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CHOCTAW MORPHOPHONOLOGY

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Ph.D. 1986
UNIVERSITY OF CALIFORNIA

Los Angeles

Choctaw Morphophonology

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy in Linguistics

by

Charles Howard Ulrich

1986
The dissertation of Charles Howard Ulrich is approved.

Stephen R. Anderson

William O. Bright

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Alan Timberlake

Pamela Munro, Committee Chair

University of California, Los Angeles

1986
With love to S. S.
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<td>1</td>
<td>first person</td>
</tr>
<tr>
<td>2</td>
<td>second person</td>
</tr>
<tr>
<td>'</td>
<td>'grade</td>
</tr>
<tr>
<td>Abl</td>
<td>ablative (ima-a-)</td>
</tr>
<tr>
<td>Acc</td>
<td>accusative (sa-, pi-, chi-)</td>
</tr>
<tr>
<td>act</td>
<td>active (-li)</td>
</tr>
<tr>
<td>Ben</td>
<td>benefactive (imi-)</td>
</tr>
<tr>
<td>caus</td>
<td>causative (-chi)</td>
</tr>
<tr>
<td>CB</td>
<td>Cyrus Byington</td>
</tr>
<tr>
<td>Com</td>
<td>comitative (ibaa-)</td>
</tr>
<tr>
<td>Cs</td>
<td>Chicksaw</td>
</tr>
<tr>
<td>Ct</td>
<td>Choctaw</td>
</tr>
<tr>
<td>Dat</td>
<td>dative (im-)</td>
</tr>
<tr>
<td>dem</td>
<td>demonstrative (-ma, -pa)</td>
</tr>
<tr>
<td>dir</td>
<td>directional (at-, ot-, it-, pit-)</td>
</tr>
<tr>
<td>ds</td>
<td>different subject (-n)</td>
</tr>
<tr>
<td>emph</td>
<td>emphatic (-shki)</td>
</tr>
<tr>
<td>fut</td>
<td>future (-aachi)</td>
</tr>
<tr>
<td>G</td>
<td>g-grade</td>
</tr>
<tr>
<td>GAB</td>
<td>George A. Broadwell</td>
</tr>
<tr>
<td>H</td>
<td>h-grade</td>
</tr>
<tr>
<td>HN</td>
<td>hn-grade</td>
</tr>
<tr>
<td>Hyp</td>
<td>hypothetical (ik-)</td>
</tr>
<tr>
<td>inst</td>
<td>instrumental (isht-)</td>
</tr>
<tr>
<td>intr</td>
<td>intransitive</td>
</tr>
<tr>
<td>JH</td>
<td>Jeffrey Heath</td>
</tr>
<tr>
<td>Loc</td>
<td>locative (aa-)</td>
</tr>
<tr>
<td>MCO</td>
<td>Mississippi Choctaw of Oklahoma</td>
</tr>
<tr>
<td>MISS</td>
<td>Mississippi Choctaw</td>
</tr>
<tr>
<td>mod</td>
<td>modal (-aana, -aahina)</td>
</tr>
<tr>
<td>mp</td>
<td>medio-passive (-a, -l-)</td>
</tr>
<tr>
<td>n</td>
<td>nominalizer</td>
</tr>
<tr>
<td>N</td>
<td>n-grade</td>
</tr>
<tr>
<td>neg</td>
<td>negative (-o, -ki)</td>
</tr>
</tbody>
</table>

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Nom nominative (-li, il-, ish-)
ns non-subject (-a, -n)
p plural (within agreement markers)
pl plural (ha-, oh-, ho-)
pt "past" (-tok)
Q question (-o, -a, -n)
rcp reciprocal (itti-)
rem remote past (-ttook)
rfl reflexive (ili-)
s singular (within agreement markers)
sbr subordinator (-cha, -na, -ka, -oo, etc.)
sg singular
ss same subject (-t, -sh)
su subject (-at, -t)
Sup superessive (on-)

TDN T. Dale Nicklas
tr transitive

v verbal suffix (-h)

Y y-grade
ACKNOWLEDGEMENTS


My research has been funded by the Department of Linguistics, the American Indian Studies Center, the Institute of American Cultures, and the Graduate Division, all at UCLA.

I am grateful to my linguistics teachers, who have provided me with the training and inspiration to complete this dissertation. I am particularly grateful to the
members of my doctoral committee, Steve Anderson, Bill Bright, Paul Kroksrity, Pam Munro, Paul Schachter, and Alan Timberlake, for their comments on drafts of this dissertation. Bruce Hayes has also been very helpful.

I would also like to thank my fellow students of Choctaw and other Muskogean languages for providing data, analysis, comments, and companionship. Alice Anderton, Bonnie Glover, Mike Hammond, Phil Jaggar, Linnea Lagerquist, Wendy Linker, Jan Scott, Dave Tappan, and Andreas Wittenstein were in the Field Methods class where it all began. They and the other UCLA Muskogeanists, including Aaron Broadwell, Bonnie Chiu, David Costa, Lynn Gordon, and Teresa Spörk, have made my study of Choctaw both more enjoyable and more profitable through the mutual sharing of ideas.

I must also thank my good friend Susanna Cumming, as promised. I thank Allen Munro and Dave Woodall for computer assistance and print-out programs, and Aaron Broadwell for the loan of his printer. Brian McHugh also deserves thanks for help with the theoretical end of this enterprise, beginning with a discussion of "acceptable morphology" when I was writing my final paper for Field Methods. Thanks and apologies to the typist of part of that paper, without whose insistent encouragement this dissertation was not completed any sooner. And thanks to all my friends not named here for their support and

x
friendship.

Finally, there are three people without whom I could not have written this dissertation, and whom I cannot thank enough. Mrs. Josephine Wade has been teaching me Choctaw for four years, and has provided most of the data contained herein. I took Field Methods because I had to, but here I am four years later, still studying Choctaw, and Mrs. Wade is largely responsible. Mrs. Catherine Willmond has taught me Chickasaw and Mississippi Choctaw of Oklahoma, and so valuably supplemented what I learned from Mrs. Wade. She has also provided introductions to many Chickasaw and Choctaw speakers in Oklahoma. Professor Pamela Munro, besides introducing me to both of these ladies, has taught some of the best classes I have ever taken, trained me as an Americanist, given me employment, and driven me thousands of miles. Much of this dissertation is based on her observations and analyses; the rest has benefited greatly from her comments and criticism.
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ABSTRACT OF THE DISSERTATION

Choctaw Morphophonology

by

Charles Howard Ulrich

Doctor of Philosophy in Linguistics

University of California, Los Angeles, 1986

Professor Pamela Munro, Committee Chair

The dissertation is a description of the morphophonology of Choctaw, a Muskogean language, within the framework of Autosegmental and Lexical Phonology. It is based on my own fieldwork with speakers of three dialects of Choctaw and the closely related language Chickasaw.

Chapter one gives background information on Choctaw. Chapter two gives an overview of Autosegmental Phonology and Lexical Phonology. Chapter three begins the analysis of Choctaw morphophonology, describing syllabic and metrical structure, the pitch accent system, and the process of vowel nasalization. Chapters four through seven describe different areas of the morphology, and formulate the necessary phonological rules. Chapter four
deals with the processes of nominalization and compounding, chapter five with the valence system, chapter six with verb grades, and chapter seven with agreement affixes and clitics. Appendices include an index of phonological rules, a list of compounds naming varieties of beans and peas, and a list of active and medio-passive verb pairs.

The dissertation focuses on Oklahoma Choctaw. Additional data comes from Chickasaw, Mississippi Choctaw of Oklahoma, and Mississippi Choctaw. Mississippi Choctaw of Oklahoma, spoken by Choctaws living in the Chickasaw nation in Oklahoma, has not been previously described.
Chapter 1. Preliminaries

In this chapter, I present a quick sketch of the Choctaw language. Section 1.1. gives background on the Choctaw language itself, its dialects, and my consultants. Section 1.2. is a brief survey of the linguistic literature on Choctaw. Section 1.3. discusses Choctaw phonology and orthography. Section 1.4. discusses the syntax of Choctaw.

1.1. The Choctaw Language

Choctaw is a Muskogean language, spoken originally in Mississippi and Alabama. Most Choctaws were removed to Indian Territory (now Oklahoma) in the 1830's, but some remained in Mississippi. There are now perhaps five thousand Choctaw speakers in Oklahoma, five thousand in Mississippi, and a smaller number in Louisiana (Chafe 1965). There are also a number of speakers in the Los Angeles area. According to the accepted classification, Choctaw and the closely related Chickasaw constitute the Western branch of the Muskogean family (Haas 1941), which in turn belongs to the Macro-Algonquian stock (Voegelin and Voegelin 1965). Eastern Muskogean languages include Alabama, Koasati/Coushatta, Hitchiti, Mikasuki, Creek, and Seminole.

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There appear to be three major dialects of Choctaw: that of the "Native Choctaws" living in the Choctaw Nation in southeastern Oklahoma, that of the "Mississippi Choctaws (of Oklahoma)" living in the Chickasaw Nation in south central Oklahoma, and that of the Choctaws living in Mississippi. I will concern myself primarily with the dialect of the "Native Choctaws"--which I will refer to simply as "Oklahoma Choctaw"--specifically as spoken by Mrs. Josephine Wade. Mrs. Wade was born in 1930 in Eagletown, Oklahoma, in the Choctaw Nation, where she lived until 1945. Her husband is also a native speaker of Choctaw. They have lived in California since 1964. Mrs. Wade was the consultant for a UCLA Field Methods course taught by Professor Pamela Munro in the fall of 1981 and the winter of 1982. I have continued to work regularly with Mrs. Wade since then.

I have also worked with a number of other Oklahoma Choctaw speakers: Rosie Billy, Ollie Jack, Levi Jones, Marie McKinney, Reba Meashintubby, Frances Nelson, Steven Roberts, and Gladys Wade in the Choctaw Nation; Edna Roberts in the Chickasaw Nation; and Paul Perkins, Tillie Perkins, and Semiah Robinson in the Los Angeles area. Other Oklahoma Choctaws with whom I have not worked formally but who have told me words of their language include Harry Folsom, Betty Jack, William Nelson, Chukfi Robinson, and Howard Wade. My primary consultant for
Mississippi Choctaw of Oklahoma is Catherine Willmond, but I have also worked with Willie Byars, Buster Ned, Adam Sampson, and Julia Thomas in Oklahoma and with Leona Jefferson in California. John James also told me a few words. On a brief visit to the Choctaw Reservation in Pearl River, Mississippi, I worked with two speakers of Mississippi Choctaw, Gus Comby and Henry Tubby. My youngest Choctaw consultant is in his early thirties; the oldest are in their eighties. Most of my consultants are in their fifties or sixties.

Chickasaw is commonly considered to be a dialect of Choctaw (Haas 1941, Pulte 1975), although the Choctaws and Chickasaws have been distinct political groups since before the first contact with Europeans. There are, however, many differences between Choctaw and Chickasaw (cf. Munro 1984b). Whether it is a dialect of Choctaw or a separate language, Chickasaw is valuable for comparison with Oklahoma Choctaw, and I will refer to it frequently. My Chickasaw data comes primarily from Mrs. Catherine Willmond, a Chickasaw who speaks both Chickasaw and Choctaw. Mrs. Willmond was born in Macmillan, Oklahoma, in the Chickasaw Nation, and now lives in Los Angeles. My other Chickasaw consultants are Virgie Brown, Willie Byars, Onita Carnes, Mina Christie, Cora Collins, Mary James, Luther John, Tecumseh John, Maybell Lacher, Tennie Pettigrew, Bienum Pickens, Clarence Porter, Leola Porter,
Mary Ella Russell, Hattie Stout, all in Oklahoma. Patsy Byars, Jackson Collins, and Eloise Pickens also told me a few words of Chickasaw.

1.2. Linguistic Literature on Choctaw

The first extensive work on Choctaw was done by the Reverend Cyrus Byington, missionary to the Choctaws from 1819 until his death in 1868. He wrote a grammatical sketch (1870) and an excellent dictionary (1915). Byington also helped develop the standard Choctaw orthography, in which are written a large number of hymns, the New Testament, and parts of the Old Testament.

The dissertation of T. Dale Nicklas (1972) is a descriptive grammar of Oklahoma Choctaw, covering phonology, morphology, and some syntax within a vaguely generative framework. Nicklas has also written an article on Choctaw morphophonemics (1975) and a reference grammar (1979), and collaborated on a pedagogical grammar (Jacob, Nicklas, and Spencer 1977).

The dissertation of William Davies (1981a) presents an analysis of Oklahoma Choctaw syntax within the framework of Relational Grammar. Davies (1979, 1981b, 1984a, 1984b) has also written several articles on Choctaw syntax.

Other literature on Oklahoma Choctaw includes

Jeffrey Heath (1975, 1977, 1980) has written on Mississippi Choctaw morphology, including cases, agreement, and grades. Mississippi Choctaw of Oklahoma has not been described in print.

Ulrich (1984b), and Payne (1979). Many of these deal with Oklahoma Choctaw as well.


1.3. Phonology

This section gives a brief overview of some general aspects of Choctaw phonology. The phonemic inventory and the orthography are discussed in section 1.3.1., and syllable structure is discussed in section 1.3.2. The formal representation of Choctaw phonological structure is discussed in Chapter 3.

1.3.1. Phonemic Inventory and Orthography

The orthography used in this dissertation is based on that devised by Cyrus Byington, with regularization of the spelling of long vowels and consonants, nasal vowels, the voiceless lateral, and glides, and the addition of the apostrophe for the glottal stop. The consonant phonemes of Choctaw are as follows:
The digraph <ch> represents a voiceless alveopalatal affricate [tʃ]. The digraph <sh> represents a voiceless retroflex fricative [ʃ]. Orthographic <sh> is never ambiguous, as [sh] clusters do not occur in Choctaw. The apostrophe <'> represents a glottal stop [ʔ]. The glottal stop, which has not been recognized as a phoneme in previous accounts of Choctaw, is discussed at length in section 4.4 below.

The digraph <lh> represents a voiceless lateral fricative [ɬ].² Byington wrote this sound as <lh> before a consonant, and as <hl> before a vowel. Unfortunately, <hl> sometimes represented an actual /hl/ consonant cluster. Thus, before a vowel, where the lateral fricative and /hl/ clusters contrast, they were written identically. Only before a consonant, where /hl/ clusters cannot occur, was the lateral fricative written with the unambiguous <lh>. Moreover, the editors of Byington's (1915) dictionary changed all occurrences of orthographic <hl> to <ɬ>, making the orthography no more ambiguous, but rather more misleading. Since /lh/ clusters never occur in Choctaw, the voiceless lateral is consistently written
<1h> in this dissertation.

All consonants except /'/ can occur as geminates in Choctaw, in which case they are written doubled, e.g. <pp, chch, ww>. Byington sometimes indicates gemination in the same way, but he frequently fails to indicate gemination of stops, and he rarely doubles digraphs.

Byington frequently writes intervocalic /y/ as <i> and /w/ as <u>. He also writes geminate /yy/ and /ww/ as <iy> and <uw>, respectively. Occasionally, he omits intervocalic glides.

Choctaw has the following vowels:

\[ \begin{array}{cccccc}
  & i & o & ii & oo & i \\
 a & aa & a & a & o \\
\end{array} \]

Table 1.2.

Doubled vowels <ii, oo, aa> are long. Underlined vowels <i, o, a> are nasalized. Nasalized vowels are always phonetically long, and can be derived from sequences of oral vowel plus nasal consonant (cf. section 3.3. below). The practice of underlining nasal vowels was originated by Byington, though he sometimes writes them as oral vowels followed by nasal consonants. The editors of Byington (1915) substitute a superscript <n> for underlining.

The long vowels of Choctaw have the values [i:, a:, o:]. Short vowels, especially in closed syllables, may be closer phonetically to [Ɂ,ʌ,ʊ]. Byington indicates vowel
length indirectly and incompletely by means of vowel quality distinctions. He uses six vowel symbols: \(<i, e, u, o, v, a>\). These correspond to the symbols used in this dissertation roughly as summarized in table 1.3.

\[
\begin{align*}
<i> & /i/ \text{ (unlengthened)} \\
<e> & /i/ \text{ (lengthened)} \\
<u> & /o/ \text{ (in a closed syllable)} \\
&o> & /o/ \text{ (in an open syllable)} \\
<v> & /a/ \text{ (in a closed syllable)} \\
<a> & /a/ \text{ (in an open syllable)} \\
\end{align*}
\]

Table 1.3.

These correspondences are not exact; the identity of surrounding consonants, as well as vowel length and syllable structure, appears to influence Byington's choice of vowel symbol.

I write \(<ee>\) for phonetic [e:] from underlying /ay/, and \(<e>\) for the shortened version thereof (cf. section 5.4.). I write \(<ia>\) and \(<iaa>\) for phonetic [ɔ:] from underlying /ia/ and /iaa/ (cf. section 7.6.).

Choctaw has a pitch accent system (cf. section 3.4. below). Vowels with a high pitch accent are marked with an accent mark \(<'\), with the exception that the word-final accent is not written. Choctaw also has a phonological rule of Rhythmic Lengthening (cf. section 3.2. below), by which the vowels of alternate light syllables are lengthened. Where relevant, rhythmically lengthened vowels are marked with a macron \(<\).
In Byington's orthography, verb stems are preceded and followed by spaces, and further verbal affixes are typically written separately:

(1)  <Is sa halanli hatuk o,>
     ls-sa-halánli-h-aatoko
     2Nom-isAcc-hold:N-v-because:ds
     'Because you're holding on to me'
     (Choctaw Hymn 93, stanza 2, line 3)

Stem-external affixes are written as part of the same word when they cause changes in the shape of the stem:

(2)  <Ik sviollo kishvshke.>^4
     Ik-sa-ílli-õ-kisha-shki-h -->
     Hyp-IsAcc-die:õ-neg-yet-emph-v
     Iksálokíshashkíh
     'I'm not dead yet'
     (Choctaw Hymn 93, stanza 2, line 4)

Deletion of its two vowels reduces the verb stem in (2) to /ll/, which is apparently not a possible orthographic word. Thus, sa- and -o are not written as separate words here, although sa- is written separately when it precedes a stem not beginning with /i/, as in (1) above.\(^5\)

On the other hand, affixes are written as separate words when they have different forms depending on the stem. For example, the first person plural dative marker pim- may be written as <pim>, <pin>, or <pi>, depending on the following segment, which is in a different orthographic word. The dative marker is, however, written as part of the same word when attached to a bound root, as in <piki> piki' 'our father' (*ki').

The spacing in the traditional orthography thus does
not represent consistently a single morphological level. The spacing of a morpheme may vary depending on purely phonological conditions (e.g. the initial segment of the following morpheme). In any case, the traditional orthography breaks sentences into many more words than does the analysis presented in this dissertation. It should be noted that the traditional orthography was devised by a native speaker of English not trained as a linguist, with literacy of Choctaws in their language as a goal. The writing of many short orthographic words rather than fewer long ones is probably due largely to the fact that Byington was a speaker and writer of English, which frequently uses separate words where Choctaw uses inflectional affixes. No doubt Byington's practice is also more appropriate and effective for pedagogical purposes than the writing of long words without boundaries. My own goals being descriptive and analytic, I will write spaces to coincide with word boundaries as phonologically defined (cf. section 2.3.).

Words cited from Byington (1915) in this dissertation are transliterated into the current system, with Byington's spelling given after his initials in parentheses, e.g. talbal (CB: tvlbvl). Similarly, words cited from other works are transliterated, with the original spelling given after the author's initials.
1.3.2. Syllable Structure

Syllables in Choctaw consist of a vowel, which may be short, long, or nasal, optionally preceded and/or followed by a consonant. Syllables ending in a short vowel (with or without a preceding consonant) are known as light syllables. Syllables containing a long or nasal vowel or a postvocalic consonant are known as heavy syllables. Syllables containing a long or nasal vowel and a postvocalic consonant are known as superheavy syllables. Table 1.4. gives examples of different syllable shapes.

Light syllables:

<table>
<thead>
<tr>
<th>Type</th>
<th>Example 1</th>
<th>Example 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>O.fi'</td>
<td>'dog'</td>
</tr>
<tr>
<td>CV</td>
<td>TÔ.bi'</td>
<td>'bean'</td>
</tr>
</tbody>
</table>

Heavy syllables:

<table>
<thead>
<tr>
<th>Type</th>
<th>Example 1</th>
<th>Example 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>VV</td>
<td>OO.chih</td>
<td>'to draw water'</td>
</tr>
<tr>
<td>CVV</td>
<td>nok.SHOO.pah</td>
<td>'to be scared'</td>
</tr>
<tr>
<td>V.CV</td>
<td>I.ki'</td>
<td>'father'</td>
</tr>
<tr>
<td>VVC</td>
<td>nok.1ha.KA.chah</td>
<td>'to be startled'</td>
</tr>
<tr>
<td>CV.CVC</td>
<td>ISH.koh</td>
<td>'to drink'</td>
</tr>
<tr>
<td>CV.CVC</td>
<td>sho.LOSH</td>
<td>'shoes'</td>
</tr>
</tbody>
</table>

Superheavy syllables:

<table>
<thead>
<tr>
<th>Type</th>
<th>Example 1</th>
<th>Example 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>VVC</td>
<td>OOK.chah</td>
<td>'to awake finally'</td>
</tr>
<tr>
<td>CVVC</td>
<td>NKA.F.ka'</td>
<td>'dress'</td>
</tr>
<tr>
<td>VC</td>
<td>AT</td>
<td>'come and'</td>
</tr>
<tr>
<td>CV.CVC</td>
<td>õk.HISH</td>
<td>'medicine'</td>
</tr>
</tbody>
</table>

Table 1.4

What appears to be another type of superheavy syllable contains a final consonant cluster. This occurs only in final position in contracted participles (cf. section 7.4.).
(3)  ishi-t --> isht  (instrumental clitic)
take-ss

(4)  bohli-t --> boht  'put down (participle)'
put:down-ss

Even heavier apparent syllables, with nasal vowels and consonant clusters, can occur when dative clitics precede the instrumental clitic:

(5)  im-isht-kashoffi'  ~  _ishtkashoffi'  ~  _ishkashoffi'
Dat-inst-clean:n
'his eraser'

However, the /t/ of these apparent "superduperheavy syllables" is best analyzed as extrametrical (cf. section 3.1.).

Words may begin with any vowel (6) or with any consonant except the glottal stop (7):

(6)  ahi'  'potato'
issi'  'deer'
ofi'  'dog'
aachih  'to say'
ilah  'we arrived'
gotih  'to kindle'
ápó'  'dish'
tipah  'to eat'
okof  'persimmon'

(7)  pali'  'flying squirrel'
tali'  'rock'
chókfi'  'rabbit'
kowí'  'mountain lion'
fowi'  'bee'
siti'  'snake'
shawih  'raccoon'
hattak  'man'
bíhi'  'raccoon'
miko'  'chief'
nání'  'fish'
wáaya'  'peanut'
yolhkan  'mole'
lokai'  'turtle'
lhopah  'to pierce'
Non-initial syllables may begin with any consonant except the glottal stop:

(8)  

hópah  'owl'
nita'  'bear'
páchi'  'pigeon'
híka'  'gum'
chofak  'fork'
osih  'eagle'
hashi'  'sun'
níhi'  'seed'
tóbi'  'bean'
famah  'to be whipped'
tanap  'war'
lówak  'fire'
tiyak  'pine'
fálah  'crow'
nalhah  'to be shot'

Vowel-initial syllables occur medially only after clitics, such as dative im- or instrumental isht-, which are not resyllabified after being attached to their hosts (cf. section 7.6.).

Words may end with any of the following consonants:

p, t, k, ', f, s, sh, h, m, n, l:

(9)  

óskap  'crane'7
fakit  'turkey'7
bákbak  'woodpecker'
hoshi'  'bird'8
ókof  'persimmon'8
hallos  'leech'9
chókash  'heart'
hapih  'salt'
tokam  'a type of tree'10
tákkon  'peach',11
albal  'behind',11

The vast majority of Choctaw nouns end in glottal stop.

Wittenstein (n.d.) lists 48 nouns ending in /k/, 23 ending in /sh/, 15 ending in /p/, 15 ending in /h/, and fewer
than ten ending in other consonants. No Choctaw words end in phonetic ch, b, w, y, or lh.

Ignoring geminate consonants, non-word-final syllables may end with a vowel or with any of following consonants: p, t, k, f, s, sh, h, b, n, l, lh:

(10) lāpcho' 'earthworm'
pāthah 'to be wide'
hākshop 'skin'
naañka' 'dress'
chilīswa' 'measles'
kañstih 'flea'
toñbīh 'to be white'
haañblīh 'to kick'
yañhāh 'to have a fever'
hañbah 'sleep (in the eyes)'
cholhkan 'spider'

Aside from geminates, no Oklahoma Choctaw non-final syllables end in phonetic ch, 'm, w, or y. The possible syllable rimes of Choctaw are discussed in section 3.1.2.

1.4. Syntax

Choctaw has two major lexical categories, or parts of speech: noun and verb. Nouns serve as the heads of noun phrases. They can be marked for possession and case. Verbs can be inflected for person and number of all their arguments, aspect, negation, and switch-reference. Choctaw also has interjections and adverbs, which will not be dealt with in this dissertation.

There is no separate lexical category of adjective in Choctaw. Predicative adjectives are simply stative verbs.
Attributive adjectives are nominalized verbs (cf. section 4.2.).

Choctaw is an SOV language with nominative-accusative case-marking. Subject noun phrases are marked with subject markers, which end in -t or -sh. The neutral subject marker is -at:

(11) Kátos-at niya-h 'The cat is fat'
cat-su fat-v

After //, the neutral subject marker may lose its vowel, in which case the // is realized as vowel length (cf. section 4.4.):

(12) Ofii-t chonna-h 'The dog is skinny'
dog-su skinny-v

The subject marker is obligatory, or nearly so, on overt subject noun phrases in simple sentences.13

The first non-subject noun phrase of a sentence may be marked with a non-subject marker. The neutral non-subject marker is -a, as in sentence (13). Non-subject markers are optional (cf. sentence (14)):

(13) Ofii-t kátos-a liyohli-h
dog-su cat-ns chase-v
'The dog chased the cat'

(14) Ofii-t kátos liyohli-h
dog-su cat chase-v
'The dog chased the cat'

The neutral non-subject marker most commonly occurs in sentences with more than one non-subject noun phrase (15) or on preposed or postposed noun phrases (17, 19) (Munro 1984a):

16
Pam-a Lynn imi-haabli-li-h
P-ns L Ben-kick-1sNom-v
'I kicked Pam for Lynn'

(16) Pam Lynn imi-haabli-li-h
P L Ben-kick-1sNom-v
'I kicked Pam for Lynn'

(17) Kátos-a, ofii-t lhiyohli-h
cat-ns dog-su chase-v
'The dog chased the cat'

(18) Kátos, ofii-t lhiyohli-h
cat dog-su chase-v
'The dog chased the cat'

(19) Ofii-t lhiyohli-h, kátos-a
dog-su chase-v cat-ns
'The dog chased the cat'

(20) *Ofii-t lhiyohli-h, kátos
dog-su chase-v cat
('The dog chased the cat')

In such cases, the sentence with the non-subject marker is
preferable to the corresponding sentence without it. The
non-subject marker is obligatory on postposed objects.

Attributive adjectives follow the head noun. Case
markers follow the entire noun phrase, including any
modifiers:

(21) Hattak sipóknii-t illi-h
man old:n-su die-v
'The old man died'

(22) Ofi' lósay-a písa-li-tok
dog black:n-ns see:N-1sNom-pt
'I saw the black dog'

Genitive noun phrases precede the head noun. Certain
body parts and kinship terms follow a genitive unprefixes:

(23) ofi' iyyi' 'the dog's leg'
dog leg
(24)  ohooyo' ibayyi' 'the woman's nephew'
       woman   nephew

These nouns take accusative prefixes to mark first or
second person possessors (cf. section 7.2.2.).

Other body parts and kinship terms, and all other
lexical nouns, take the dative clitic im- ([i]
preconsonantly) when possessed:

(25)  Pam i-nishkin 'Pam's eyes'
       P. Dat-eye

(26)  hattak i-tiik 'the man's sister'
       man   Dat-sister

(27)  alikchi' im-ofi' 'the doctor's dog'
       doctor   Dat-dog

These nouns take inflected dative clitics to mark first or
second person possessors (cf. section 7.2.3.).

Relative clauses are head-internal in Choctaw. That
is, the nouns and verb of the relative clause typically
occur in the same order as in a main clause, and the
relative clause as a whole then occurs in the position
appropriate for its head noun in the matrix sentence:

(28)  Ofii-t kátos lhiyohli-tok-ma
do-g-su cat chased- pt-sbr:ds/dem:ns
     pisä-li-tok
     see:N-isNom- pt
     'I saw the dog that chased the cat' or
     'I saw the cat that the dog chased'

Case-marking in and of relative clauses in Choctaw is
quite complicated. Cf. Gordon (1985) and Scott (in
preparation).

Although case-marking in Choctaw is nominative-
accusative, the verbal agreement is an active system (Heath 1977, Munro and Gordon 1982). There are three sets of agreement markers regularly used for the subjects of affirmative verbs, two of which are also used for non-subjects. These sets of agreement markers are known as nominative, accusative, and dative. The subject of an intransitive sentence may govern any of these three types of agreement, depending on the verb:

(29)   Balili-li-h 'I ran'
       run-1sNom-v

(30)   Sa-niya-h 'I'm fat'
       lsAcc-fat-v

(31)   A-takoobi-h 'I'm lazy'
       lsDat-lazy-v

Nominative agreement is frequently governed by semantic agents, accusative agreement by semantic patients, and dative agreement by semantic datives of various sorts. However, the agreement patterns of a verb are not totally predictable from its semantics. (Cf. Munro and Gordon (1982) for Chickasaw, and chapter 7 below.) Instead, what type of agreement a verb takes with each of its arguments must be specified in the lexicon.

In addition to these three sets of agreement markers, there are a number of sets of oblique agreement markers, and a set of hypothetical agreement markers. The Choctaw agreement system is discussed at length in Chapter 7.

Choctaw has a switch-reference system (Jacobsen 1967,
Heath 1975), whereby verbs in subordinate clauses are marked for whether their subjects are the same as, or different from, the subject of the matrix clause:

(32) Híilha-cha-h talowa-h
dance:‘-sbr:ss-v sing-v
'He danced and then he sang'

(33) Híilha-na-h talowa-h
dance:‘-sbr:ds-v sing-v
'He danced and then she sang'

Although sentences (32) and (33) are translated with English compound sentences, Linker (1982) has shown that this construction involves subordination rather than coordination in Choctaw.

In addition to -cha and -na, there are three other switch-reference markers. Same-subject is marked by -sh after /o/ and by -t elsewhere:

(34) Tamaha' ish-ija-tok-o-o-sh ish-mákkaa-tok
town 2Nom-go-pt-sbr-ss 2Nom-say-pt
'You said you went to town'

(35) Pam-at hilha-hma-t anóthi talowa-tok
P.-su dance-sbr-ss then sing-pt
'Pam danced and then she sang'

Different-subject is marked by -n, which in final position is realized as vowel nasalization (cf. section 3.3.):

(36) Pam i-yimmí-li-h Jan-at konih apa-tok-ø
mákkaa-hma say-sbr:ds
'I believed Pam when she said Jan ate a skunk'

The switch-reference markers are also used on noun phrases to mark case (see above). The Choctaw switch-reference system will not be dealt with at length in this
Notes.

1. Koasati and Coughatta are the names preferred by two groups of speakers of the same language. Koasati is the name used in Louisiana, and Coughatta is the name used in Texas.

2. Under the influence of English, some speakers use a voiceless interdental fricative [θ] instead of the lateral fricative. Mrs. Wade uses the conservative lateral fricative.

3. Byington's symbol is actually an italicized <v>. Since [v] does not occur in Choctaw, roman <v> does not contrast with italic <v>. I use roman <v> for typographical convenience when representing Byington's spellings. The editors of Byington (1915) substitute <a> for <v>.

4. Byington (1915:200) describes -shki as

   a particle used at the end of sentences and suffixed to the last word to give a little more strength and dignity to the style, being much used in the solemn style. It may be regarded as an intensifier [sic] having the force of do in English, but is a more dignified expression than do.

   It abounds in Choctaw hymns, but Mrs. Wade reports that it is not used in contemporary speech.

5. The negative suffix -o always follows a vowel, which is then deleted. Consequently, it is never written as a separate word.

6. I have restored Byington's <v> and <h1>, where his editors substitute <a> and <t>, for typographical convenience.

7. Fakt may be the only native Choctaw stem ending in /t/. It is often avoided because of its resemblance to an English taboo phrase. Akak-cháaha' (from akáka' 'chicken' plus cháaha' 'tall') is used instead. Of course, countless morphologically complex words end in /t/:

   namely those ending in the subject case-marker or same-subject marker -t (cf. sections 1.4., 4.4.1., 7.4.).

8. Ókof is the only f-final word in common usage in Choctaw. Byington (1915) also lists ipaf (CB: ipvf)
'dog', but I have met only one speaker who knows this word.

9. Some words exhibit variation between final /s/ and /sh/, e.g. haksobis ~ haksobish 'ear'. Other words, e.g. hallos and chôkash, do not exhibit such variation. I know of only one s-final word in Chickasaw. I once heard Mrs. Willmond say "pas pas pas pas..." in rhythm with making a baby slap a table. Cf. passakli'chi 'to slap', pasá'chi 'to clap', passaa 'to spank' (Munro and Willmond 1984b).

10. Mrs. Wade does not use any m-final words in Choctaw. However, Byington (1915) lists bim 'a roaring' and tokam (CB: tokvm) 'name of a tree used in making the pommel and forepart of saddles'. Moreover, Chickasaw has suffixes ending in /m/, e.g. the interrogative past tense marker -m (Munro and Willmond 1984a). Thus, final /m/ can be considered an accidental gap for Mrs. Wade.

11. Mrs. Wade does not use any l-final words in Choctaw, save the English borrowings Eepal 'April' and Henchel 'angel'. The word albal occurs in Mississippi Choctaw of Oklahoma, and corresponds to Byington's (1915) okbal - obv (CB: obv, ulbv). Byington also lists talbal (CB: tvlbv) 'a double-wove basket made of the bark of cane', fohkol - pohkol (CB: fohkul, pohkul) 'hornet' and tohkol 'the sensitive plant'. Chickasaw l-final words include fohkol 'a type of bumble bee' and tokol 'dogwood or some other kind of tree' (Munro and Willmond 1984b). Final /l/ thus constitutes an accidental gap for Mrs. Wade.

12. These figures represent the number of words elicited from Mrs. Wade. Words listed in Byington (1915) but unknown to Mrs. Wade would roughly double the figures without altering the relative frequency of the different final consonants.


14. This -sh comes from underlying -ch. Cf. section 5.4.
Chapter 2. Theoretical Background

The analysis of Choctaw morphology presented in this dissertation assumes an autosegmental model of phonology, with separate melodic and skeletal tiers. Moreover, it assumes that elements on the skeletal tier are organized into syllables by structure-building phonological rules. It also assumes level-ordering of morphology and phonology, and the division of phonology into lexical and post-lexical components. This chapter provides a brief summary of the model assumed. Section 2.1. discusses autosegmental phonology and CV skeleta. Section 2.2. discusses syllabification rules. Section 2.3. discusses lexical phonology and level-ordering.

Section 2.1. Autosegmental Phonology and CV Skeleta

Autosegmental phonology was developed by Goldsmith (1976) to describe tonal phenomena. Tones have a certain degree of independence from phonological segments. For instance, when a tone-bearing unit is deleted, the tone often remains, and surfaces on some other segment. Consequently, autosegmental phonology sets up two separate tiers. One tier is a string of tones. The other tier is a string of segments. Elements on the two tiers are connected by association lines.
(1) Tonal tier: H L
   Association lines:   ||
   Segmental tier:  fava

(This example and further examples in this section are hypothetical, as Choctaw does not illustrate all the possible autosegmental configurations under discussion.)

In example (1), the first vowel bears a high tone (represented by the H on the tonal tier), while the second vowel bears a low tone (represented by the L on the tonal tier). The tiers represent articulatory gestures (or the phonological units underlying them) strung out through time, those controlling pitch in the case of the tonal tier and those controlling segment quality in the case of the segmental tier. The association lines represent the synchronization of these simultaneous sequences of gestures. Consequently, association lines may not cross.

Elements on the two tiers need not be in one-to-one association. A single tone may be associated with more than one segment:

(2) \begin{center}
     \begin{tabular}{c}
       H L \\
       | | \\
       gahnami
     \end{tabular}
\end{center}

In example (2), the second and third vowels are both low, being linked to the same L on the tonal tier. By the same token, a single segment may be associated with more than one tone:

(3) \begin{center}
     \begin{tabular}{c}
       H L \\
       | / \\
       bin
     \end{tabular}
\end{center}
In example (3), the vowel has a falling tone, since it is linked to a high tone and a low tone in that order.

Goldsmith (1976) proposes that, by convention, tones are mapped onto tone-bearing units from left to right in a one-to-one relation, with any left-over tones associated to the last tone-bearing unit, and any left-over tone bearing units associated with the last tone. Williams (1976) and others, however, have argued that association of left-over tones is by language-specific rule, not by convention. Similarly, Pulleyblank (1983) has argued that association of left-over tone-bearing units is by language-specific rule as well. Choctaw is another language in which tones must not spread to left-over tone-bearing units, adding support to Pulleyblank's claim. In a further deviation from Goldsmith's association conventions, mapping of tones onto tone-bearing units must be done from right to left in Choctaw. An autosegmental analysis of the Choctaw pitch accent system is given in sections 3.4. and 6.7.6.

