"A Cross-Linguistic Survey of a Class of Derivational Affixes in the Muskogean Family"

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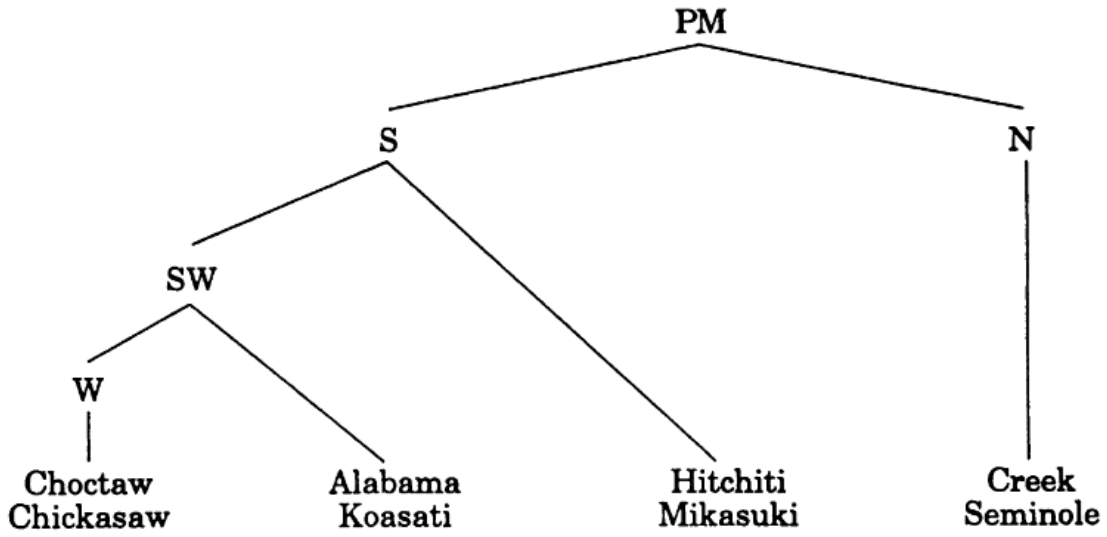
1. Background

1.1. Context

-the Muskogean language family

1) Munro's (1987) subgrouping of the (substantially documented) Muskogean languages



-Kimball's (1982) "Verb pluralization in Koasati" discusses the phenomenon of subtractive pluralization in Koasati

2) Subtractive pluralization in Koasati (from Kimball, 1982)

	phenomenon	singular	plural	gloss
a.	rime deletion	pit**á-f**-fi	pít-li	'slice up the middle'
b.	consonant deletion	lató-**f**-ka	lató-**:**-ka	'melt'
c.	debuccalization	samá-**t**-li	samá-**h**-li	'crawl under something'

-Kimball proposes that for verbs with subtractive plural forms, the final consonant of the stem (the one that deletes), may have at one point been a separate morpheme. Kimball calls these suffixes "formatives," provides 3-6 examples of each, and suggests the following meanings for them.

3) Kimball's (1982) inventory of seven formative suffixes in Koasati

-f-	'action on a surface'
-p-	'action by hand or foot'
-lh-	'action involving severing'
-s-	'action involving liquid'
-y-	'action with a circular motion'
-t-	'action with motion from a stationary position'
-ː-	'action without motion from a stationary position'

+Neither the formative suffixes nor the subtractive pluralization processes are productive in the modern languages. Subtractive pluralization occurs in all of the branches of the family except for Creek/Seminole. (Martin, 1994)

1.2. Refining the relationship to pluralization

-pluralization can also be done with a suffix that has a variety of allomorphs in each language but is reconstructed as Proto-Muskogean **oho*. (Martin, 1994)

4) Reflexes of **oho* in Choctaw

		singular	plural
a.	*-o* suffix	*akammi*	*akam**oo**li*
b.	*-oh* suffix	*habiffi*	*habif**oh**li*
c.	*-h* suffix?	*pataafa*	*pata**h**li*

-Martin (1994) posits **oho* as a light verb, which would not initially share a morphological slot with Kimball's formatives in Proto-Muskogean. Over time, however, they would come to compete for the same slot, giving us the pair in (2.c.).

-What about (2.a.)? Maybe the competition with the plural suffix resulted in a reanalysis of the formatives as specifically singular.

1.3. This talk

-Broadwell (1993): "It is difficult to specify what the meanings of the stem-final consonants were in Proto-Muskogean. Kimball's suggestions are a step in the right direction, though clearly further research is needed."

