	coob-	lhakkii
bird	**foshi'**	**hoshi**	**foosi**	**foosi**	**foswa**
bite	kisili	**kopooli**	kachalhlhi	**kabalikci**	akkita
black	**losa**	**losa**	**loca**	**looci**	**lasti**
blood	**issish**	**issish**	lhakhani	**picikci**	caati
bone	**foni'**	**foni**	**cokfoni**	**-fooni**	**iffoni**
breast	**ip shik**	**ip shik**	**pisi**	owaaci	hokpi
burn	**lowa**	**lowah**	libatli	yill-	noklhita
claw	**iyyakchosh**	**iyyakchosh**	**iyyaksi**	**iiyakoosi**	ilinkososwa
cloud	**hoshonti**	**hoshõti**	**onoolici**	**hosoti**	**aholocii**
cold	**kapassa**	**kapassa**	**kasatka**	**kapaali**	**kasappi**
come	**minti**	**m ti**	ila	ont-	atita

English	*Chickasaw*	*Choctaw*	*Alabama*	*Mikasuki*	*Creek*
die	**illi**	**illi**	**illi**	**il-**	**ilita**
dog	**ofi'**	**ofi**	**ifa**	**iifi**	**ifa**
drink	**ishko**	**ishko**	**isko**	**isk-**	**iskita**
dry	**shila**	**shila**	**solotka**	**sokook-**	kalhpii
ear	**haksibis**	**haksobish**	**hakco**	**hacoobi**	**hakco**
earth	**yakni'**	**yakni**	**ihaani**	**yakni**	**iikana**
eat	**impa**	**pa**	**ipa**	**imp-**	**hompita**
egg	**akankoshi'**	**akãkoshi**	**akaakocóòsi**	onaasi	costaki
eye	ishkin	nishkin	**ittilhi**	**iti**	**tolhwa**
fat (grease)	**niha**	bila	nitokci	**niihi**	**nihaa**
fire	lowak	lowak	**tikba**	iiti	**tootka**
fish	**nani'**	**nani**	**lhalho**	**lhaalhi**	**lhalho**
fly, to	**wakaa**	hika	**wakayka**	**yakaal-**	tamkita
foot	**iyyi'**	**iyyi**	**iyyi**	**iyi**	**ili**
full	**kayya**	**kayya**	**kayya**	labakni	fackita
give	**ima**	**ima**	**inka**	**iik-**	**imita**
good	**chokma**	**achokma**	kano	hiilhi	h lhi
green	**okchamali**	**okchamaali**	**okcakko**	honotbitalakci	laani
hair	pãshi'/**hishi'**	pãshi/**hishi**	**hissi**	**tokisi**	**issi**
hand	**ilbak**	**ibbak**	**ilbi**	**ilbi**	**inki**

English	*Chickasaw*	*Choctaw*	*Alabama*	*Mikasuki*	*Creek*
head	**ishkobo'**	**noshkobo**	**isbakko**	**yoosi**	ika
hear	**hánglo**	**haklo**	**haalo**	**hakl-**	pohita
heart	**chõkash**	**chõkash**	**conoska**	**conosbi**	fiiki
horn	**lapish**	**lapish**	**lapihci**	**lap-i**	**yapi**
I	**ano'**	**ano**	**ana**	**aani**	**ani**
kill	**abi**	**abi**	**ibi**	ill c	iliicita
knee	**iyyinto'lhka'**	iyyi kalaaha	**ittôlhpa**	**tolhpi**	**tolhkowa**
know	**ithána**	**ikhana**	sobayli	**ataalh**	**kilhlhita**
lie down, to	tí'wa	**talaaya**	baláàli	**talaal**	wakkita
liver	salakha	salakha	**illopi**	**lopi**	**lopi**
long	falaa	falaaya	**baski**	**backi**	**capki**
louse	**issap**	**issap**	**icha**	**hicahci**	**icka**
man	**hattak nakni'**	**hattak nakni**	**naani**	**nakni**	**honanwa**
many	**lawa**	**lawa**	**lawa**	aconki	solkii
meat (flesh)	**nipi'**	**nipi**	**nipo**	akni	apiswa
mountain	onchaba	habik	bokkoscaaha		iikanhalwii
mouth	**iti**	**itialbi**	icokhalbi	**ici**	cokwa
name	**holhchifo**	**hohchifo**	**holcifa**	**hocilki**	**hocifka**
neck	**nokhistap**	ikkõla	**nokbi**	**nokbi**	**nokwa**
new	himitta	**himmona**	hahpa	**himaci**	**mocasi**