The autosegmental framework has been extended by putting other features on their own tiers. Most importantly, the feature [syllabic] has been placed on a separate tier, known as the skeleton or CV-tier (Clements and Keyser 1983). There are two elements that occur on this tier: C, representing the feature value [-syllabic], and V, representing the feature value [+syllabic]. The
elements on the skeletal tier are associated with elements on the melodic tier, which contains the rest of the phonological features.

Again, the mapping need not be one-to-one. A skeletal slot may be associated with more than one melodic segment. In this way it is possible to distinguish affricates, which act as single consonants, from phonetically identical sequences of a stop plus a fricative:

(4)  
\[ \begin{array}{c}
\text{C} \\
\text{t} \\
\text{s}
\end{array} \]

(5)  
\[ \begin{array}{c}
\text{C} \\
\text{t} \\
\text{s}
\end{array} \]

The affricate is represented as in (4), with two melodic segments linked to a single C-slot. The non-affricate sequence is represented as in (5), with the two melodic segments each linked to a separate C-slot.

A single melodic segment may be associated with more than one skeletal slot:

(6)  
\[ \begin{array}{c}
\text{C} \\
\text{t}
\end{array} \]
\[ \begin{array}{c}
\text{C}
\end{array} \]

The separation of melodic and skeletal tiers thus allows us to capture the dual nature of geminate consonants and long vowels, which act in some ways like single segments and in other ways like sequences (Kenstowicz 1970). On the melodic tier, geminates are single elements, but on
the CV tier they are sequences. The bi-tieral representation thus captures the generalization that geminates and long vowels behave like single segments with respect to rules that refer to specific phonetic quality, but like sequences with respect to rules that refer only to sequences of consonants and vowels irrespective of quality.

The independence of the skeleton and the melody makes it possible to represent total assimilation as the deletion of one melodic segment and the association of another melodic segment with the skeletal slot previously associated with the first melodic segment (Goldsmith 1981). For example, the assimilation of /l/ to a following /n/ might be represented as follows:

\begin{equation}
\begin{array}{c}
C & C \\
\mid & \mid \\
\mid & n \\
\end{array}
\rightarrow
\begin{array}{c}
C & C \\
\mid & \ \mid \\
\ \mid & n \\
\end{array}
\end{equation}

The melody of the /l/ is deleted, and the melody of the /n/ spreads to the empty C-slot. The result is a geminate /nn/.

Morpheme-internal geminates and geminates resulting from total assimilation, both containing a single melodic segment linked to two skeletal slots, often resist the application of rules that affect heteromorphic geminates (and non-geminate clusters), which contain two melodic segments each linked to a single skeletal slot. Hayes (1985) accounts for this property of inalterability with
the Linking Constraint:

(8) Linking Constraint
    Association lines in structural descriptions are
    interpreted as exhaustive. (=Hayes's (26))

The Linking Constraint predicts that rules referring only
to the melodic tier or only to the skeletal tier may apply
to linked structures (tautomorphemic geminates and
geminates resulting from assimilation), but that rules
referring to both tiers may not. The interaction of the
Linking Constraint and the Choctaw Nasalization rule is
discussed in section 3.3.

Clements (1985) divides the melody into a number of
tiers. These are not all associated with the skeleton.
Rather, there is hierarchical structure to the melodic
tiers. Each feature has its own tier, and the feature
tiers are associated with several class tiers. For
example, the [coronal] tier is associated with the place
tier, the [continuant] tier with the manner tier, and the
[voiced] tier with the laryngeal tier. The place and
manner tier are both associated with the supralaryngeal
tier. The supralaryngeal tier and the laryngeal tier are
associated with the root tier. And it is the root tier
that is associated with the skeleton:

(9)   Skeleton  •
      Root tier  •
      Supralaryngeal tier • • Laryngeal tier
      Manner tier • • Place tier
The diagram in (9) represents the class tiers at a single point in time, i.e. it is a cross section of the phonological representation at right angles with the time axis.

The class tiers make it possible to represent partial assimilations as feature spreading as well. Since it is common for segments to assimilate in place while retaining their manner features, separate place and manner tiers are posited. Assimilations can then be stated as applying on a single tier, where an assimilation on, for example, the place tier is understood to involve all the features on tiers dominated by the place tier.

Clements points out that the tiers he posits are tentative; the actual set of tiers, and their organization, will depend on what features act together in assimilation processes in languages of the world. Assimilation processes found in Choctaw require a nasal tier separate from the manner and place tiers:

(10) Skeleton
    Root tier          •
    Supralaryngeal tier • • Laryngeal tier
    Oral tier         • • Nasal tier
    Manner tier       • • Place tier

Specifically, the rule of Nasalization simultaneously spreads the nasality of one segment and the place and manner features of another.
I do not use Clements's formal notation in writing rules, but take the shortcut of treating the relevant melodic tiers as if they were linked directly to the skeleton. No theoretical implications should be read into this practice.

Section 2.2. Syllabification

The model of syllabification assumed in this dissertation is that proposed in Steriade (1982). In this model, skeletal slots are organized into syllabic constituents--onsets (O) and rimes (R)--which are in turn organized into syllables (6, in lieu of a lower case sigma):

(11) 6 6
     / | / |
     OR OR
     \ | | | | CVCCV

The organization of skeletal slots into syllables is done by phonological rules, which are ordered among the other phonological rules.

Steriade proposes the following universal rule of syllabification:

(12) (C) V == (C) V
     \ | |
     O R
     \ 6
     (=Steriade's (64), p. 78)

This rule is ordered first among the rules of
syllabification in most languages of the world,\textsuperscript{1} to ensure that VCV sequences are syllabified as V.CV. Languages may have additional syllabification rules allowing for other syllable types. These take the general form:

\begin{equation}
(13) \quad \text{Onset Rule} \\
\begin{array}{c}
\text{C C V} \\
\text{O R} \\
\text{6}
\end{array}
\begin{array}{c}
\rightarrow \\
\rightarrow \\
6
\end{array}
\quad (=\text{Steriade's (65)a})
\end{equation}

\begin{equation}
(14) \quad \text{Coda Rule} \\
\begin{array}{c}
\text{V C} \\
\text{R} \\
\text{6}
\end{array}
\begin{array}{c}
\rightarrow \\
\rightarrow \\
6
\end{array}
\quad (=\text{Steriade's (65)b, p. 79})
\end{equation}

Languages may have constraints on these rules, referring, for example, to the melodic content of the consonant to be syllabified. These rules are typically subject to the constraint that a consonant must be less sonorous than the adjacent consonant closer to the nucleus, according to language-specific sonority scales. The syllabification rules and sonority scale of Choctaw are discussed in section 3.1.

Within this framework, compensatory lengthening is handled by the following principle:

\begin{equation}
(15) \quad \text{An empty C slot in the rime is associated with the} \\
\text{segment in nuclear position. Formally,} \\
\begin{array}{c}
\text{X} \\
\text{V C} \\
\text{R}
\end{array}
\begin{array}{c}
\rightarrow \\
\rightarrow \\
\rightarrow \\
6
\end{array}
\quad (=\text{Steriade's (1), p. 113})
\end{equation}

Thus, compensatory lengthening results whenever the
melodic features associated with a C-slot in the rime are deleted. On the other hand, if the melody of an unsyllabified consonant is deleted, compensatory lengthening will not occur. In Choctaw, compensatory lengthening occurs after the rules of Glide Deletion (cf. section 5.4) and Glottal Stop Deletion (cf. section 4.5).

Steriade also states the following convention:

(16) Stray Erasure Convention
Erase segments and skeleton slots unless attached to higher levels of structure. (=Steriade's (72), p. 89)

That is, unsyllabifiable consonants are deleted. This convention plays a smaller role in Choctaw than in Greek, but it will be seen to apply in certain verb grades (cf. section 6.7).

Section 2.3. Level-Ordering and Lexical Phonology

Lexical Phonology, as set forth in Kiparsky (1982, 1983a, 1983b), differs from the standard SPE model of phonology (Chomsky and Halle 1968) in that much of the phonology is done in the lexicon. Certain phonological rules—lexical rules—apply after each operation of morphological rules (Pesetsky 1979). Other phonological rules—postlexical rules—apply after the syntax. Moreover, lexical phonology and morphology are organized into several levels. This level-ordering (Siegel 1974,
Allen 1978) distinguishes the affixes and rules distinguished in the SPE model by different types of boundaries. For example, the English prefix in- (in+ in the SPE model), which assimilates to a following consonant and affects stress placement, is assigned to level one, while the prefix non- (non# in the SPE model), which does not assimilate or affect stress placement, is assigned to level two. The rules of assimilation and stress placement (which apply across + but not across # in the SPE model) are assigned to level one, while rules that do apply to morphemes such as non- (those that apply across # in the SPE model) are assigned to level two.

Kiparsky (1982:4) presents the following diagram of the Lexical Phonology model:

(17)

```
underived lexical items

level 1 morphology level 1 phonology
level 2 morphology level 2 phonology

level n morphology level n phonology

syntax postlexical phonology
```

Underived lexical items, i.e. roots, first enter the level one phonological component. Lexical phonological rules obey the Strict Cycle Condition (Mascaro 1976) and thus apply only in derived environments, i.e. only when their

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structural description is met by virtue of affixation or rule application at the same level. Consequently, only non-feature-changing rules, such as rules building syllabic or metrical structure, and possibly rules fed by non-feature-changing rules, can apply within roots. Next, level one affixes (such as English in-) are added. After each is attached, the level one phonological rules (such as the assimilation of in- to a following consonant) apply. After all level one morphology and phonology has been done, level two affixes are attached, and the level two phonological rules applied after each affixation.

This model captures the generalization (Siegel 1974) that, in terms of SPE theory, + boundaries regularly occur inside (i.e. closer to the root than) # boundaries. Level two affixes (with # boundaries) are attached only after all level one affixation (with + boundaries) has been completed. Thus, level two affixes always occur outside any level one affixes. Moreover, with the lexical phonological rules immediately following affixation of the same level, it is possible to do away with boundary symbols entirely (Pesetsky 1979), thus avoiding the problems with boundaries pointed out by Rotenberg (1978).

In English, with its limited morphology, the affixes of a given level are typically freely ordered with respect to one another. However, in the Athabaskan language Sekani (Hargus 1985), there are thirteen prefix positions,
but only four phonologically motivated levels. Hargus argues that ordering of morphological processes within a level must be allowed.

There may be any number of levels in the lexical phonology and morphology of a language. The output of the last level of lexical phonology is inserted into syntactic trees. After the syntax, there is another phonological component, the postlexical phonology. Unlike lexical rules, which apply only in derived environments, postlexical phonological rules are non-cyclic, non-level-ordered, and exceptionless.

The theory thus provides a diagnostic for the distinction between morphology and syntax. Constituents that undergo rules that do not apply across the board must be assembled in the lexicon, not in the syntax. For instance, the superessive marker on- undergoes Nasalization when it precedes a consonant (18), although this rule does not apply across the board (19):

(18) On-hilhah \rightarrow Ohilhah
    Sup-dance-v
    'She danced on it'

(19) Cholhkan haabli-h \rightarrow *Cholhka haablih
    spider kick-v
    'She kicked a spider'

Consequently, on- cannot be a separate word preceding hilhah in the syntax, but must be morphologically attached to hilhah in the lexicon.

For the most part, the forms identified as words by
this theoretical definition coincide with those that Mrs. Wade is willing to say in isolation. Moreover, their order is generally freer than that of smaller units. These word boundaries, however, do not coincide with the spaces in the traditional Choctaw orthography (cf. section 1.3.1.), but only with a proper subset thereof.

This dissertation is primarily concerned with material that is clearly lexical according to the phonological definition, although a number of borderline cases are discussed in chapter 7.

Note.

1. Sommer (1970) describes a language that syllabifies VCV sequences as VC.V.
Chapter 3. Some Choctaw Phonology

This chapter deals with a number of phonological processes in Choctaw, and characterizes them in terms of the theoretical framework summarized in the previous chapter.¹ Section 3.1. deals with the rules of syllabification, section 3.2 with the rule of Rhythmic Lengthening, section 3.3. with the rules of Nasalization, and section 3.4. with the Choctaw pitch accent system.

3.1. Syllable Structure

Long vowels in Choctaw are always tautosyllabic, so Steriade's basic syllable rule (cf. (12), section 2.1.) must be extended to apply to long vowels:

(1) Choctaw Basic Syllable Rule

\[ \begin{align*}
&\text{O} \\
&\text{R} \\
&(C) \ V \ (V) \rightarrow (C) \ V \ (V) \\
&[ ]
\end{align*} \]

This rule creates a syllable for every vowel, whether long or short, including a preceding consonant if present. Further rules (given in sections 3.2. and 3.3.) will syllabify additional consonants into the onset and rime.

According to Steriade, the core syllable rules apply only to stray skeletal slots. That is, once a consonant

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is syllabified, rules such as (1) will not apply to it, though specific resyllabification rules may. In Choctaw, for instance, the final consonant of the dative clitic im-, which is syllabified into the rime before cliticization (cf. section 7.6.), is not resyllabified into the onset of the following syllable when it precedes a vowel, as in imakammi 'he closed it for her':

\begin{tabular}{|c|c|c|c|c|}
\hline
im & a & kam & ih & --\rightarrow & *i ma kam ih \\
\hline
\end{tabular}

The /m/ remains in the rime of the first syllable.

The plural imperative prefix oh-, on the other hand, is not syllabified before being attached to the stem (cf. section 7.6.). Consequently, its final consonant is stray and subject to the Basic Syllable Rule when preceding a vowel, as in ohākammi! 'close it! (plural addressee)'.

\begin{tabular}{|c|c|c|c|c|}
\hline
oh & a & kam & ih & --\rightarrow & o hā kam ih \\
\hline
\end{tabular}

The /h/ is syllabified into the onset of the second syllable, as shown by the Rhythmic Lengthening (cf. section 3.2.) of the vowel in the second syllable, which could not be lengthened if the first syllable were closed by the /h/ and thus heavy.

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As (3) shows, the Basic Syllable Rule can create an onset for an already existing onset-less syllable. That is, it can apply to a partially syllabified structure.

Although the Basic Syllable Rule cannot directly destroy existing syllabic structure, it can do so indirectly while applying to stray skeletal slots. Vowel Epenthesis (cf. section 6.7.1.) inserts a vowel into an unsyllabifiable three-consonant cluster, as in paháslih 'she just sliced it':

\[
\begin{array}{c|c|c}
(4) & 6 & 6 \\
\mid & \mid & \mid \\
O & R & OR \\
\mid & \mid & \mid \\
CVCC & CVC & CVCC CVC \\
\mid & \mid & \mid \\
pahs lih & \rightarrow & pahas lih \\
\end{array}
\]

The Basic Syllable Rule applies to the inserted vowel and the preceding stray consonant. However, syllables cannot be nested one inside the other, so the discontinuous /pas/ syllable must be disassembled:

\[
\begin{array}{c|c|c}
(5) & 6 & 6 \\
\mid & \mid & \mid \\
OR & OR & \\
\mid & \mid & \mid \\
CV & CV & C CVC \\
\mid & \mid & \mid \\
pa ha s lih \\
\end{array}
\]

The Basic Syllable rule applies again to /pa/, and the /s/ is syllabified into the rime of the second syllable by the Coda Rule (cf. section 3.1.2.).

The destruction of previously existing syllabic structure in the derivation of forms like pahaslih differs
crucially from that prohibited in the derivation of forms like imakammih. In pahaslih—as everywhere—the Basic Syllable Rule applies only to stray skeletal slots, and it is the ban on discontinuous syllables that subsequently undoes the previously existing syllable. Resyllabification of the /m/ in imakammih, on the other hand, would be by application of the Basic Syllable Rule to a non-stray C-slot. Note also that imakammih can be syllabified without destruction of the syllabic structure already existing in im- and akammih. Pahaslih, on the other hand, could not possibly be syllabified without destruction of the /pas/ syllable. While it is true that elsewhere Stray Erasure deletes unsyllabified consonants, I assume that there is universally no such thing as an unsyllabifiable vowel.²

Unlike morphemes preceding the verb root, morphemes following the verb root are never syllabified VC.V. For example,

(6) Akammi-tok-o? 'Did he close it?'
close-pt-Q

is syllabified a.kam.mi.to.ko, in spite of the boundary between the second /k/ and the second /o/. For Mrs. Wade's speech, this fact could be explained simply by stating that level two is a non-cyclic level. In that case, all level two suffixes (-tok-o-n in example 6) would be added before the operation of level two phonological
rules. Thus, the second /o/ would be in place in time to allow the preceding /k/ to be syllabified into the onset of its syllable instead of the rime of the preceding syllable.

However, such an explanation will not work for all speakers. Mrs. Wade has no consonant-final level one suffixes. But for some other speakers of Oklahoma Choctaw, as well as in other dialects, -tok allows Rhythmic Lengthening (cf. section 3.2.) and so must be a level one suffix. The question marker -o, on the other hand, does not allow Rhythmic Lengthening, and so must be a level two suffix. Yet these speakers syllabify akammitoko the same as Mrs. Wade.

All level one suffixes are syllabified before level two suffixation. Moreover, level two enclitics have presumably also been syllabified. Thus the /k/ must be detached from the rime of the preceding syllable before it can be resyllabified into the onset of the following syllable:

(6) Desyllabification

\[
\begin{align*}
&\text{R} \\
&\text{C syll[V}
\end{align*}
\]

Condition: Does not apply to proclitics.

This rule removes a consonant from the rime when it is immediately followed by a vowel-initial suffix or enclitic. It does not apply when consonant-final
proclitics are attached to vowel-initial verbs.

3.1.1. Possible Syllable Onsets

As noted in section 1.3.2., words may begin with any vowel or with any consonant except the glottal stop. Non-initial syllables may begin with any consonant except the glottal stop. Vowel-initial syllables occur medially only after clitics, such as dative im- or instrumental isht-, which are not resyllabified after being attached to their hosts (cf. section 7.6.).

There are two cases of apparent syllable-initial consonant clusters. The first consists of a sibilant followed by another consonant. Initial /i/ may be deleted before /s/ or /sh/ followed by another consonant:

(7) Iskitiiniih ~ Skitiiniih 'It's small'
(8) isht-píha' --> ishpíha' ~ shpíha' inst-shovel:mp:n 'shovel (noun)'

A similar cluster is found in the contracted compound meaning 'moon':

(9) hashi'-'nink-áya' --> shnakáya' 'moon'
    sun-night-go:n

However, such clusters do not occur post-consonantally, and when they occur in intervocalic position they are always heterosyllabic. Thus, an extrasyllabic sibilant
must be allowed in word-initial position.

On the other hand, postconsonantal /bl/ clusters may be syllabified into the onset of the following syllable, as in *ti.lóh.blih* 'he just jumped' (cf. section 6.2.). There is also one example of an initial /bl/ cluster: the loanword *bliasis* [blæ:sis] 'molasses, syrup'. The English word is often pronounced as a disyllable in the Southeast, and the non-permitted initial /ml/ cluster has been replaced in the Choctaw word with /bl/. Since /bl/ is attested both word-initially and post-consonantally, it can be recognized as a possible onset.

Choctaw thus has only a very restrictive Onset Rule:

(10) Onset Rule

\[
\begin{array}{c|c|c}
\text{C} & \text{C} & \text{C} \\
\text{[b]} & \text{[l]} & \text{[b]} \text{ [l]}
\end{array}
\]

The Onset Rule is ordered after Progressive L-Assimilation (cf. section 5.4.), so as not to apply to the underlying /bl/ sequences that become /bb/ thereby.

The Onset Rule follows the Coda Rule (cf. section 3.1.2.). In other words, it applies only to b's that cannot be syllabified into the coda of the previous syllable. It applies in *bliasis*, where there is no previous syllable. Word-internally, it applies only to stray b's after the application of H-Accomodation (cf. section 6.7.1.), as in *táh.bli.líh* 'I just cut it'. But
it does not apply to intervocalic /bl/ sequences, as demonstrated by Rhythmic Lengthening.

Rhythmic Lengthening never applies to a vowel after /bl/. For example, in tablichīlih 'I made him cut it', it is the second /i/ that must be lengthened, not the first. The active -li suffix is within the domain of Rhythmic Lengthening, so the non-lengthening of its vowel must be due to the heaviness of the preceding syllable. Therefore, the /b/ must be syllable-final: tab.lī.chī.lih. In forms such as táhblilīh, the preceding syllable is heavy anyway, so again Rhythmic Lengthening will not apply.

Similarly, Rhythmic Lengthening never applies to a vowel before /bl/. For example, in finiblih 'to splash', the second /i/ cannot be lengthened, because it is in a closed syllable: fi.nib.lih.

Choctaw syllabification thus violates the Onset First Principle proposed by Clements and Keyser (1983:37):

(11) The Onset First Principle

a. Syllable-initial consonants are maximized to the extent consistent with the syllable structure conditions of the language in question.

b. Subsequently, syllable-final consonants are maximized to the extent consistent with the syllable structure conditions of the language in question.

(=Clements and Keyser's Figure 12)

This principle may hold for most languages, but in Choctaw the Coda Rule takes precedence over the Onset Rule.5
3.1.2. Possible Syllable Rimes

As mentioned in section 1.3.2, words may end with any of the following consonants: p, t, k, ', f, s, sh, h, m, n, l. Wittenstein (n.d.) points out that the absence of final /b/ and /ch/ can be attributed (diachronically if not synchronically) to rules changing them to /p/ and /sh/, respectively. He cites metathesized forms from Byington (1915), including asalbash — asalhchap (CB: asvlbvs, asvlhchvp) 'footbridge'. If the underlying form is /asalbach — asalchab/ — and such metatheses are not infrequent in Muskogean languages — the surface forms can be derived by the change of final /b/ to /p/ and /ch/ to /sh/, and the assimilation of /l/ to a following voiceless consonant (cf. section 5.4.). However, Mrs. Wade does not know either form of this word. While there is evidence for the change of /ch/ to /sh/ before a consonant (see below and section 5.4.), there is no such evidence for the change of /b/ to /p/ before a consonant. It is perhaps best to regard /b/ as simply not allowed in word-final position. Thus, the only consonantal segments that appear to be systematically prohibited from appearing in final position are the voiced stop /b/ and the voiceless lateral /lh/. The glides /w/ and /y/ will be discussed below.

Ignoring geminate consonants, medial syllables may end with a vowel or with any of the following consonants:
p, t, k, f, s, sh, h, b, l, lh. The absence in Oklahoma Choctaw of medial syllable-final glottal stop is due to Glottal Stop Deletion (cf. section 4.5.). (In Chickasaw and Mississippi Choctaw of Oklahoma, medial syllable-final glottal stop does occur.) Medial syllable-final nasals occur only in n-grades, as the result of the Limbhi Rule (cf. section 6.7.2.). Elsewhere, syllable-final nasals undergo the rule of Nasalization (cf. section 3.3.), which converts sequences of oral vowel plus nasal consonant into nasalized vowels. The absence of syllable-final /ch/ is due to the same rule of CH-Spirantization that changes word-final /ch/ to /sh/ (cf. section 5.4.).

Syllable-final [b] occurs only as the result of assimilation of /p/ to a following voiced consonant (cf. section 5.4.). Thus, before the application of Stop Assimilation, syllable-final /b/ is not allowed. Similarly, syllable-final /lh/ occurs only before a voiceless consonant. Most such cases involve the medio-passive infix /l/ and the rule of L-Assimilation (cf. section 5.4.), although there are a few morpheme-internal /lhk/ clusters, e.g. cholhkan 'spider'. If morpheme internal /lhk/ clusters are derived from underlying /lk/, syllable-final /lh/ can be ruled out entirely in forms that have not yet undergone L-Assimilation. Thus, the consonantal segments that are systematically prohibited in syllable-final position are /b/ and /lh/, the same
segments that are prohibited in word-final position.

The distribution of glides is dependent on the rounding of the preceding vowel. Glides are found in rimes with vowels of opposite value for roundness only in geminates (aww, iww, oyy). They are not found word-finally. They are thus parallel to /b/ and /lh/.

Glides occurring in rimes with vowels agreeing in roundness are deleted with compensatory lengthening of the vowel (cf. section 5.4.). In the case of /ay/, the vowel is raised to /ee/ ~ /ii/. /ay/ occurs word-finally, e.g. in yakkokee 'thank you'. Tautosyllabic /iy/ and /ow/ are distinguishable from /ii/ and /oo/ only when they alternate with heterosyllabic /iy/ and /ow/. Such alternations are found only before the valence suffixes -a and -li, never in final position.

Intervocalic geminates are always syllabified with one C-slot in the coda and the other in the onset. Even geminate /bb/, /lhlh/, /ww/, and /yy/ are so syllabified, although these consonants may not occur in codas outside geminates. There are no geminate glottal stops. All surface geminates are intervocalic. Non-intervocalic geminates are accomodated by Nasalization (cf. section 3.3.), or Vowel Epenthesis (cf. section 6.7.1.), or are simplified by Stray Erasure (cf. section 6.7.4.).

The Coda Rule of Choctaw is as follows:
(12) Coda Rule

\[
\begin{array}{c}
R \\
\mid \\
X X \rightarrow X X
\end{array}
\]

Condition: If \( X = [b, lh] \), then it must be linked to the following syllable. If \( X = [w, y] \), then it must agree in roundness with the nuclear vowel or be linked to the following syllable.

The condition on the Coda Rule allows the restricted consonants to be syllabified when they are linked to a consonant in the onset of the following syllable, i.e. in a geminate. The condition also allows syllabification under partial linking, i.e. after partial assimilation between the consonant to be syllabified into the coda and the consonant in the onset of the next syllable. Thus, /b/ and /lh/ from /p/ and /l/ can be syllabified regardless of the order of syllabification and the two voicing assimilation rules. Before assimilation, the consonants are /p/ and /l/, which are freely syllabifiable. After assimilation, they are /b/ and /lh/, but syllabifiable by virtue of their partial linking to the following consonant.

The Coda Rule is allowed to apply to its own output, subject to the following amazingly simple sonority scale:

(13) Choctaw Sonority Scale

\[ [+nasal] \]
\[ [-nasal] \]

The Minimum Sonority Distance is one interval. In other words, two consonants can occur in a Choctaw syllable coda only if the first is nasal and the second is oral. (Even
then, the nasal consonant will surface as vowel nasalization; cf. section 3.3.) The Onset Rule, which applies specifically to /bl/, is not subject to the sonority scale, nor is the Double Nasal Rime Rule (cf. section 6.7.2.), which applies specifically to nasals preceding geminate nasals in the hn-grade.

The sonority scale accounts for the absence of tautosyllabic clusters of oral consonants. It also accounts for the absence of certain sequences of nasal segments. In underived environments, both geminate nasal consonants (14) and nasalized vowels (15) may occur:

(14) bannah 'to want'

(15) miko' 'chief'

However, nasalized vowels do not occur before geminate nasals in underived environments. Note that the occurring sequences can be syllabified, while the non-occurring sequence cannot:

(16) 6 6
     /|\ /|\ OR OR
     \||\ \||\ CVC CVC
     ||/||/|| ban ah

(17) 6 6 6 6
     /|\ /|\ /|\ OR OR OR OR
     \||\ \||\ \||\ CVC CVC CVC CVC
     ||/||/||/|| mǐN ko' => mǐ ko'
In (16) and (17), only one C-slot occurs in the rime. The nasal in (17) will be realized as nasalization of the preceding vowel, while the nasal in (16) will be retained (cf. section 3.3.). In (18), on the other hand, there are three C-slots to be syllabified. The first can be in the rime of the first syllable, and the third can be in the onset of the second syllable. But the second cannot be syllabified: two nasal consonants are not allowed in the rime or in the onset. Cases of two nasal consonants preceding another consonant in derived environments are discussed in section 6.7.2.

Clusters of /s/, /sh/, or /h/ plus /t/ occur in word-final position in a number of participles (cf. section 7.4.), e.g.

(19)  pisa-t --> pist 'see (participle)'
      bash-li-t --> basht 'cut (participle)'
      boh-li-t --> boht 'put down (participle)'

Such clusters do not occur pre-consonantally within a word. Consequently, the /t/ of these forms can be analysed as extrasyllabic.

The Choctaw word template is thus:
(20)  Word Template  
\[(C) \quad 6^* \quad (C) \]
\[\begin{array}{c}
+\text{continuant} \\
+\text{strident} \\
+\text{coronal} \\
-\text{lateral} \\
\end{array} \quad [t] \]

A word consists of an optional extrametrical sibilant, a string of syllables, and an optional alveolar stop.

3.1.3. Unsyllabifiable Roots

Not all Choctaw morphemes can be syllabified. Aside from suffixes consisting of a single consonant, such as the same subject -t or the nominalizing -', there are verb roots ending in all consonants, including /b/, /lh/, and /w/, e.g.

(21)  
\begin{align*}
\text{shib-} & \quad \text{'peel'} \\
\text{nahl-} & \quad \text{'shoot'} \\
\text{tiw-} & \quad \text{'open'} \\
\end{align*}

As stated in section 3.1.2., /b/ and /lh/ occur in coda position only when linked to a consonant in the following syllable, as does /w/ after an unrounded vowel. These roots are thus unsyllabifiable in isolation. They are always followed by a valence suffix, either the medio-passive -a or the active -li. The former, beginning with a vowel, allows the root-final consonant to be syllabified into the onset of the following syllable:

(22)  
\begin{align*}
\text{shi.bah} & \quad \text{'to peel (intr)'} \\
\text{na.lhah} & \quad \text{'to be shot'} \\
\text{ti.wah} & \quad \text{'to open (intr)'} \\
\end{align*}
The initial /l/ of the active suffix undergoes Progressive L-Assimilation, resulting in a geminate consonant:

(23)  
shib.bih  'to peel (tr)'
nalh.lhinh 'to shoot'
tiw.wih   'to open (tr)'

The Choctaw Coda Rule, stated in section 3.1.2., applies to the first half of an intervocalic geminate /bb/ or /lhlh/, since it is linked to the second half of the geminate in the following syllable. Thus, verb stems formed from unsyllabifiable roots are always syllabifiable, as are all verb stems.

Syllabification does take place in underived environments on the first cycle. Otherwise, proclitic-final consonants would be syllabified into onsets before vowel-initial stems. But Stray Erasure must not apply within roots. In derived environments, on the other hand, unsyllabifiable consonants are deleted by Stray Erasure (cf. section 6.7.).

3.2. Rhythmic Lengthening

Choctaw has a phonological rule of Rhythmic Lengthening (Nicklas 1972, Munro and Ulrich 1984a), by which the vowels of alternate light syllables are lengthened. Rhythmically lengthened vowels are intermediate in length between unlengthened short vowels and long vowels (Payne 1979, Miller 1984).
In a string of light syllables (open syllables with short oral vowels), non-final even-numbered syllables are lengthened:

(24)  Fam-a-h  'He got whipped'  
      whip-mp-v

(25)  Sa-fām-a-h  'I got whipped'  
      1sAcc-whip-mp-v

In sentence (25), the vowel of the verb root fam- is lengthened, because it is in the second consecutive light syllable, being preceded by the accusative prefix sa-. In sentence (26), without the accusative prefix, the vowel is not lengthened.

Rhythmic Lengthening does not apply across the board. Some suffixes are within the scope of Rhythmic Lengthening, and others are not. For instance, an even-numbered light syllable may be lengthened before the first person singular nominative suffix -li (26), but not, in Mrs. Wade's speech, before the aspectual suffix -tok

(27):¹¹

(26)  Okcha-lī-li-h  'I woke him up'  
      wake-act-1sNom-v

(27)  Okcha-lī-tok  'She woke him up'  
      wake-act-pt

Notice that the distinction here is not between suffixes whose vowels can be lengthened and suffixes whose vowels cannot be lengthened, but between those allowing lengthening of a preceding vowel and those not allowing lengthening of a preceding vowel.
These facts can be accounted for by assigning -li and -tok to different levels: -li is a level one suffix, and -tok is a level two suffix. Rhythmic Lengthening applies at level one, but not at level two. Rhythmic Lengthening applies only to syllables that are non-final at the time of application. Thus, it cannot apply after the affixation of the active suffix -li, because the second consecutive light syllable is in final position. If the first person singular -li is subsequently suffixed, at level one, the second consecutive light syllable is now in non-final position, and thus is lengthened:

(28) Level one: okcha
     okchalī [Active]
     --- [Rhythmic Lengthening]
     okchalīli [isNom]
     okchalīli [Rhythmic Lengthening]

     Level two: okchalīlih [-h]

On the other hand, -tok is not suffixed until level two, at which Rhythmic Lengthening is no longer applicable:

(29) Level one: okcha-li [Active]
     --- [Rhythmic Lengthening]

     Level two: okchalitok [-tok]

Thus, if the stem okchali- is immediately followed by -tok, Rhythmic Lengthening does not apply.

The situation with prefixes is similar, but complicated by the rules of syllabification. Consonant-final prefixes, such as the plural imperative prefix oh-, are resyllabified when attached to a vowel-initial stem, but consonant-final proclitics, such as the dative clitic
im-, are not. The interaction of syllabification and Rhythmic Lengthening is discussed in section 7.6.

Rhythmically lengthened vowels are never found adjacent to verb grade infixes. The interaction of Rhythmic Lengthening and verb grades is discussed in section 6.7.5.

Within the framework proposed by Hayes (1981), the Choctaw Rhythmic Lengthening rule can be formulated as follows:

(30) Rhythmic Lengthening
1. Going from left to right, construct binary-branching, quantity-sensitive, right-dominant feet.
2. Lengthen vowels in non-final, non-branching rimes dominated by an s-node.

For example, Rhythmic Lengthening applies to toksalīchilih 'I made him work' as follows. First, binary-branching, quantity-sensitive, right-dominant feet are constructed from left to right. Because feet are quantity-sensitive, branching rimes (i.e. rimes of heavy syllables) cannot be weak nodes. Thus, the initial heavy syllable /tok/ must constitute a foot by itself:

(31) tok.sa.li.chi.li

Two feet are constructed over the remaining four rimes, with /sa/ and /chi/ designated as weak and both /li/ syllables designated as strong:
Finally, the first /i/ is lengthened because it is in a non-branching rime (i.e. in a light syllable) dominated by an s-node. The third /i/ is not lengthened, although it is also dominated by an s-node, because it is in final position. The result, after suffixation of -h, is toksalIChilih.

Although Rhythmic Lengthening can be formulated in a notation developed for stress rules, it should be noted that the Choctaw rule differs in a number of respects from typical stress rules. First, unlike most, but not all (cf. Hayes 1981:56), stress rules, Choctaw Rhythmic Lengthening constructs no word tree. That is, all lengthened vowels are equal; there is no "main stress" vs. "secondary stress".

Second, in words without sequences of light syllables in its domain, Rhythmic Lengthening will have no phonetic consequences. For example, Rhythmic Lengthening will build metrical structure in atissakkahatoko 'did you come and knock on it?', but will not lengthen any vowel. By contrast, the idea of a stressless seven-syllable word in a stress language is preposterous.

Third, Rhythmic Lengthening does not apply at the word level. It applies at level one, and there is no
evidence that metrical structure is assigned to later affixes.

Last, Rhythmic Lengthening affects only light syllables. Rhythmic Lengthening assigns the following metrical structure to chitoksaľichilih 'I made you work':

\[
\begin{array}{cccc}
\wedge & \wedge & \wedge \\
\text{w} & \text{s} & \text{w} & \text{s} \\
\text{chi.tok.sa.li.chi.li}
\end{array}
\]

However, the second syllable of chitoksaľichilih is pronounced no differently than the first syllable of toksaľichilih. Only non-branching rimes are affected by the second step of Rhythmic Lengthening in (30).

As mentioned above, rhythmically lengthened vowels are not as long as underlyingly long vowels. Thus, the second step of Rhythmic Lengthening is non-structure-preserving. According to Kiparsky (1982, 1983b), lexical rules must be structure-preserving. On the other hand, the first step of Rhythmic Lengthening clearly must be a lexical rule, since certain affixes are within its domain and others are not. The first step of Rhythmic Lengthening is an allowable lexical rule, since it builds structure. In Choctaw, it would be possible to maintain the requirement that lexical rules be structure-preserving by having the first step of Rhythmic Lengthening apply in the lexical phonology and the second step of Rhythmic Lengthening apply in the postlexical phonology. However,
such a solution is not possible in Chickasaw.