-some questions

a. Proto-Muskogean or later?
b. their historic productivity?
c. effects of language change/split on their distribution?

-can start to address these questions by looking at distributional data, i.e.: lexicographic materials from different branches in the family

5) Dictionaries used for this research

Creek/Seminole	Loughridge and Hodge's (1890) *English and Muskokee Dictionary*
Hitchiti/Mikasuki	Cypress and Martin's (2004) *A Dictionary of Miccosukee*
Choctaw/Chickasaw	Cyrus Byington's (1915) *A Dictionary of the Choctaw Language*

-Additionally, Munro et al.'s (1992) *Muskogean Cognate Sets*

-orthographies

2. Cross-Muskogean Distribution

2.1. Preliminary concerns with the data

-There are some phenomena which make it difficult to identify Kimball's suffixes. Borrowing within the family means verbs which were absent in early stages of a language may still be attested in the dictionaries (over-representation). Meanwhile, various morphophonological processes obfuscate forms native to a language which feature a particular suffix.

-morphophonological phenomena?
+generalization of a subtractive plural form

6)

Koasati	Choctaw
tiwapli 'open (sg)'	
tiwwi 'open (pl)'	*tiwwi* 'open'

This has an effect of making the inventory of possible stem-final consonants seem larger than it is, but as far as I can tell all stems that appear to end in *-w* in modern Choctaw (or the other Choctaw consonants not presented below) are generalized from historical truncated plurals.

7) idiosyncratic deletion

a.	final rime	Creek	*hos**ak**lita*	'become passionate'
		Choctaw	*hosha*	'have sexual intercourse'
b.	medial segments	Creek	*challita*	'roll'
		Choctaw	*cha**n**alli*	'roll'

We also see metathesis, ex.: Creek *ka**s**a**pp**ita* 'cold' vs. Choctaw *ka**p**a**s**a* 'cold'

-Thus: the data collected for this paper is neither exhaustive nor flawlessly representative of which verb stems in a given language originally have a given suffix. But it should be sufficient to address some of the questions mentioned previously.

8) Number of forms used to inform section 2.2.

	-m-	*-p-*	*-t-*	*-k-*	*-f-*	*-s-*	*-lh-*	*-y-*	*-ː-*	total
Creek	36	97	37	6	32	86	5	n.a.	n.a.	299
Mikasuki	21	26	9	12	32	16	10	n.a.	n.a.	126
Choctaw	73	102	39	27	112	30	13	n.a.	n.a.	396

2.2. Each formative suffix

-p- "action by hand or foot"

+Several verbs in the three languages aren't directly actions by hand or foot, but their association with hands or possible historic deviation from such meanings are easy to imagine.

9) (Creek) *sentá**p**etv* 'blunder'
*tvlré**p**etv* 'warm oneself'

(Mikasuki) *kotet**p**lom* 'sparkling, making sparks'

(Choctaw) *halu**pp**a* 'sharp' (used in *na haluppa* 'weapon')

+there is a higher percentage of transitive verbs ending in *-p-* than in several of the other suffixes

-t- "action with motion from a stationary position"

+the Mikasuki and Choctaw verbs feature actions (ex.: Mikasuki *halg**t**lom* 'grab') as well states, which are not far from the idea of 'action with motion from a stationary position' (ex.: Mikasuki *hayg**t**lom* 'glow'). However, the Creek verbs are more varied

10) Creek *-t-* verbs

a. mental states *marvpv'**t**ketv* 'calm, comforted'
*hvsv'**t**ketv* 'clean, perfect, pure'

b. motions from stationary *cumo**t't**etv* 'bounce'
*nerá**tt**etv* 'bow'
*vtó**t**ketv* 'minister, serve, work'

c. definitely not stationary *em-vnv'**tt**etv* 'escape'
*sofó**t**ketv* 'drag oneself'

+However, given that Kimball's definition works for all but a few idiosyncratic Creek forms, I propose no revisions at this time

-f- "action on a surface"

+occurs in all three branches, but with few shared roots (only two between Creek and Mikasuki)

+consider Creek, many of the verbs relate to surfaces, but many don't

11) a. surface related

alófetv 'daub, plaster'
kvlv'fetv 'plane, shave'

b. not surface related

akkófetv 'dig out'
tvkv'fetv 'melt'

Similarly, Mikasuki has *ayo̲o̲fom* 'close up, constrict' and *o̲kfom* 'get wet.'