English	*Chickasaw*	*Choctaw*	*Alabama*	*Mikasuki*	*Creek*
night	oklhili'	**ninak**	tanka	**niilhaki**	**nilhii**
nose	ibichchala'	**ibishakni**	**ibisaani**	**ibi**	yopoo
not	ki'yo	kiiyo	**mánko**	**maati**	**monks**
one	**chaffa**	**achaffa**	**caffaaka**	lhaamin	hamkin
person (human)	**hattak**	**hattak**	**aati**	**yaati**	isti
rain	**omba**	õ**ba**	**oyba**	**okoob-**	**oskita**
red	**homma**	**homma**	**homma**	kitisci	caati
road (path)	**hina'**	**hina**	**hini**	**hini**	**nini**
root	**haksish**	**hakshish**	**assikci**	**aski**	yalomka
round	**lhibokta**	kalaaha	**bonotka**	**polocki**	**polooki**
say	aachi	aachi	**manka**	kaac	**maakita**
sand	**shinok**	**shinok**	**sanco**	**samooci**	oktaaha
see	**p sa**	**p sa**	**hicha**	**hica**	**hicita**
seed	**nihi'**	**nihi**	**hilhikci**	**yiilhi**	**nilhka**
sit	**bínni'li**	**biniili**	cokóòli	cokool-	leykita
skin	**hakshop**	**hakshop**	**affakci**	halbi	halhpi
sleep	**nosi**	**nosi**	**noci**	**nooc-**	**nocita**
small	iskanno'si	osi	cinoofa	wink-	cotki

English	*Chickasaw*	*Choctaw*	*Alabama*	*Mikasuki*	*Creek*
smoke	**shobohli**	**shobohli**	**sobotli**	ockoci	ikkoci
stand	**híkki'ya**	**hikiiya**	lokóòli	lokooka	hoylhita
star	**foshik**	**fichik**	hociilhi	owaaciki	kocacampa
stone	**tali'**	**tali**	**tali**	**tali**	cato
sun	**hashi'**	**hashi**	**hasi**	**haasi**	**hasi**
swim	yopi	okshiniili	**oohapka**	**opahk-**	omeyyita
tail	**hasimbish**	**has bis**	**haci**	**haaci**	**haci**
that	**yamma**	**ma**	akki	**ma**	**ma**
this	yappa	pa	**ya**	**ya**	**ya**
thou	**ishno'**	**chishno**	**isna**	**cihn-**	**ciimi**
tongue	**isõlash**	**ittõlas**	**icoolaksi**	**cokolaasi**	**tolaaswa**
tooth	**noti'**	**noti**	**innati**	**-nooti**	**noti**
tree	**itti'**	**itti**	**itto**	ahi	**ito**
two	**toklo**	**toklo**	**tôklo**	**toklan**	**hokkoolin**
walk	**nõwa**	**nowa**	ciyahli	cayahl	yakapita
5warm (hot)	**lashpa**	**lashpa**	ikba	hãyyi	hayyita
water	**oka'**	**oka**	**oki**	**ooki**	**oywa**
we	**poshno'**	**pishno**	**posna**	**pohni**	**poomi**
what	**nanta**	**natah**	**náàsi**	**naaki**	**naaki**
white	tohbi	tohbi	**hatka**	**hatki**	**hatki**

English	*Chickasaw*	*Choctaw*	*Alabama*	*Mikasuki*	*Creek*
who	**kata**	**katah**	náksi	noolh-	isteyma
woman	ihoo	ohooyo	**tayyi**	**tayki**	**hoktii**
yellow	**lakna**	**lakna**	**laana**	**lakni**	**laanii**

NOTES

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The following abbrevations are used: : Al = Alabama, Ap = Apalachee, Cr = Creek, Cs = Chickasaw, Ct = Choctaw, H = Hitchiti, K = Koasati, MCt = Mississippi Choctaw, Mk = Mikasuki, OS = Oklahoma Seminole, S = Seminole. The following orthographic conventions are used in the citation of data from Muskogean languages: nasalized vowels are indicated with a tilde; <ch> (in Western Muskogean) and <c> (in other languages) represent [ ]; <lh> represents [ ] (a voiceless lateral fricative); and <sh> (in Western Muskogean) represents [š].