Chickasaw has the same rule of Rhythmic Lengthening stated in (30), although it differs from Choctaw in details of level-ordering (Munro and Ulrich 1984a). However, later rules may close syllables in which Rhythmic Lengthening has applied. For example, Strident-Coronal Cluster Formation deletes an unlengthened vowel between a strident consonant and a coronal consonant:

(34) \[ \text{Sa-bāsh-a-tok} \rightarrow \text{Sābāstok} \]
\[ \text{lsAcc-cut-mp-pt} \]
\[ 'I \text{ got cut}' \]
\[ /\ ]
\[ w \ ]\[ s \ ]\[ x \]
\[ \text{sa.ba.sha.tok} \]

(Rhythmic Lengthening)

\[ /\ ]
\[ w \ ]\[ s \ ]\[ x \]
\[ \text{sa.bash.tok} \]

(Strentid-Coronal Cluster Formation)

Sābāstok 'I got cut' is pronounced with a lengthened vowel, contrasting with sābāstok 'he cut me', derived by deletion of the active suffix -li (cf. Munro 1985c):

(35) \[ \text{Sa-bash-li-tok} \rightarrow \text{Sabashtok} \]
\[ \text{lsAcc-cut-act-pt} \]
\[ 'He \text{ cut me}' \]
\[ /\ ]
\[ w \ ]\[ s \ ]\[ x \]
\[ \text{sa.bash.li.tok} \]

(Rhythmic Lengthening)

\[ /\ ]
\[ w \ ]\[ s \ ]\[ x \]
\[ \text{sa.bash.tok} \]

(Li-Deletion)

Sabashtok 'he cut me' is pronounced with an unlengthened
vowel. Since these two words have identical structures after Strident-Coronal Cluster Formation and Li Deletion, the second step of Rhythmic Lengthening must apply before these two rules (or at least before Strident-Coronal Cluster Formation). Both Strident-Coronal Cluster Formation and Li-Deletion are lexical rules (Munro and Ulrich 1984a, Munro 1985c), so the second step of Rhythmic Lengthening must be a lexical rule as well.

Thus, Chickasaw Rhythmic Lengthening is a non-structure-preserving lexical rule. Hargus (1985:215ff.) has shown that two level one lexical rules of Sekani, an Athabaskan language, are non-structure-preserving. Consequently, it cannot be maintained that all lexical rules are structure-preserving.

3.3. Nasalization

Choctaw has the nasal vowels i̯, a, and o, but these are not underlying segments of the language.12 Many nasal vowels alternate with sequences of oral vowel plus nasal consonant. Deriving non-alternating nasal vowels from such sequences as well accounts for the distribution of nasal vowels, as well as the fact that all nasal vowels are long.

Two different Nasalization rules are needed. In both derived and underived environments, a sequence of a vowel
and either /m/ or /n/ becomes a nasal vowel when followed by a consonant. In derived environments, a sequence of a vowel and /n/ becomes a nasal vowel in final position.

Nasal vowels occur morpheme-internally:

(36) pashi'  'hair'
    chalawa' 'lizard'
    miko'  'chief'
    piti'  'mouse'
    hofolo' 'screech owl'
    osiñ 'eagle'

The nasal vowels in such morphemes do not alternate, but they are always long and they occur only before oral consonants other than /h/.

There are morpheme-internal /nh/ sequences:

(37) yannah 'to have a fever'
    pinha' 'seed' (as in seed corn, seed potatoes)

Most morphemes with /nh/ clusters have attested variants with /hn/: I have heard pihna', and Byington records yahnah (CB: yahna) as well as yannah (CB: yahna).\(^{13}\)

Morpheme-internal /nh/ sequences can be derived by metathesis of certain lexically specified /hn/ sequences after Nasalization. The absence of underlying /nh/ (and /mh/) clusters must simply be stated as a gap.

There are morpheme-internal geminate nasals:

(38) hommah 'to be red'
    bannah 'to want'

However, there are no /mn/ or /nm/ sequences, nor are there nasal vowels before nasal consonants within morphemes.\(^{14}\)
The Nasalization rule that applies morpheme-internally can be formalized as follows:

\[ (39) \quad \text{Pre-Consonantal Nasalization} \]
\[ [\_ \_ [+\text{nasal}]] \quad \text{Nasal tier} \]
\[ \text{\_\_\_} \quad \text{C} \quad \text{C} \quad \text{CV tier} \]
\[ \text{\_\_\_} \quad \text{\_\_\_} \quad \text{Place/manner tier} \]

That is, when a vowel and a nasal consonant precede another consonant, the nasality of the nasal spreads to the vowel, while the place and manner features of the vowel spread to the nasal, yielding a long nasal vowel.

The rule need not explicitly exclude nasal consonants from the environment. The Linking Constraint (Hayes 1985), predicts that geminate nasals will not undergo the rule, as shown below. Since /\text{nm}/ and /\text{mn}/ clusters do not occur within morphemes, there is no need to prevent the rule from applying to them.

Metathesis of /\text{hn}/ clusters takes place optionally or dialectally in specified lexical items:

\[ (40) \quad \text{Morpheme-Internal Methathesis} \]
\[ [\text{h}] \quad [\text{n}] \]
\[ 1 \quad 2 \quad \Rightarrow \quad 2 \quad 1 \]

Metathesis is, of course, ordered after Nasalization.

According to Kiparsky (1982), the first cycle of the lexical phonology applies within a root. Structure-building rules, such as syllabification rules, can apply on this cycle. Non-structure-building rules can apply on this cycle only if they are fed by structure-building
rules. Thus, the Morpheme-Internal Nasalization rule could apply in the first cycle if it were triggered by the nasal consonant's being in rime position, rather than by a following consonant. But the rule cannot be stated in those terms. Note that morphemes ending in a nasal consonant do not undergo Morpheme-Internal Nasalization:

\[(41) \quad \text{cholhkan} \not\leftrightarrow *\text{cholhka} \quad \text{\textquoteleft\textquoteleft spider\textquoteright\textquoteright}\]

\[(42) \quad \text{pan-a-h} \not\leftrightarrow *\text{paah}, *\text{payah} \quad \text{\textquoteleft\textquoteleft to be braided\textquoteright\textquoteright}\]

A syllabically stated Nasalization rule would incorrectly apply in such forms. Therefore, the rule must be stated in terms of a following consonant. Consequently, it cannot apply in the first cycle.

Additional evidence that Nasalization does not apply on the first cycle comes from the y-grade (cf. section 6.5.) of verb stems containing nasal vowels:

\[(43) \quad \text{Chopah \ 'He bought it'}
\quad \text{Ch\dot{O}yyopah \ 'He finally bought it'}\]

Here it is the infixed vowel that is nasalized. The correct forms can be derived if Nasalization has not applied in the root choNpa- before formation of the y-grade (cf. section 6.7.4.).

The theory of Lexical Phonology also allows postlexical rules to apply in undervived environments. But these rules apply across the board, regardless of word boundaries. Choctaw Nasalization, on the other hand, is
never triggered by the initial consonant of the following word:

(44) Cholhkan pisa-li-h 'I see a spider'  
     spider see-1sNom-v  
     *Cholhka pisalih

Nasalization cannot even be triggered by the initial consonant of the second element in a compound:

(45) yolhkan chito-' 'elephant'  
     mole big-n  
     *yolhka chito'

The Nasalization rule must apply at the word-level, and not across word boundaries, but it does apply in underived environments.

In derived environments, Nasalization applies before any consonant, including /h/ or a nasal:

(46) On-hilha-h --> Ohilhah 'He danced on it'  
     Sup-dance-v

(47) chim-nákfi' --> chinákfi' 'your brother'  
     2Dat-brother

It does not, however, apply to a geminate nasal derived by total assimilation, e.g. when the /l/ of the active suffix -li has assimilated to a preceding nasal consonant by the rule of Progressive L-Assimilation (cf. section 5.4.):

(48) polhom-li-h --> polhommih 'to fold'  
     fold-act-v  
     *polhomih

(49) afin-li-h --> afinnih 'to pry'  
     pry-act-v  
     *afinnih

The failure of Nasalization in such cases, like its failure in morpheme-internal geminates, is predicted by
the Linking Constraint (Hayes 1985).

The Linking Constraint states that association lines in a rule are interpreted as exhaustive. Since the Nasalization rule mentions material on both the skeletal and melodic tiers, the feature [+nasal] that spreads to the preceding vowel must be associated only with the single C-slot specified in the rule. In cases where Progressive L-Assimilation has applied to give a geminate nasal, the feature [+nasal] is associated with two C-slots:

\[
(50) \quad \ldots C \quad \begin{array}{c}
\text{C} \\
\text{[+nasal]}
\end{array} \\
\text{[-coronal]}
\]

Thus, Nasalization is blocked by the Linking Constraint.

This situation contrasts with that arising from the juxtaposition of a morpheme ending in a nasal and a morpheme beginning with a nasal, such as on-nalh-li-h > onalhlhih 'he shot on it'. Where the geminate results from juxtaposition, rather than assimilation, there are two separate [+nasal] features:

\[
(51) \quad \ldots C \quad \begin{array}{c}
\text{C} \\
\text{[+nasal]}
\end{array} \\
\text{[-coronal]} \quad \begin{array}{c}
\text{[+nasal]}
\end{array} \\
\text{[-coronal]}
\]

Thus, Nasalization is not blocked.

Tautomorphemic geminate nasals behave like assimilated geminate nasals; i.e. they remain as geminate
consonants, not undergoing Nasalization. For example, homma-h 'to be red' never surfaces as *homah. Thus, geminates must be represented as linked structures in lexical entries.

Nasalization is also blocked when a nasal is linked to the following consonant on the place tier alone. Such partial linkings result from the assimilation of a nasal to a following voiced consonantal geminate in Choctaw (cf. section 6.7.2.) or to a following stop in Chickasaw (Munro and Ulrich 1984b).

Final Nasalization, unlike Pre-Consonantal Nasalization, does not apply in underived environments:

(52) \text{nishkin} 'eye'  
\text{*nishkĩ}  

Choctaw has no -m suffix, but Final Nasalization does not apply before -m in Chickasaw:

(53) Ishko-ta-m? 'Did he drink it?' (Cs)  
drink-Q-past  

Final Nasalization thus applies only to suffixes of the shape /n/. The non-subject/different-subject marker is one such suffix (cf. sections 1.4., 4.4.1.). The -n of the future marker -aachi (-a-'-chi-n) is another (cf. section 4.4.2.).

Final Nasalization can be written as follows:
(54) Final Nasalization

\[ \text{Nasal tier} \]
\[ \text{CV tier} \]
\[ \text{Place/Manner tier} \]

It applies only in derived environments.

Endings in which the -n suffix is followed by a vowel, such as the switch-reference marker -na (the different-subject counterpart of -cha) and the case-marker -aano (the non-subject counterpart of -aato), must be analyzed as clitic complexes put together before being attached to the verb. If their component formatives were affixed to the verb one at a time, Final Nasalization would apply before suffixation of a following vowel could protect the /n/.

3.4. Pitch Accent

Choctaw has a pitch accent system (Nicklas 1972:11f, 123), with at most two high-pitched syllables per word. In some cases, accent is part of the underlying form of a stem. In other cases, it is part of a derivational process. In still other cases, it is assigned by the word-level phonology. Most underlying and derivational accents are penultimate; a few are antepenultimate. The word-level accent is final. Accented syllables have a high pitch; unaccented syllables have a low pitch. In
certain definable contexts, accented syllables have falling or rising pitch.

Some nouns are accented on the penultimate syllable (56, 58), while others are unaccented (55, 57):

(55) tanap 'war'
(56) tánap 'turnip'
(57) Chahta 'Choctaw'
(58) báhta 'sack'

There is at least one noun with antepenultimate accent:

(59) tışhkilah 'bluejay'

Munro (1984c) found an approximately equal number of accented and unaccented nouns.

Some verb stems have an inherent accent as well, typically on the penult (60, 61), but sometimes on the antepenult (62):

(60) achólih 'to sew'
(61) yókpah - yóppah 'to laugh'
(62) áyyokah 'each'

Most verb stems, however, have no inherent accent.15

All of the Choctaw verbal grades (cf. Chapter 6) involve accentuation. In the g-grade and the y-grade, the antepenultimate vowel of the verb stem is accented. In all other grades, the penultimate vowel of the verb stem is accented. The penultimate vowel of a nominalized verb (cf. section 4.1.) is also accented.

In addition to the penultimate and antepenultimate

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accents in certain nouns, verb stems, and derivational processes, there is a rule accenting word-final syllables.\textsuperscript{16} If the penult is accented, the final syllable will have a rising pitch. If the penult is unaccented, the final syllable will have a high pitch.

The Choctaw pitch accent system can be formally described as follows. There are two tones, H and L. Lexical items and derivational processes may be unaccented, or they may have penultimate or antepenultimate accent. Penultimate accent is represented as HL on the tonal tier. Antepenultimate accent is represented as HL on the tonal tier, with the last syllable marked extratonal (Pulleyblank 1983).\textsuperscript{17} For example, the nouns \textit{kashtih} 'flea', \textit{falahl} 'crow', and \textit{ti\textsuperscript{'}shkilah} 'bluejay' are represented as follows:

\begin{equation}
\begin{array}{llll}
\text{CVC CVC} & | & \text{CVC CVC} & | \\
3 & | & 3 & | \\
\text{kashtih} & \text{falahl} & \text{ti\textsuperscript{'}shkilah} & \\
\end{array}
\end{equation}

(I represent extratonicality with an x over the extratonal vowel. This designation is equivalent to Pulleyblank's [+extratonal].)

Tones are associated one-to-one with syllables\textsuperscript{18} from right to left, skipping an extratonal syllable:

\begin{equation}
\begin{array}{llll}
\text{H L} & | & \text{H L} & | \\
\text{kashtih} & \text{falahl} & \text{ti\textsuperscript{'}shkilah} & \\
\end{array}
\end{equation}

After the association of morphemic tones, but before the
assignment of word-level tone, extratonal syllables lose their extratonality.

In non-word-final position, all vowels remaining toneless after lexical tone association surface with low tones. For example, the subject clitic -at can be added to the forms in (64):

(65) \[
\begin{array}{c|c|c}
\text{kashtihat} & \text{falahat} & \text{tishkilahat} \\
\end{array}
\]

(The rule of Nasalization applies in t\text{ishkilahat} at this point in the derivation.) The word-final H is then inserted. This tone is associated with the last syllable of the word:

(66) \[
\begin{array}{c|c|c|c}
\text{kashtihat} & \text{falahat} & \text{tishkilahat} \\
\end{array}
\]

After the word-final H has been associated, a default L is associated with any V-slots remaining toneless:

(67) \[
\begin{array}{c|c|c|c|c}
\text{kashtihat} & \text{falahat} & \text{tishkilahat} \\
\end{array}
\]

These are the correct surface forms. Kashtih has no high tone, f\text{alah} has a high tone on its penult, and t\text{ishkilah} has a high tone on its antepenult. In each case the final vowel of the stem bears a low tone. However, the low tone on the final vowels of kashtih and t\text{ishkilah} are inserted by the Default L rule, while that on the final vowel of f\text{alah} is part of its lexical representation. Only the latter surfaces in word-final position.

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When the noun stems occur in word-final position, the word-final accent falls within the stem. The word-final H is associated with the last syllable of the word, whether or not that syllable is already associated with a tone:

\[(68) \quad \begin{array}{c|c|c|c|c|}
H & H & L & H & H & L & H \\
\hline
kashtih & falah & tishkilah
\end{array}\]

After the word-final H has been associated, a default L is associated with any V-slots remaining toneless:

\[(69) \quad \begin{array}{c|c|c|c|c|c|c|c|}
L & H & H & L & H & H & L & H \\
\hline
kashtih & falah & tishkilah
\end{array}\]

Thus, unsuffixed kashtih and tishkilah have high tones on their final syllables, while falah has a rising tone on its final syllable. The low tones found on the stem-final vowels of kashtih and tishkilah in non-word-final position are absent in word-final position, because they could not be inserted after association of the word-final H. The low tone found on the stem-final vowel of falah, on the other hand, is part of the underlying representation of this noun. Consequently it surfaces, and together with the word-final high tone yields a rising tone on the final syllable of word-final falah. Falling tones in certain g-grades provide further evidence for non-default low tones (cf. section 6.7.6.).

Neither right-to-left association nor extratoneality is essential to the analysis of accented nouns in Choctaw.\(^{19}\) Both, however, are required for the analysis
of verb grades presented in section 6.7.6.
Notes.

1. The title of this chapter is in honor of Mike Hammond.

2. Given the asymmetry between vowels and consonants, the Basic Syllable Rule might be broken up into two rules:

   (i) \[ \begin{array}{c}
   6 \\
   R \\
   \backslash \\
   V (V) \rightarrow V \text{ (V)}
   \end{array} \]

   (ii) \[ \begin{array}{c}
   6 \quad 6 \\
   \slash \\
   R \quad O \quad R \\
   \backslash \\
   C \quad V \rightarrow C \quad V
   \end{array} \]

   Rule (i), but not rule (ii) would override any existing syllable structure.

3. This word can be derived from underlying /pliasis/ by the rules of Stop Voicing Assimilation (cf. section 5.4.) and AE-Similation (cf. section 7.6.1.), both of which apply in underived environments.

4. I thank Pam Munro and Steve Anderson for telling me about this pronunciation.

5. Clements and Keyser might analyze the /b/ of a Choctaw /bl/ cluster as extrasyllabic, rather than part of a complex onset. If so, the Onset First Principle could be maintained. However, I follow Steriade (1982) in assuming that extrasyllabicity is possible only word-peripherally.

6. One verb contains a [by] cluster in an underived environment: opyah 'to be evening'. Byington (1915) spells this word <opia>, suggesting that it was then pronounced with a voiceless stop. All other occurrences of syllable-final [b] precede -li, and most alternate with [p].


8. In the text I forgot to mention the most extreme final cluster. There is a /kt/ cluster after a nasalized vowel in the word tatokt:
(i) Tatokt talowa-h-a? 'Did both of them sing?'
   together sing-v-Q

This word appears to be a contracted participle (cf.
section 7.4.) of the n-grade (cf. 6.3.) of ittatokloh 'to
be together' (which itself contains the reciprocal prefix
itti- (cf. section 7.2.5.), the obscure prefix a- (cf.
section 5.2.3.), and tokloh 'to be two'):

(ii) ittatoklo-t --> tatokt

The first syllable is lost by Initial I-Deletion (cf.
section 7.6.) and subsequent degemination by Stray
Erasure. The deletion of /lo/ is totally irregular, but
participles are famous for irregular deletions.
   In Chickasaw, final '/t/ and /lht/ are also attested
   (Pamela Munro, personal communication).

9. The /t/ of the instrumental clitic isht may or may not
   be deleted before a consonant. Deletion is taken to
   correlate with loss of word boundary. Cf. section 7.4.

10. This section draws heavily on Munro and Ulrich
   (1984a). I am thus even more indebted to Pam Munro here
   than elsewhere.

11. For some speakers of Oklahoma Choctaw, Rhythmic
    Lengthening is applicable before -tok. For these
    speakers, then, -tok is a level one suffix, like -li.
    Rhythmic Lengthening is applicable before -tok in
    Chickasaw (Munro and Ulrich 1984a) and in Mississippi
    Choctaw (Aaron Broadwell, personal communication). From
    the very limited data I have, it appears that Rhythmic
    Lengthening is also applicable before -tok in Mississippi
    Choctaw of Oklahoma.

12. This section draws heavily on Munro and Ulrich
    (1984b), and so I am particularly grateful to Pam Munro
    for her contribution to my understanding of Choctaw
    nasization.

13. In addition to pinha' and yanah, dialectal
    alternations between /nh/ and /hn/ are attested in toohnh
    'to employ', CB toohnh, tonhoh (toho, tonho); Ct ahhn
    'to think, like', Cs ahh 'to wish, want, expect'; Ct
    fihnah 'very much', Cs finna, finna '(not) too', finha 'to
    put on airs'. The verb that Munro and Willmond (1984b)
    write as onhochi 'to accuse', which occurs in both
    Chickasaw and Choctaw, does not alternate with a form
    containing /hn/. The /h/ is less clear in this word,
    making itself known primarily by blocking Rhythmic
Lengthening. This word might be analyzed as:

(i) on-o-chi-h
    Sup-be-caus-v

Byington (1915) gives as one definition "to put on", making this etymology seem plausible. The suprassive clitic on- always constitutes a heavy syllable (cf. section 7.6.), so Rhythmic Lengthening never applies to the following syllable.

14. Two apparent examples of morpheme-internal sequences of nasal vowel plus nasal consonant are nána' 'something' and mōmah 'to be all'. However, both are presumably morphologically complex. For the first, compare nátañ 'what'. The second is the n-grade of non-occurring *mōmah; cf. Chickasaw mooma, moyyo'ma (y-grade).

15. Andreas Wittenstein (personal communication) has suggested that all lexically accented verb stems derive historically from grades. Most accented verb stems do have the shape of some grade. For example, several numbers have the shape of g-grades, with an accent on the antepenult, a geminate consonant, and a long penult (corresponding to short vowel plus glottal stop in Chickasaw and Mississippi Choctaw of Oklahoma), e.g. tóchchiñah 'to be three', *toчинah (base form). However, some accented verb stems do not have the shape of any grade, e.g. áyyokah 'each', and others can be said to have the shape of a grade only if one counts the 'grade before a cluster or geminate, which differs from the base form only in the accent, e.g. ýókpah 'to laugh', *yókpah (base form). Moreover, accented verb stems that have the shape of n-grades do not behave like n-grades (cf. section 5.2.1.). Thus, not all lexically accented verb stems can be analyzed as grades synchronically, although that may be the diachronic source for some or all of them.

16. Certain enclitics, such as the question markers -a and -o, follow the "word-final" accent.

17. In the present analysis, underlying forms are not syllabified. Consequently, extratonality in underlying forms must actually be marked on the extratalon vowel rather than the syllable, as in (63). If tones are associated with syllables (cf. footnote 18), extratonality must percolate up to the syllable. In the syllabified forms in examples (64) through (69), extratonality is marked on vowels and tones are linked to vowels merely for typographic simplicity.

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18. Alternatively, underlying long vowels could be represented as VC sequences on the skeletal tier. In that case, tones could be associated directly with V-slots. What is important is that only one tone is associated with a long vowel, not two. Cf. section 6.7.6.

19. The high tone of an accented noun could simply be pre-linked to the appropriate vowel in the underlying form. Actually, there would be a problem for such an account if tones are associated with syllables, in that syllable structure is assigned by rule, and thus is not present in underlying representations. In any case, such an analysis of accented nouns could not be extended to verb grades.
Chapter 4. Nominalization and Compounding

4.1. Introduction

Aside from a very few examples of the causative suffix deriving verbs from nouns (cf. section 5.3.), the only category-changing derivational morphology in Choctaw is the nominalization of verbs by accentuation of the penult and suffixation of a glottal stop. Nominalization is discussed in section 4.2. The compounding of two nouns, or of a noun and a nominalized verb, to give a compound noun is discussed in section 4.3. In section 4.4., it is argued that the glottal stop is an underlying segment of Choctaw, realized as vowel length preconsonantly and as [y] prevocally, but retained in final position. The rules involved in nominalization are formulated in section 4.5. The level-ordering of nominalization is discussed in section 4.6.

4.2. Nominalization

Verbs are productively nominalized by suffixing a glottal stop to the verb and accenting the penultimate syllable:

(1) hîlhah 'to dance'
(2) hîlha' 'a dance, a dancer'
The verb in (1) contains the root hilha- and the verbal -h suffix. This suffix occurs on verbs in the absence of certain other suffixes, such as the aspect marker -tok\(^1\) and the nominalizing -'. Verb stems do not occur in isolation, so verbs are cited with the -h suffix throughout this dissertation, though it is not part of the stem. Both (1) and (2) can be used as sentences. (1) means 'he danced', and (2) means 'he is a dancer'.

In addition to their straightforward use as nouns, nominalized verbs can be used as predicates, in what Nicklas refers to as the nomic tense:

(3) Himóna' 'It's new'
    new:n

Sentence (3) could be translated as 'it's a new one', but it would more likely be translated simply as 'it's new'. The distinction between non-nominalized and nominalized predicates is subtle, but the latter typically refer to characteristic activities or properties:

(4) Ishko-h 'He's drinking'
    drink-v
(5) Ishko' 'He drinks'
    drink:n

Sentence (4) refers to an act of drinking, while sentence (5) refers to a habit. An English nominalization would also be an appropriate translation: 'he's a drinker'.

Nominalized verbs are also used as "attributive adjectives":

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(6) Hattak cháaha' písa-li-h
    man  tall:n  see:N-1sNom-v
    'I saw the tall man'

This construction is better analyzed as a nominalization
of the clause hattak chaahah 'the man is tall' (cf.
section 4.6.).

Certain verbs appear to be able to take nominalized
complements:

(7) Lynn-at panaklo-tok katímmah
    L.-su  ask-pt  where
    Aaron-at aah-hílha'-o  -->  aahílhayo
    A.-su  Loc-dance:n-Q
    'Lynn asked where Aaron dances'

(8) Tásíbo'-at ikhána-h  -->  Tásíboyat ikhánah
crazy:n-ss  know:N-v
    'He knows he's crazy'

These complex constructions will not be dealt with in this
dissertation.

Verbal agreement can occur on nominalized verbs:

(9) Ish-hílha'  'You're a dancer'
    2Nom-dance:n

(10) Sa-hímítta'  'I'm young'
    1sAcc-young:n

(11) Ak-íshko'  'I don't drink',  'I'm a non-drinker'
    1sHyp-drink':neg:n

Accusative and dative agreement can occur on lexical nouns
to mark possessors (cf. sections 7.2.2., 7.2.3.), but
other agreement markers, such as the nominative and
hypothetical markers in (9) and (11), cannot occur on
lexical nouns.

Alternatively, uninflected nominalizations can be
used with inflected forms of 'to be':

(12) Hîlha’ chî-ya-h ‘You’re a dancer’
    dance:n 2Acc-be-v

(13) Himîtta’ si-ya-h ‘I’m young’
    young:n 1sAcc-be-v

(14) ñshko’ si-ya-h kiyoh ‘I don’t drink’
    drink:n 1sAcc-be-v not

The instrumental clitic isht- also occurs in
nominalizations:

(15) isht-îpa’ ‘spoon’
    inst-eat:intr:n

(16) isht-holissóchi’ ‘pen, pencil’
    inst-writing:caus:n

The Choctaw names of most tools and instruments are
nominalizations with isht-. Note again that isht- does
not occur on lexical nouns.

In contrast, only level one suffixes can precede the
nominalizing glottal stop, e.g. the -chi causative suffix
in (16) or the first person singular nominative suffix
-li:

(17) Hilhálî’ ‘I’m a dancer’
    dance:1sNom:n

The nominalizing glottal stop can be followed by noun
phrase clitics, such as the neutral case-markers -at (18)
and -a (20) or demonstratives (21):

(18) kafi-aáshko’-at --> kafiááshkoyat - kafiááshkoot
    coffee-Loc:drink:n-su
    ‘coffee cup (subject)’

(19) miko’-at --> mikoyat - mikoot
    chief-su
    ‘chief (subject)’
(20) hílha'-a → hílhaya
dance:n-ns
'dancer (non-subject)'

(21) chító'-ma-t → chítoomat
big:n-dem-su
'the/that big one (subject)'

The neutral subject case-marker optionally loses its vowel (cf. section 4.4.1.), regardless of whether it follows a lexical noun (19) or a nominalized verb (18).

Before certain vowel-initial enclitics, the glottal stop of either a lexical noun or a nominalized verb may be lost:

(21) Miko'-a-ttook → Mikoyatook - Miko-attook
chief-be-rem
'He was a chief'

(22) ċíshko'-a-ttook → ċíshkoyatook - ċíshko-attook
drink:n-be-rem
'She was a drinker'

(23) Hílha'-aachi → Hílhayaachi - Hílha-aachi
dance:n-fut
'He's going to be a dancer'

Note that other enclitics, such as the case-markers discussed above, do not allow this deletion.

4.3. Compounding

Choctaw nominal compounds contain a head noun modified by a verb or another noun. If the modifier is a verb, it follows the head noun and is nominalized:

(24) tóbi' tóhbi' 'navy beans'
bean white:n
(25)  tóbi' patássa' 'lima beans'  
    bean flat:n

If the modifier is a noun, it precedes the head noun in some cases, and follows the head noun in some cases:

(26)  saapa' tóbi' 'field peas'  
    field bean

(27)  tóbi' chókfi' 'speckled peas'  
    bean rabbit

In examples (24) through (27), tobi' 'bean' is the head. Each compound describes a type of bean or pea.³

There are also compounds consisting of more than two words:

(28)  tóbi' nishkin lósa' 'black-eyed peas'  
    bean eye black:n

(29)  chókfi' nishkin tóbi' 'English peas' ⁴  
    rabbit eye bean

(30)  tóbi' patássa' hochíto' 'butter beans'  
    bean flat:n big:pl:n

These can be analyzed as compounds containing other compounds or phrases: [tóbi' [nishkin lósa']], [[chókfi' nishkin] tóbi'], [[tóbi' patássa'] hochíto'].

Choctaw also has exocentric or bahuvrihi compounds, in which neither element is the head:

(31)  haksobis faláya' 'donkey' ⁵  
    ear long:n

A donkey is neither a kind of ear nor a kind of long thing. Rather, it is a kind of equine. Thus, the head of this compound is neither of the elements actually present, but might be understood as issóbah 'horse'. In fact,
Byington (1915) lists issóbah haksobish faláya' (CB: isuba haksobish falaia) for 'donkey'. Mrs. Wade's term appears to be a clipping the one Byington cites.⁶

When the first element of a compound ends in a glottal stop and the second element begins with a consonant, the glottal stop is often realized as lengthening of the preceding vowel, the normal preconsonantal allophone of /'/ (cf. section 4.4. below). Thus, tóbi' homma' 'pinto beans' is frequently pronounced [tobihómma'], although it can also be pronounced with an internal glottal stop. When the glottal stop is realized as vowel length, the first element of the compound loses its accent (both the word-level accent and any lexical accent). Thus, the two elements of a compound may or may not form a single phonological word. If they do not, the word-final glottal stop and accent of the first element are retained. If they do, the preconsonantal glottal stop is realized as vowel length, and the first element of the compound loses its accent.

When the first element of a compound ends in a glottal stop and the second element begins with a vowel, the final vowel and glottal stop of the first element are sometimes lost:

(33) naahóollo' i-tóbi' - naahollitóbi' 'English peas'
Anglo Dat-bean

This type of contraction occurs more commonly in Chickasaw
than in Oklahoma Choctaw.

Compounds containing a noun modified by a verb follow the normal pattern for attributive adjective constructions. They can be identified as compounds only by their idiosyncratic meaning. For example, holisso' kashófa' literally means 'clean paper', but as a compound it means 'divorce'. It might be expected that the phonological and semantic characteristics of compounding would correlate exactly, i.e. that a potential compound would have idiosyncratic meaning if and only if it were pronounced as a single word. However, this is not the case. For example, holisso' kashófa' can mean either 'divorce' or 'clean paper' whether it is pronounced as one word or two.

In compounds consisting of two nouns, the modifying noun usually precedes the head noun. Similarly, in a possessive construction, the modifying noun—the possessor—precedes the head—the possessed noun (cf. sections 7.2.2., 7.2.3.). Thus, noun-noun compounds superficially resemble possessive noun phrases. However, they may differ in a number of ways. First, most nouns take dative markers when possessed, e.g. twóbi' in (34). Only certain body parts and kinship terms (and other inalienable possessions) occur without the dative marker when possessed, e.g. ishki' in (35):
(34) hattak i-tóbi' 'the man's beans'  
man Dat-bean

(35) hattak išški' 'the man's mother'  
man mother

However, the second element of a noun-noun compound may  
lack the dative marker that would be required in a  
possessive construction:

(36) siti' tóbi' 'snake beans'  
snake bean

(37) siti' i-tóbi' 'the snake's beans'  
snake Dat-bean

Second, noun-noun compounds sometimes occur in the  
opposite order, with the head preceding the modifier (38),  
while possessive phrases never occur in this order:

(38) tóbi' siti' 'snake beans'

(39) *itóbi' siti' ('the snake's beans')

Third, like noun-verb compounds, noun-noun compounds may  
have idiosyncratic meaning:

(40) chókfi' nishkin tóbi' 'English peas'  
rabbit eye bean

Thus, most noun-noun compounds can be readily  
distinguished from possessive constructions. They may  
differ in any of the following ways: constituent order,  
absence of the dative marker, and idiosyncratic meaning.

4.4. Glottal Stop Realizations

The glottal stop has not been widely acknowledged in
previous literature on Choctaw. For example, Byington (1870) and Nicklas (1972) make no mention of glottal stop, even as a phonetic detail to be ignored in orthographic or phonemic representations. In recent work on Chickasaw (e.g. the work of Munro), on the other hand, the glottal stop has been treated as a contrastive segment and consistently written (with an apostrophe). However, the glottal stop has a highly restricted distribution in Oklahoma Choctaw, as opposed to Chickasaw and Mississippi Choctaw of Oklahoma. Consequently, Munro (1984b, 1984d, 1985a) and Jaggar (1982) regard final glottal stops in Oklahoma Choctaw as inserted by rule after word-final vowels. Wittenstein (n.d., 1983b) was the first to suggest that the glottal stop is a phoneme of Choctaw.\(^9\)

Phonetically, glottal stops occur only word-finally in Oklahoma Choctaw. Words which Nicklas spells with final vowels actually end in glottal stop, as do some words spelled with final vowels by Byington, though some of these end in [h]. Glottal stops occur preconsonantally in Mississippi Choctaw of Oklahoma and in Chickasaw, and intervocalically in Chickasaw. There are no contrastive word-initial or post-consonantal glottal stops in Western Muskogean.

Wittenstein (n.d.) analyzes /'/ as a phoneme of Choctaw with three surface realizations: ['] in final position, vowel length preconsonantally, and [y]
intervocally. Alternations between glottal stop and vowel length, both cross-dialectal and within Oklahoma Choctaw, are discussed in section 4.4.1. Two other cases of vowel length, involving modal suffixes and grades, are discussed in section 4.4.2. Alternations between ['] and [y] are found before the object case-marker and in questions, as discussed in section 4.4.3.

4.4.1. Glottal Stop - Vowel Length Alternations

Preconsonantal glottal stop in Chickasaw typically corresponds to vowel length in Oklahoma Choctaw, e.g.:

(41) Cs sha'li 'to carry on one's back'
    Ct shaalih

(42) Cs to'li 'to play ball'
    Ct toolih

(43) Cs ilhko'li 'to move, shake (intr.)'
    Ct alhkóoolih

The '-grade and g-grade (cf. sections 6.5., 6.6.) involve infixation of a glottal stop in Chickasaw and vowel lengthening in Oklahoma Choctaw:

(44) Cs Ikhi'lho 'He didn't dance'
    Ct Ikhíilhoh 'He didn't dance'

(45) Cs hôchchi'fo 'to name (g-grade)'  
    (Munro & Willmond 1984b)
    Ct Hôchchiifoh 'He finally named him'

Preconsonantal glottal stops also occur in Mississippi Choctaw of Oklahoma, typically corresponding to glottal stops in Chickasaw and vowel length in Oklahoma Choctaw.10
Recognizing the glottal stop as an underlying segment of Oklahoma Choctaw, realized as vowel length preconsonantly, would thus make it possible to derive surface forms in different Western Muskogean varieties from largely similar underlying forms.

There are also alternations between glottal stop and vowel length within Oklahoma Choctaw. The neutral subject case-marker (cf. section 1.4.) has the form -at after consonants other than the glottal stop:

(46) sapó' tak
    sapó'takat  'mosquito'  'mosquito (subject)'

(47) konih
    konihat  'skunk'  'skunk (subject)'

This form may be used after glottal stops as well (cf. section 4.4.3.). But more commonly the glottal stop and the /a/ are missing, and the /t/ follows a long vowel:

(48) kowi'
    kowit  'mountain lion'  'mountain lion (subject)'

(49) issíto'
    issítoot  'pumpkin'  'pumpkin (subject)'

There are two possible analyses of this glottal stop vowel length alternation. If the glottal stop were considered to be epenthetic after a word-final vowel, then it would not be inserted before the subject case-marker, providing epenthesis were ordered after cliticization. The /a/ of the subject marker might then be argued to assimilate to the preceding vowel, resulting in a long vowel. However, such an assimilation is unattested
elsewhere in Choctaw. Elsewhere, when two short vowels come together, either a glide will be inserted, or one of the vowels will be deleted (cf. sections 5.2.1., 7.2.2.). The only case of two short vowels yielding a long vowel is that of /ia/ (when the /i/ exceptionally fails to be deleted; cf. section 7.6.), where the result is a long [ɔː:]. Thus, the rule assimilating /a/ to the preceding vowel would apply only in this one morpheme.

In order to avoid such a non-general rule, while maintaining the analysis of glottal stops as inserted by rule, one might simply state that the subject case-marker had two variants, one used after consonants, the other after vowels:

(50) VC
    ||
    at

(51) VC
    |
    t

When the second variant was attached to a word ending in a vowel, that vowel would spread into the empty V-slot, resulting in a long vowel.

In fact, the /a/ of the case-markers should be recognized as a separate formative. Then the actual case-marking morphemes can be recognized as -t and -n, the same morphemes used in the switch-reference system. (In both uses, the -n undergoes the rule of Final Nasalization; cf. section 3.3.).

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The -a of the case-markers is Byington's (1870:325f.) "definite article-pronoun". Although it contrasts with -o, Byington's (1870:326) "distinctive article-pronoun", the meaning difference—if any—signalled by the presence of -a as opposed to its absence (rather than as opposed to the presence of -o) is difficult to ascertain. Byington's editor, D. G. Brinton, defines "definite" and "distinctive" as follows:

The distinctive expresses in its broadest sense the signification of the word or clause, but lends an emphasis which distinguishes it from any word or clause of allied purport; the definite defines or limits the signification to some specific, known word, individual, or act. (Byington 1870:325)

This definition tells us little about the difference between -a and its absence.11

It is then this formative that would be said to have two variants, -a and an empty V-slot:

(52) \[ V \\
     \hspace{1em} /a/ \]

(53) \[ V \]

The first variant would be used after consonants, the second after vowels. (This suffixation would precede epenthesis of glottal stops after final vowels.) However, the vowel of the neutral non-subject case-marker is always /a/, not a copy of the stem vowel:

(54) \[ kowiya 'mountain lion (non-subject) \\
      *kowi', *kowi, *kwi \]

Because the distribution of copy vowels as opposed to /a/
is dependent on subsequent suffixation, as well as the shape of the stem, it could be described most simply (within the epenthetic glottal stop analysis) as optional deletion of the /a/ melody after suffixation of the subject -t. The stem-final vowel would then spread into the V-slot left empty by deletion of the /a/.