+In Historical Choctaw corpora, *-f-* verbs very rarely take any aspect marking morphology

-s- "action involving liquid"

+Proto-Muskogean *s became /s/ in the three eastern branches but /ʃ/ in Western Muskogean. As expected, we have correspondence between *-s-* stems in Mikasuki and *-sh-* stems in Choctaw

12) Expected sibilant correspondence

(Mikasuki[1]) enkala̲**sh**lom 'cut, trim'
(Choctaw) kalʊ**sh**li 'cut with shears'

However, there are also Choctaw verbs whose stems end in *-s-*, and which seem to form a loose semantic class (which I've called "properties of surfaces").

13) Choctaw *-s-* "properties of surfaces (?)"

fabʊssa 'long and slender; slim.'
fobʊssa 'long and slender; slim.'
kvpʊssa 'cold'

[1] Mikasuki's one sibilant is retroflex /ʂ/ which is thus written as <sh>. However, it corresponds to /s/ in the rest of Eastern Muskogean.

*malv**ss**a* ‘flat and smooth; as amp malʋssa, a plate.’
*takv**ss**a* ‘flat and thin as a china-beanpod’
*tvmi**ss**a* ‘to be numb.’
*patv**ss**a* ‘flat’

This group of verbs has almost no cognates in the other languages, though *patv**ss**a* may be related to Creek *pvtî**c**etv* ‘spread out.’

Possibilities: either Proto-Muskogean **ȼ* (the source of /s/ in Western Muskogean) was also a formative, or the Western *-s-* is a much later innovation.

+setting aside the Western *-s-*, while I’ll write as *-s_W-* to disambiguate from here out, let’s look at the meaning of the other *-s-*.

In Creek we see a couple different groups of meanings

14) a. physical states *ahó**s**ketv* ‘remain’
*yopó**s**ketv* ‘be instead of’

b. mental properties *eyá**s**ketv* ‘obedient, humble’
*yvmv’**s**ketv* ‘meek’

c. change of state? *kelá**s**etv* ‘shell’
*vká**s**etv* ‘scrape, shave’

In Mikasuki we also see a mix of properties and change of state verbs.

d. properties *óhfa̲**sh**kom* ‘it comes to a point (as of a roof)’
*shama̲**sh**kom* ‘it is getting wet (as of a car with the window left down)’

e. change of state? *aba̲**sh**kom* ‘he/she is picking (something), picking up (a bead), picking out (workers)’
*abo̲**sh**lom* ‘he/she is roasting it (over a fire)’
*kala̲**sh**lom* ‘he/she is cutting (grass, hair), trimming’

Finally, Choctaw:

f. properties *yabo**sh**a* ‘soft, mellow’
*libe**sh**a* ‘warm, sanguine, tepid’

g. cutting/cooking *kalv**sh**li* ‘cut with shears’
*vlwv**sh**a* ‘fried, parched, toasted’

+Could there be two formatives *-s-* which happen to have the same phonological form?
+basically *-s_1-* ‘(mainly physical) property (?)’ and *-s_2-* ‘action by cutting or cooking’

+in Creek and Choctaw these verbs are largely transitive, while in Mikasuki 11/16 are intransitive

-lh- "action involving severing"

+small number of examples for all three of the branches looked at here
+meaning:
Creek- only three verbs, none of which have to do with severing/cutting
Mikasuki- some tearing, but general 'coming apart'
Choctaw- pattern unclear
+only the Mikasuki *-lh-* seems to match Kimball's description of Koasati *-lh-*, though it's difficult to say anything conclusive with so little data

-k- "actions or experiences involving the body (?)"

15) Examples of *-k-* in Choctaw verbs

a) *poffo**k**li* 'raise dust suddenly'
b) *(ha)tapa**k**li* 'gallop'
c) *chosho**k**li* 'lame'
d) *chilho**k**li* 'limp'
e) *moto**k**li* 'throb'
f) *shikkili**k**li* 'tiptoe'

+very similar to the meaning Kimball gives for *-p-*, though 'body part' here can be the full body or the mouth
+only five verbs identified in Creek, only three of which are clearly bodily actions. The Mikasuki verbs have some that don't fit in with this meaning either (ex.: *maashâ**k**lom* 'pay attention, respect')
+related to the verb *ka* 'say' that exists in many of the languages (through mimetic expressions)?

