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Choctaw nasalized vowels

The following is a segment inventory and lexicon of Choctaw, a Muskogean language spoken in the American south. This paper will explain this language's alternation with vowels and nasals in the possessive prefix /am-/, with rules applying in order.

Consonants:

m	n		
p b	t		k
		s	
	f		
	l		

Also: [w] [t͡ʃ]
Pairs indicate voiceless and voiced, respectively

Vowels:

i, ĩ	
	o, õ
a, ã	

Each vowel in Choctaw has a nasal counterpart

Lexicon:

Prefix	Gloss	Root	Gloss
/am-/	*my*	/issi/	*deer*
		/ofi/	*dog*
		/pala/	*lamp*
		/tabi/	*cane*
		/ t͡ʃokka/	*house*
		/miNko/	*chief*
		/naki/	*bullet*
		/lowak/	*fire*
		/oNsi/	*eagle*
		/aNpo/	*dish*
		/haNwa/	*locust*
		/iNpa/	*to eat*
		/labaNka/	*to snore*

Capital N represents a nasal consonant.

The possessive marker in Choctaw is a prefix. It utilizes the following morphological template:

/(Prefix +) Root/

Consider these examples: /am+issi/ /am+haNwa/

/am+naki/ /am+tabi/

The maximal syllable template for Choctaw is CVX. Consider the words for *my chief*, *my deer*, and *my house*:

PR: ããmĩĩko	PR: amissi	PR: ããtʃokka
Syllables:	Syllables:	Syllables:
CV Skel:	CV Skel:	CV Skel:
Melody:	Melody:	Melody:

Choctaw vowels become nasalized before a nasal consonant in a consonant cluster. Consider: /pala/ *lamp* becomes /ampala/ when the prefix is appended, but has the surface form [ããpala] (Choctaw elongates all nasalized vowels). Also: /tabi/ *cane* becomes /amtabi/ when the prefix is appended, but has the surface form [ããtabi]. Vowels cannot be nasalized before a nasal consonant alone. Consider: /issi/ *deer* becomes [amissi] after the prefix is appended. Consult table 1. This vowel nasalization rule may be written:

$$[+syllabic] \rightarrow [+nasal]/\_[+nasal][-syllabic]$$

Nasal consonants in Choctaw are deleted before consonants to avoid clusters. Consider: /naki/ *bullet* becomes /amnaki/ after the prefix is appended, but has the surface form [ããnaki]. Also: /lowak/ *fire* becomes /amlowak/ after the prefix is appended, but has the surface form [ããlowak]. Nasal consonants are not deleted before vowels. Consider: /ofi/ *dog* becomes [amofi] when the prefix is appended. Consult table 2. This nasal deletion rule may be written:

$$\begin{bmatrix} +nasal \\ -syllabic \end{bmatrix} \rightarrow \varnothing/\_[-syllabic]$$

It is easier to see the underlying form of the possessive prefix through the above rules. Consider: phonological segments often reveal their underlying representation before a

vowel. /issi/ does not become *[ããissi] when attaching /am-/, but rather becomes [amissi]. Additionally, it is much simpler to delete [m] and nasalize [a] in the prefix /am-/. Consider: a prefix /ãã-/ would require a nasal insertion rule, denasalization rule, and a vowel shortening rule (non-nasal vowels in Choctaw are not always short). Consult table 3.

The nasalization rule must be ordered first. Consider: /pala/ becomes /ampala/ after the prefix is appended, but would become *[apala] after nasal deletion, leaving no environment permitting vowel nasalization. In this way, nasal deletion counterbleeds vowel nasalization. Consult table 4.

Choctaw roots also contain nasal vowels. When considering the above rules, one can conclude that roots do not have nasal vowels in their underlying forms. Consider: /oNsi/ *eagle* becomes [õõsi] after vowel nasalization and nasal deletion. It is more difficult to postulate that nasal vowels occur in underlying forms with no reason for their nasalization. However, it is not possible to tell which nasal consonant causes a nasal vowel, or which would be inserted. Consider: French, spoken in neighboring Louisiana, nasalizes vowels before nasal consonants. Historically, these nasal consonants were once also pronounced. Modern French has lost this. Consider: <temps> *time* and <tant> *so much* are both pronounced /tɑ̃/. In Choctaw, it is also difficult to determine which of the two possible nasal consonants causes an alternation within a root word.

Choctaw reduces segments to retain its pattern of vowel and consonant alternation. After a vowel or vowel cluster, only a consonant may occur. After a consonant, only vowels may occur. Choctaw does this by employing these two rules in this order:

Vowel Nasalization

Nasal Deletion

In Choctaw, the vowel nasalization rule must be applied first. Otherwise, it would be bled by nasal deletion. These rules are both present in words beginning with a consonant but neither is present in words beginning with vowels.

Table 1:

UR: /pala/	UR: /tabi/

Prefix: /ampala/	Prefix: /amtabi/
VN: /ã̃ãmpala/	VN: /ã̃ãmtabi/
VD: [ã̃ãpala]	VD: [ã̃ãtabi]
PR: [ã̃ãpala]	PR: [ã̃ãtabi]

UR: /issi/
Prefix: [amissi]
VN: [amissi]
VD: [amissi]
PR: [amissi]

Table 2:

UR: /naki/	UR: /lowak/
Prefix: /amnaki/	Prefix: /amlowak/
VN: /ã̃ãmnaki/	VN: /ã̃ãmlowak/
VD: [ã̃ãnaki]	VD: [ã̃ãlowak]
PR: [ã̃ãnaki]	PR: [ã̃ãlowak]

UR: /ofi/
Prefix: [amofi]
VN: [amofi]
VD: [amofi]
PR: [amofi]

Table 3 showing alternate prefix hypothesis:

UR: /issi/		UR: /issi/
Prefix: [amissi]		Prefix: /ã̃ãissi/
VN: [amissi]		N Insert: /ã̃ãmissi/
VD: [amissi]		Denasalize: /aamissi/
PR: [amissi]		V shortening: [amissi]

A prefix of /am-/ reaches its surface form
sooner and with less rules than a prefix of /ãã-/

| | | PR: [amissi] |

Table 4 showing correct and incorrect rule ordering:

UR: /pala/	UR: /pala/
Prefix: /ampala/	Prefix: /ampala/
VN: /ã̃ãmpala/	VD: [apala]
VD: [ã̃ãpala]	VN: [apala]
PR: [ã̃ãpala]	PR: *[apala]