If, on the other hand, the glottal stop is considered to be part of the underlying form of the word preceding the subject case-marker, then the (apparently meaningless) -a formative is optionally deleted on both skeletal and melodic tiers between a glottal stop and the subject case-marker -t:

(55)  kowi'-a-t --> kowiyat
(56)  kowi'-a-t --> kowi't --> kowii't

If the -a is retained (55), the prevocalic glottal stop is realized as [y] (cf. section 4.4.3.). If the -a is deleted (56), the preconsonantal glottal stop is realized as vowel length.¹²

As stated in section 1.4., the same subject marker -t does not occur after /o/. There -sh (from underlying -ch; cf. section 5.4.) occurs instead:

(57)  -haatokoosh 'because (same subject)'
     *-haatokoot

But the subject case-marker -t does occur after nouns ending in /o'/:

(58)  issíto'-a-t --> issíto't --> issítoot
     *issítotoosh¹³

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This is not a fact about case-marking versus switch-reference uses of -t. After an /o/-final morpheme such as the focus marker -oo, the subject case-marker is -sh:

(59) issíto'-oo-ch --> issítoyoosh
  *issítoyooot

Thus, the allomorph of the subject case-marker must be chosen before the glottal stop has become vowel length. In sentence (59), -ch is chosen because it follows /oo/. In sentence (58), on the other hand, -t is chosen because it follows /a/. Only after -t is chosen is the /a/ deleted and the glottal stop realized as length on the preceding /o/.

Demonstrative clitics, like the neutral case-markers, occur in noun-phrase-final position. These are -pa 'this' and -ma 'that':

(60) Sapótak-pa-t konih-ma kobli-tok
    mosquito-dem-su skunk-dem:ns bite-pt
    'This mosquito bit that skunk'

Word-final glottal stops are realized as vowel length before these clitics:

(61) kowi'-pa-t --> kowiipat
    'this mountain lion (subject)'
(62) issíto'-ma-n --> issítooma
    'that pumpkin (nonsubject)'

Similarly, glottal stops may be realized as vowel length before the negative auxiliary kiyoh:

(63) Ishko-h kiyo-h
drink-v not-v
    'He's not drinking'
(64)  ḣshko'- kiyo-h  ~ ḣshkookiyoh
drink-n not-v
 'He doesn't drink'

(65)  Kowi' kiyo-h  ~ Kowiikiyoh
m.l. not-v
 'It's not a mountain lion'

Sentences (63) and (64) illustrate the contrast between
the verbal -h and the nominal -' in negative sentences.
(Cf. section 4.1 above.) The glottal stop of the
nominalizing suffix may be realized as length on the
preceding vowel, as may the non-morphemic glottal stop in
sentence (65).

The demonstratives -ma and -pa and the negative
auxiliary kiyoh might be analyzed as optionally beginning
with empty V-slots:

(66)  VCV
     ||
      ma

(67)  VCV
     ||
      pa

(68)  VCVVVC
     |||||
      kiyoh

The empty V-slots would then have to be deleted post-
consonantly. Note that elsewhere in Choctaw, empty
V-slots can receive a melody by spreading across a
consonant (cf. sections 5.4., 6.7.1.). But even if empty
V-slots were posited here, they could not handle the final
example of the alternation between glottal stop and vowel
length, namely in compounds.
In compounds, a glottal stop at the end of the first element may be realized as vowel length when the second element starts with a consonant:

(69)  tóbi'  tôhbi'  -  oitoëhbi'  'navy beans'
     bean  white

Compounds may or may not be pronounced as a single word. If a compound is pronounced as two words, the glottal stop is in word-final position, and so will remain. If it is pronounced as one word, the glottal stop is preconsonantal, and so will be realized as length on the preceding vowel. Here the empty V-slot analysis is considerably less attractive. Since any Choctaw noun or verb can be the second element of a compound, every consonant-initial noun and verb would have to include an empty V-slot. Thus, the analysis positing underlying glottal stops is to be preferred.

4.4.2. Vowel Length Independent of Vowel Quality

There are two places in Choctaw where the length of a vowel and its quality are determined independently, i.e. where one morpheme causes the lengthening of the final vowel of the preceding morpheme. CV phonology can easily handle such phenomena with an empty V-slot at the beginning of the morpheme that causes lengthening. However, it will be argued that there is no need to posit
empty V-slots, since the phenomenon in question can be better handled by positing underlying glottal stops.

The first case involves certain modal suffixes, including the future suffix, which has two forms (Nicklas 1972:140, 194). The first is -aachi:

(70) Abi-aachi → Abaachi 'He's going to kill it' kill-fut
(71) Haklo-aachi → haklaachi 'He will hear' hear-fut (TDN, p. 140: haklā chi^n h)

The preceding short vowel is deleted before the long /aa/ by the rule of Short Vowel Deletion (cf. section 5.4.).

In other dialects, Nicklas reports, the future is formed by adding -chi and lengthening the stem-final vowel:

(72) Abiichi 'He's going to kill it'
(73) Hakloochi 'He will hear'

Mrs. Wade normally uses the form with /aa/ after stems ending in /i/, though she affirms that she has heard other Choctaws use forms such as (72), with long /ii/, and occasionally uses such forms herself. With stems ending in /o/, on the other hand, she lengthens the /o/. There is, of course, no way to distinguish between these two methods of forming the future when the final vowel of the stem is /a/.

Alternatively, one could say that the future suffix is always -aachi, but in Mrs. Wade's dialect sequences of
short /o/ followed by long /aa/ become long /oo/.

However, such clusters do not occur elsewhere in Choctaw, so there is no independent evidence for a rule changing /oaa/ to /oo/. Since there are dialects in which the surface form of the future contains long /aa/ regardless of the stem-final vowel, and other dialects in which it contains a lengthened version of any stem-final vowel, it is simplest to view Mrs. Wade's dialect as a mixture of these two.

Another modal suffix, -aana 'can, will', behaves similarly:

(74) Bashli-aana-h --> Bashlaanah
cut-mod-v
'He can cut it'

(75) Bashliinah 'He can cut it'

(76) Ishko-aana-h --> Ishkaanah
drink-mod-v
'He can drink'

(77) Ishkoonah 'He can drink'

Mrs. Wade prefers the forms in (74) and (77), with long /aa/ replacing a stem-final /i/ but lengthening of a stem-final /o/.

The behavior of these two suffixes suggests that -a is a separate formative.14 It adds no particular meaning, but optionally accompanies the modal suffixes that could be characterized as:

(78) VCVC
|||
chin
(79) VCV
n
The preceding vowel, either the modal -a or the final vowel of the stem, would spread into the empty V-slot, resulting in a long vowel.\textsuperscript{15}

However, the cognate endings in Chickasaw are -a'chi and -aa'ni, both with glottal stops. The -a is always included, and the stem-final vowel is always lost:

(80) Ishko-a'chi $\rightarrow$ Ishka'chi 'He's going to drink'
    *Ishko'chi

(81) Ishko-aa'ni $\rightarrow$ Ishkaa'ni 'He can drink'
    *Ishkoo'ni

Thus, if the glottal stop is accepted as an underlying segment, the Choctaw suffixes can be set up as -'chin and -'na, with a glottal stop instead of an empty vowel. The vowel length would thus result from the same process converting glottal stops to vowel length elsewhere.

The other case of vowel length arising across a morpheme boundary is in the grades. The -grade, the g-grade, and, for some speakers, the y-grade involve vowel lengthening in Oklahoma Choctaw corresponding to an infixed glottal stop in Chickasaw (cf. sections 4.4.1., 6.5., 6.6., 6.7.). Note that the glottal stop in these grades could not possibly be analyzed as epenthetic, because it is not final at any stage of the derivation, but infixed into the stem.

In these two cases, modals and grades, vowel length
could be derived either from an underlying glottal stop or from an empty V-slot. In both cases, however, there is cross-dialectal evidence for a glottal stop. Since there are also cases where a glottal stop unambiguously alternates with vowel length within Oklahoma Choctaw (cf. section 4.4.1.), it is most economical to derive vowel length in these cases from glottal stops as well.

It is not the case that all Choctaw long vowels should be derived from sequences of short vowel plus glottal stop. Long vowels other than those discussed above do not alternate with glottal stops within Oklahoma Choctaw. Moreover, Chickasaw contains long vowels that contrast with sequences of short vowel plus glottal stop, and both typically correspond to long vowels in Oklahoma Choctaw:

(82)  Cs sha'ilı 'to carry on one's back'
      Ct shaalıh 'to carry'

(83)  Cs shoolı 'to to hug, carry'
      Ct shoolıh 'to carry, hug'

These correspondences, taken together, suggest that a Proto-Western Muskogean contrast between morpheme-internal sequences of short vowel and glottal stop on one hand and long vowels on the other has been neutralized in Oklahoma Choctaw but not in Chickasaw.16
4.4.3. Glottal Stop - [y] Alternations

There are three places in Oklahoma Choctaw where the
glottal stop alternates with [y]. The first is before
vowel-initial noun phrase clitics, such as -at and -a.
After words ending in consonants other than glottal stop,
the form of the neutral non-subject marker is -a:
(84) konih-a 'skunk (ns)'
When a word ending in a glottal stop is followed by the
non-subject marker, the glottal stop is replaced by a [y]:
(85) kowi'-a --> kowiya 'mountain lion (ns)'
As discussed in section 4.4.1., the subject marker is
-at after consonants other than the glottal stop:
(86) konih-at 'skunk (su)'
After words ending in a glottal stop, the subject marker
may be either -t, as discussed in section 4.4.1., or it
may be -at, with the glottal stop replaced by [y]:
(87) kowi'-at --> kowiyat 'mountain lion (su)'
In Chickasaw, glottal stops are retained before case-
marking clitics.17

The second place where the glottal stop alternates
with [y] is before question markers. After predicates
ending in a consonant other than glottal stop (e.g. non-
nominalized verbs, which end in /h/) the question markers
are -a (recent past) and -o (present and, after -tok,
distant past):
(88) Ish-ishko-h-o? 'Are you drinking?'
    2Nom-drink-v-Q

(89) Yammat konih-o? 'Is that a skunk?'
    that:su skunk-Q

When a word ending in a glottal stop is followed by one of these question markers, the glottal stop is replaced by a
[y]:

(90) Ishíshkoy? 'Do you drink?'

(91) Yammat kowiyô? 'Is that a mountain lion?'

Questions are marked with an unrelated suffix in
Chickasaw.

The third place where glottal stop may be replaced by
[y] is before forms of 'to be', such as the remote past
-attook:

(91) Ókof 'It's a persimmon'
(92) Ókofattook 'It was a persimmon'
(93) Hílha' 'He is a dancer'
(94) Hílhayattook 'He was a dancer'

The glottal stop may also be deleted entirely before
-attook (cf. section 4.2.).

There are, of course, two other conceivable analyses
of these alternations between ['] and [y]. If the glottal
stop is analyzed as inserted after word-final vowels in
Oklahoma Choctaw, the [y] in these forms might be analyzed
as inserted by rule between vowels and the case and
question markers. Or the case and question markers might
be analyzed as beginning with /y/, which would be deleted
after consonants but retained after a vowel. Neither of these solutions, however, is consistent with what happens elsewhere in Oklahoma Choctaw.

Glides are inserted between undeleted root-final vowels and the medio-passive suffix -a. (Cf. section 5.2.1.) These glides always agree with the preceding vowel in roundness: /y/ is inserted after /i/ and /ə/, /w/ after /o/. But the glide putatively inserted before the morphemes under discussion here is always /y/, even after /o/:

(95) Yammat ohooyoyo? 'Is that a woman?' (cf. ohooyo 'woman')

While different glide insertion rules might be formulated for different levels, it seems odd that the more phonetically motivated one, that in which glides agree with the preceding vowel in roundness, should be the rule at the earlier level, while the less phonetically motivated one should be the rule at the later level. We would expect earlier levels of the morphology and phonology to be relics of earlier stages of the language than later levels, and thus to have had more time to obscure any phonetic motivation for phonological processes. Since there is another alternative available, i.e. analyzing the glottal stop as underlying, it should be taken.

It would be similarly odd to claim that /y/ is
deleted after a consonant in the case and question markers (96, 99), when the same clusters surface elsewhere, both morpheme-internally (97, 100) and across morphemes (98, 101):

(96) sapótak-a 'mosquito (nonsubject)
    *sapótakya

(97) Okya-h 'It's evening'
evening-v

(98) Ik-yópp-o-h 'He didn't laugh'
    Hyp-laugh:'-neg-v

(99) Talowa-h-o? 'Did she sing?'
    *Talowahyo

(100) Hofahya-h 'He's ashamed'
    ashamed-v

(101) Talowa-h-ya-t komota-h
    sing-v-sbr-ss afraid-v
    'She's afraid to sing'

Again, it might be possible to save the analysis with level-ordering. But the alternative analysis, that the glottal stop is underlying, is better motivated.

There is another example of [y] from an underlying glottal stop, alternating this time with vowel length, in the y-grade. The derivation of the y-grade is discussed in section 6.7.4.

4.5. Rules Involved in Nominalization

Verbs are nominalized in Choctaw by suffixing '-' and assigning a HL tonal pattern. Tones are associated with
syllables from right to left. The rules of tonal association are discussed at length in sections 3.4. and 6.7.6.

The nominalizing suffix is subject to the rules of Glottal Gliding and Glottal Stop Deletion:

(102) Glottal Gliding
[-continuant] --> [+sonorant]
[+low  
[+high  
[-round

(103) Glottal Stop Deletion
[-continuant] --> Ø / ___ C
[+low

Glottal Gliding changes a glottal stop to a palatal glide before any vowel. Glottal Stop Deletion deletes a glottal stop before a consonant. If the deleted glottal stop was in a rime position, compensatory lengthening follows, as predicted by Steriade (1982), e.g. in the 'grade of pisa- 'to see':

(104) ['grade] (GSD) (CL)

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<td>pisa</td>
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<td>pi sa</td>
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The result, after accent placement, is piisa-. Oklahoma Choctaw has both rules of glottal stop allophony. Mississippi Choctaw of Oklahoma has Glottal Gliding and possibly optional Glottal Stop Deletion. Chickasaw has neither.

Margaret Langdon (personal communication) suggested
that, instead of deriving some instances of [y] from an underlying glottal stop—a change she considers unnatural—one might derive all glottal stops from underlying /y/. This suggestion is quite intriguing. In order to derive glottal stops from underlying /y/, it would be necessary to posit a morpheme boundary before every noun-final glottal stop, i.e. to identify the final glottal stop of most lexical nouns with the nominalizing suffix (independent of the nominalizing accent). Then /y/ would become ['] in the derived environment in nita-y --> nita' 'bear', but not in the underived environment in yakkookay --> yakkookee 'thank you'. Pam Munro (personal communication) points out that this nominal suffix might be cognate to the Hitchiti nominal suffix -i (Haas 1941).

However, although final /y/ could be handled by limiting the rule to derived environments, the infixes of the 'g-grade and g-grade could not be derived from /y/. These infixes occur in the same environment as clear examples of underlying /y/ that behave differently:

(105) Kachay-li-h --> Kachiilh
cut-act-v
'He cut it'

(106) Ik-lacha'y,-li-o-h --> Iklaachaaloh
Hyp-wet,'-act-neg-v
'She didn't get it wet'

(Infixed are separated from other morphemes by commas.)
The /y/ in (i) triggers A-Raising (cf. section 5.4.) and is subsequently deleted, with compensatory lengthening.

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The putative /y/ in (ii), on the other hand, does not trigger A-Raising. Note that the two /y/’s are in identical, derived environments.

Because both /y/ and glottal stop are deleted pre-consonantally in Oklahoma Choctaw, it would be possible to say that the difference between (i) and (ii) is due only to A-Raising, which could be said to operate at the level at which the active suffix is attached, but not at the level at which the ’-grade is formed.¹⁹ Note, however, that a very similar rule does operate at the latter level in y-grades (cf. section 6.7.4.).

But in Chickasaw, where glottal stops are retained in pre-consonantal position, it is obvious that the ’-grade infix becomes a glottal stop, while a root-final /y/ does not:

(107) Kachay-li --> Kachiili
cut-act
 'He cut it'

(108) Ik-achaaka,y,-li-o --> Ikachaaka'lo
Hyp-add,’,-act-neg
 'She didn’t add another piece on'

In Chickasaw, /y/ would become glottal stop only when preceded and followed by a boundary. Of course, such an environment cannot be stipulated within the framework of Lexical Phonology, where boundary symbols have been abandoned. The theory is correct in preventing this analysis, which would convert /y/ to glottal stop in all environments providing the /y/ constitutes a morpheme:
there is no evidence that such a morpheme was ever /y/ at all. Thus, in Chickasaw, at least, glottal stops must be underlying.

Note further that the 'grade infix never surfaces as [y] in any Western Muskogean dialect, nor does it trigger Vowel Raising in any dialect. On the other hand, it does surface as ['] in both Chickasaw and Mississippi Choctaw of Oklahoma.

Other evidence (cf. Munro 1984b, Ulrich in preparation b) suggests that Chickasaw does not share a common history with Mississippi Choctaw of Oklahoma separate from Oklahoma Choctaw, but rather that the Choctaw dialects share a common history separate from Chickasaw. In fact, where Oklahoma Choctaw differs from Mississippi Choctaw of Oklahoma, it is usually Oklahoma Choctaw that more closely resembles Chickasaw, contrary to the geographical distribution of the dialects. The occurrence of glottal stops in preconsonantal position in Chickasaw and Mississippi Choctaw of Oklahoma, then, suggests that they were a feature of Proto-Western Muskogean, and have been lost in Oklahoma Choctaw.

The simplest account of the correspondence between intervocalic ['] in Chickasaw and intervocalic [y] in both Oklahoma Choctaw and Mississippi Choctaw of Oklahoma, given the presence of underlying glottal stop in Proto-Western Muskogean and the common history of the two
Choctaw dialects, is that intervocalic glottal stop became [y] in Choctaw. If this change actually took place diachronically, it should not be avoided synchronically on the grounds of apparent unnaturalness.

4.6. Level-Ordering of Nominalization

Nominalized verbs cooccur with agreement markers of all types, including those which do not cooccur with lexical nouns (cf. section 4.2.). Verbs must be nominalized after being marked for, e.g., nominative agreement, because nouns cannot be marked for nominative agreement. The verbal morphology occurring on nominalized verbs includes not only level two lexical clitics like nominative agreement markers, but also postlexical clitics like the instrumental isht-. Thus, the nominalizing -' must itself be a postlexical clitic.

On the other hand, the nominalizing clitic cannot follow any suffixes beyond the level one suffixes (the valence suffixes -a, -li, and -chi, the first person singular nominative suffix -li, and the negative suffix -o). This fact probably has two separate causes. The first post-level one suffixes (e.g. the future -aachi) are primarily modal in nature, and thus semantically incompatible with nominalization. Other post-verbal markers (e.g. various subordinators) might be analyzed as
postlexical clitics as well, ordered after the nominalizing clitic.

Given that the nominalizing -' is a postlexical clitic, its use in "attributive adjective" constructions can be analyzed as involving nominalization not just of the verb, but of a relative clause:

(109)  hattak sipókni' 'the old man'
       man   old:n

(110)  Hattak sipokni-h 'The man is old'
       man   old-v

The noun phrase in (109) is the nominalization of the clause that can occur as a main clause the verbal suffix -h (110). The order of constituents in the noun phrase follows from the order of the constituents in a verb phrase.

On the other hand, if sipokni' were nominalized before combination with hattak, one would expect the word order to parallel that of a noun phrase containing two lexical nouns. There are two types of noun phrase containing two nouns: compounds and possessive constructions. In the former, the head may either precede or follow the modifier (cf. section 4.3.). In the latter, the head always follows the modifier (cf. sections 4.3., 7.2.2., 7.2.3.). In a noun phrase consisting of a noun and a verb, however, the head always precedes the modifier. This type of noun phrase thus exhibits the reverse order of a possessive construction and lacks the
freedom of order of a compound. In other words, its order is totally unexpected if it is derived by juxtaposing a nominalized verb and a lexical noun, while it is exactly what is predicted by the nominalization of a clause.
Notes

1. Educated Choctaw speakers frequently identify -tok as "past tense". I know one speaker who insists on its use in translating any English sentence in the past tense. However, most speakers do not always use -tok to translate the English past tense. Pamela Munro (personal communication) suggests that -tok is closer to the English perfect. In this dissertation, -tok is glossed "pt", which may be taken as abbreviating "past" or "perfect", or simply as a place holder.

2. Compounding of verbs is also attested in Choctaw:

(i) Níhi' kochchaawihihli-h 'He took the seeds out'
    seed take:out:pl-v

Kochchaawihihlih is formed from the verbs kochchih 'to take out (sg)' (or possibly kochchah 'to go out') plus wihlih 'to steal, take', with a locative marker on the latter. That kochchaawihihlih functions as a single verb is shown by the negative form:

(ii) Ik-kochchaawihihli-o-h 'He didn't take them out'
    Hyp-take:out:pl:'-neg-v

The hypothetical marker and the negative suffix -o surround kochchaawihihlih, as they would any simple verb (cf. section 7.2.4.). Neither appears between kochchih and aawihlih, as would be expected if either verb were negated individually:

(iii) Ik-kóchch-o-h 'He didn't take it out'
    Hyp-take:out:'-neg-v

(iv) Ik-aa-wihl-o-h 'He didn't take it/they'
    Hyp-Loc-take:'-neg-v

Note also that kochchih requires a singular object, while kochchaawihihlih requires a non-singular object.

Another verbal compound involves the participle (cf. section 7.4.) of bashah 'to be cut' or bashlih 'to cut':

(v) Bash-t tapa-h 'It's cut off'
    cut-ss sever-v

(vi) Ik-bash-táap-o-h 'It's not cut off'
    Hyp-cut-sever:'-neg-v
The loss of the extrasyllabic /t/ in non-final position, and the position of ik- and -o indicate compounding.

Compounding of verbs is by no means as productive as compounding of nouns in Choctaw. I know of only a few examples of verbal compounding.

3. The range of meaning Choctaw word tobi' includes what in English are called peas and beans, but not other legumes such as alfalfa, clover, lupines, or peanuts. The distinction between the English terms pea and bean, in their broadest use, is not well-motivated. Narrowly, pea refers to seeds of the genus Pisum and bean refers to seeds of the genus Phaseolus. But both terms are also used to refer to various other legumes, e.g. the broad bean or fava bean (Vicia faba) and the cowpea or black-eyed pea (Vigna sinensis, Vigna unguiculata). Hardenburg (1927) makes the generalization that peas are typically round, while beans are typically flat and kidney-shaped or oblong. Suzette Haden Elgin (personal communication) suggests that peas take a lot longer to cook than beans. But no distinction can be absolute, considering that the seeds of Cicer arietinum are known both as garbanzo beans and as chickpeas, and that black-eyed peas are also called black-eyed beans.

4. In the South, the term English peas is used for what elsewhere are called green peas or simply peas, i.e. Pisum sativum.

5. Like a number of other nouns (cf. footnote 9, chapter 1), the word for ear may end with either /s/ or /sh/. Mrs. Wade prefers the pronunciation with /s/, though she reports that /sh/ is more common.

6. Another interesting clipping is waaya' 'peanuts', which has the form of the nominalization of waayah 'to grow (intransitive)'. Byington (1915) gives the following compound:

(i) yakni anóka' waaya' 'peanuts' 
earth inside grow:n 
(CB: yakni anuŋ'ka waya)

Here the clipped form is no longer recognizable as a compound: it contains only one word.

7. The noun holisso' can refer to paper or to books or other written material. Holissochih means 'to write'. In Chickasaw, the verb holisso, besides meaning 'to be written', retains its original meaning of 'to be spotted'. Neither Mrs. Wade nor Byington (1915) recognizes this
meaning for Choctaw.

8. Snake beans, also called yard beans or yard-long beans, are a variety of very long cowpeas (Vigna unguiculata).

9. This section could not have been written if it were not for Andreas Wittenstein. The idea of a glottal stop phoneme neutralized with /y/ intervocalically and vowel length preconsonantally was his, although he has never written up a complete account of his analysis. (Wittenstein (n.d.) is a preliminary version, and Wittenstein (1983b) deals with glottal stops only peripherally). Many of the arguments given in this section are due to him as well. Pam Munro, by vigorously resisting this analysis, has forced me to refine my arguments from their earlier rather haphazard state. Of course, neither Andreas nor Pam necessarily agrees with all of the contents of this section.

10. My limited data on Mississippi Choctaw of Oklahoma includes examples of preconsonantal glottal stop in the '-grade, the g-grade, and a number of nouns and verb stems. In at least some of these, the glottal stop appears to be in free or inter-speaker variation with vowel length. I have no examples of intervocalic glottal stops in Mississippi Choctaw of Oklahoma.

11. There is no clear stopping point in the identification of phoneme-long morphemes in Choctaw suffixes. Do question markers -a and -o consist of the "article-pronouns" followed by the non-subject/different subject -n? What about ah/ah and ooh, both meaning 'to be'? Byington (1870) presents an almost dualistic grammar, in which most occurrences of /a/ and /o/ outside of roots are manifestations of the great, though obscure, definite/distinctive opposition, as are the n-grade and the plural prefix ha-.

   Once the "article-pronouns" have been identified, one can proceed with the consonants. Is the -k in the general purpose subordinator -ka the same as the -k in the irrealis subordinator -kma? Can the subordinator -haatokoosh 'because (same subject)' be analyzed as in (i)?

(i)   -h-aa-tok-oo-sh
     -v-definite-pt-distinctive-ss

Certainly it can, but is it possible to derive the meaning 'because' from the meanings of the individual morphemes? Aside from main verb endings (-h, -', and -tok) and

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switch-reference morphemes (−t, −ch (realized syllable-finally as −sh), and −n), only /k, p, m, oo, a, aa/ occur in Choctaw subordinators, and these occur in a great many combinations. In most subordinators, a number of short possible morphemes can be identified, leaving similarly short unidentified strings in between. The internal structure of subordinating suffixes is beyond the scope of this dissertation.

12. What may be the same −a cannot be deleted in the remote past enclitic −atook:

(i) Kowi'-a-atook → Kowiyatook − Kowi-attook
   *Kowiittook

A glottal stop is optionally deleted before −atook. But even if it is retained, the /a/ cannot be deleted. Thus, the rule deleting −a must specify the subject marker −t in its structural description.

The −a formative may not be deleted before either case-marker in Chickasaw.

13. In fact, issitoosh does occur, but only as a contraction of the focus form issitoyoosh (cf. example 59).

14. Byington (1870:349) writes the −a separately, but does not discuss its identity. Presumably he identifies it as the definite article-pronoun.

   In Chickasaw, there is a modal ending −a', used with the negative auxiliary ki'yo to mean 'never' (Pamela Munro, personal communication). The "nomic tense" use of −' can be identified within this construction, but a recognizable meaning for the −a formative remains elusive.

   Other modals beginning with /a/ are −aahi and −ahila/−aahila. Nicklas's (1972:126) description of the suffix −ahila suggests that for the speakers with whom he worked it begins with a short vowel and comes within the domain of Rhythmic Lengthening (cf. section 3.2.). However, for Mrs. Wade the suffix appears to be −aahila, with a long vowel.

15. The nasal consonant in −Vchin will be realized as nasalization of the /i/. Cf. section 3.3. Actually, the fact that Nasalization applies to final /n/ only in derived environments requires a boundary between −Vchi and −n. This boundary is independently supported by the occurrence of the future suffix in a number of constructions with an oral /i/:

(i) Iy-aachi-ki-h 'He'll be going'
(ii) Iy-aachi-kyo-h 'He's not going to go'

It is not clear whether this \textit{-n} suffix should be equated with the non-subject/different subject suffix.

16. The standard reconstruction of Proto-Muskogean (Haas 1941) does not include a phonemic glottal stop. However, Andreas Wittenstein (personal communication) informs me that he has found long vowels with falling accents in Eastern Muskogean languages corresponding to short vowels plus glottal stops in Western Muskogean languages. If this correspondence is valid, it suggests either that the glottal stop was contrastive in Proto-Muskogean and was lost in the Eastern languages (and, independently, in Oklahoma Choctaw), or that the glottal stop arose within Western Muskogean and was later lost in Oklahoma Choctaw. The rule of Glide Insertion (section 5.4. below) suggests that the latter is more likely.

17. If the final syllable follows a heavy syllable, the vowel and glottal stop may optionally be deleted before case-marking clitics (Munro and Will mond 1984a):

(i) \textit{issi'-at} ~ \textit{issat} 'deer (subject)' \textit{(Cs)}
\textit{deer-su}

However, the same deletion is possible in vowel-final words (usually corresponding to h-final words in Choctaw), so this process is not relevant to the question of glottal stops in Choctaw.

18. Mrs. Wade has hofaayah rather than hofahyah, but the latter is found (without the final \textit{<h>}) in both Byington (1915) (for Choctaw) and Munro & Will mond (1984) (for Chickasaw). I have myself recorded hofahyah from other speakers of Oklahoma Choctaw without, unfortunately, noting the presence or absence of an accent. If hofahyah is accented on the penult, it can be considered the h-grade of hofaayah. The /hy/ cluster would then be heteromorphic. If hofahyah is not accented on the penult, it is not an h-grade but a simple verb root in dialectal variation with hofaayah. As far as I know, this would then be the only case of a tautomorphic /hy/ cluster.
Chapter 5. Valence

5.1. Introduction

Choctaw has a number of derivational processes that do not change the category of the stem to which they apply, i.e. that derive verbs from verbs (or verb roots). These fall into two classes: valence-determining affixes and verb grades. The five Choctaw verb grades are discussed in chapter 6. Valence-determining affixes—the active, medio-passive, and causative affixes—determine the number of arguments a verb takes. The valence-determining affixes of Choctaw are the active suffix -li, the medio-passive suffix -a, the medio-passive infix -l-, and the causative suffix -chi. The active and medio-passive affixes are attached to verb roots, which in most cases cannot occur without such affixes. These affixes are described in section 5.2. The causative suffix is attached to verb stems, which in most cases can occur without the causative suffix. This affix is described in section 5.3. The rules involved in the derivation of verb stems are discussed in section 5.4.
5.2. Active and Medio-Passive Affixes

There are many pairs of verbs in Choctaw differing in the presence or absence of active or medio-passive affixes. In a pair of this type, the verb containing either of the medio-passive affixes and/or lacking the active suffix will be called a v1, and the verb containing the active suffix and/or lacking either of the medio-passive affixes will be called a v2 (Munro and Willmond 1984a). The v2 typically takes one more argument than the v1.²

Verb pairs of this sort may differ formally in several ways. In the vast majority of verb pairs, the v1 contains the medio-passive suffix -a, and the v2 contains the active suffix -li:

(1) bashah 'to be cut'
bashlih 'to cut'

In many cases, the v1 contains the medio-passive infix -1- as well as the medio-passive suffix -a, and the v2 contains the active suffix -li:

(2) alwashah 'to be fried'
avashlih 'to fry'

A number of verb pairs are distinguished only by the presence of the medio-passive infix -1- in the v1:

(3) almoh 'to be mowed'
amoh 'to mow'

In two known cases, the v1 contains the medio-passive
infix -l- while the v2 contains the active suffix -li:

(4) alhtoh 'to be contained'
atolih 'to contain'

Two more verb pairs are distinguished only by the presence of the medio-passive suffix -a in the v1 (cf. section 5.2.2.):

(5) kochchi-a-h → kochchah 'to be out'
kochchi-h 'to take out'

Finally, one verb pair is distinguished only by the presence of the active suffix -li in the v2: ³

(6) hofátīh 'to grow up'
hofátīlīh 'to rear'

There are no clear examples of verb pairs in which the v1 contains both medio-passive affixes but the v2 does not contain the active suffix. ⁴

The semantic relation between a v1 and the corresponding v2 is sometimes active/passive (like 'to cut' and 'to be cut'), and sometimes active/middle (like transitive and intransitive 'to open'). Most commonly, the v1 is an intransitive verb taking accusative agreement with its subject, and the v2 is a transitive verb taking accusative agreement with its object (corresponding to the subject of the v1) and nominative agreement with its subject (the agent, not expressed with the v1):

(7) Sa-basha-h 'I got cut'
1sAcc-bē:cut-v

(8) Is-sa-bashli-h 'You cut me'
2Nom-1sAcc-cut-v
Not all verb pairs follow this pattern, however.

In at least one Choctaw verb pair, both the v1 and the v2 are intransitive:

(9) lhakof-a-h 'to come off (e.g. of a scab)'
    lhakof-li-h → lhakoffih 'to heal (intr)'

There are other such pairs in Chickasaw.

In a few cases, the v1 takes nominative agreement and the v2 takes nominative and accusative agreement:

(10) Wakaya-li-h 'I stood up'
    rise-1sNom-v

(11) Chi-wakeeli-li-h 'I lifted you up'
    2Acc-raise-1sNom-v

In a few cases, the v1 takes dative agreement, and the v2 takes nominative and dative agreement:

(12) Waak-at i-chowa-t taha-h
    cow-su Dat-Be:branded-ss finish-v
    'The cattle are branded'

(13) Waak i-choli-li-h
    cow Dat-Brand-1sNom-v
    'I branded the cattle'

The medio-passive suffix -a is discussed in section 5.2.1., the active suffix -li in section 5.2.2., and the medio-passive infix -1- in section 5.2.3. A list of v1/v2 pairs is given in appendix 4.

5.2.1. The Medio-Passive Suffix -a

The medio-passive suffix -a is the reflex of the intransitive (or medio-passive) Pre-Proto-Muskogean
auxiliary and Proto-Muskogean classifying suffix *ka (Haas 1946, 1977; Booker 1980). It is attached to verb roots in the derivation of v1's. After consonants, it surfaces unchanged from its underlying form:

(14)    kol-a-h    'to be dug'    (v2 kollih)
yok-a-h    'to be caught'    (v2 hoklih)
pas-a-h    'to be sliced'    (v2 paslih)
bash-a-h    'to be cut'    (v2 bashlih)
pih-a-h    'to be shoveled'    (v2 pihlih)
yoshob-a-h    'to be lost'    (v2 yoshobbih)
kobaf-a-h    'to break (intr)'    (v2 kobaffih)
fam-a-h    'to be whipped'    (v2 fammih)
pan-a-h    'to be braided'    (v2 pannihih)
tiw-a-h    'to open (intr)'    (v2 tiwwih)
nalh-a-h    'to be shot'    (v2 nalhlih)
tap-a-h    'to be cut off'    (v2 tablih)
palhat-a-h    'to be split'    (v2 palhalih)
kachay-a-h    'to be cut'    (v2 kachiilih)

A root-final short vowel is deleted before the medio-

passive suffix:

(15)    bili-a-h    --> bilah    'to melt (intr)'    (v2 bililih)
shili-a-h    --> shilah    'to dry (intr)'    (v2 shiliilih)
pala-a-h    --> palah    'to shine (intr)'    (v2 palalih)
lacha-a-h    --> lachah    'to get wet (intr)'    (v2 lachalih)
yokopo-a-h    --> yokopah    'to stop'    (v2 yokopolilih)
a,1,tko-a-h    --> alhtokah    'to be elected'    (v2 atokolih)

A glide is inserted between a root-final long vowel and the medio-passive suffix. The glide is /w/ after /oo/, and /y/ after /ii/ and /aa/:

(16)    boó-a-h    --> bóowah    'to be hit'    (v2 bóolihih)
shoo-a-h    --> shoowah    'to be hugged'    (v2 shooolihih)
chii-a-h --> chiiyah 'to sit (dual)'
    (v2 chiilih)
lhaa-a-h --> lhaayah 'to be poured'
    (v2 lhaalih)
tala-a-h --> talaayah 'to set'
    (v2 talaalih)

In Mississippi Choctaw of Oklahoma, the inserted glide may be [y] even after a rounded vowel:

(17) booyah ~ bo'yah 'to be beaten' (MCO)

There is sometimes variation between [w] and [y]:

(18) tobi-basóoya' ~ tobi-basóowa' 'speckled peas, pinto beans' (MCO)

I do not have enough data on this dialect to determine whether the insertion of [w] versus [y] is governed lexically, idiolectally, or otherwise. Note, however, that Mississippi Choctaw of Oklahoma does not have [y] corresponding to Oklahoma Choctaw [w] where the latter is clearly part of the underlying form. For example, the verb 'to be beaten' (15, 16) may be contrasted with:

(19) kow-a-h --> kowah 'to break (intr)' (OK, MCO)

The underlying /w/ in (18), evidenced by a short vowel in the v1 but a long vowel in the v2 (koolih in both dialects), surfaces as [w] in both dialects. Compare also:

(20) kowi' 'mountain lion' (OK, MCO)
    kowi' 'cat' (Cs)
    kowi 'mountain lion' (Alabama, Coushatta)

(21) fowi' 'bee' (OK)
    foyi' 'bee' (MCO)
    fohi' 'bee' (Cs)
    foho 'bee' (Alabama, Koasati)
(The Chickasaw, Alabama, and Koasati/Coushatta forms cited here are from Munro (1985b).) The word for 'mountain lion' contains an historical /w/, as indicated by the cognate forms. It duly survives in Mississippi Choctaw of Oklahoma as [w]. The word for 'bee', on the other hand, must be reconstructed with *h, which has been lost (in this word and some others) in Choctaw (Booker 1980:16, Costa 1984). Here a glide was inserted between the two adjacent vowels, but the identity of the glide varies between the two Choctaw dialects.