-m- "actions involving covering or coating (?) / immaterial actions"

+meaning:
Creek- actions, but immaterial, ex.: 'brag, be weary, agree'
Mikasuki- similar, ex.: *kalóomom* 'smell sour,' dictionary entries often not in the durative form, maybe because they aren't inalienable properties? There is also *holạmkom* 'hide'/ *holạạmom* 'hide smt.'
Choctaw- many examples of the above, but some verbs that don't seem to fit in (ex.: *filimmi* 'turn something over')
+Like -s_1- and -s_2-, seems like multiple meanings, possibly two homophonous suffixes?

2.3. generalizations across the suffixes

-there are few minimal pairs (Creek: 7, Mikasuki: 2, Choctaw: 12)
+are they helpful in understanding the differences in meaning?

16) Mikasuki minimal pairs

a.	/kalaf/	*kalg̲flom*	‘he/she is carving, shaving, whittling (wood)’
	/kalas/	*kalg̲ashlom*	‘he/she is cutting (grass, hair), trimming’
b.	/lhataf/	*łatg̲fkom*	‘he/she is poking it, jabbing it’
	/lhatas/	*łatatg̲ashkom*	‘it is crackling, popping (of a fire)’

17) Seemingly unrelated meanings?

a.	(Creek)	/hotop/	*hotópetv*	‘barbecue, broil’
		/hotos/	*hotósetv*	‘fatigued, tired’
b.	(Choctaw)	/yikof/	*yikofa*	‘wrinkled’
		/yikop/	*yikopa*	‘calm, quiet’

18) Newly proposed inventory of twelve suffixes:

abstract form	phonological form	gloss
-m₁-	/m/	‘immaterial action’
-m₂-	/m/	‘action of covering, coating’
-p-	/p/	‘action by hand or foot’
-t-	/t/	‘action with motion from a stationary position’
-k-	/k/	‘actions or experiences of the body’
-f-	/f/	‘change of state’
-s₁-	/s/ (E), /ʃ/ (W)	‘physical properties’
-s₂-	/s/ (E), /ʃ/ (W)	‘action by cutting or cooking’
-sᵂ-	/t͡ʃʔ/ (E), /s/ (W)	‘properties of surfaces’
-lh-	/ɬ/	‘?’
-y-	?	‘action with a circular motion’ (?)
-ː-	?	‘action without motion from a stationary position’ (?)

-inconsistent set of roots

3. Interpreting varied distribution

-We have a clear puzzle: the suffixes are attested in all of the languages (ignoring uncertainty about *-sᵂ-*), and there is consistency in form and meaning. This suggests fossilization in Proto-Muskogean.
-However, they occur with variable sets of roots in each language, which suggests much later productivity.

-Two possibilities:

+delayed fossilization: the full set of suffixes develop in Proto-Muskogean, and then, without significant changes in form or meaning, remain productive over the centuries in which other changes occur (manifesting the gradual splitting of the four branches of the family).

+"maximal lexicon": all/most root + formative combinations occur in Proto-Muskogean at the time of fossilization (whatever fossilization means in such a scenario). Then, variation in which forms fall out of use results in the inconsistent distribution in the modern languages

19) Model with nonce roots /tapa, taka/ and nonce suffixes /t, f, m/

Proto-language	Daughter A	Daughter B
/tapa + t/	-	*tapat-*
/taka + t/	*takat-*	-
/tapa + f/	*tapaf-*	-
/taka + f/	*takaf-*	-
/tapa + m/	-	*tapam-*
/taka + m/	-	-

-These aren't mutually exclusive models

-Delayed fossilization costs some temporal proximity in loss of productivity of formative suffixes and loss of productivity of subtractive pluralization

-How could we test/explore this question without ancient corpora?

4. Life cycles of derivational affixes

4.1. Origins

-Did the formative suffixes arise through incorporation?

+other than **-k-* it's hard to see what the Pre-PM roots being incorporated are (It doesn't help that all of these suffixes are a single consonant and languages like Choctaw tend to have minimal word constraints.)

-However, the suffix *-h-* 'plural' exists in Koasati and Choctaw and is descended from the bimoraic **oho*.