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2. In general this discussion omits the extinct Muskogean languages Apalachee (Kimball 1987, 1988), Guale and Yamasee (Broadwell 1991), since the available data are fragmentary. Haas (1949) argues that Apalachee is most closely related to

Alabama and Koasati. Broadwell (1991) suggests that Guale and Yamasee are most closely related to Creek.

3. Thus Kimball's (1989) objection to Munro's classification on the grounds of the names assigned to the branches is misguided.

4. Kimball is explicit about his hypothesis of a ternary split in the text of his paper, but the accompanying diagram shows all three possible branchings for Central Muskogean with question marks (i.e. as a separate branch, joined with Western Muskogean, and joined with Eastern Muskogean).

5. As Diamond (1992) notes, critics of lexicostatistics are often nevertheless willing to make estimates of time depth based on intuition.

6. In fact, there is some possibility that pãshi/pãshi' may also be cognate with the other words for `hair'. The etymology of these forms is something of a mystery, but one derivation might be PM *ik$^{w}$a `head' + *hisi `hair'. While PM *k$^{w}$ generally develops into Western Muskogean /b/, there are some cases in Choctaw where initial /p/ and /b/ alternate, e.g. pichilli/bichilli `to ooze out', bishlichi/wishlichi `to milk' and pishi `to suck'.

7. Presumably this is due to the environment where Mikasuki is currently spoken.

8. Muskogean seems comparable in diversity with the

Romance family, which has a time depth of about 2500 years. This may suggest that the date for Proto-Muskogean is somewhat more recent than 960 BC figure given. A date of ca. 600 BC is within the range of error of the lexicostatistical calculations and consistent with the comparison to Romance.

9. Nicklas (this volume) suggests that the fact that the figures for an Alabama-Creek split and a Choctaw-Creek split differ from each other shows that lexicostatistical methods are invalid. This is a mistaken interpretation of the data.

The figures in the table above attempt to give us some quantitative measure of the degree of similarity between the Muskogean languages. That similarity is then used to estimate the degree of separation between the languages. However, some portion of that similarity is due to a distant common history, while another portion of the similarity is due to more recent influence and borrowing. It is entirely consistent with the results above to claim that the Choctaw and Alabama languages are equally distant from Creek, but that Alabama shows a greater modern similarity due to more recent Creek influence. In deciding which of the estimates of the separation date is more likely to be correct, we should thus prefer the more distant figure suggested by the Choctaw-Creek comparison.

10. The list below includes all the terms for flora and fauna listed in Munro et al. (1991), with the following exceptions: I did not include BIRD, BIRD SP., FISH SP, FISH (because they are not specific enough to give us useful information) or obvious borrowings from European languages (BACON, CAT, COFFEE, COW, GOAT, OKRA, RICE, TOMATO, WHEAT).

I reject the proposed cognate sets for BEAN, BEAVER, HUCKLEBERRY 2, PEANUT as improbable.

The cognate set for CHICKEN is a special problem. There is a similar word for `chicken' in many languages, but it must have originally applied to some other sort of bird, since the chicken is a European introduction.

Some sets contain lexical material duplicated in other sets, and I have attempted to include only one set in such cases. I include OPOSSUM, but not HOG, since they are from the same root. I exclude OWL 4, since it is the same root as HOOT OWL. I do not include the compounds ROADRUNNER (`fast bird') or WHALE (`water blow').

11. The following discussion relies heavily on the discussion of the cognate sets in Munro et al (1991).

12. As Martin (1987:117) notes, the phonology of the Mk. *nokosi* `bear' is unusual for a Mikasuki word, since we would expect lengthening of the initial syllable in words of this shape. This strengthens the case for treating this word as

a loan.

13. In many of the other languages, `watermelon' appears to be a compound based on `pumpkin' + a root /tal(ak)/ which may mean `lie down'.

14. Al, K *cici* probably originates as a children's word for penis. The origin of Cs. inkilish is obscure, and it is not clear that it is cognate to the other items.

15. Data for this appendix were provided by Heather Hardy (Alabama), Jack Martin (Creek and Mikasuki), and Pamela Munro (Chickasaw). Choctaw data comes from Byington (1915) and Broadwell (1987b).

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