There are also examples of v1's ending in /owa/ with v2's ending in /oli/, e.g. kookowah/kookolah 'to break (pl)'. In such words, a short /o/ appears to be acting like a long /oo/ in resisting deletion and then triggering glide insertion. All such words are plural, ending in the suffix Nicklas (1972:58) identifies as -oh. Nicklas states that the /h/ of the plural suffix typically becomes /w/ before the medio-passive suffix:

(22) apoot-oh-a-h --> apootowah 'to lie beside (pl)'  
    (v2 apootolah)  
kow-k-oh-a-h --> kookowah 'to break (pl)'  
    (v2 kookolah)6  
tap-t-oh-a-h --> taptowah 'to be cut off (pl)'  
    (v2 taptolah)

However, the /h/ is sometimes retained:

(23) tal-oh-a-h --> talohah 'to be placed (pl)'  
    (v2 taloholah)  
fak-oh-a-h --> fakohah 'to peel off (pl)'  
    (v2 fakolah)

Nicklas does not discuss the behavior of the /h/ of the
plural suffix when it precedes the active suffix. The examples above show that it is frequently lost there as well, generally in the same cases where it is lost in the v1. Since these forms contain an underlying /h/ before the medio-passive suffix, the correct forms can be derived with a lexically triggered rule deleting the /h/ of the plural suffix, ordered after the simplification of vowel clusters but before the insertion of glides.\textsuperscript{7}

There are two verb roots that Nicklas (1972:107f) analyzes as containing a nasal consonant followed by a glide:

(24) a,l,chónw-a-h $\rightarrow$ ahchówah 'to be sewn' (v2 acholih)
chány-a-h $\rightarrow$ cháyah 'to be chopped' (v1 châyah)

The glide is necessary in the underlying form to ensure that the vowel in the root undergoes Nasalization. If, for example, the root meaning 'chop' ended simply in a nasal consonant, the verbs would surface as chanah, channah or chamah, chammih. (Cf. panah, pannah; famah, fammih in (13) above.)

However, Nicklas points out that the nasal consonant might be infixed after suffixation of -li or -a. In that case, the roots would be, according to Nicklas, achow- and chay-, or, assuming glide epenthesis in v1's rather than glide deletion in v2's, achoo- and chaa-. In fact, the nasal vowels in these verbs are accented, as one would

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expect if they were n-grades (cf. section 6.3.) of the non-occurring *acholih, *ahchowah, *chayah, *chalih.

Nevertheless, they should not be analyzed as n-grades. Semantically, they do not fall into any of the categories marked by the n-grade. They do not denote a state as opposed to a change of state, nor a continuous action, nor a standardless comparative.

Moreover, they do not behave like grades with respect to further grade formation. These verbs can occur in other grades, which retain the nasal vowel:

(25) āchólīh (h-grade)
    āch Chíl (g-grade)

(26) cháhlīh (h-grade)
    chāyvalih (y-grade)

As noted in section 6.7.6., the accent of a grade supercedes the lexical accent of a verb. Once the lexical accent has been lost, these grades are formed just like the grades of a verb with an unaccented nasalized changing vowel, such as chopah 'to buy':

(27) chóhpah (h-grade)
    chóyypah (y-grade)

Contrast the behavior of a verb that very clearly occurs only in grades:

(28) ášah 'to be located'
    áyyashah 'to reside (pl)'
    *ashah, *aashah

The verb *ashah (or *aashah) occurs only in the n-grade or the y-grade. But notice that the n-grade does not
contain the /yy/ of the y-grade, nor does the y-grade contain the nasal vowel of the n-grade. Here the grades are independently derived from the non-surfacing base form.

The nasal vowel is retained in grades of chálih, on the other hand, because it is not an n-grade at all. The derivation of grades of verbs with nasalized changing vowels requires that Nasalization not have applied at the time of grade formation (cf. section 6.7.1.). Chopah can undergo grade formation because morpheme-internal Nasalization is done at the word level, after grades have been formed. On the other hand, the nasal infix of the n-grade must undergo cyclic Nasalization. Thus, if chálih were an n-grade, it would have to undergo Nasalization immediately, thereby blocking correct infixation of further grades.

Note, however, that the Chickasaw cognates of the verbs in question contain a glottal stop:

(29) cha'a 'to be pounded' (Cs)
    alhecho'wa 'to be sewn' (Cs)

Wittenstein (1983b) and Costa (1984) suggest that these roots contain a glottal stop in Choctaw as well, and that this glottal stop is realized as a semivowel in the v1's. They derive the v1 cháyah 'to be chopped' from the root cha- by the rule converting intervocalic glottal stop to [y] (cf. section 4.4.). However, there are two arguments
against this analysis. First, the [w] in the v1 ahchowah
cannot be accounted for by this mechanism. Elsewhere, an
intervocalic glottal stop is realized as [y] regardless of
the roundness of the preceding vowel. But here the
semivowel agrees with the preceding vowel in roundness.
Second, in Mississippi Choctaw of Oklahoma, where
preconsonantal glottal stops may remain, the semivowel
appears as well:

(30)  chá'yah 'to be chopped' (MCO)
       ahchô'wah 'to be sewn' (MCO)

Similarly, the semivowel appears in Chickasaw alhcho'wa.9
Thus, the semivowel cannot be the realization of the
glottal stop.

On the other hand, these forms can easily be
accounted for by allowing the rule inserting glides
between vowels to apply after glottal stops as well.10
After glide insertion, the glottal stops are in
preconsonantal position, and thus will be subject to the
Oklahoma Choctaw rule converting glottal stop to vowel
length. Since the vowel is already long, no trace of the
glottal stop remains in the Oklahoma Choctaw forms.

There is evidence internal to Oklahoma Choctaw for
root-final glottal stop only where it follows a nasal
vowel. However, cross-dialectal comparisons suggest that
some roots that might otherwise be analyzed as ending in
long vowels could be analyzed as ending in glottal stops.
For example, bo'wah 'to be beaten' could be derived in either of two ways:

(31)  bo'o-a-h --> bo'wah
(32)  bo'-a-h --> bo'wah --> boowah

Looking only at Oklahoma Choctaw, one would choose the less abstract analysis in (30). However, in Chickasaw, where preconsonantal glottal stops are retained, the form found is bo'wa (Munro and Willmond 1984b), and in Mississippi Choctaw of Oklahoma, where preconsonantal glottal stops may be retained and the glide insertion rule may insert [y] regardless of the preceding vowel, the form found is bo'yah or booyah. Thus, the opposition between short oral vowels followed by glottal stops, on the one hand, and long vowels, on the other, has been neutralized in Oklahoma Choctaw, in root-final position as elsewhere, but retained in Chickasaw and in Mississippi Choctaw of Oklahoma.

At least one vi retains the /k/ of the Proto-Muskogean medio-passive auxiliary *ka:

(33) yamas-ka-h 'to be kneaded' (v2 yamasliih)

Booker (1980:188ff) discusses other Choctaw retentions of this /k/, typically in the plural stem ending -ka-chi.
5.2.2. The Active Suffix -li

The active suffix -li is the reflex of the transitive (or active) Pre-Proto-Muskogean auxiliary and Proto-Muskogean classifying suffix *li (Haas 1946, 1977; Booker 1980). It is attached to verb roots in the derivation of v2's. After vowels, /l/, /k/, and the fricatives /s, sh, h/, the suffix surfaces unchanged from its underlying form:

\[(34) \quad \begin{align*}
\text{lhaa-li-h} & \quad \text{'to pour'} & (v1\ lhaayah) \\
\text{bili-li-h} & \quad \text{'to melt (tr)'} & (v1\ bilah) \\
\text{shoo-li-h} & \quad \text{'to hug, carry'} & (v1\ shoowah) \\
\text{kol-li-h} & \quad \text{'to dig'} & (v1\ kolah) \\
\text{hok-li-h} & \quad \text{'to catch'} & (v1\ yokah) \\
\text{pas-li-h} & \quad \text{'to slice'} & (v1\ pasah) \\
\text{bash-li-h} & \quad \text{'to cut'} & (v1\ bashah) \\
\text{pih-li-h} & \quad \text{'to shovel'} & (v1\ pihah)
\end{align*}\]

On the other hand, the /l/ assimilates to a preceding /b, f, m, n, w, lh/:

\[(35) \quad \begin{align*}
\text{atob-li-h} & \rightarrow \text{atobbih} & \quad \text{'to pay'} & (v1\ alhtobah) \\
\text{kobaf-li-h} & \rightarrow \text{kobaffih} & \quad \text{'to break'} & (v1\ kobafah) \\
\text{fam-li-h} & \rightarrow \text{fammih} & \quad \text{'to whip'} & (v1\ famah) \\
\text{pan-li-h} & \rightarrow \text{pannih} & \quad \text{'to braid'} & (v1\ panah) \\
\text{tiw-li-h} & \rightarrow \text{tiwih} & \quad \text{'to open'} & (v1\ tiwah) \\
\text{nahli-li-h} & \rightarrow \text{nahlhih} & \quad \text{'to shoot'} & (v1\ nahlah)
\end{align*}\]

It is such words that Stemberger (1981:810) has in mind when he speaks of an -i causative suffix that causes gemination of the root-final consonant.\textsuperscript{12} He proceeds to make an argument for morphological haplology based on the failure of the alleged -i suffix to follow consonant clusters, in contrast with its occurrence after (root-internal) geminates. However, he totally ignores the fact
that it fails to follow voiceless stops, fricatives other than /f/, vowels, or /y/, where -li occurs instead. Clearly what is involved here is assimilation of /l/ to a certain set of consonants. The characterization of the consonants triggering assimilation of a following /l/ is discussed in section 5.4.

The assimilation of /l/ to a preceding /b/, though obligatory for Mrs. Wade, is optional for other speakers of a number of Western Muskogean dialects. Aaron Broadwell (personal communication) reports two verbs in Mississippi Choctaw in which the assimilation of /l/ to a preceding /b/ is optional:

(36) atoblih - atobbih 'to pay'
    ittahoblih - ittahobbih 'to gather'

Similarly, Byington (1915) lists both ittahobbih and ittahoblih (CB: itahobi, itahobli), as well as both yoshobbih and yoshoblih (CB: yoshobbi, yoshobli) 'to lead out of the way'. Munro & Will mond (1984b) lists only yoshobli, and not yoshobbi, for Chickasaw.

The unassimilated forms may be conservative, indicating that /l/ assimilated first to voiced sonorants (other than /y/), and that the rule was later sporadically generalized, so that /l/ assimilated, less regularly, to voiced obstruents, i.e. to /b/.

On the other hand, the unassimilated forms may be innovative. There are only a small number of roots ending in /b/ to undergo
assimilation, so the rule might easily be forgotten. Moreover, /bl/ clusters are independently attested—in the same morphological environment, even—from assimilation of root-final /p/ (see below). After other consonants, failure to assimilate the /l/ as expected would result in a cluster unattested elsewhere in Choctaw. Clusters of /ml/ and /nl/ arise but are subject to the rule of Nasalization, except that /nl/ clusters do occur in the n-grade of verbs with geminate /ll/ (cf. section 6.7.2.). Clusters of /fl/, /wl/, and /hl/ do not arise elsewhere. Thus, the assimilation rule would have been less likely to be lost in these clusters.

Root-final /p/ assimilates in voicing to -li:
(37) tap-li-h --> tablih 'to cut off' (vI tapah)
Some speakers do not always apply this rule, occasionally pronouncing /pl/ as [pl]. Non-assimilation is apparently a conservative pronunciation: it appears more frequently in Byington (1915) than in contemporary Choctaw.

Root-final /t/ assimilates totally to -li:
(38) palhat-li-h --> palhallih 'to split (tr)' (vI palhahah)
In fact, many speakers have [dl] instead of [ll], from underlying /ll/ as well as from underlying /tl/.

In Mrs. Wade's idiolect, there are apparently no examples of the active suffix following /ch/. However, in Chickasaw and in Byington (1915) there is one:
(39) lhaboch-li-h --> lhaboshlih 'to boil (tr)'  
    (v1 lhabochah)

The change of /ch/ to /sh/ before a consonant is quite productive in Chickasaw, and there are a few examples of this change elsewhere in Choctaw (cf. section 5.4.).

There are two v2's that Nicklas (1972:54) analyses as containing -li suffixed to roots ending in a geminate consonant:

(40) fokk-li-h --> fokkih 'to put in'  
    (v1 fokkah)

kochch-li-h --> kochchih 'to take out'  
    (v1 kochchah)

According to Nicklas's analysis, /l/ is lost after a geminate consonant. However, the roots might be analyzed as fokki- and kochchi-. Under this analysis, the v2's contain no suffix, while the final /a/ of the v1's is the medio-passive suffix, before which the root-final /i/ has been deleted (cf. section 5.2.1.).

These two verb pairs are peculiar according to either analysis. On the one hand, Nicklas's account makes these the only two verb roots ending in a geminate. On the other hand, I know of no other v1/v2 pairs differing only in the presence or absence of the medio-passive suffix: all other pairs involve either the active suffix or the medio-passive infix, or both. Since the second analysis requires no additional phonological rules beyond those independently motivated, I will adopt it here.

Nicklas (1972:107) says that a preconsonantal glide
will be realized as length on the preceding vowel, with the exception of /iw/ sequences. However, he gives no examples of the other non-homorganic vowel plus glide sequences, i.e. of /oy/ becoming /oo/ or /aw/ becoming /aa/. Wittenstein (1983b:28) cites one example of /aw/ not becoming /aa/, but triggering assimilation of the following /l/:

(41) law-li-h --> lawwih 'to be as much'  
    (v1 lawah 'to be a lot')

Thus, /w/ is realized pre-consonantally as length on the preceding vowel only if that vowel is /o/, as in:

(42) kow-li-h --> koolih 'to break'  (v1 kowah)

I know of one exception, where /ow/ remains and triggers assimilation: at least one speaker of Chickasaw uses the English borrowing howwih 'to hoe', with the v1 howah.

Contrary to Nicklas's claims, root-final /ay/ becomes [ee] or [ii] before the active suffix:

(43) kachay-li-h --> kachiilih 'to cut'  (v1 kachayah)
    wakay-li-h --> wakeelih 'to raise'  (v1 wakayah)

In fact, Nicklas (1972:56) speculates that wakeelih (TDN: wakilil) might come from underlying wakay-li-h. But the rules he gives predict that the v2 of wakayah should be *wakaalilih. The one example Nicklas (1972:109) cites is:

(44) talay-li-h --> talaalih 'to set'  (v1 talayah)  
    (TDN: talāli, talaya)

However, such forms can be better handled with epenthesis
of glides in the v1 (cf. section 5.2.1. above), rather
than deletion of glides in the v2:

(45) talaa-li-h 'to set' (v1 talaayyah)

In my data, the second vowel is long in the v1 as well as
the v2.\(^{15}\) I know of no cases of preconsonantal /oy/.

Nicklas (1972:109) cites one example of /iy/ becoming
/iːi/ preconsonantly:

(46) lhipiy-li-h --> lhipiilih 'to lay prone' (v1 lhipiayah)
    (TDN: lhipīli, lhipiya)

In my own data, the second vowel is short in the v2,
making its derivation problematical (cf. appendix 4). An
example not cited by Nicklas involves an unattested form:

(47) iy-a-h --> iyah 'to go'
    iy-li-h --> iliilh (unattested)

The putative v2 iliilh can be inferred from two other
forms, iiichih and iiit. (Cf. section 7.4.3. for further
discussion.) Thus, /iy/ behaves as /ow/ does. That is, a
preconsonantal glide remains when it differs in rounding
from the preceding vowel (aw, iw, and possibly the
unattested oy), but combines with a preceding vowel
agreeing in rounding (ay, iy, ow) to give a long vowel.
In the case of /ay/, the resulting long vowel may be
either [ii] or [ee].

There are two verb roots that Nicklas (1972:107f)
analyzes as containing a nasal consonant followed by a
glide:
(48)  achiowlih --> achiolih 'to sew' (v1 achiowah)
      chanylih --> chafih 'to chop' (v1 chayah)

According to Nicklas, a glide is deleted between two consonants, though that rule is motivated only by these two forms (and a few similar forms not mentioned by Nicklas; cf. appendix 4.). As discussed in section 5.2.1., these forms can be better accounted for by positing roots ending in glottal stop:

(49)  achinlih --> acholih
      chuNlih --> chafih

The rules of Nasalization and Glottal Stop Deletion, both independently motivated, then derive the correct forms.

5.2.3. The Medio-Passive Infix -l-

The medio-passive infix -l- is inserted in verb stems in the derivation of v1's. It is placed after the first vowel of the stem. Before a single voiced consonant other than /n/, it remains unchanged:

(50)  a,1,banih    'to be barbecued' (v2 abanih)
      a,1,mo-h    'to be mown' (v2 amoh)
      a,1,wash-a-h 'to be fried' (v2 awashlih)
      ho,1,io-h   'to be on (of stockings)' (v2 holoh)

The medio-passive infix assimilates totally to a following /n/:

(51)  a,1,noo-a-h --> annoowah 'to be told'
      ho,1,ni-h   --> honnih 'to be boiled'

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Because the medio-passive infix is much less frequent than the active and medio-passive suffixes, this assimilation process, though exceptionless, is attested in only four cases (cf. appendix 4.). Consequently, the v1/v2 relationship is somewhat opaque. For example, honnih looks like a v2, from the putative root *hon-. In one case, reanalysis has taken place:

(52)  
\[
\text{tana-h} \rightarrow \text{tanah} \quad \text{to weave} \quad \text{(CB: tvna)} \\
\text{ta,1,na-h} \rightarrow \text{tannah} \quad \text{to be woven} \quad \text{(CB: tvnna)}
\]

(53)  
\[
\text{tan-a-h} \rightarrow \text{tannah} \quad \text{to be woven} \\
\text{tan-li-h} \rightarrow \text{tannah} \quad \text{to weave}
\]

The old v2 tanah in (51) does not contain the active suffix, but is marked as a v2 only by the absence of the medio-passive infix. It has been reanalyzed as a v1 containing the medio-passive suffix (52). A new v2 is then created by replacement of the medio-passive suffix with the active suffix. Byington (1915) lists only the pair in (51), while Mrs. Wade uses the pair in (52), although she also accepts the pair in (51).

The medio-passive infix assimilates in voicing to a following voiceless consonant:

(54)  
\[
\text{a,1,foh-a-h} \rightarrow \text{alhfohah} \quad \text{to be wrapped} \\
\text{(v2 afohligh)} \\
\text{a,1,kam-a-h} \rightarrow \text{alhkamah} \quad \text{to close (intr)} \\
\text{(v2 akamnigh)} \\
\text{a,1,posh-a-h} \rightarrow \text{alhposhah} \quad \text{to be grilled} \\
\text{(v2 aposhligh)} \\
\text{a,1,tob-a-h} \rightarrow \text{alhtobah} \quad \text{to be paid} \\
\text{(v2 atobbih)}
\]

Voicing is contrastive in laterals only preconsonantally.

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Before /h/ and /ch/, the medio-passive infix becomes

/h/:  

\begin{align*}
(55) \text{ a,1,ham-a-h } & \rightarrow \text{ ahhamah} \quad \text{'to be smeared'} \\
& \text{ (v2 ahhammih)} \\
\text{ a,1,chifa-h } & \rightarrow \text{ ahchifah} \quad \text{'to be washed'} \\
& \text{ (v2 achifah)}
\end{align*}

In normal speech, /hch/ becomes /shch/, but the /h/ is retained in slow speech. In Chickasaw, the medio-passive appears as /lh/ before /ch/: alchifida. I know of no examples of the medio-passive infix before /h/ in Chickasaw.

According to Nicklas (1972:130; 1975:245), /lh/ becomes /h/ before /f/, /lh/, /s/, and /sh/ as well. However, Mrs. Wade retains /lh/ before /f/ in alhfabika' 'left', and Byington (1915) lists a number of words with /lhf/ (cf. appendix 4), although others assimilate to geminate /ff/. Nicklas gives no examples of the medio-passive infix preceding /lh/, /s/, or /sh/, and I know of no such forms.¹⁸

When the medio-passive infix precedes a consonant cluster, a copy of the previous vowel is inserted after the infix, which remains voiced. The /l/ is usually geminated in Oklahoma Choctaw:

\begin{align*}
(56) \text{ ta,1,kchi-h } & \rightarrow \text{ tallakchih} \quad \text{'to be tied'} \\
& \text{ (v2 takchih)} \\
\text{ ho,1,ppi-h } & \rightarrow \text{ holloppih} \quad \text{'to be buried'} \\
& \text{ (v2 hoppih)}
\end{align*}

In Chickasaw, there is often a single /l/, e.g. in talakchi.
The medio-passive infix occurs almost exclusively after /a/ and /ho/, suggesting that these are perhaps segmentable morphemes. There are, in fact, a number of sets of verbs differing in the presence or absence of a- or ho-, e.g.:

(57) pilah 'to send'
apilah 'to help'
hopilah 'to distribute'

(58) tahlilh 'to finish'
atahlilh 'to complete'

(59) apoksiyah 'to fix'
hopoksiyah 'to be wise, sober'

(60) taklamah 'to be bothered'
ataklamah 'to be bothered'

However, there is no consistent meaning associated with the putative a- and ho- prefixes. Nor do all words containing the medio-passive -l- after a- or ho- have counterparts without a- or ho-.

There are two morphosyntactic arguments for the segmentability of these prefixes, in spite of their apparent meaninglessness. First, if a- and ho- are recognized as prefixes, then the medio-passive l- can also be analyzed as a prefix. Such an analysis has the benefit of leaving the homogeneous set of grade infixes as the only infixes in Choctaw.

Second, in Chickasaw accusative prefixes (cf. section 7.2.2.) follow a stem-initial /a/:

(61) Apila 'He helped her' (Cs)
A,sA,pila 'He helped me' (Cs)
Accusative prefixes follow stem-initial /a/ even where there is nothing else to suggest that the a- is segmentable. On the other hand, accusative prefixes do not follow stem-initial /ho/, even in cases where there is evidence that the ho- might conceivably be segmentable.

The few occurrences of the medio-passive infix not after /a/ and /ho/ may be the result of the reanalysis of the medio-passive prefix as an infix after a- and ho- had ceased to be productive prefixes (but before the medio-passive prefix ceased to be productive), or they may follow other erstwhile prefixes.

5.3. The Causative Suffix -chi

The causative suffix -chi is the reflex of the Proto-Muskogean causative auxiliary *chi (Booker 1980:198ff). Unlike the active and medio-passive suffixes, which are affixed to verb roots that cannot occur independently, the causative suffix is usually affixed to verbs stems that can occur independently:

(62) Hilha-h 'He danced'
dance-v

(63) Hilha-chi-h 'She made him dance'
dance-caus-v

A verb with the causative suffix takes all the arguments of the corresponding non-causative verb, plus a causer determining nominative agreement:
(64) Sa-nokháklo-h 'I'm sad'
    1sAcc-sad-v

(65) Is-sa-nokháklo-chi-h 'You made me sad'
    2Nom-1sAcc-sad-caus-v

If the subject of the non-causative verb determines
nominative agreement, the causee of the corresponding
causative verb will determine accusative agreement:

(66) Talowa-li-h 'I sang'
    sing-1sNom-v

(67) Sa-talowa-chi-h 'He made me sing'
    1sAcc-sing-caus-v

Other arguments of the non-causative verb will
determine the same type of agreement in the causative
verb:

(68) Sa-fammi-h 'He whipped me'
    1sAcc-whip-v

(69) Is-sa-fammi-chi-h 'You made him whip me'
    2Nom-1sAcc-whip-caus-v

(70) Pim-ahaksi-h 'We forgot'
    1pDat-forget-v

(71) Ish-pim-ahaksi-chi-h 'You made us forget'
    2Nom-1pDat-forget-caus-v

Verbs taking accusative agreement with objects provide a
problem in the causative when both causee and object are
non-third-person. It is not normally possible to have two
overt accusative agreement prefixes on the same verb
(unless one is part of an oblique agreement complex; cf.
section 7.3.), so such sentences must be expressed using a
different construction.

When asked for a sentence that would require two

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accusative prefixes on a causative verb, speakers do one of four things. The first is simply to say, "We can't say that in our language". The second is to give a complex sentence, with a verb such as 'say' or 'hire' in the higher clause and a non-causative verb in the lower clause:

(72)  Josephine-at sa-tohno-na-h
      J.-su  lsAcc-hire:'-sbr:ds-v
      Pam okchali-li-tok
      P.  wake-1sNom-pt
      'Josephine made me wake Pam up'
      (lit. 'Josephine hired me and I woke Pam up')

The third option is to ignore the constraint and put two accusative prefixes on the same verb:

(73)  ??Lynn-at sa-chi-haabli-chi-tok
      L.-su  lsAcc-2Acc-kick-caus-pt
      'Lynn made me kick you'

It is this option that is reported in Davies (1981a:appendix A). In my own experience, I have never heard this construction without hesitation or other suggestion that it is actually ungrammatical.

The fourth option, which I have heard only from Mrs. Wade, though on a number of occasions, is to combine causative and benefactive morphology:

(74)  ?Lynn-at imi-chi-haabli-chi-li-h
      L.-su  Beñ-2Acc-kick-caus-1sNom-v
      'Lynn made me kick you'

Sentence (74) resembles a blend of sentences (75) and (76), with the agreement of (75), but the causative marking of (76):

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(75)  Lynn imi-chi-haabli-li-h
L. Ben-2Acc-kick-1sNom-v
'I kicked Lynn for you'

(76)  Lynn-at chi-haabli-chi-h
L.-at 2Acc-kick-caus-v
'Lynn made him kick you'

If an independent first person pronoun is added to
sentence (74), it is marked as a non-subject:

(77)  ?Lynn-at anaako imi-chi-haabli-chi-li-h
L.-su me Ben-2Acc-kick-caus-1sNom-v
'Lynn made me kick you'

The case-marking, the causative suffix, and the English
gloss all suggest that the argument triggering benefactive
agreement is the subject, and the argument triggering
nominative agreement is a non-subject. Equi-NP deletion
or switch-reference would give further evidence, but I
have not succeeded in eliciting this construction in a
complex sentence. In any case, I suspect that it is not
really grammatical.

There are a few examples of the causative suffix
deriving a verb from a nominal root:

(78)  níhi' 'seed'
nihichih 'to gin (cotton)'

(79)  hawi' 'prostitute'
hawichih 'to lead into a life of prostitution'

(80)  fonih 'bone'
fonichih 'to bone'

The existence of verbs ?nihih, ?hawih, ?fonih is
questionable.
5.4. Rules Involved in the Derivation of Verb Stems

The morphological rules involved in the Choctaw valence system are straightforward. The active suffix -li, the medio-passive suffix -a, the medio-passive infix -l-, and the causative suffix -chi are all added at Level One. The first three always precede grade formation (cf. chapter 6.), while the causative suffix may precede or follow it.

The phonological rules that apply in the derivation of verb stems are A-Raising, Glide Deletion, E-Raising, Progressive L-Assimilation, Regressive L-Assimilation, L-Voicing Assimilation, Vowel Epenthesis, Stop Voicing Assimilation, D-Assimilation, CH-Spirantization, Short Vowel Deletion, and Glide Insertion.

Before the active suffix, /ay/ becomes /ee/ or /ii/, as in wakay-li-h \(\rightarrow\) wakeelih 'to lift' and kachay-li-h \(\rightarrow\) kachiilih 'to cut'. This change involves three rules: A-Raising and Glide Deletion (followed by compensatory lengthening), and E-Raising. A-Raising changes /a/ to /e/ before a tautosyllabic /y/:

\[
\begin{array}{c}
\text{(81) A-Raising} \\
R \\
\text{V} \\
\text{C} \\
\end{array}
\]

\[
\begin{array}{c}
\text{[+low]} \rightarrow \begin{bmatrix} \text{-low} \\ \text{-back} \end{bmatrix} / \text{consonantal} \text{-round} \\
\end{array}
\]

This rule also derives the final /ee/ of words such as
yakkokee 'thank you', from underlying /yakkookay/. It does not apply to the locative clitic aay-. The rule as formulated above is blocked by the Linking Constraint from applying to a long /aa/. A similar rule applies in y-grades (cf. section 6.5.).

A-Raising precedes Glide Deletion, in a counter-bleeding relationship. Glide Deletion deletes a glide after a tautosyllabic vowel agreeing in roundness:

(82) Glide Deletion

\[
\begin{array}{c}
\text{[-consonantal]} \\
\text{[\*round]}
\end{array}
\rightarrow \emptyset / \quad \begin{array}{c}
\text{R} \\
\text{V} \\
\text{C}
\end{array}
\]

This rule applies in v2's from roots ending in /ay/, /iy/, and /ow/. It does not apply to /aw/ or /iw/ (e.g. in lawwi, tiwwi; root-final /oy/ is unattested), nor when the vowel and glide are heterosyllabic (e.g. in the v1's wakayah, iyah, kowah). It is blocked by the Linking Convention in the geminate /yy/ of the y-grade (cf. section 6.7.4.).

Steriade (1982) shows that, in Greek, compensatory lengthening results whenever a consonant is deleted from the rime of a syllable (cf. section 2.2.). She suggests (p. 113) that the Greek rule spreading the melody of the nuclear vowel into an empty C-slot in the rime may actually be a universal convention. In Choctaw, Glide Deletion applies to a consonant syllabified as part of the
rime, and it is followed by compensatory lengthening:

(83) 6 6 6  
/// ||  
OROR OR  
\\\\\  
CVCVCCV  
\\\\  
wake\li

6 6 6  (Glide Deletion)  
/// ||  
OROR OR  
\\\\\  
CVCVCCV  
\\\\  
wake 11

6 6 6  (Compensatory Lengthening)  
/// ||  
OROR OR  
\\\\\  
CVCVCCV  
\\\\  
wake 11

The result, after suffixation of -h, is wake\lih 'to lift'.

E-Raising converts long /ee/ to /ii/:

(84) E-Raising  

V C  
\ /  
[-back] --> [+high] /  

This rule is obligatory with most v2's in /ay/, optional with most other /ee/ sequences. It never applies to short /e/, which occurs in y-grades (cf. section 6.5.)

The Progressive L-Assimilation rule assimilates an /l/ to a preceding /b/, /f/, /l/, /m/, /n/, /v/, and, vacuously, to a preceding /l/. On the other hand, /l/ does not assimilate to a preceding /ch/, /h/, /x/, /p/,
Neither the set of consonants triggering assimilation nor the set of consonants failing to trigger it is a particularly natural class. The consonants triggering Progressive L-Assimilation might be characterized as laterals, /f/, and voiced consonants except for /y/; or as laterals, nasals, and labials except for /p/.25

Synchronically, the rule may be formulated as:

(85)   \[
\begin{array}{c}
\text{Progressive L-Assimilation} \\
C \searrow \searrow \searrow \searrow \searrow \searrow \searrow C \\
\{b/f/w/m/n/lh\} \quad [+\text{voice}] \\
\quad \quad [+\text{lateral}] \\
\end{array}
\]

This rule deletes all melodic features of the /l/ and spreads those of the preceding consonant onto its associated C-slot.

The Progressive L-Assimilation rule must precede the cyclic Nasalization rule (cf. section 3.3.), which converts a preconsonantal sequence of vowel plus nasal into a nasalized vowel. Consider the derivation of the verb fammih 'to whip' from underlying fam-li-h. If Nasalization preceded Progressive L-Assimilation, it would apply to give *falih. Instead, Progressive L-Assimilation precedes Nasalization, which is then blocked by the Linking Constraint (cf. section 3.3.).

There is no evidence that the Progressive L-Assimilation rule applies anywhere other than in the
active suffix. It clearly does not apply when dative or superessive clitics (cf. sections 7.2.3., 7.3.4.) are added to roots beginning with /l/:

(86) \[ \text{im-lashpa-h} \rightarrow \text{lashpah} \quad '\text{He's hot}' \]

*immashpah

Thus, Progressive L-Assimilation is operative at level one, but not at level two, when dative and superessive agreement markers cliticize to the verb.

Progressive L-Assimilation does not apply when the nasal infix of the n-grade (cf. section 6.3.) precedes /l/. This failure may be due to the underspecification of the nasal, or it may indicate a level-ordering distinction between the active suffix and the n-grade (both level one in the present analysis). Alternatively, Progressive L-Assimilation might be specified to apply only to the active suffix.

There are several rules of regressive assimilation. The rule of Regressive L-Assimilation assimilates an /l/ to a following /n/:

(87) Regressive L-Assimilation

\[
\begin{array}{c}
\text{C} \\
[-] \\
\text{[+lateral]} \\
\text{[+nasal]} \\
\text{[+voice]} \\
\text{[+coronal]}
\end{array}
\]

The melodic features of the /l/ are deleted, and the melody of the /n/ is spread into its associated C-slot.

There is no evidence that this rule operates anywhere but in the medio-passive infix. It clearly does not apply

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when the first person plural nominative marker (cf. section 7.2.1.) precedes a root beginning with /n/:

(88)  Il-nowa-h --> Iinowah 'We walked'
      *innowah

In such cases, the 1pNom Allomorphy rule, rather than the Regressive L-Assimilation rule, applies.\(^{26}\) Presumably, Regressive L-Assimilation is simply not applicable at level two, when the first person plural nominative marker is attached, although the same results could be achieved with rule-ordering.

The rule of L-Voicing Assimilation devoices /l/ before a voiceless consonant:

(89)  L-Voicing Assimilation
     [+voice]   [-voice]
     [+lateral]  [ ]

This rule is bled by Vowel Epenthesis, which inserts a vowel between the first and second consonants of a three-consonant cluster:

(90)  Vowel Epenthesis:
     ø --> V / C ___ C C
     [+continuant]

Condition: Some melodic material is stranded.

The epenthetic vowel receives its melody by rightward spreading of the preceding vowel.\(^{27}\) Vowel Epenthesis also applies in the derivation of verb grades. It is discussed further in section 6.7.1.

Vowel Epenthesis bleeds L-Voicing Assimilation, as
shown by words such as tallakchih:

(91)     takchi       'to tie'
talkchi     [Medio-passive]   talakchi   (Vowel Epenthesis)
         ---         (L-Voicing Assimilation)         (Gemination)
tallakchi

(In derivations, morphological operations are enclosed in square brackets, phonological rules in parentheses.) The last step in this derivation is the optional gemination of an /l/ constituting the medio-passive infix, when followed by a vowel. 28

Before /ch/, /l/ becomes /h/:

(92)  [+lateral] --> [+low
              -continuant] / ___ [+strident
              -continuant]

Optionally, /h/--either from /l/ or from underlying /h/--may become /sh/ before /ch/:

(93)  [+continuant]       [-continuant]
      /
     ___ [-coronal
     [+low]    [-anterior]

These two rules require that /ch/ not be treated as an affricate, i.e. as a linked structure of the form:

(94)

If /ch/ were represented as in (94), it would be expected to behave exactly like /t/ with respect to rules operating on the melodic tier (without reference to the skeleton) on its left. However, /l/ does not become /h/ before /t/,

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nor does /h/ become /sh/ before /t/. Instead, /ch/ can be represented as a stop:

(95)  
\[
\begin{array}{c}
\text{+coronal} \\
\text{-anterior} \\
\text{-continuant}
\end{array}
\]

A postcyclic rule applies to convert /ch/ into a phonetic affricate.

The rule of Stop Voicing Assimilation voices a stop before a voiced consonant:

(96)  
\[
\begin{array}{c}
\text{Stop Voicing Assimilation} \\
\text{[-continuant]} \\
\text{[ ]} \\
\text{Supralaryngeal tier}
\end{array}
\]
\[
\begin{array}{c}
\text{[-voice]} \\
\text{[+voice]} \\
\text{Laryngeal tier}
\end{array}
\]

This rule is obligatory only with /tl/. Certain words with /pl/, e.g. nokbiiplih 'to knock the breath out of', appear to be particularly resistant to this rule. This rule must follow Progressive L-Assimilation, to avoid feeding it:

(97)  
\[
tap-li-h \rightarrow \text{tablih} \rightarrow \star\text{tabbih} 'to cut'
\]

Progressive L-Assimilation does not apply to the /b/ derived by Stop Voicing Assimilation in (97).

The two Voicing Assimilation rules might be collapsed into one. However, there are consonant clusters that disagree in voicing. Voiceless fricatives can precede voiced consonants:

(98)  
\[
\begin{array}{ll}
\text{halasbi-h} & 'to be slick' \\
\text{toshbi-h} & 'to be rotten' \\
\text{tohbi-h} & 'to be white' \\
\text{baptismo'} & 'baptism' \\
\text{shnakáya'} & 'moon'
\end{array}
\]
ahni-h        'to like'
chiliswa'    'measles'
ashwa-h      'to reside'
îm-ahwa-h    'to think'

(99)  Ókof-mat    'that persimmon (subject)
Ish-mitiffi-h 'You ripped it'
Ish-yaaya-h   'You cried'
Fâ,h,ma-h     'He just got whipped'
Pas-li-h      'He sliced it'
Bash-li-h     'He cut it'

Other clusters not agreeing in voicing either do not arise, or are resolved by rules other than voicing assimilation: CH-Spirantization (ch1), Progressive L-Assimilation (f1, lhl), and Nasalization (nasals before any voiceless consonant).