-Incorporation of *ikbi* 'make' in Choctaw:

20)

tanakbi	'bent'
chalakbi	"hard ; dry and stiff, as a dry hide" (from Byington, 1915)
kolokbi	"made into a gulf; excavated" (from Byington, 1915)
hatokbi	"pale; whitish" (from Byington, 1915)

-the formative suffixes don't need to have developed at the same time, they just need to have existed before Creek/Seminole split from the rest of the family

4.2. Earlier and eventual developments

-Compare with a similar class of derivational verbal suffixes in Algonquian languages

+though there are often more of them in a given language, ex.: ~150 in Blackfoot (Weber, P.C.)

+often more segmental content, but that's to be expected given the above

+allomorphy

+not fossilized

+predictive of transitivity and animacy (Choctaw *-kbi*?)

21) Blackfoot finals providing similar information to Muskogean formatives

	information	Muskogean	Blackfoot (from Weber, n.d.)
a)	instrument	*-p-* 'using hand or foot'	*-p-* 'do by mouth' *-inn-* 'do by hand' *-o'to-* 'do by hand' *-hko-* 'do by foot/body'
		-s₂- 'cutting, severing'	*-itt-* 'do by blade' *-hs-* 'do by heat'
b)	manner	*-y-* 'circular motion'	*-istsim-* 'do by blade or with a back and forth motion' *-ihtsi-* 'put, place'
c)	quality	*-s₁-* 'physical property'	*-ssi-* 'be, have a quality'

+note: can be multiple that encode roughly the same information

+note: seemingly more productive than the Muskogean ones were?

-future of increased erosion of phonological material?

+Tlingit stem variation, Muskogean aspect marking

22) Tlingit stem variant suffix and root shape (from Crippen, 2020:91)

var.	*length*	*tone*	*other*	√CV	√CV^{h}	√CVC	√CVC'	√CV'C
(L)	short	low		*	*	*	*	*
-H	short	high		CV́	CV́	CV́C	CV́C'	CV́C
-μ	long	low		CV̀V̀	CV̀V̀	CV̀V̀C	* ↴	* ↴
-μH	long	high		CV́V́	CV́V́	CV́V́C	CV́V́C'	CV́V́C
-e	long	low	ablaut	* ↴	Cèè	*	*	*
-eH	long	high	ablaut	Céé	Céé	*	*	*
-⊗	short	high	truncation	*	*	CV́	*	*

23) Examples of Choctaw aspect infixes

	meaning	underlying form	example	
a.	durative	/[+nas]/	/hikiiya/ 'stand'	/hikĩiya/ 'be standing'
b.	repetitive	/VhV[+nas]/	/tõksali/ 'work'	/tõksahãli/ 'work repeatedly'
c.	terminative	/yyV[HL]/	/tahli/ 'finish'	/tayyahli/ 'finally finish'

+increasingly slight and abstract forms

-The process may look different here because of the lack of minimal pairs

+why it's not a problem for informational load to have subtractive plurals or for many Mikasuki forms to have C → : changes that would neutralize minimal pairs

24) Mikasuki C → :

	Mikasuki	Koasati	Choctaw	English gloss
*tiwa-p-li	*wita:li-*	*tiwa**p**li*	*(tiwwi)*	'open'
*mała-t-li	*mała:li-*	*mała**t**li*	*mała**a**ta*	'afraid'
*fili-m-ka	*fili:ka*		*fili**i**ma*	'turn around'

+basically, a lack of functional load reduces inhibition towards mass neutralization towards -Ø-

+however, because the Muskogean formatives are not productive and aren't recognized as separate from the stem by modern speakers, we may expect only to see general verb stem-based phonological change acting upon them.

5. Conclusions

-looking back at our initial questions:

a. Proto-Muskogean or later?
b. their historic productivity?
c. effects of language change/split on their distribution?

-All of the suffixes (except maybe -*sw*-) seem to have existed before Proto-Muskogean split, though the point at which these morphemes became a fossilized part of the verb stem remains unclear.

-minimal variation in meaning: occasionally one language will have more verbs that don't seem to fit in with the proposed meaning than others, but generalizations seem to hold across the languages.

+ -*lh*- might be variable, but there are very few verbs with it in any of the languages we looked at

+Seemingly regular variation in meaning (if attested in all of the three branches looked at) can be treated with separate affixes with the same form.

-We cannot reconstruct the (light?) verbs which evolved into the formative suffixes, and there is a stark dissimilarity in phonological form between the typical Muskogean verb and a single consonant suffix, but examples of similar processes suggest that incorporation is still the likely source of the formatives.

-What to look at next?

+analysis of subtractive pluralization

+other morphological patterns (propensity of specific formatives to delete in plurals, grade forms, etc.)

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