Clusters of /h/ or /k/ followed by a voiced consonant may be broken up by an epenthetic vowel, the quality of which ranges between schwa and that of the preceding vowel. Thus, tohbih 'to be white' is usually pronounced [toh⁶bih]. When /k/ precedes a voiced consonant, both epenthesis and assimilation may occur. Thus, oklah 'people' is often pronounced [og⁳lah].

Voicing assimilation, then, applies to stops and laterals, but not to fricatives. In fact, it applies only to voiceless stops and to voiced laterals, due to the non-occurrence of clusters beginning with /b/ or /l/, except as the result of voicing assimilation. While it would certainly be formally possible to collapse the two cases of voicing assimilation, I believe it would be inappropriate to do so. Stop Voicing Assimilation is

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highly variable. There are words that tend to be pronounced with [pl] rather than [bl]. And clusters of /k/ plus a voiced consonant can be resolved by assimilation, epenthesis, both, or neither, even in different utterances of the same word. Assimilation of /l/ to a following voiceless consonant, on the other hand, is obligatory. Thus, I write Stop Voicing Assimilation and L-Voicing Assimilation as separate rules.

As written above, the Stop Voicing Assimilation rule would apply to /ch/, and must therefore be ordered after the rule of CH-Spirantization. The change of /ch/ to /sh/ before a consonant is a productive rule in Chickasaw, fed by a rule deleting unlengthened short vowels between strident consonants and coronal consonants (Munro and Ulrich 1984a). Since Choctaw lacks the Strident Coronal Cluster rule, there are very few morphemes in which this rule applies. Lhaboch- may be the only ch-final verb root. The rule also applies in a number of contracted compounds containing tachi' 'corn' as the first element, e.g. tash-bóta' 'cornmeal'.

CH-Spirantization also applies in final position in the same subject marker -sh (cf. section 1.4.), from underlying -ch. Compare the following switch-reference markers:

(100) -cha (same subject)
- na (different subject)
(101)  -ch --> -sh (same subject)  
       -n --> vowel nasalization (different subject)

The same-subject -ch undergoes CH-Spirantization except where it is prevocalic in -cha.\textsuperscript{30}

CH-Spirantization can be formulated as follows:

\begin{center}
\begin{tikzpicture}[level distance=1.5cm,
  level 1/.style={sibling distance=1.5cm},
  every node/.style={draw},
  level 2/.style={sibling distance=1cm}]

  \node {R}
  child {node {C}
      child {node {\textbf{[+strident] --> [+continuant] /}}}
    };
\end{tikzpicture}
\end{center}

This rule bleeds Stop Voicing Assimilation.

The rule of D-assimilation optionally changes /d1/ (from underlying /tl/) to geminate /ll/:

\begin{center}
\begin{tikzpicture}[level distance=1.5cm,
  level 1/.style={sibling distance=1.5cm},
  every node/.style={draw},
  level 2/.style={sibling distance=1cm}]

  \node {C}
  child {node {C}
      child {node {\textbf{[+coronal] \textbf{[+lateral]}}}
        child {node {\textbf{[-contin]} \textbf{[+voice]}}}
      };
\end{tikzpicture}
\end{center}

Speakers differ with regard to the frequency of application of this rule. Mrs. Wade almost invariably applies it.

The rule of Short Vowel Deletion deletes a short vowel before another vowel:

\begin{center}
\begin{tikzpicture}[level distance=1.5cm,
  level 1/.style={sibling distance=1.5cm},
  every node/.style={draw},
  level 2/.style={sibling distance=1cm}]

  \node {V}
  child {node {\textbf{Ø} / V
        child {node {[ ]}}
      };
\end{tikzpicture}
\end{center}

Only short vowels are deleted in this (or any other) position. The Linking Constraint (Hayes 1984) will prevent the rule as formulated above from deleting the second half of a long vowel and thereby shortening a long

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vowel before another vowel. The Linking Constraint states that association lines indicated in a rule must be exhaustive. That is, in this case, the features associated with the V-slot to be deleted must not be associated with any other skeletal position. The (vacuous) melodic features are specified in the Short Vowel Deletion rule above solely to invoke the Linking Constraint, which would be irrelevant if the rule referred only to the skeletal tier. These melodic features and the Linking Constraint also prevent the rule from deleting the first half of a long vowel in the environment of the second half of the same long vowel.

Short Vowel Deletion is not limited to application before the medio-passive suffix; it also applies before modal suffixes:

(105) Bichi-li-aachi --> Bichilaachi
pour-act-fut
'She will pour it'

Short Vowel Deletion also applies before the negative suffix -o (cf. section 6.6.). On the other hand, accusative prefixes must be marked as exceptions to Short Vowel Deletion (cf. section 7.6.).

Short Vowel Deletion must precede the lexically triggered deletion of the /h/ of the plural suffix -oh. Plural v1's in -oh-a never lose the /o/:

(106) tap-t-oh-a-h --> taptoah --> taptowah
'to be cut (plural)'
*taptah
The deletion of /h/ from the plural suffix feeds the rule of Glide Insertion.

The rule of Glide Insertion breaks up a vowel cluster with a glide agreeing in roundness with the first vowel:

\[
\begin{array}{c}
\emptyset \rightarrow C / V (X) (C) \quad V \\
\text{-cons} \quad \text{\text{-low}} \\
\text{+high} \quad \text{\text{-continuant}}
\end{array}
\]

The roundness of the glide is determined by rightward spreading from the preceding vowel. Thus, verb roots ending in long /ii/ or /aa/ (or /i'/, /i'/, /a'/, or /a'/) have a /y/ inserted before the medio-passive suffix, while verb roots ending in long /oo/ (or /o'/ or /o'/) have a /w/ inserted in the same context.31 Glide Insertion is blocked by Short Vowel Deletion, which deletes short vowels before they can be separated from a following vowel by Glide Insertion. The only short vowels retained in this environment are those that become prevocalic by deletion of the /h/ of the plural suffix. This rule may also apply after locative, ablative, and comitative clitics (cf. section 7.6.).
Notes.

1. That is, most verb roots that can cooccur with active or medio-passive affixes cannot occur without them. There are, on the other hand, a number of verb roots that never cooccur with active or medio-passive affixes, but constitute verb stems by themselves, e.g. ishkoh 'to drink', abih 'to kill'. Many more verb stems end in either /a/ or /li/ but have no counterparts with the other suffix to prove that the /a/ or /li/ is a morpheme rather than simply a non-segmentable part of the verb root, e.g. hilhah 'to dance' (*hilhalih, *hilhlhih), okchamalih 'to be green' (*okchamah, *okchamaayah).

2. In Chickasaw there are a number of verb pairs in which the verbs take the same number of arguments:

   (i) talhofs 'to come loose' (Cs)  
       talhoffi 'to be loose' (Cs)

    Thus, v1 and v2 are defined without reference to valence.

    This purely formal definition occasionally leads to an unfelicitous identification of v1 and v2. For instance, abihah and abihah both mean 'to enter (pl)'. They differ in the presence or absence of the medio-passive infix -l-, and thus could be considered a v1 and v2. As such, they are semantically aberrant in being synonymous. However, these are best seen as alternative v1's of the v2 abihih 'to put in (pl)', differing in whether they contain both medio-passive affixes or simply the medio-passive suffix -a. Taken this way, their synonymy is perfectly normal.

3. Because a root-final short /a/ is deleted before the medio-passive suffix (cf. section 5.2.1.), verb pairs such as okchah/okchalih might involve both -a and -li (i), or just -li (ii):

   (i) okcha-a-h --> okchah 'to wake up (intr)'
       okcha-li-h 'to wake up (tr)'

   (ii) okcha-h
       okcha-li-h

    The presence or absence of the medio-passive suffix is demonstrable only after a root ending otherwise than in a short /a/.

4. Because a root-final short /a/ is deleted before the
medio-passive suffix (cf. section 5.2.1.), verb pairs such as achifah/achifah might involve both medio-passive affixes (i), or just -l- (ii):

(i) a,l,chifa-a-h --> achifah "to be washed"
    achifa-h "to wash"

(ii) a,l,chifa-h --> achifah
    achifa-h

(The change of /l/ to /h/ is discussed in section 5.2.3.)

5. This verb pair (CB: yokopa, yokopuli) is attested in Byington (1915). The vl yokopah could be derived from either of two roots, yokopo- or yokop-. Mrs. Wade uses the v2 yokobilh, the form derived from the root yokop-. Since very few verb roots taking valence suffixes end in short /o/, the vl has been reanalyzed as coming from a consonant-final root, by analogy with the more than twenty p-final roots (cf. Appendix 4.).

6. Kookowah, plural of kowah, and taptowah, plural of tapah, both include a reduplicated copy of the initial consonant. Cf. Booker (1980:70f.).

7. Heath (1980) distinguishes between an -oh suffix (Class E) and an -o suffix (Class G), but these can be equated by means of the lexically triggered h-deletion rule.

8. I know of no other Choctaw examples of two grades of the same non-occurring base form. Chickasaw examples, however, are more plentiful. For example: talla'a 'to stand' (g-grade), talaa 'to be there' (n-grade), *talaa; ittibalhto 'to be all together' (n-grade), ittibayalhto (y-grade), ittibbalhto (g-grade), *ittibalhto; shamihila 'to be lame, with one leg shorter than the other' (hn-grade), shami'la- ('-grade), *shamilh (Munro and Willmond 1984b).

9. In Chickasaw, /y/ is not inserted between two a's; thus cha'a, rather than *cha'ya. Cf. Cs talaa 'to be there', Ct talaayah, taláyah.

10. The insertion of semivowels seems phonetically less motivated after glottal stops than between vowels. If glottal stops arose in Western Muskogean only to be lost again in Oklahoma Choctaw, the rule inserting glides might predate the development of glottal stops from accented long vowels. The rule at that time would simply have inserted glides between vowels (assuming that the nasals
of forms such as chayah had not yet arisen).

11. This is one of only two examples of -li following /k/ of which I am aware. The initial /h/ in the v2 is unexplained (cf. Chickasaw yokli, yoka), but not unique. Byington (1915) lists at least one word with initial /h/ - /y/: halu's, yalu's 'leech'. The other example of -li after /k/ is taklih 'to dip up (plural)'. The v1 takah (CB: taka) is listed in Byington (1915), but neither Mrs. Wade nor Mrs. Willmon knows it, instead using the singular verb takafah.

12. The "concomitant shortening of any preceding vowel" is simply the non-application of Rhythmic Lengthening (cf. section 3.2.) in closed syllables. Thus, kashofah has an underlying short /o/ that is rhythmically lengthened because it is in the second consecutive light syllable. The /o/ cannot be lengthened in kashoffih because it is in a closed syllable.

13. I leave open the question of when /l/ might have come to assimilate to a preceding /f/ or /lh/.

14. Pamela Munro suggested this analysis to me.

15. That the second vowel in talaayah is long, and not just rhythmically lengthened is shown by the second-person plural imperative hotalaalih 'Set it down!' The plural imperative prefix ho- causes rhythmic lengthening of the first /a/, which could thus not be triggering rhythmic lengthening of the second /a/. The second /a/ must hence be underlyingly long.

16. An exception is opohomoh 'to be covered' (v2 opohomoh). However, this may contain homoh 'to roof' (cf. holmo 'roof'), plus the superessive prefix on- and an obscure prefix po-. In fact, Mrs. Wade pronounces this word as opohomoh, which puts the -l- in a more typical position (i.e. after the first vowel not in a synchronically productive prefix), but obscures its relationship with the v2 (since it appears to be the v1 of *opohomoh, while the regular v1 of opohomoh would be *opohomoh). I have heard opohomoh from other speakers, and it is also listed in Byington (1915), as <umpoholmo>.

Chickasaw also has a few cases of the medio-passive infix after the second vowel of the stem, e.g. okshilitta 'to close (intr)' (v2 okshitta). Moreover, a fair number of Chickasaw v1's end in alhchi, which Pamela Munro (personal communication) suggests is the medio-passive of the auxiliary source of the causative suffix -chi.
17. Mrs. Wade uses the v2, but not the v1 (CB: hollo), which is from Byington (1915). I know of only one other likely example of the medio-passive infix before /l/: the Choctaw noun alla' 'child', which has no cognates in other Muskogean lgs, appears to be the nominalized v1 of alah 'to come', which also occurs in a "III-Subjectivization" (Munro and Gordon 1982) construction to mean 'to give birth to':

(i) Pam-at Alex-at im-ala-tok
    P-su A-su Dat-come-pt
    'Pam gave birth to Alex'

Wittenstein (1983b) analyzes pillah 'to be distant' as the v1 of pillah 'to throw'. Nicklas (1972:93), on the other hand, says it is the intensive form (G-grade) of pillah. Neither claim is particularly compelling.

18. Byington (1915) lists one possible case of the medio-passive infix preceding /s/: assiitah 'to cleave to, love' (CB: vsseta). Cf. asitah 'to seize' (CB: asinta). However, this form is probably a g-grade rather than a v1: Chickasaw has a verb assi'ta 'to be pinned on', which is unambiguously a g-grade. If Choctaw assiitah is a g-grade, it should be accented on the antepenult; if it is a v1, it should be unaccented. However, Byington does not mark pitch accent, and Mrs. Wade does not know these words.

19. Atahlih can only be used about something one was making, while tahlih has a wider range of meaning:

(i) Holisso' tahli-li-h 'I finished the book'
    book finish-1sNom-v

(ii) Holisso' atahli-li-h 'I completed the book'
    book complete-1sNom-v

Sentence (i) can refer to a book I was reading or to one I was writing, while sentence (ii) can refer only to a book I was writing.

20. Mrs. Wade has hopoksa meaning 'to sober up' (the n-grade hopoksah means 'to be sober'), while Byington (1915) lists hopoksa (CB: hopoksja), hopoksiyah (CB: hopoksia), and a number of other variants meaning 'to be wise'.

21. Pam Munro informs me that pairs of verbs with and without a- are much more frequent in Chickasaw, where the verb with a- typically takes an additional argument.
22. The verb meaning 'forget' usually has an initial /i/. Mrs. Wade sometimes pronounces it with an /a/ when it is preceded by a dative marker containing surface /i/. Thus, 'I forgot' is invariably amihaksih, while 'He forgot' may be either imihaksih or imahaksih. Davies (1981a:238) states that some speakers have one or the other vowel invariably, while some speakers use both vowels, "determined by the harmonizing effect of the vowel of the preceding prefix". This description would seem to describe the opposite distribution from Mrs. Wade's.

The vowel dissimilation in 'forget' is paralleled in the behavior of the verb wihpolih 'to rob'. Mrs. Wade sometimes pronounces this verb as wohpolih after prefixes containing /i/. At least one speaker of Chickasaw does the same with the Chickasaw verb wippolichi, suggesting that this vowel dissimilation might be a conservative feature of Western Muskogean.

23. This derivation for word-final /ee/ was suggested for Chickasaw by Pam Munro, who writes it accordingly (e.g. <yakookay> in Munro & Willmond (1984b)). On the other hand, she writes the phonetically accurate <ii> in v2's in /ay/, such as wakiili 'to fly (tr)'. I write <ee> and <ii> rather in <ay> for two reasons. First, in Choctaw some v2's in /ay/ are pronounced with /ee/ and others with /ii/. Second, the hn-grade of wakeelih is wakeelih, with two e's, one short and the other nasalized, and neither the long oral vowel that might be written morphophonemically as <ay>.

24. The assimilation rule need not exclude /y/ if it is ordered after Glide Deletion, which deletes all attested occurrences of /y/ before /l/. Glide Deletion does not delete /y/ after /o/, but there are no attested roots ending in /oy/.

However, it is evident in other Muskogean languages that /l/ does not assimilate to a preceding /y/. In Alabama (Lupardus 1982:32), /ay/ may or may not become /ee/ before a consonant. Even when /ay/ remains, a following /l/ does not assimilate: imokwayli 'fish'. Couchatta (Munro 1985b) contains /oyal/ sequences as well: koyli 'to cut'. In both languages, /l/ does assimilate to other consonants as in Choctaw: Couchatta lakaw-lil --- lakawwi 'to lift'; Alabama kotaf-li --- kotaffi 'to break (a long object)' (Munro 1985b).

25. Wittenstein (1983b) suggests an historical account of this assimilation. Accepting Haas's (1947) reconstructions of *kw as the source of Choctaw /b/ and *xw' the source of Choctaw /f/, he characterizes the consonants triggering assimilation as the overlapping

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classes of laterals and sonorants (including consonants with sonorant releases, i.e. the labiovelars). /l/ is, of course, a lateral sonorant. Thus, it assimilated to phonetically similar consonants, while not assimilating to less similar consonants. However, this account wrongly predicts that /l/ should assimilate to a preceding /y/.

A problematic characterization of this assimilation in terms of Foley's Theoretical Phonology is given in Ulrich (1982).

26. In Coushatta, Regressive L-Assimilation does apply in such cases (Teresa Spörl, personal communication).

27. The consonant across which the vocalic melody spreads always constitutes a morpheme. If different morphemes have different melodic tiers (linked to the same skeleton) early in the derivation, as suggested by McCarthy (1979), this consonant will not interfere with spreading of the vowel assimilation across consonants, cf. Clements (1985).

28. Paul Schachter (personal communication) suggests that the medio-passive infix might be analyzed as -ll-. However, there is sometimes a single /l/ after Vowel Epenthesis, though this is more common in Chickasaw than in Oklahoma Choctaw. Moreover, analyzing the infix as -ll- would create problems for the Linking Constraint. The gemination may result historically from a g-grade, with loss of the accompanying accent.

29. Syllable-final /f/ is extremely rare, occurring in the words őkof 'persimmon', ipaf 'dog' (an archaic word), and hofkah 'to air', in contractions of fokka- 'to wear', such as naafka (naafóka') 'dress', and, of course, in geminates. It precedes a voiced consonant only when the -ma demonstrative follows one of the two f-final nouns.

30. The relation between -cha and -sh was pointed out to me by Pam Munro, who believes it was first noted by Nicklas.

31. The optional glottal stop could be eliminated from this rule if it were ordered after Glottal Stop Deletion. It has been included because the rule applies after glottal stop even in dialects where the latter is retained. Actually, those dialects require slightly different rules. In Mississippi Choctaw of Oklahoma, the glide may optionally be specified as [-round], rather than taking its value for roundness from the preceding vowel. In Chickasaw, glides are not inserted between two a's: cf. Cs cha' a 'to be pounded', Ct cháyah 'to be chopped'.
Alternatively, /y/ might be inserted in such forms and then deleted by the same rule that deletes underlying root-final /y/: Ct wakay-a-h 'to stand', Cs wakaa 'to fly'.
Chapter 6. Verb Grades

6.1. Introduction

There are a number of Choctaw verb forms known as "grades" (Nicklas 1975, Heath 1980), formed by "internal changes" (Nicklas 1972). Booker (1980) argues that the Choctaw grades are cognate with the "principal parts" (Haas 1940) of the Creek verb, as summarized in Table 6.1.1

<table>
<thead>
<tr>
<th>Nicklas 1975</th>
<th>Nicklas 1972</th>
<th>Haas 1940 (Creek)</th>
</tr>
</thead>
<tbody>
<tr>
<td>h-grade</td>
<td>instantaneous</td>
<td>complete II</td>
</tr>
<tr>
<td>n-grade</td>
<td>incomplete</td>
<td>continuative/intensive (V)</td>
</tr>
<tr>
<td>hn-grade</td>
<td>iterative</td>
<td>---</td>
</tr>
<tr>
<td>y-grade</td>
<td>intensive</td>
<td>complete III</td>
</tr>
<tr>
<td>lengthened grade</td>
<td>lengthened form</td>
<td>incomplete (IV)</td>
</tr>
</tbody>
</table>

Table 6.1.

I will adopt the terminology of Nicklas (1975), with two changes. First, I distinguish the g-grade2 from the y-grade, although previous descriptions of Choctaw have treated them as alternate versions of the same grade, the intensive or y-grade. Arguments for this distinction are given in sections 6.5. and 6.7.4. below. Second, I refer to Nicklas's lengthened grade, which Heath (1980) calls the "conjunct grade", as the 'grade (read "glottal grade"). This grade contains a glottal stop in varieties of Western Muskogean that allow medial glottal stops. It is discussed in sections 6.6. and 6.7.3. below.
All of the grades involve infixation of one or more (possibly empty) consonants and the placement of a pitch accent. No other morphological process involves both consonant infixation and accent placement. The medio-passive infix (cf. section 5.2.3.) is the only other infix in Choctaw, and no accentuation is associated with it. Aside from accented stems and the word-final accent (cf. section 3.4.), pitch accent is associated only with the grades and with nominalization (cf. section 4.2.). Nominalization differs from grades in two crucial ways. First, although both are derivational processes, nominalization is category-changing, deriving nouns from verbs, while grades are non-category-changing, deriving verbs from verbs. Second, nominalization does not involve infixation, but only suffixation.\(^3\)

The locus of these processes is what Nicklas (1972) calls the "changing vowel". The changing vowel is the penultimate vowel of the stem. Verb stems include the active suffix -li or the medio-passive suffix -a if present, and usually the causative suffix -chi if present,\(^4\) but never the first person singular nominative suffix -li, aspect suffixes such as -tok, or any other inflectional suffixes. The stem on which the changing vowel is defined may include accusative prefixes and, on "short verbs"\(^5\) of the shape VCV, nominative prefixes. Thus, the changing vowel is sometimes in an inflectional
prefix:

(1) Sā-issō-h → Sassoh 'He hit me'
   isAcc-hit-v
(2) Sahāssoh 'He just hit me'
(3) Ḥīssoh 'He just hit her'

In the h-grade in (2), the accusative prefix sa- is attached to the root, triggering deletion of the root-initial /i/, before infixation of -h- and copying of the changing vowel. Note that it is the /a/ of the accusative prefix that is copied, not the /i/ of the root as in the unprefixed form in (3).

Heath (1980) includes two further forms that I do not consider grades. Heath's "L-grade" is formed by infixation of what I have referred to as the medio-passive -l- (cf. section 5.2.3.). Neither Nicklas (1972, 1975) nor Booker (1980) includes this as a grade, though neither discusses the reasons for its exclusion. There are at least four such reasons. First, the medio-passive infix differs from the grades crucially in lacking any associated pitch accent. Second, its position is determined relative to the beginning of the stem, rather than the end. Third, its function is to change the valence of a verb, while the grades never affect valence but are usually characterized as aspectual in meaning (Nicklas 1972, Booker 1980). Finally, the medio-passive infix is quite restricted in its occurrence. It is found

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almost exclusively after initial /a/ and /ho/, and only in a fairly small number of words (cf. appendix 4.). The grades, on the other hand, are almost completely productive in Choctaw, at least in some dialects.\(^6\). Certain grades of certain verbs may be difficult to elicit because of semantic implausibility, but the grades are by no means limited to a select group of verbs.

Heath's (1980:5) "RN-grade", involving reduplication and nasalization, is extremely rare. He gives the example:

\[(4) \text{ binilili } 'to sit down' (JH: -binili-) \]
\[(4) \text{ bininilili } 'to shift around in one's seat' (JH: -bininili-)]

Heath remarks that the "RN-grade is limited to a handful of verbs". Booker (1980:110) suggests that these forms may simply be the N-grades of verbs pluralized by reduplication. In any case, if there ever was a productive RN-grade, it became non-productive long ago, leaving very little residue.

Munro (1985a) excludes the '-grade from the list of Chickasaw grades. Arguments that it is a grade in Choctaw, albeit the least typical one, are given in section 6.6. below.

The h-grade is discussed in section 6.2., the n-grade in section 6.3, the hn-grade in section 6.4., the g-grade and the y-grade in section 6.5., and the '-grade in section 6.6. The rules involved in the derivation of verb grades are discussed in section 6.7.
6.2. The H-Grade

The h-grade is formed by infixing -h- after the penultimate vowel of the stem and accenting a vowel adjacent to that infix. In verbs with a single consonant after the penultimate vowel of the stem in the base form, that vowel bears the pitch accent in the h-grade:

(5)  Famah 'He was whipped'
     Fāhmah 'He was just whipped'

(6)  Talowah 'He sang'
     Talōhwah 'He just sang'

When the penultimate vowel of the stem is followed by a consonant cluster in the base form, infixation creates an impermissible three-consonant cluster, which is broken up by insertion of a copy of the previous vowel between the first and second consonants. In these cases, it is the epenthetic vowel that bears the pitch accent:

(7)  Habisḥkoh 'He sneezed'
     Habiḥişkoh 'He just sneezed'

(8)  Okchah 'He woke up'
     Ohōkchah 'He just woke up'

In all cases, the vowel accented is the penultimate vowel of the stem after any epenthesis rules have applied.

There are two exceptions to the characterization given above of epenthesis in three-consonant clusters. First, the sequence /bl/ may be syllabified as the onset of a syllable (cf. section 3.1.1.), so /hbl/ sequences are allowable, though they may also be broken up by

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epenthesis:

(9)  Tilobliah  'He jumped'
     Tilóhbliah  'He just jumped'
(10) Finiblih  'He splashed it'
     Finíblih  'He just splashed it'

The syllabification of /bl/ sequences is discussed further in section 6.7.1.

Secondly, when the -h- infix precedes a geminate consonant, the cluster can be resolved either by epenthesis or by degemination:

(11)  Fammih  'He whipped her'
     Fámmih  'He just whipped her'

Occasionally, these two solutions are combined:

(12)  Illih  'He died'
     Ihílilih  'He just died'
(13)  Tiwwih  'He opened it'
     Tihiwwih  'He just opened it'

This last example might be analyzed as involving two applications of the h-grade, one resolved by degemination and the other by epenthesis. Double application of the h-grade is rarely found away from geminates:

(14)  Kolah  'It's dug'
     Kóhlah  'It was just dug'
(15)  Woohah  'It howled'
     Wóhhah  'It just howled'

Compare also ollolhtih 'to be kindled', derived from the v2 ootih 'to kindle' by two instances of the medio-passive infix (cf. section 5.2.3.).

According to Stemberger (1981:810), when the
penultimate vowel of the stem is followed by /h/ and another consonant, another /h/ is not inserted, although epenthesis still takes place. However, Mrs. Wade does insert /h/, and does not recognize the forms Stemberger cites:

(16)  Tohbih 'It's white'
      Tohóbih 'It got white quickly'
*Tohóbih (= Stemberger's #73a)

(17)  Pihlíh 'He shoveled it'
      Pihílíh 'He just shoveled it'
*Pihlíh

Not only is there not a full vowel after the /h/ for Mrs. Wade, but the low-level epenthetic vowel usually found between /h/ and a following voiced consonant is often absent when the preceding vowel is accented, as in these forms.

On the other hand, some h-grades do exhibit morphological haplology in Mrs. Wade's speech:

(18)  Talohlíh 'He set them down'
      Talólíh 'He just set them down'

The h-grade in (18), like those reported by Stemberger, is missing an /h/, but no vowel is inserted after the /h/.

Mrs. Wade prefers the haplogenized h-grade for talohlíh, but the non-haplogenized form for most verbs containing /hC/ clusters.

When the penultimate vowel of the stem is long in the basic form, it is short in the h-grade:

(19)  Poootah 'He borrowed it'
      Póhtah 'He just borrowed it'
(20) Nokshoopah 'He's scared'
     Nokshóhpah 'He just got scared'

     If the penultimate vowel of the stem is nasal, on the
other hand, it remains nasal in the h-grade:

(21) Obah 'It's raining'
     Ónbah 'It just rained'

(22) Chopah 'He bought it'
     Chóhpah 'He just bought it' [4:257]

     In Chickasaw (Munro 1985a), the h-grade often
involves a geminate /hh/, followed by a copy of the
preceding vowel and a glottal stop. The original vowel
(before the /h/)--not the copy vowel--is accented:

(23) kosoma 'to be smelly' (Cs)
     kosóhóma (h-grade)

(24) fatabli 'to have dandruff' (Cs)
     fatahhabli (h-grade)

     These forms resemble g-grades of h-grades, though not all
of them could be straightforwardly derived as such.

     Semantically active Choctaw verbs in the h-grade are
typically translated into English as "just V-ed" or "V
quickly":

(25) Nokshóhpa-h 'He just got scared'
     scared:H-v

(26) Nóhsi-h 'He took a quick nap'
     sleep:H-v

     The h-grade can cooccur with the aspect suffixes -tok
and -aachi:

(27) Baháshli-aachi → Baháshlaachi
     cut:H-fut
     'He's going to cut it off quick'

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(28)  Hahwa-tok  'He yawned quickly'
yawn:H-pt  

Most typically, though, verbs in the h-grade have no further aspect marking.

H-grades of semantically stative verbs indicate a quick change of state:

(29)  Niyah  'He's fat'
Nihyah  'He just got fat'

(30)  Litihah  'It's dirty'
Litihhah  'It got dirty real quick'

In Chickasaw, the h-grade means 'completely' with stative verbs (Munro 1985a).

6.3. The N-Grade

The n-grade is formed by nasalizing and accenting the penultimate vowel of the stem:

(31)  Bashlih  'He cut it'
Bashlih  'He keeps cutting it'

In section 6.7.2. below, the n-grade is analyzed as accentuation and infixation of -N-, where /N/ is some nasal consonant.

When the penultimate vowel is followed by a geminate /bb/ or /ll/, the nasal infix appears as a homorganic nasal consonant before a degeminated consonant:

(32)  Atobbih  'She paid'
Atobbih  'She's still paying'

(33)  Halallih  'He pulled it'
Halallih  'He's holding on to it'

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This phenomenon is not found before geminate glides or voiceless consonants:

(34) Káyyah mó máh 'He's still full'
(35) Hóppih mó máh 'He's still burying it'

Nor is it found in hn-grades (cf. section 6.4. below).

The n-grade, also known as the incompletive (Nicklas 1972), is used in a number of constructions expressing continuous action. It is used with the subordinators -t and -kma to express an action during which another action occurred:

(36) Balíli-t talowa-li-h
    run:N-ss sing-1sNom-v
    'I sang while I was running'

(37) Ii-washóha-kma ip-aachi
    ipNom-play:N-sbr:ds eat:intr-fut
    'They're going to eat while we play'

The n-grade is also used with the verb momah 'all, still':

(38) Losa-h mó máh 'It's still black'
    black:N-v still:N-v

(39) Hílha-h mó máh 'He's still dancing'
    dānce:N-v still:N-v

The n-grade can sometimes be used alone to express a continued action. This use of the n-grade can be contrasted with the hn-grade, which signifies repeated action:

(40) Patóli-li-h
    touch:N-1sNom-v
    'I kept touching it (continuously)'

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(41)  Pato\holy -li-h
     touch:HN-1sNom-v
     'I kept touching it (repeatedly)'

Sentence (41) means that I kept my hand on it for some period of time, while sentence (42) means that I repeatedly touched it and took my hand away.

With certain verbs whose basic form indicates a change of state—or a change of clothes—the n-grade indicates being in that state (or those clothes):

(42)  Si-okcha-h  'I got up'
      lsAcc-awake-v

(43)  Si-\holy okcha-h  'I'm awake'
      lsACC-awake:N-v

(44)  Pinak Pam im-ahika-li-tok  
      food  P.  Dat-owe-1sNom-pt7
      'I got groceries from Pam on credit'

(45)  Pam-a pinak im-ahika-li-h  
      P.-ns food  Dat-owe:N-1sNom-v
      'I owe Pam for groceries'

(46)  Liifokka' fokka-li-h  
      clothes  wear-1sNom-v
      'I put on my clothes'

(47)  Liifokka' f\holy okka-li-h  
      clothes  wear:N-1sNom-v
      'I've got my clothes on'

The verb pisah 'to see' is also frequently used in the n-grade, though the meaning difference here is obscure.\footnote{8}

In Chickasaw, the n-grade is used for the comparative of verbs expressing adjectival notions when the standard of comparison is not expressed:

(48)  Tohbi  'It's white'  (Cs)
     T\holy ohabi  'It's whiter'

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Nicklas (1972:74) reports the same use for Choctaw, but Mrs. Wade does not use the n-grade for comparatives.

6.4. The HN-Grade

The hn-grade is formed by infixing /h/ after the penultimate vowel of the stem, followed by an accented, nasalized copy of that vowel:

(49)  Habishkoh 'He sneezed'
      Habi$hkhoh 'He keeps sneezing'

Booker (1980:100) suggests that the Choctaw hn-grade has developed diachronically from the coapplication of the h-grade and n-grade. The semantics of such a development are certainly plausible: instantaneous + incompletive = iterative. It should be noted, however, that most hn-grades cannot be straightforwardly derived as the h-grade of an n-grade, or vice-versa. In section 6.7.2. below, the hn-grade is analyzed as accentuation and infixation of -hN-, where /N/ is some nasal consonant.

The hn-grade always contains a nasalized vowel, even when the penultimate vowel is followed by a geminate /bb/ or /ll/:

(50)  Atoho$bbih 'He keeps paying'
(51)  Halahâ$lih 'He keeps pulling it'

Nasal consonants are found in the n-grades of such stems (cf. section 6.3. above).
When the penultimate vowel of the stem is long or nasal in the basic form, it is nevertheless short and oral in the hn-grade:

(52) Amanoolih 'He told me'
Amanocholihi "He keeps telling me"

(53) Chopah 'He bought it'
Chohopah 'He keeps buying'

The hn-grade signifies repeated action:

(54) Fahama-h 'He keeps getting whipped'
whipped:HN-v

(55) Hokohopa-h 'He keeps stealing'
steal:HN-v

6.5. The G-Grade and Y-Grade

The g-grade and the y-grade are closely related. They have the same meaning ('finally' for semantically active verbs) and are similar in form as well. In fact, Nicklas (1972, 1975) considers them variants of the same form, the intensive form or y-grade. However, I argued below that they are distinct grades.

The g-grade is formed by lengthening the penultimate vowel of the stem if it is followed by a single consonant, geminating the preceding consonant, and accenting the preceding vowel:

(56) Talowah 'He sang'
Talloowah 'He finally sang'

(57) Patolilih 'I touched it'
Pattoolilih 'I finally touched it'
In section 6.7.4. below, the g-grade is analyzed as accentuation and infixation of an empty C-slot and a glottal stop.

When either the antepenultimate or the penultimate vowel is nasalized in the base form, it remains nasalized in the g-grade:

(58)    Anopolih 'She's talking'
Anoppoolih 'She's finally talking'

(59)    Achólih 'He sewed it'
AchCholih 'He finally sewed it'

Superficially, the y-grade is formed by accenting the penultimate vowel of the stem, and inserting a geminate /yy/ after it, followed by a copy of the vowel:

(60)    Nokshoopah 'He's scared'
Nokshóyyopah 'He finally got scared'

(61)    Bashah 'He got cut'
Báyyashah 'He finally got cut'

The sequences /ayya/ and /oyyo/ are frequently pronounced [eyya] and [uyyo]. In section 6.7.4. below, the y-grade is analyzed as involving the infixation of an empty V-slot in conjunction with the g-grade.

When the penultimate vowel is nasalized in the base form, the vowel after the geminate /yy/ is nasalized in the y-grade:

(62)    Kachih 'She sold it'
Káyyachih 'She finally sold it'

(63)    Obah 'It's raining'
Oyyobah 'It finally rained'

When the penultimate vowel is long in the base form, the
vowels before and after the geminate /yy/ are nevertheless short in the y-grade:

(64) Haawah 'She yawned'
    Háyyawah 'She finally yawned'

(65) Nokshoopah 'He's scared'
    Nokshóyyopah 'He finally got scared'

According to Nicklas (1972:93), the y-grade is used when the stem has a shape that will not allow formation of the g-grade: i.e. when the penultimate vowel of the stem is preceded by a consonant cluster or when the stem has only two syllables. Insertion of /y/ and a copy vowel give the stem a shape that will allow formation of the g-grade. However, Mrs. Wade can use the y-grade even where the g-grade is also possible:

(66) Habishkoh 'He sneezed'
    Habíyyishkoh Hábbishkoh 'He finally sneezed'

(67) Kobaffih 'He broke it'
    Kobáyyaffih Kóbbaffih 'He finally broke it'

For Mrs. Wade, the y-grade appears to be possible for stems of all shapes, except possibly those with /y/ in the base form: 9

(68) Wakayah 'He stood up'
    Wákkaayah 'He finally stood up'
    ?Wakáyyayah

(69) Páyoffih 'He dented it'
    Páyyoffih 'He finally dented it'
    ?Páyóyyoffih

In Chickasaw, the y-grade and g-grade are certainly distinct. Not only do both forms exist for many of the same verbs, but in many cases they have different
meanings. Munro (1985a) cites the following examples:

(70) latassa 'to be flat' (Cs)
latáyya'sa 'very flat'
láttassa 'flat-chested, skinny;
        by oneself'

(71) lhabitá 'to be muddy' (Cs)
lhabíyyi'ta 'really muddy'
lhábbi'ta 'a little muddy'

Moreover, only the g-grade, and not the y-grade, can mean 'finally'. I know of no similar meaning differences in Choctaw.

Because y-grades and g-grades regularly exist for the same verbs in Choctaw, and because they frequently have different meanings in Chickasaw, the y-grade should be considered a distinct, though related grade. Moreover, for Mrs. Wade, the y-grade does not actually have the form of the g-grade of a yv-infixed form. The vowel following the geminate /yy/ remains short even when followed by a single consonant, whereas the penultimate vowel of the stem is lengthened before a single consonant in the g-grade. An alternative account of the y-grade is given in section 6.7.4.

As Nicklas (1972:94) describes, there is another form (the "simple method") of the g-grade or y-grade that is used when the g-grade cannot be formed in the usual manner, either because the stem is disyllabic or because the penultimate vowel of the stem is preceded by a cluster. This is formed by lengthening the penultimate
vowel of the stem and giving this long vowel a falling
pitch. This form occurs alongside of the regular y-grade:

(72) Bashah  'He got cut'
     Baashah  'Báyyashah  'He finally got cut'

(73) Noktalhah  'He's jealous'
     Noktalhah  'Noktáyyalhah  'He finally got jealous'

Booker (1980:105) analyzes these forms as deriving
from regular y-grades by deletion of /yy/. However, their
coexistence with regular y-grades and not with regular
g-grades suggests that they should be derived from regular
g-grades. In sections 6.7.4. and 6.7.6. below, the cases
involving disyllabic stems will be shown to be handled
neatly by the autosegmental formulation of g-grade
formation, although those involving consonant clusters
remain problematical.

Nicklas (1972:77) states that the intensive form
(i.e. g-grade or y-grade) of "adjectives" means 'very', as
it does also in Chickasaw (Munro 1985a). Mrs. Wade
prefers the translation 'too':

(74) Kapassah  'It's cold'
     Káppassah  'It's too cold'

(75) Chonnah  'He's skinny'
     Chóyyonnah  'He's too skinny'

Such forms are typically found subordinated to the verb
ayah:

(76) Láyyakna-t áya-h
     yellow:Y-ss go-v
     'There she goes, all dressed in yellow'
(77) Cháyyaha-t áya-h
tall:Y-ss go-v
'There he goes, being tall'

This construction is hard to translate into English, but is used to joke about someone walking by.

Nicklas also states that the intensive form means 'for a long time' with verbs denoting prolongable activities. However, for Mrs. Wade it means 'finally' for all semantically non-stative verbs:

(78) Hiyyilhah 'He finally danced'

To express the meanings Nicklas attributes to the intensive form, Mrs. Wade uses a complex construction:

(79) Hilha-na-h pit-hopáki-tok
dance:-sbr:ds-v dir-far-pt
'He danced for a long time'

6.6. The '-Grade

The '-grade (read "glottal grade") is formed by accenting the penultimate vowel of the stem and lengthening it if it is followed by a single consonant:

(80) Hilhah 'He danced'
     Hi'ilhachah 'He danced and he...'

In Chickasaw and Mississippi Choctaw of Oklahoma, a glottal stop is infixed after the penultimate vowel of the stem if it is followed by a single consonant:

(81) Hí'ilhachah 'He danced and he...' (MCO, Cs)

In section 6.7.3. below, I argue that the long vowel of
the '-grade in Oklahoma Choctaw is derived from an infixed glottal stop as well.

When the penultimate vowel of the stem is long or nasalized in the base form, it remains long or nasalized in the '-grade, and it is accented:

(82) Boölih 'She hit him'
     Ikboölooh 'She didn't hit him'

(83) Chopah 'He bought it'
     Ikchôpoh 'He didn't buy it'

The glottal stop does not cause the penultimate vowel of the stems in these forms to be longer than other long or nasal vowels. In Chickasaw, where pre-consonantal glottal stops are retained, a long or nasalized penultimate vowel remains long or nasalized before the infixed glottal stop:

(84) Shiipa 'It's stretched' (Cs)
     Ikshii'po 'It's not stretched'

(85) Chompa 'He bought it' (Cs)\textsuperscript{10}
     Ikcho'po 'He didn't buy it'

Although other grades may have different meanings depending on whether the verb stem is semantically active or stative, the '-grade is the only verb grade in Choctaw with different meanings depending on the other affixes with which it cooccurs. It is found in negatives, conjoined forms, and—in some dialects—optatives. Morphological negation of verbs\textsuperscript{11} consists of suffixing -o to the '-grade and inflecting the negated verb with hypothetical agreement markers (cf. section 7.2.4.):

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(86)  Patoli-h
touch-v
'He touched it'

(87)  Ik-patooli-o-h --> Ikpatooloh
Hyp-touch:'-neg-v
'He didn't touch it'

(88)  Habishko-li-h
sneeze-IsNom-v
'I sneezed'

(89)  Ak-habishko-o-h --> Akhabishkoh
IsHyp-sneeze:'-neg-v
'I didn't sneeze'

As the examples above show, the final vowel of the stem is
deleted before the negative suffix by the rule of Short
Vowel Deletion (cf. section 5.4.).

The '-grade is also used with the switch-reference
suffixes -cha (same subject) and -na (different subject):

(90)  Hiihla-cha-h   talowa-h
dance:'-sbr:ss-v sing-v
'He danced and then he sang'

(91)  Hiihla-na-h   talowa-li-h
dance:'-sbr:ds-v sing-IsNom-v
'He danced and then I sang'

According to Nicklas (1972:74), the '-grade is also
used in optatives. Mrs. Wade, however, uses the basic
grade in such forms:

(92)  Ik-pa-h! 'Let him eat it!'
Hyp-eat-v

(93)  Ak-pisa-h! 'Let me have a look!'
IsHyp-see-v

Nicklas (1972:74) also mentions "nomic tenses", which
"are not well understood at present". However, the
examples he gives actually involve nominalization (cf.
section 4.2.) rather than the '-grade:

(94) Őkof ıshpay-oo?  
     persimmon 2Nom:eat:n-Q  
     'Do you eat persimmons?'  
     (TDN: Őkof ıshpa o?)

(95) ą, apáli'  
     yes eat:1sNom:n  
     'Yes, I eat them'  
     (TDN: ą', apáli)

The '-grade of ishpah is ıshpah, but the presence of [y] rather than [h] after the stem in sentence (94) indicates that this form is the nominalization ıshpa', with its glottal stop changed to [y] before a vowel. Nicklas's second example is even more clearly not a '-grade, as the accent is on the wrong syllable. Nicklas (1972:80) himself points out that the first person singular suffix -li is not included in the stem when calculating the penultimate vowel for purposes of grade formation. Thus, the '-grade of apalih is ąpálih, not apáalih. The form in Nicklas's example is in fact the nominalization apáli', and the length Nicklas indicates with a macron arises from Rhythmic Lengthening rather than the '-grade.

Discussing Chickasaw grades, Munro (1985a) gives a number of arguments against the inclusion of the '-grade among them, which must be addressed here. First, it is fully productive, unlike the other grades in Chickasaw. However, the other grades are just as productive, or nearly so, in Mrs. Wade's Choctaw. Second, the '-grade is completely regular, not showing the variation in vowel
shortening and degemination displayed in the other grades. Again, there is less difference in regularity in Choctaw. Third, the ' -grade does not involve accentuation in Chickasaw, while all other grades do. But the ' -grade does involve accentuation in Choctaw.

Finally, the ' -grade has "no discernable semantic content", always cooccurring with either the negative suffix -o or one of the switch-reference markers -cha and -na. While this is undeniably true, in Choctaw as in Chickasaw, it seems an insufficient reason for denying the ' -grade membership in the set of grades. Historically, it is part of the same system as the other grades. Booker (1980) argues that it is cognate with the Creek incompleteive, which does have a consistent aspectual meaning. Moreover, Booker argues that the Choctaw h-grade and y-grade are cognate with the Creek completive II and completive III respectively. Haas (1940) does not give a unitary definition of the meaning of these two principal parts; instead she lists their uses, just as must be done for the Choctaw lengthened grade. The completive II is used with certain modals and the immediate past tense. The completive III is used with the three remote past tenses and the immutable durative aspect. It appears that in each language, some of the originally aspectual morphological processes have lost their meaning.

Formally, the ' -grade is quite similar to other
grades. They all involve accentuation and consonant infixation in a position determined relative to the end of the verb stem. Thus, the set of grades can be defined formally, rather than semantically. It can then be remarked that their meaning is typically aspectual, but that the 'grade has no inherent meaning, but merely occurs in a number of disparate contexts. In Chickasaw, the 'grade has diverged formally as well, losing its accent. Thus, the Chickasaw 'grade (or whatever one might choose to call it) could well be excluded from the grades in a Chickasaw-internal study. But in Choctaw it should be considered a grade.

6.7. Rules Involved in the Derivation of Grades

Derivation of the grades is considerably more complex than derivation of verb stems, involving as it does accentuation and interspersing of morphological and phonological rules. Four grades—the h-grade, n-grade, hn-grade, and 'grade—are formed by infixing one or two consonants immediately after the penultimate vowel of the stem. The formation of the g-grade and y-grade is somewhat more complicated. All grades involve infixation of consonants, often creating unsyllabifiable sequences. Choctaw has a number of rules that serve to make grades syllabifiable. The segmental rules involved in the
derivation of the h-grade are discussed in section 6.7.1., those involved in the derivation of the n-grade and hn-grade in section 6.7.2., those involved in the derivation of the 'grade in section 6.7.3., and those involved in the derivation of the g-grade and y-grade in section 6.7.4. The failure of Rhythmic Lengthening in grades is discussed in section 6.7.5. The accentual rules involved in the derivation of grades are discussed in section 6.7.6.

6.7.1. Segmental Rules: H-Grade

The h-grade is derived by infixing -h- after the penultimate vowel of the stem. Rules involved in the derivation of h-grades include Pre-Cluster Shortening, Vowel Epenthesis, H-Accommodation, and Metathesis.

Stem-penultimate vowels that are underlyingly long are shortened in all grades. Since a consonant is infixed after this vowel in any grade, the rule may be stated as follows:

(96) \[ \text{Pre-Cluster Shortening} \]
\[ V \rightarrow \emptyset / V \text{ C C} \]
\[ \{ \} \]

This rule also applies when the medio-passive -l- is infixed before a consonant cluster:

(97) aabi 'to paint' (Cs)
albi 'to be painted' (Cs)
(98) aapittah 'to stuff' (MCO)
alhpittah 'to be stuffed' (MCO)

I know of no words where the medio-passive -l- is infixed after a long vowel in Oklahoma Choctaw. Aabi is not a word in Choctaw, and Mrs. Wade has a short vowel in apittah.

On the other hand, Pre-Cluster Shortening does not apply before the active suffix -li:

(99) shiip-li-h --> shiiblih 'to stretch'
    stretch-act-v

Nor does it apply in underived environments:

(100) haablih 'to kick'
(101) tooblih 'to push'

(Neither *haapah nor *toopah is attested. There is therefore no evidence that the -li is segmentable in these words.) As far as I know, all Choctaw examples of the failure of Pre-Cluster Shortening in underived environments or v2's involve the cluster /bl/, which in certain circumstances is a possible onset (cf. section 3.1.2.) On the other hand, there are long vowels before other clusters in irregularly contracted forms (102, 103), and in at least one Chickasaw underived environment (104):

(102) naa-fókka' - naafka' 'dress'
    something-put:on:n

(103) kafi'-aa-íshko' --> kafiáashko' 'coffee cup'
    coffee-Loc-drink:n

(104) saalhkona 'earthworm' (Cs)

It is not clear whether the failure of Pre-Cluster

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Shortening should be accounted for by assigning suffixation of -li to an earlier level than the grades and the medio-passive -l-, or by playing on the syllabification of /bl/.

H-grades of verb stems with consonant clusters after the penultimate vowel undergo the rule of Vowel Epenthesis, which inserts a copy of the preceding vowel after the first consonant of a three-consonant cluster. This rule also applies when the medio-passive -l- is infixed before a cluster (cf. section 5.4.), and in all hn-grades (cf. section 6.7.2.). On the other hand, it does not apply in the n-grade or 'grade of a stem containing a consonant cluster, e.g. okchah 'to wake up':

(105) Ókchah 'She's awake'
     *Onókchah, *Omoókchah

(106) Ikókchoh 'She didn't wake up'
     *Iko'ókchoh, *Ikoýókchoh

Three-consonant clusters whose first element is neither /h/, /l/, /', nor a nasal do not arise. The rule can be stated as follows:

(107) Vowel Epenthesis:
     Ø --> V / C ___ C C
     [ +continuant ]

Condition: Some melodic material is stranded.

The epenthetic vowel receives its melody by rightward spreading of the preceding vowel. Vowel Epenthesis applies only when there is stranded (i.e. unsyllabified)
melodic material. It will be seen below that the rule
does not apply when the cluster is already syllabified, or
when the unsyllabified consonant is part of a geminate.\textsuperscript{12}

The h-grade of okchah 'to be awake' is derived as
follows:

\begin{verbatim}
(108) 6 6 (Syllabification)
\  /
R O R
\ /
VC C V
\  
ok cha

6 6 [H-grade]
\  /
R R R
\ /
VCC C V
\  
ohk cha

6 6 6 (Vowel Epenthesis)
\  /
R OR OR
\  
V CVC C V
\  
o hok cha
\end{verbatim}

The result, after accent placement and suffixation of -h,
is ohókchah, with a copy of the preceding vowel of the
stem breaking up the three-consonant cluster.

In the h-grade of verb stems containing geminate
consonants after the penultimate vowel, there is an
alternative method of dealing with the unpermitted
cluster. H-Accommodation optionally syllabifies the /h/\textsuperscript{13}
into the syllable coda, replacing the previous coda, the
first half of the geminate:
(109)  H-Accommodation (optional)
        R O  R O  
        |   |   |   |
        C C C --> C C C  
        [h] [h]

After application of H-Accommodation, it is the second of the three consonants that is unsyllabified. When this is part of a geminate, Vowel Epenthesis does not apply, since no melodic material is stranded. The unsyllabified C-slot is deleted by Stray Erasure, with the effect of degemination.

The h-grade of fammih 'to whip', for example, can take either of two forms, depending on whether H-Accommodation is applied:

(110)  6 6
        /\ /\ 
        OR OR
        |||||
        CVCCCV
        ||/|
        fam i

[H-grade]
        6 6
        /\ /\ 
        O R OR
        |||||
        CVCCCCV
        ||/|
        fam i

(H-Accommodation--optional)
        ---
        6 6
        /\ /\ 
        O R OR
        |||||
        CVCCCCV
        ||/|
        fam i
(Vowel Epenthesis)  
6 6 6  
/ / /  
OR OR OR  
/\ /\  
CVCCCV  
/ / /  
faham i

(Stray Erasure)  
---  
6 6  
/ /  
OR OR OR  
/\  
CVCCCV  
/ / /  
fahmi

The result, after accent placement and suffixation of -h, is either fahāmmih (by Vowel Epenthesis) or fāmih (by H-Accommodation).

H-Accommodation may also apply in h-grades of stems containing /bl/ clusters. For example, the h-grade of haablih 'to kick' may be either hahāblīh (by Vowel Epenthesis) or hāblī (by H-Accommodation):

(111)  
6 6  
/ /  
O R OR  
/ /\  
CVVCCV  
/ / /  
ha bli

[H-grade]  
6 6  
/ /  
O R OR  
/ / \  
CVVCCCV  
/ / / /  
ha hblī
(Pre-Cluster Shortening)

6 6
/\ /\ 
OR OR
/\ /\ 
CVCCCCV
/\ /\ 
ha hbli

(H-Accommodation--optional)

---

6 6
/\ /\ 
OR OR
/\ /\ 
CVCCCCV
/\ /\ 
ha hbli

(Syllabification)

---

6 6
/\ /\ 
OR OR
/\ /\ 
CVCCCCV
/\ /\ 
ha hbli

(Vowel Epenthesis)

---

6 6 6
/\ /\ /\ 
OROR OR
/\ /\ /\ 
CVCVCCV
/\ /\ /\ 
ha hbli

Because /bl/ is a possible onset in Choctaw, application of H-Accommodation yields a syllabifiable string, which thus does not undergo Vowel Epenthesis.

Note that H-Accommodation performs a function that might be thought to be by convention, syllabifying consonants adjacent to vowels at the expense of consonants not adjacent to vowels. The optionality of H-Accommodation shows that precedence in syllabification is
not based simply on superficial proximity to vowels, but also on the order of affixation and on specific phonological rules. Further evidence for this claim comes from the application of Metathesis in h-grades but not in hn-grades (discussed below), and from Stray Erasure in ' -grades (cf. section 6.7.3.).

In h-grades of stems containing clusters other than geminates or /bl/, the output of H-Accommodation still contains stranded melodic material. Thus, Vowel Epenthesis will apply regardless of whether H-Accommodation applies:

\[
(112) \begin{array}{c|c|c}
& 6 & 6 \\
R & O & R \\
\backslash & | & | \\
VC & C & V \\
| | | \\
ok & cha \\
\end{array}
\]

[H-grade]
\[
\begin{array}{c|c|c}
& 6 & 6 \\
R & O & R \\
/ & \ | & | \\
VC & C & V \\
| | | \\
ohk & cha \\
\end{array}
\]

(H-Accommodation--optional)
\[
\begin{array}{c|c|c}
& 6 & 6 \\
R & O & R \\
\backslash & | & | \\
VC & C & C & V \\
| | | | \\
ch & k & cha \\
\end{array}
\]
(Vowel Epenthesis)

\begin{verbatim}
6 6 6
| /| /|
R OR O R
| \| \|
V CVC C V
| || ||
o hok cha
\end{verbatim}

The result, after accent placement and suffixation of -h, is ohókchah 'she just got up'.

In Chickasaw, this process is also seen when a glottal stop precedes a geminate consonant (Munro 1985a). It applies most frequently in the y-grade, less often in the g-grade, and never in the 'grade:

(113) ilbashsha 'to be poor' (Cs)
ilbáyya'sha (y-grade)
ilbá'sha (g-grade)
ilbashsha- ('-grade)

(114) latasssa 'to be flat' (Cs)
látáyya'sa (y-grade)
láttassa (g-grade)
lattassa- ('-grade)

When H-Accommodation does not apply, Stray Erasure deletes the unsyllabified glottal stop. H-Accommodation never applies to a glottal stop in Oklahoma Choctaw. For example, the g-grade of kobaffih 'to break (tr)' is kóbbaffih, not *kóbbaaaffih.

When the base form contains a nasalized vowel followed by a single consonant, the corresponding vowel is nasalized in the h-grade as well:

(115) Chopah 'He bought it'
Chóhpah 'He just bought it'

Since the -h- is infixed immediately after the vowel, it
must be metathesized over the nasal before Nasalization can take place:

(116)  
   choNpa  
   chohNpa  [H-grade] 
   choNhpapa  (Metathesis) 
   chohpapa  (Nasalization)

Metathesis bleeds Vowel Epenthesis, which would otherwise give chohpah, which is the correct form for the hn-grade, but not the h-grade. Metathesis also applies in the 'grade, as in Chickasaw ikcho'po 'he didn't buy it' (cf. section 6.7.3.).

Metathesis applies to a postvocalic consonant sequence of increasing sonority (unsyllabifiable), yielding a sequence of decreasing sonority (syllabifiable). The rule can be formulated as follows:  

(117)  
\[
\text{Metathesis} \\
C \quad C \\
[+low] \quad [+nasal] \\
1 \quad 2 \quad \Rightarrow \quad 2 \quad 1
\]

The syllable boundary in this rule is required to prevent it from applying in h-grades of stems ending in VNCCV or VNV, or in hn-grades.  

Metathesis fails in h-grades of stems ending in VNCCV, such as lhapkoh 'to be strong':

(118)  
6 \quad 6 \\
/ \quad / \\
O \quad R \quad OR \\
/ \quad \backslash \quad / \\
CVCC \quad CV \\
|||\quad || \\
lhaNp \quad ko
Metathesis cannot apply because the nasal is syllable-medial. Instead, Vowel Epenthesis and Nasalization apply to give lhahapkoh.

Metathesis also fails in h-grades of stems ending in VNV, such as taanih 'to get up (from a lying position)'.

(119) 6 6
/\ /\
O R OR
/ \ /\
CV CV
\ \ \taa ni

6 6 [H-grade]
/ \ /\)
O R OR
/ \ /\)
CV C CV
/ \ /\taah ni

Metathesis cannot apply because the nasal is syllable-initial. Instead, Pre-Cluster Shortening applies to give tahnih.

Metathesis also fails in the hn-grade, e.g. the hn-grade of apah 'to eat (tr)'.

(120) 6 6
| | |
R OR
| | |
V CV
| | |a pa

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The nasal cannot be syllabified because it is higher on the sonority scale than the preceding /h/. Metathesis cannot apply because the nasal is not syllable-final. Instead, Vowel Epenthesis and Nasalization apply to give ahápah.

The application of Metathesis in chóhpah but not in ahápah provides evidence that existing syllabification is not routinely destroyed. After infixation, the two words contain intervocalic /hNp/ sequences, but they differ in syllabification. In chóhpah, the nasal was syllabified before infixation of the /h/, which is therefore unsyllabifiable:

(121)  
\[<\text{HN-grade}>\]
\[
\begin{array}{c}
6 \quad 6 \\
\text{R OR} \\
\text{VC CV} \\
ah \quad N \quad pa
\end{array}
\]

\[<\text{H-grade}>\]
\[
\begin{array}{c}
6 \quad 6 \\
\text{O R OR} \\
\text{C VC CV} \\
\text{choN pa}
\end{array}
\]

If infixation of consonants automatically triggered resyllabification working out from the vowel, the /h/
would be syllabified, leaving the /N/ stranded:

\[
\begin{array}{c|c|c|c|c|c}
6 & 6 & \hline \hline \\
\text{O} & \text{R} & \text{OR} & \hline \hline \\
\text{C} & \text{VC} & \text{CVC} & \hline \hline \\
\text{choh} & \text{N} & \text{pa} \\
\end{array}
\]

The syllabic structure of the cluster in (122) is identical to that of the cluster in ahapah (120), where both the /h/ and the /N/ are infixed material, and thus the /h/, being adjacent to the vowel, is syllabified at the expense of the /N/. Because chohpah, unlike ahapah, undergoes Metathesis, it must not be syllabified as in (122). Further evidence for the retention of existing syllable structure comes from Stray Erasure in the 'grade (cf. section 6.7.3.).

6.7.2. Segmental Rules: N-Grade and HN-Grade

The n-grade is derived by infixing a nasal consonant after the penultimate vowel of the stem. Since this nasal consonant will always precede a heteromorphic consonant, it will always undergo the Nasalization rule (cf. section 3.3.). Thus, there is no evidence whether it is /m/ or /n/, and it need not be specified for any place features.\(^\text{16}\) This nasal consonant is represented as /N/ in derivations below. Rules involved in the derivation of n-grades include Pre-Cluster Shortening, Stray Erasure,
Double Nasal Rime Rule, Limbih Rule, and Nasalization.

The hn-grade is derived by infixing -hN- after the penultimate vowel of the stem. Booker (1980:100) suggests that it derived historically from the coapplication of the h-grade and the n-grade. However, it cannot be so analyzed synchronically. Notice that in the h-grade the /h/ is metathesized over a following syllable-final nasal consonant. In the n-grade, on the other hand, the /n/ remains immediately after the penultimate vowel of the stem. Thus, the h-grade of a verb stem containing an /N/ after the penultimate vowel and the n-grade of a verb stem containing an /h/ after the penultimate vowel (followed by another consonant in each case) both surface with a nasalized vowel followed by an /h/:

(123)  
choNpa  'to buy'
chohNpa  [H-grade]
choNhpá  [Metathesis]
chohpa  [Nasalization]

(124)  
talohli  'to set (pl)'
talónhli  [N-grade]
talohli  [Nasalization]

In the hn-grade, however, the /h/ always precedes the nasalized vowel, e.g. hihlíhah 'he kept on dancing'.

Thus, if the hn-grade is analyzed as involving separate inflexion of -h- and -N-, either order of application of the two inflexion rules will give the wrong results:

(125)  
hilha  'to dance'
hihlha  [H-grade]
hiNhliha  [N-grade]
*hihlha  [Nasalization]
(126)  hilha
       hiNlha   [N-grade]
       hihNlha  [H-grade]
       hiNhIha  (Metathesis)
*hihlha   (Nasalization)\textsuperscript{17}

The solution is simply to analyze the hn-grade as involving a single infixation of \(-hN-\) after the penultimate vowel of the stem.\textsuperscript{18} The correct derivation of hih\text{\textunderscore}liah is given in (127) below. Rules involved in the derivation of hn-grades include Pre-Cluster Shortening, Vowel Epenthesis, Stray Erasure, the Double Nasal Rime Rule, and Nasalization.

One might analyze the hn-grade infix as \(-hvN-,\ with an empty V-slot in the infix, to be filled by rightward spreading. However, the failure of the Limbih Rule (discussed below) and Rhythmic Lengthening (cf. section 6.7.5.) in hn-grades can be accounted for by positing \(-hN-,\ with the vowel inserted by the independently motivated rule of Vowel Epenthesis.

Vowel Epenthesis applies in the derivation of every hn-grade, since two consonants are infixed before at least one stem consonant. The hn-grade of hilhah 'to dance' is derived as follows:

(127)  hilha
       hiNhIha   [HN-grade]
       hihNhIha  (Vowel Epenthesis)
       hihlha   (Nasalization)

The result, after accent placement and suffixation of \(-h,\ is hih\text{\textunderscore}liah. As indicated, Vowel Epenthesis feeds
Nasalization.

In the hn-grade of verb stems with consonant clusters after the penultimate vowel, Vowel Epenthesis applies between the first and second consonants of the resulting four-consonant cluster. The remaining three-consonant cluster after the inserted vowel does not undergo a second iteration of Vowel Epenthesis, since its first consonant is nasal and thus [-continuant]. The hn-grade of habishkoh 'to sneeze' is derived as follows:

(128)  
habishko  
habihNshko  [H-grade]  
habihíNshko  (Vowel Epenthesis)  
habihíshko  (Nasalization)

The result, after accent placement and suffixation of -h, is habihíškoh.

Pre-Cluster Shortening must apply before Vowel Epenthesis, as long vowels are shortened even when they precede a single consonant after epenthesis:

(129)  
shiibli  'to stretch'  
shiinhNbli  [HN-grade]  
shiinhNblí  (Pre-Cluster Shortening)  
shiinhNblí  (Vowel Epenthesis)  
shiiblí  (Nasalization)

The result, after accent placement and suffixation of -h, is shiiblí, never *shiiblí.

Stray Erasure applies in the derivation of n-grades and hn-grades of stems with nasalized penultimate vowels. In such forms, infixation leads to a sequence of nasal consonants, only one of which can be syllabified.
(130) 6 6 'to buy'

\[
\begin{array}{|c|c|c|}
\hline
O & R & OR \\
\hline
C & VC & CV \\
\hline
\end{array}
\]
choN pa

6 6 [N-grade]

\[
\begin{array}{|c|c|c|}
\hline
O & R & OR \\
\hline
C & VC & CV \\
\hline
cho N N pa
\end{array}
\]

6 6 (Stray Erasure)

\[
\begin{array}{|c|c|c|}
\hline
O & R & OR \\
\hline
C & VC & CV \\
\hline
choN pa
\end{array}
\]

6 6 (Nasalization)

\[
\begin{array}{|c|c|c|}
\hline
O & R & OR \\
\hline
C & VC & CV \\
\hline
cho pa
\end{array}
\]

The nasal infix cannot be syllabified because it is of equal sonority to the nasal consonant already present in the rime. It is subsequently deleted by Stray Erasure. The output is chopah, differing from the base form only in accent.

On the other hand, the hr-grades of stems containing geminate nasals after the penultimate vowel do not undergo Stray Erasure, but surface with three nasal segments:

(131) Fammih 'He whipped her'
Fahammih 'He keeps whipping her'
Such forms must be syllabified by a specific rule:

(132) Double Nasal Rime Rule

\[
\begin{array}{cccc}
R & R \\
C & C & C & C & C & C & \text{CV tier} \\
\downarrow & \downarrow \\
[+N] & [+N] & \Rightarrow & [+N] & [+N] & \text{Nasal tier} \\
\end{array}
\]

Unlike the Coda Rule, the Double Nasal Rime Rule is not subject to the Choctaw Sonority Scale, which requires that the first of two consonants in a rime be nasal and the second be oral (cf. section 3.1.2.).

In n-grades of stems containing geminate /bb/ or /ll/ after the penultimate vowel, the nasal infix assimilates in place to the geminate, which is degeminated:

(133) Limbih Rule

\[\begin{array}{cccc}
[ ] & [ ] & \text{Place tier} \\
\uparrow & \uparrow & \uparrow & \uparrow \\
C & C & \text{CV tier} \\
\downarrow \\
[+\text{nasa}l] & [+\text{consonantal}] & \text{Other tiers} \\
[+\text{voice}] \\
\end{array}\]

Condition: All consonants are syllabified.

b. Degemination

\[\begin{array}{cccc}
[ ] & \text{Place tier} \\
\uparrow & \uparrow \\
C & C & \text{CV tier} \\
\end{array}\]

Part a. of the Limbih Rule spreads the place features of the geminate onto the nasal, and part b. deletes the first half of the geminate.

The derivation of limbih 'it's lit' is given in

(134). (N represents the feature [nasal]. B represents
the labial place features. Other features are ignored or conflated onto the place tier for the sake of two-dimensional exposition.)

(134)  

\[ \begin{array}{c|c|c|c|c}
-N & -N & -N & -N & 'to flame' \\
\hline
C & V & C & C & V \\
\hline
i & i & B & i \\
\end{array} \]

\[ \begin{array}{c|c|c|c|c}
\hline
C & V & C & C & C & V \\
\hline
i & i & B & i \\
\end{array} \]

\[ \begin{array}{c|c|c|c|c}
-N & -N & +N & -N & -N & (Nasal Assimilation) \\
\hline
C & V & C & C & C & V \\
\hline
i & i & B & i \\
\end{array} \]

\[ \begin{array}{c|c|c|c|c}
-N & -N & +N & -N & -N & (Degemination) \\
\hline
C & V & C & C & V \\
\hline
i & i & B & i \\
\end{array} \]

The result, after accent placement and suffixation of \(-h\), is \(\text{limbih}\). Because the /m/ and the /b/ are partially linked, sharing place features, the Linking Constraint blocks Nasalization (cf. section 3.3.).

The Limbíbih Rule applies only in the n-grade, and not in the hn-grade. This can be accounted for by ordering the Limbíbih Rule before Vowel Epenthesis and stipulating that it applies only when all three consonants are syllabified. Before Vowel Epenthesis, the nasal consonant of the hn-grade infix cannot be syllabified:
Here Nasalization can apply, because the nasal consonant is not linked to the following consonant. The result, after accent placement and suffixation of -h, is lih\_bbih. Note that after Vowel Epenthesis there is no way to distinguish the nasal plus geminate cluster in the hn-grade, which does not undergo the Limbih Rule, from the identical cluster in the n-grade, which does. Thus, the Limbih Rule must be ordered before Vowel Epenthesis. The interaction of these two rules provides evidence for the
operation of Vowel Epenthesis in the hn-grade: if the
hn-grade infix were -hVN-, the only way to prevent the
Limbih Rule from applying in hn-grades would be a
stipulation that the the Limbih Rule does not apply in
hn-grades.

6.7.3. Segmental Rules: '-Grade

The '-grade is formed by infixing a glottal stop
after the penultimate vowel of the stem. In Chickasaw and
in Mississippi Choctaw of Oklahoma, the glottal stop
surfaces phonetically (when syllabifiable). However, in
Oklahoma Choctaw, it is realized as vowel length (when
syllabifiable). (The allophony of '/' is discussed in
section 4.4.) Other rules involved in the derivation of
'-grades include Pre-Cluster Shortening, Stray Erasure,
and Metathesis.

In Choctaw and Chickasaw, neither glottal stops nor
vowel length deriving therefrom occur before consonant
clusters or geminate consonants.20 Stray Erasure will
delete glottal stops inserted before consonant clusters or
geminates, as in the '-grade of kobaffi- 'to break (tr)'}

\[
\begin{array}{llll}
136 & 6 & 6 & 6 \\
/ & / & / & / \\
OR & OR & OR \\
\| & \| & \| & \| \\
CV & CVC & CV \\
\| & \| & \| & / \\
kobafi & i
\end{array}
\]

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The result, after accent placement, is kobaffi-. Notice that this analysis entails that strings not be syllabified anew after each phonological or morphological operation, but that existing syllable structure be maintained except where it matches the structural description of a resyllabification rule. Desyllabification and resyllabification would yield the wrong result:

(137) 6 6 6 ['-grade] (and Resyllabification)

6 6 6 (Stray Erasure)
(Glottal Stop Deletion
and Compensatory Lengthening)

The 'grade of kobaffi- is not *kobáafi-.

In Choctaw, syllabification is "first come, first served" (cf. section 3.1.). In an unsyllabifiable
cluster, it is the consonant added last in the derivation
that is deleted, not the consonant that is furthest from
the syllable nuclei. In languages without consonant
infixation, the last-added consonant will also typically
be the furthest from the nucleus, and there may not be
evidence against resyllabification from scratch after each
phonological or morphological operation. But the Choctaw
data does provide such evidence. It shows also that
syllabification is a matter of constituency, not simply of
boundaries. The syllable structure of the intermediate
stage of derivation (136) could not be represented with
brackets: the glottal stop is surrounded by constituents
of a syllable, but is not itself a constituent of that
syllable.21

Metathesis (cf. section 6.7.1.) applies in the
derivation of 'grade of stems containing nasalized
penultimate vowels. Metathesized glottal stops surface in
Chickasaw, but are deleted by Glottal Stop Deletion (cf.
section 4.5.) in Oklahoma Choctaw:
(138) Ikcho'po 'He didn't buy it' (Cs)
     Ikchɔpoh 'He didn't buy it' (Ct)

The nasal vowel in the Choctaw form is no longer than other nasal vowels. In other words, there is no compensatory lengthening here. This follows from Steriade's formulation of Compensatory Lengthening (cf. section 2.2.), which requires that the deleted segment immediately follow the vowel in order for compensatory lengthening to occur, as previously claimed by de Chene and Anderson (1979). Moreover, de Chene and Anderson argue that compensatory lengthening can arise only when there is an independently attested length distinction in the language. Since Choctaw does not have an independent contrast between two-mora vowels and three-mora vowels, loss of a glottal stop after a two-mora vowel cannot result in a three-mora vowel.

6.7.4. Segmental Rules: G-Grade and Y-Grade

The g-grade is formed by the infixation of a glottal stop after the penultimate vowel and an empty C-slot before the consonant preceding the penultimate vowel. The consonant gets its melody by leftward spreading of the following consonant. The glottal stop, of course, is realized as vowel length in Oklahoma Choctaw (cf. section 4.4.).
(139) kobafa 'to break (intr)'
kobba'fa [G-grade]22
kobbaafaf (Glottal Stop Deletion & CL)
The result, after accent placement and suffixation of -h,
is kóbbaafoh. The glottal stop of the g-grade will
undergo Stray Erasure (cf. section section 7.1. above)
when infixed before a geminate or consonant cluster:

(140) kobaffi 'to break (tr)'
kobba'ffi [G-grade]
kobbaffi (Stray Erasure)
The result, after accent placement and suffixation of -h,
is kóbbaffih.

The question now arises of the exact relationship
between the y-grade and the g-grade. Booker (1980:103)
equates the [y] in the y-grade with the gemination of the
consonant before the changing vowel in the g-grade.
According to Booker, -y- is inserted after the
antepenultimate vowel of the stem and assimilated to the
following consonant. In disyllabic stems, the -y- is
inserted after the penultimate vowel. In this case, the
/y/ does not assimilate to the following consonant.
Instead, a copy of the previous vowel is inserted and the
/y/ is geminated. Booker (1980:103, #14ab) gives the
following derivations:

(141) Trisyllabic stem (Complex1) [=G-grade]23
anoli 'to tell'
aynoli y-insertion
annoli Assimilation/gemination
ánnoli Accent
ánno:li Length

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(142) Disyllabic stem (Complex2) [=Y-grade]
lawa  'be many'
laywa  y-insertion
layawa  Reduplication
lāyyawa  Gemination
lāyyawa  Accent
lāyya:wa  Length

The common steps in the two derivations are y-insertion, accent, and length. The geminate consonant in the y-grade arises from morphologically-triggered gemination, while the geminate consonant in the g-grade arises from assimilation of an infixed -y-. There is no independent evidence for this assimilation of /y/ to a following consonant.

Nicklas (1972:93, 1975:241) presents a more attractive analysis, which Booker, oddly enough, does not argue against. He states that the changing vowel is changed to VyV, and that the resulting form is subjected to the normal rules for deriving the y-grade (my g-grade) of trisyllabic stems. Under this analysis, the y-grade differs from the g-grade only in first inserting /y/ and a copy of the penultimate vowel. The geminate consonants in both forms arise from the same morphological process of gemination. Nicklas's account of the y-grade is thus more satisfactory than Booker's, which derives the geminate consonants in one case by morphological gemination, in the other case by a phonological assimilation not motivated elsewhere in the grammar. On the other hand, Booker's analysis does relate the [y] of the y-grade to the
g-grade, but to the wrong element of the g-grade. A better correlation can be made by looking at the y-grades used by Mrs. Wade.

In the speech of Nicklas's consultants, the penultimate vowel is lengthened in the y-grade if it is followed by a single consonant, e.g. kobáyyaafah 'it finally broke'. Similarly, in Chickasaw a glottal stop is infixed between the penultimate vowel and a single consonant, e.g. kobáyya'fa. Thus, in these varieties of Western Muskogean, the y-grade has the form of the g-grade of a form with -yV- infixed after the penultimate vowel. However, in Mrs. Wade's speech, the penultimate vowel is not lengthened in the y-grade: kobáyyafah. This suggests that, if the y-grade is to be related to the g-grade, the [y] in the y-grade should be related to the lengthening in the g-grade. G-grades in Chickasaw and Mississippi Choctaw of Oklahoma show that the vowel lengthening comes from an infixed glottal stop. And the glottal stop is already known to alternate with intervocalic [y], as discussed in section 4.4 above.

Thus, for Mrs. Wade, the y-grade differs from the g-grade only in the insertion of a copy of the penultimate vowel:
(143) g-grade  y-grade
kobafa  kobafa  'to break'
koba'fa  koba'fa  [G-grade: ']
    ---  koba'a fa  [Y-grade: V]
kobaafa  kobayafa  (Glottal Gliding)
kobbaafa  kobayyafa  [G-grade: C]
kóbbaa fa  kobáyyafa  [G-grade: Accent]

The g-grade is formed in three steps: first, -'-' is infixed after the penultimate vowel. Second, an empty C-slot is infixed before the consonant preceding the penultimate vowel. Finally, the antepenultimate vowel is accented (see section 6.7.6. below). In between the first two steps, an empty V-slot may be infixed after the glottal stop to yield the y-grade. If the empty V is infixed, the glottal stop will be intervocalic, and hence will be realized as [y]. The copy vowel is now the penultimate vowel, so it is that [y] that is geminated by the second part of the g-grade rule. If, on the other hand, an empty V is not infixed, the glottal stop will be preconsonantal, and so will be realized as length on the preceding vowel. The original penultimate vowel remains the penultimate vowel of the stem, so it is the preceding consonant that is geminated by the second part of the g-grade rule.

In Western Muskogean dialects where vowels are lengthened in the y-grade, it can be analyzed as infixation of -yV- before the first step of the g-grade.24 However, in Mrs. Wade's speech, it cannot be so analyzed, but must be analyzed as infixation of -V- between the
first two steps of the g-grade. When the penultimate vowel is followed by a consonant cluster, however, the two methods of derivation yield the same form:

(144) Mrs. Wade's Choctaw:
  talohli  'to set (pl)' 
  talo'qli [G-grade: ']
  talo'ohl [Y-grade: V]
  taloyohli (Glottal Gliding)
  taloyyohli [G-grade: C]
  talóyyohli [G-grade: Accent]

(145) Other WM varieties:
  talohli  'to set (pl)' 
  taloyohli [Y-grade: yV]
  taloyo'hli [G-grade: ']
    --- (Glottal Gliding)
  taloyo'hli (Stray Erasure)
  talo'yohli [G-grade: C]
  talóyyohli [G-grade: Accent]

In Mrs. Wade's dialect, the vowel inserted in the y-grade causes the glottal stop to undergo Glottal Gliding. In the other dialects, where the inserted vowel precedes the glottal stop, the latter cannot be syllabified, so it undergoes Stray Erasure. Such forms, susceptible to either analysis, may have been the pivot for reanalysis of the y-grade. If Mrs. Wade's forms are conservative, they provide an explanation for the occurrence of a [y] in the y-grade, by relating it to the glottal stop of the g-grade.

Nicklas's (1972:94f) "simple method" of forming the intensive consists of lengthening the penultimate vowel and placing a falling tone on it. The simple method is used when the penultimate vowel is preceded by a consonant

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cluster, and also with disyllabic stems. Nicklas suggests that this might be a different grade. Booker (1980:104f), on the other hand, derives these forms by deletion of /yy/ from y-grades formed by the "complex method".

However, once the y-grade and the g-grade have been recognized as distinct, though synonymous, grades, Booker's analysis becomes suspect. Stems of three or more syllables with a single consonant before the penultimate vowel occur in both the y-grade and the g-grade (Nicklas and Booker's complex methods) e.g. kobafah, kobáyyafah, kóbbaaafah. Disyllabic stems occur in the y-grade, and in the form derived by Nicklas and Booker's simple method, e.g. bashah, báyyashah, baashah. Thus, it would be simplest to equate the simple method forms with the g-grade, rather than the y-grade. This can be easily done.

The g-grade formation rules already discussed apply to disyllabic stems to give forms with initial geminates:

(146) basha  'to be cut'
    ba'sha  [G-grade: ']
    baasha  (Glottal Stop Deletion & CL)
    bbaasha  [G-grade: C]

The first half of an initial geminate is unsyllabifiable, so such forms then undergo Stray Erasure.

Stray Erasure also simplifies initial geminates after the optional deletion of initial /i/ (cf. section 7.4.). For example, issito' 'pumpkin' is often pronounced sito'

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after deletion of the /i/ and degemination of the subsequently initial /ss/. Similarly, ittashikonoblih 'to tie a knot' is often pronounced tashikonoblih.

Stray Erasure also applies when the stem has a consonant cluster before the penultimate vowel:

(147) toksalì 'to work'  
toksa'li [G-grade: ']  
toksaali (Glottal Stop Deletion & CL)  
tokssaali [G-grade: C]

Vowel Epenthesis does not apply here because no melodic material is stranded, the unsyllabified consonant being half of a geminate. Stray Erasure applies to the infix consonant to degeminate the /ss/.

In g-grades where Stray Erasure degemimates the consonant geminated by the -C- infix, the penultimate vowel bears a falling tone (cf. section 6.7.6.). This vowel is long even when it precedes a consonant cluster:

(148) Baashlih 'He finally cut it'

Rather than somehow allowing syllabification of the glottal stop in such forms, it is easier to have a rule lengthening a short vowel when it bears a falling tone.

Two optional Vowel Raising rules apply within y-grades:

(149) A-Raising (2)

\[
\begin{array}{c}
V \\
[-low] \rightarrow [-low] / \quad [-back] / \\
\end{array}
\]

\[
\begin{array}{c}
C \\
\text{round}
\end{array}
\]

\[
\begin{array}{c}
C \\
\text{consonantal}
\end{array}
\]

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(150) O-Raising

\[
V \quad C \quad C
\]

[+round] --> [+high] / \quad [\neg\text{consonantal}] \quad [\neg\text{round}]

This A-Raising rule cannot be collapsed with the A-Raising rule that applies in v2's (cf. section 5.4.) for two reasons. First, the earlier rule is obligatory, while the later rule is optional. Second, the Linking Constraint prohibits the earlier rule from applying before geminate /yy/.

The rule of O-Raising shows considerable variation. The /o/ before the geminate /yy/ may be raised to [u] (as in the rule stated above), [i], or [ü]. At least one speaker of Chickasaw pronounces the whole /oyyö/ sequence as [ü:].

6.7.5. Rhythmic Lengthening and Grade Formation

Rhythmically lengthened vowels do not appear adjacent to grade infixes, i.e. in the final or penultimate vowel of a stem in any grade or the antepenultimate vowel of stem in the g-grade or y-grade or in another grade where Vowel Epenthesis has applied. Many of these positions are always in or after heavy syllables, where Rhythmic Lengthening would not be expected, but there are also surface exceptions to Rhythmic Lengthening, such as kobahāffih 'he just broke it'.
Rhythmic Lengthening might be expected to apply either before or after grade formation. For instance, Rhythmic Lengthening applies to the second vowel in the basic grade of kobafah 'to break (intr)'. One would therefore expect that it would do so in the derivation of the h-grade kobáhfah, before infixation of -h-. If Rhythmic Lengthening takes place in the stem before formation of the h-grade, then infixation must trigger destruction of metrical structure. Alternatively, Rhythmic Lengthening may apply non-cyclically, after all level one affixation.

What then about Rhythmic Lengthening on the grade formation cycle? Here lengthening of the penultimate stem vowel can be prevented by ordering Rhythmic Lengthening before Vowel Epenthesis:

(151)  
\begin{verbatim}
   kobaffi    \text{ 'to break (tr)'}  
kobahffi   \text{ [H-grade]}  
---         \text{ (Rhythmic Lengthening)}  
kobahaffi  \text{ (Vowel Epenthesis)}
\end{verbatim}

At the time Rhythmic Lengthening is applicable, the /a/ is in a closed syllable. By the time Vowel Epenthesis has opened the syllable, Rhythmic Lengthening can no longer apply. Ordering Vowel Epenthesis before Rhythmic Lengthening would give the wrong results:

(152)  
\begin{verbatim}
   kobaffi
kobahffi   \text{ [H-grade]}  
kobahaffi  \text{ (Vowel Epenthesis)}  
*kobáhaffi \text{ (Rhythmic Lengthening)}
\end{verbatim}

Thus, Rhythmic Lengthening must be ordered before Vowel
Epenthesis.

Rhythmic Lengthening provides evidence that the infix for the hn-grade is \(-\text{hN-}\), and not \(-\text{hVN-}\). Rhythmic Lengthening fails before the hn-grade infix, just as it does before the h-grade infix, since it is ordered before Vowel Epenthesis:

(153) \[
\begin{array}{l}
kobaffi \\
kobahNffii \\
--- \\
kobahahaNffii \\
kobahahaaffii \\
\end{array}
\]

[HN-grade] 
(Rhythmic Lengthening) 
(Vowel Epenthesis) 
(Nasalization)

The result, after accent placement and suffixation of \(-\text{h}\) is kobahaffii 'she finally broke it', with an unlengthened /a/.

If the hn-grade infix were \(-\text{hVN-}\), we would expect Rhythmic Lengthening to apply:

(154) \[
\begin{array}{l}
kobaffi \\
kobahaNffii \\
kobahaahNffii \\
--- \\
*\text{ kobahaaffii} \\
\end{array}
\]

[HN-grade] 
(Rhythmic Lengthening) 
(Vowel Epenthesis) 
(Nasalization)

Thus, analyzing the hn-grade infix as \(-\text{hVN-}\) would require an explicit statement that the vowel preceding the infix is immune to Rhythmic Lengthening. It is not clear how this would be stated within the metrical framework being used.\(^{25}\) Consequently, the hn-grade infix should be analyzed as \(-\text{hN-}\), with Vowel Epenthesis applying in every hn-grade, but only after Rhythmic Lengthening has failed.

In most grades, the stem-final vowel would never be
expected to undergo Rhythmic Lengthening, since it is always preceded by a cluster consisting of a grade infix and at least one stem consonant. Vowel Epenthesis applies only into a three-consonant cluster, leaving a two-consonant cluster before the final vowel of the stem. However, in the y-grade, for speakers like Mrs. Wade who have a short vowel after the geminate /yy/, the stem-final syllable is the second consecutive light syllable. Thus, it might be expected to undergo Rhythmic Lengthening when followed by a suffix such as the first person singular nominative suffix. But in fact, it does not:

(155) Nóyyosi-li-h 'I finally slept'
sleep:y-1sNom-v

Here the ordering of Rhythmic Lengthening and Vowel Epenthesis does not explain the failure of the former, since the vowel that fails to trigger Rhythmic Lengthening is infixed morphologically, and the vowel that fails to undergo Rhythmic Lengthening is part of the stem.

Nor can the problem be solved by ordering Rhythmic Lengthening before the y-grade. If this is a non-cyclic level, then all morphological operations must precede all phonological rules of the level.26 If, on the other hand, this is a cyclic level, then the cycle at which Rhythmic Lengthening must be prevented from applying is not the y-grade cycle, where the syllable in question is final anyway. Rather, Rhythmic Lengthening must be blocked on
the following cycle, where -li is added. Elsewhere, -li
does allow Rhythmic Lengthening:

(156)  Nóssí-li-h 'I'm asleep'
sleep-lsNom-v

Thus, Rhythmic Lengthening must be explicitly blocked
after the y-grade.

The vowel infix of the y-grade need only be specified
as accented (in the metrical, not tonal sense). Accented
syllables count as heavy syllables (Hayes 1981). As such,
they cannot constitute the weak sister of a foot:

(157)  \ /  \ /
       w   s
       noy.yo.si.li

Because the /yo/ syllable, as an "honorary heavy
syllable", cannot be labelled w, the /si/ syllable is the
first light syllable, and so cannot be lengthened. The
/li/ syllable is not lengthened because it is final.

If two syllables are added after grade formation but
within the Rhythmic Lengthening domain, the first can be
lengthened:

(158)  \ /  \ /
       w   s
       Nóyyosichilíih 'I finally made him sleep'

Because the causative suffix is non-final at level one, it
is lengthened: nóyyosichilíih.
6.7.6. Accent Placement in Verb Grades

Some verb stems bear a lexical accent, in most cases on the penultimate syllable (159), though in a few cases on the antepenultimate syllable (160):

(159) achólih 'to sew'
(160) yóppachíh 'to cause to laugh'

This lexical accent is lost in the grades. The vowel accented in grade-formation is usually the vowel that bore the lexical accent, but in cases where they differ it is the grade-assigned accent that occurs:

(161) ṣáchcholíh 'He finally sewed it'
*áchcholíh
*áchchólih

(162) yóppaháchíh 'She keeps making him laugh'
*yóppahachíh
*yóppaháchíh

Thus, before the grade tonal pattern is associated, any existing tones must be deleted.

Associated with the h-grade, n-grade, hn-grade, and 'grade is a HL accent pattern. Tones are associated with syllables from right to left. That is, the final low tone is associated with the final syllable of the stem, and the high tone is associated with the penultimate syllable of the stem. For example, the h-grade of talowah 'to sing' is derived as follows:
Any syllables preceding the accented syllable will be assigned a low tone by the Default L rule (cf. section 3.4.).

Tones are associated with syllables; long vowels normally receive only a single level tone. For example, the antepenultimate accent in the g-grade of talaalih 'to set down' falls on the first syllable, not on the first mora of the second syllable: tállaalih, *tallāālīh. Moreover, where contour tones do occur, they are not, in general, limited to long vowels. Rising tones occur on the final syllables of words with penultimate accent, regardless of vowel length (cf. section 3.4.). Falling tones arise in the g-grades of disyllabic stems or of
stems containing a consonant cluster before the penultimate vowel. In Oklahoma Choctaw, these falling tones are always on long vowels. In Chickasaw, however, the corresponding vowels are short, but still bear falling tones (Munro 1985a):

(164) oklîhî'li 'to be dark (g-grade)'
(165) lâshpa 'to be warm (g-grade)'

These Chickasaw forms are identical to the Oklahoma Choctaw forms at an intermediate stage of the derivation. In Oklahoma Choctaw, pre-consonantal glottal stops are deleted with subsequent compensatory lengthening (cf. section 4.4.), and short vowels bearing falling tones are lengthened (cf. section 6.7.4.). Note, however, that it is the falling tone that triggers the lengthening; the vowel in question is associated with two tones on the basis of its position, not of its length.

The g-grade and y-grade also have a HL accent pattern. But, unlike the other grades, they require that the final syllable of the stem be marked as extratonal. Again, tones are associated with syllables from right to left. In this case, it will be the antepenultimate syllable that receives the accent, as in the g-grade of patolih 'to touch':

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The result, after suffixation of -h, is pattoo lh, with antepenultimate accent. After the final syllable of the stem loses its extratoneity, it will get a high tone if final, or a low tone (by the Default L rule) if non-final.

In the g-grade of a disyllabic stem, the high tone will be associated with an accusative prefix, if present, as in the g-grade of sabashah 'I got cut':

(167) \[ \begin{array}{c|c|c|c|c} H & L & x \\
6 & 6 & 6 \\
\hline
\hline
\hline
\hline
CVC & CVV & CV \\
\hline
\hline
pat & o & li \\
\end{array} \]

The result is sabaasha shah 'I finally got cut', with accent on the accusative prefix.

If there is no prefix on the verb, right-to-left association will not associate the high tone with any syllable, as in the g-grade of bashah 'to be cut':

(166) \[ \begin{array}{c|c|c|c|c} H & L & x \\
6 & 6 & 6 \\
\hline
\hline
\hline
\hline
CVC & CVV & CV \\
\hline
\hline
pat & o & li \\
\end{array} \]
(168) \[ \begin{array}{c}
H \\
L \\
x \\
6 \\
6 \\
/ | / | \n\end{array} \]

The high tone is associated with the initial syllable of the stem by a rule of H-Docking:

(169) \[ \begin{array}{c} \text{H-Docking} \\
T \\
\end{array} \]

This rule associates a floating tone with the syllable associated with the following tone. The initial syllable then bears two tones:

(170) \[ \begin{array}{c}
H \\
L \\
/ / x \\
6 \\
6 \\
/ | / | \\
\end{array} \]

The result, after simplification of the geminate by Stray Erasure and suffixation of -h, is baashah, with a falling tone on the initial syllable.

These falling tones make it necessary to include a low tone in the tonal formative for the grades. One might otherwise devise some other mechanism for placing the high tone on the correct syllable, and insert all low tones with the Default L rule (cf. section 3.4.). However,
under such an analysis, there would be no motivation for associating low tones with certain syllables already associated with high tones, to yield a falling tone. The explicit low tone in the tonal formative for the g-grade and y-grade capture the generalization that the penultimate syllable of the stem is associated with (at least) a low tone, while the antepenultimate or stem-initial penultimate syllable is associated with (at least) a high tone.

Note that it is only the low tone immediately after the high tone that needs to be part of the tonal formative for the g-grade and y-grade. Falling tones provide no evidence for the morphological or phonological origin of the low tones in the final syllable of antepenultimately accented stems. Word-final rising tones, however, provide evidence both for the morphological origin of the low tone on the penultimate vowel and for the phonological origin of the low tone on the final vowel.

The word-final accent (cf. section 3.4.) results in a rising tone if the penultimate syllable of the word has a high tone, but it results in a high tone if the penultimate syllable of the word has a low tone. For example, a penultimately accented grade that has gained no syllables by subsequent suffixation has a rising tone on its final syllable, while a penultimately accented grade that has gained syllables by subsequent suffixation has a
high tone on its final syllable:

(171) \[ \begin{array}{c}
L & H & L & H \\
\end{array} \]

Ik-hiilh-o-h 'He didn't dance'  
Hyp-dance:'-neg-v

(172) \[ \begin{array}{c}
L & H & L & H \\
\end{array} \]

Ik-hiilh-o-tok 'He didn't dance'  
Hyp-dance:'-neg-pt

As discussed in section 3.4., the correct forms can be derived by including a single low tone in the tonal formative and inserting all other low tones by rule after the word-final high tone has been associated.

The word-final accent is always realized as a high tone in antepenultimately accented grades:

(173) \[ \begin{array}{c}
H & L & H \\
\end{array} \]

Kobbaafa-h 'It finally broke'  
break:g-v

Thus, the tonal formative for these grades must also be HL. If it were HLL, the final syllable would have a rising tone. Consequently, all grades have the same tonal melody. In fact, all lexically accented nouns and verbs, and the nominalizing morpheme have the same tonal melody: HL\textsuperscript{.27}

Because accent placement in Choctaw verb grades and nominalizations is determined relative to the end of the stem, rather than the beginning, association must be from right to left. While left-to-right association has been assumed to be a universal convention (e.g. Goldsmith

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1976), this assumption does not follow from any basic tenet of autosegmental theory. Since stress is assigned from left to right in some languages and from right to left in others, it is not surprising that pitch accent shows the same variation. Right-to-left association has been proposed for Hausa by McHugh (1982).

While the analysis given in this section provides a reasonable account of the g-grades of disyllabic stems, it cannot handle the g-grades of stems with consonant clusters before the changing vowel, such as toksalih 'to work'. Where one would expect forms such as *tóksaalih, one instead finds toksaalih 'she finally worked'. Nicklas (1972:94) reports forms such as the latter, but then suspects that he may have misheard them, and that they might actually be accented on the antepenult. Unfortunately, he heard them correctly, and they remain unaccounted for.
Notes.

1. Booker (1980:100) suggests that the Choctaw hn-grade has no direct cognate in Creek, but results from a combination of the h-grade and the n-grade (cf. section 6.7.2.). The first principal part of the Creek verb is the base form, or completive I, cognate with the Choctaw base form.

2. The origin of the term "g-grade"--"g" standing for "geminate"--is somewhat mysterious. It has been in use among UCLA Muskogeanists since 1983, but no one can recall who coined it.

3. If the phonemic status of the glottal stop were rejected--in spite of the arguments given in section 4.4.--nominalization would look even less like grades, as it would then involve no affixation of segmental material whatsoever.

4. According to Nicklas (1972:82) the causative suffix -chi is added before grade formation, and Mrs. Wade prefers forms derived in this way. However, she also accepts forms in which the causative suffix is added after grade formation:

(i) Yokop-li-chi-li-h --> Yokoblichilih
stop-act-caus-1sNom-v
'I stopped it'

(ii) Yokoblichilih - Yokkoblichilih
'I finally stopped it'

In the g-grade in (ii), the changing vowel may be either the penultimate vowel of yokobli- or the penultimate vowel of yokoblichi-.

Munro and Willmond (1984b) give a few examples of the causative suffix being added after grade formation, e.g.:

(iii) falaachi 'to make long'
    faláachi 'to make longer'

(iv) lashpachi 'to warm'
    láshpachi - lashpanchi 'to make warmer'

These two n-grades were the only examples I found in a search of seventy-two single-spaced pages of Munro and Willmond's dictionary.
5. The term "short verb", referring specifically to verbs of the shape VCV, is due to Pamela Munro, who promises to write something about them someday.

6. The h-grade is "quite rare" in the Mississippi Choctaw dialects investigated by Heath (1980:5). It is also less productive than the other grades in Chickasaw (Munro 1985a). However, the h-grade is fully productive for Mrs. Wade.

7. I have glossed ahikah and fokkah with English stative verbs here to save space. As the discussion above indicates, the basic forms of these verbs denote a change of state. In fact, fokkah literally means 'to enter', and is used in other contexts as the opposite of kochchah 'to exit'.

8. Mrs. Wade once told me Pisalih means 'I see it' and Pisalih means 'I seen it'. Other speakers say that one means 'see' and the other means 'look at'.

9. Lynn Gordon (personal communication) has referred to this restriction as the Yoyo Constraint.

10. Chickasaw nasals before oral stops are realized as homorganic nasal stops, rather than vowel nasalization as in Choctaw (cf. Munro and Ulrich 1984b). The negative form, however, displays the nasalized vowel followed by a glottal stop under discussion here.

11. Verbs can also be negated periphrastically, with the auxiliary kiyoh. Cf. section 7.2.4.

12. Vowel Epentheses does not apply if the unsyllabified consonant is half of a linked (i.e. underlying or assimilated) geminate. However, Vowel Epentheses may or may not apply in h-grades of stems with /HC/ clusters (cf. section 6.2.), with heteromorphic geminates. Perhaps there is an optional rule converting unlinked /hh/ into linked /hh/:

\[
\begin{align*}
(i) & \quad C \quad C \\
| \quad | & \quad \rightarrow \quad \backslash \quad / \\
\quad h \quad h & \quad h
\end{align*}
\]

Note that no such rule operates with heteromorphic geminate nasals, which consistently undergo Nasalization (cf. section 3.3.)

13. H-Accommodation may once have applied to /l/. Byington (1915) lists alhkoha' 'molded' and akkohliih 'to
mold' (CB: vlohko, akkohli). Mrs. Wade does not know these words. On the other hand, holloppip 'to be buried' (v2 hoppih 'to bury') illustrates Vowel Epenthesis rather than L-Accommodation.

14. The feature [+low] is required because Metathesis does not appear to apply to the medio-passive infix -l-. I know of two examples. Ilhap 'food' is presumably derived from *ipah 'to eat (intr)' by means of the medio-passive infix -l- (cf. section 5.2.3.) and suffixation of -k. The absence of nasalization in the noun suggests that Metathesis does not apply, leaving the nasal between oral consonants: iliNpa-. Vowel Epenthesis should then apply to give iliNpa-, and this form indeed occurs (with final -' instead of -k): illipa' 'food'. (Byington (1915) lists illipak (CB: illimpak) as well.) Vowel Epenthesis is apparently optional in this word. If it does not apply, the -l- replaces the nasal in the rime (irregularly), Stray Erasure deletes the nasal, and the /l/ is devoiced by L-Voicing Assimilation (cf. section 5.4.).

Similarly, holhkopa' 'stolen' (CB: hulhkupa) is the nominalization of the vl of hokopah 'to steal'. Here Vowel Epenthesis may not apply: *hollo*kopa' is unattested.

15. The syllable boundary in the cyclic metathesis rule makes it impossible to collapse this rule with the metathesis rule that applies in underived environments, which always operates on a syllable-final /h/ and a syllable-initial /n/ (cf. section 3.3.). Note also that the non-cyclic rule never applies to sequences of glottal stop plus nasal.

16. Underspecification of features, while traditionally controversial, is commonplace in CV theory (e.g. Clements 1985) and in Lexical Phonology (e.g. Kiparsky 1983). In any case, the underspecified nasals in Choctaw could be fully specified as either /m/ or /n/ without ill effects.

17. This derivation assumes that Nasalization has not applied before the formation of the h-grade. If Nasalization had applied, the derivation could give any of three incorrect outputs. If the -h- were infixed after the linked VC structure, it would give the same (incorrect) result as derivations (125) and (126) in the text. If the -h- were infixed before the linked VC structure, it would yield *h'ilhah by Stray Erasure. If the -h- were infixed into the linked VC structure, it would presumably divide the long nasal vowel into two short nasal vowels (which do not occur in Choctaw at all),

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yielding *hɪɬɪɬhah.

18. In verb stems containing consonant clusters after the penultimate vowel, the hn-grade could be derived either by infixation of -hN- (as in stems containing a single consonant after the penultimate vowel):

(i)  
ishko     'to drink'  
ihnshko   [HN-grade]  
hɪnshko   (Vowel Epenthesis)  
hɪshko    (Nasalization)

or by formation of the n-grade of the h-grade:

(ii)  
ishko     'to drink'  
ihanshko  [H-grade]   
hɪnshko   (Vowel Epenthesis)  
hınshko   [N-grade]  
hɪshko    (Nasalization)

In (ii), infixation of -h- creates a three-consonant cluster, which is broken up by Vowel Epenthesis. The epenthetic vowel is now the penultimate vowel of the stem, so it is after this vowel that -N- is infixed. Such forms, susceptible to either analysis, may have been the pivot for reanalysis of the hn-grade as involving a single infixation of -hN-, from an earlier stage involving successive infixation of -h- and -N-.

19. I am not sure whether this rule applies before geminate nasals. If it does, the n-grade of bannah 'to want', for example, would be bánnah, differing from the base form only in accent. If the rule does not apply, it would be bannah. If the latter is the case, [-nasal] should be added to [+consonantal, +voice] in the rule in (133).

20. Choctaw g-grades with falling tones before consonant clusters are apparent exceptions to this characterization. Cf. section 6.7.4.

21. I thank Bruce Hayes for helping me recognize these implications of Choctaw syllabification.

22. It will be shown later that the infixation of the C-slot should be separated from the infixation of the glottal stop. They are combined here for the sake of convenience.

23. The verb 'to tell' is actually anoolih, with a long /oo/. The last step of the derivation, that of vowel
lengthening, is thus vacuous.

24. Alternatively, it could be analyzed as infixation of -Vṛ- before the penultimate vowel either before or between the first two steps of the g-grade. It could not be analyzed as infixation of -yVṛ- after the penultimate vowel after the infixation of -',- for that ordering would lead to syllabification of the glottal stop at the expense of the first consonant in a stem cluster.

25. The failure of Rhythmic Lengthening in hn-grades could not be accounted for with the mechanism used below for y-grades, namely stating that a particular syllable is accented (metrically, not tonally), counting as a heavy syllable. In the y-grade, it is the infixed vowel that cannot trigger lengthening of the following syllable. In the hn-grade, on the other hand, it is the syllable before the infix that cannot undergo lengthening. Syllables cannot be specified as obligatorily weak. Thus, the only way to insure that the syllable before the hn-grade infix was weak would be to state that the hn-grade caused the syllable two syllables back to count as a heavy syllable. But that syllable can undergo Rhythmic Lengthening:

(i) Sahilhahâchih 'He keeps making me sing'

Heavy syllables do not undergo Rhythmic Lengthening. Thus, the /hi/ syllable in (i) cannot count as a heavy syllable. Consequently, there is no way to prevent lengthening of the /ha/ syllable by associating a metrical accent with the hn-grade.

26. I am assuming that morphological rules precede phonological rules only as predicted by level-ordering. Of course, this hypothesis may be too strong. However, the facts under discussion here, which can be easily handled in another way, do not warrant rejecting it.

27. An alternative analysis, suggested by Steve Anderson and by Brian McHugh, would involve a HLL melody for the g-grade. Such an analysis would not require extratonicity. On the other hand, it would conflict with the Obligatory Contour Principle (Leben 1973), and it would require a rule simplifying rising tones in the g-grade but not in penultimately accented grades:

(i) Rising Tone Simplification
L \rightarrow 0 / L \overline{H}

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In keeping with my practice throughout this dissertation, I have chosen not to posit a morphological origin for tones where they can be derived phonologically. Of course, the balance between morphology and phonology is—as Anderson insists—worthy of further investigation.
Chapter 7. Agreement and Possession

7.1. Introduction

Choctaw has a rich agreement system. Virtually all nominals in a sentence govern verb agreement. Moreover, since independent pronouns are rare in Choctaw, a verb inflected for all its arguments may constitute a complete sentence. There are three sets of markers used to mark agreement with subjects of different verbs, two of which are also used to mark agreement with non-subjects and on possessed nouns to mark possessors. There is also a set of agreement markers occurring primarily on negated verbs. These four sets of markers, known as nuclear agreement markers, are discussed in section 7.2. In addition to the nuclear agreement markers, there are five sets of markers used to mark agreement with non-subjects. These markers, known as oblique agreement markers, are discussed in section 7.3. Several irregular participial forms function somewhat as agreement markers. These are discussed in section 7.4. A few miscellaneous number agreement markers are discussed in section 7.5. The phonological rules that apply to agreement markers are discussed in section 7.6.

Because some agreement morphemes are affixes and others are clitics, I use the cover term "marker" to include prefixes, suffixes, clitics, and clitics inflected
with prefixes.

7.2. Nuclear Agreement Markers

The three sets of markers used for agreement with subjects have been known variously as active, passive, and bound dative (Nicklas 1972); agentive (A), patientive (P), and dative (D) (Heath 1977); actor, patient, and bound dative (Nicklas 1979); nominative, accusative, and dative (Davies 1981), and I, II, and III (Munro and Gordon 1982). Davies's terms will be adopted here. It must be remembered, however, that in spite of the names, these are not case-markers occurring on nouns, but verb affixes (or clitics) marking agreement with nouns bearing roughly the relations traditionally associated with the case names. Thus, dative agreement indexes on the verb the person and number of certain nominals, many of which might bear dative case-marking in a language with a rich case system. The case names are particularly appropriate for the Choctaw agreement markers because they do not suggest strict correspondence between morphological marking and either semantic roles or grammatical relations. Just as some verbs in case-marking languages may take subjects in the dative case or objects in the genitive case, some Choctaw verbs take dative agreement with subjects or nominative agreement with patients.
Nominative agreement is discussed in section 7.2.1., accusative agreement in section 7.2.2., dative agreement in section 7.2.3., and hypothetical agreement in 7.2.4. Reflexive and reciprocal agreement, both accusative and dative, is discussed in section 7.2.5. The cooccurrence and linear order of nuclear agreement markers are discussed in section 7.2.6.

7.2.1. Nominative Agreement Markers

The nominative agreement markers have the following forms:

<table>
<thead>
<tr>
<th>Person and Number</th>
<th>Markers</th>
</tr>
</thead>
<tbody>
<tr>
<td>First person singular</td>
<td>-li</td>
</tr>
<tr>
<td>First person plural</td>
<td>il-/ii-</td>
</tr>
<tr>
<td>Second person</td>
<td>ish-</td>
</tr>
<tr>
<td>Second person plural</td>
<td>hash-</td>
</tr>
<tr>
<td>Third person</td>
<td>Ø</td>
</tr>
</tbody>
</table>

Table 7.1.

The first person singular nominative suffix -li is the only suffix in the Choctaw agreement system.

The first person plural marker appears as il- before a vowel, and as ii- before a consonant:

(1) Il-alhkooli-tok  'We went'
lpNom-go:pl-pt

(2) Ii-talowa-tok  'We sang'
lpNom-sing-pt

This alternation is peculiar to the first person plural nominative and hypothetical markers; elsewhere /l/ occurs before voiced consonants and assimilates to lh before
voiceless consonants, e.g. in the medio-passive infix -l- (cf. section 5.2.3).

Some dialects also have iloh- "iiho- as first person plural nominative markers, the first occurring prevocally and the second preconsonantally (Byington 1915, Nicklas 1972). These forms, which Mrs. Wade does not use, contain the oh/ho plural affix also found in imperatives (cf. section 7.5. below) and verb stems (cf. section 5.2.1.). Chickasaw (Munro and Will mond 1984a) has iloo- or kiloo- before vowels as well as consonants.

The second person nominative markers ish- and hash-
assimilate to a following /s/, most frequently in first person singular agreement markers (3, 4), but also in the handful of s-initial verbs (5, 6):

(3) Is-sa-sso-h 'You hit me'
    2Nom-1sAcc-hit-v

(4) Has-sam-anooli-tok 'You-all told us'
    2pNom-1sDat-tell-pt

(5) Is-sakkii-h-a? 'Did you catch up with him?'
    1Nom-catch:up-v-Q

(6) Has-sipokni-chi-h 'You-all made her old'
    2pNom-old-caus-v

The second person plural marker hash- consists of the optional plural prefix ha- plus the second person nominative marker ish-. A regular phonological rule deletes /i/ after any vowel. The simple second person marker ish- can itself be used to agree with a plural argument, though its primary use is to agree with singular

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arguments. This ha- plural prefix also occurs on both
first and second person plural markers in agreement sets
other than the nominative. However, it cannot occur on
first person plural nominative markers: *hail-*, *hal-*,
*haii-*. The ha- plural prefix is never used to mark the
plurality of a third person argument.

Nominative markers are used primarily to agree with
semantic agents or actors, hence Nicklas's terms 'active'
and 'actor':

(7)  Talowa-li-h 'I sang'
     sing-1sNom-v
(8)  Ii-hilha-h 'We danced'
     lpNom-dance-v
(9)  Ish-bashli-h 'You cut it'
     2Nom-cut-v
(10) Hash-haabli-h 'You-all kicked him'
     2pNom-kick-v
(11) Andreas-at Pam pisa-h 'Andreas saw Pam'
     A.-su     P.- see-v

However, most quantifiers also typically take nominative
agreement:

(12) Hash-lawa-h ~ Hachi-lawa-h
     2pNom-many-v    2pAcc-many-v
     'There's a lot of you'
(13) Ii-pókkooli-h ~ Pi-pókkooli-h
     lpNom-ten-v    lpAcc-ten-v
     'There's ten of us'

Nominals governing nominative agreement are always
subjects, although many subjects govern non-nominative
agreement, as will be shown in sections 7.2.2 and 7.2.3.

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7.2.2. Accusative Agreement Prefixes

Accusative agreement prefixes have the following forms:

First person singular  sa-/si-
First person plural    pi-
Second person         hapi-
Second person plural  chi-
(Third person         hachi-

Table 7.2.

The first person singular accusative prefix has the form sa- before consonants and /i/, and the form si- before other vowels:

(14)  Sa-niya-h
     lsAcc-fat-v
     'I'm fat'

(15)  Sa-illi-aachi --> Sallaachi
     lsAcc-die-fut
     'I'm going to die'

(16)  Si-abika-h
     lsAcc-sick-v
     'I'm sick'

(17)  Si-ıkcha-h
     lsAcc-awake:N-v
     'I'm awake'

The alternation between /i/ and /a/ is peculiar to this morpheme. The deletion of the root-initial /i/ in example (15), on the other hand, is totally regular: /i/ is deleted after any vowel.

Accusative prefixes are exceptions to Short Vowel Deletion (cf. section 5.4.): they retain their final /i/

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before a vowel (16, 17). Sequences of /ia/ are pronounced as [ɔː] by some speakers, including Mrs. Wade (cf. section 7.6.).

The plural prefix ha- can be prefixed to the first person plural prefix pi- and the second person prefix chi-. The difference in meaning between pi- and hapi- (and between their counterparts in other agreement sets) remains obscure.5

Accusative prefixes are commonly used to mark agreement with patients, either objects of transitive verbs (18, 19) or subjects of stative verbs (20, 21):

(18) Sa-bashli-h 'He cut me'
    1sAcc-cut-v

(19) Pi-hosa-h 'He shot us'
    1pAcc-shoot-v

(20) Chi-himitta-h 'You're young'
    2Acc-young-v

(21) Litiha-h 'He's dirty'
    dirty-v

Some transitive verbs may take accusative agreement with their subjects:

(23) Chi-sa-hofaaya-h - Chi-hofaaya-li-h
    2Dat-1sAcc-ashamed-v 2Dat-ashamed-1sNom-v
    'I'm ashamed of you'

(24) Mike i-sa-nokowa-h - i-nokowa-li-h
    M. Dat-1sAcc-mad-v  Dat-mad-1sNom-v
    'I'm mad at Mike'6

In addition to their occurrence on verbs, accusative prefixes occur on possessed nouns, agreeing with the possessor. Accusative prefixes occur on certain
semantically inalienable possessions, e.g. on certain body
parts and kinship terms:

(25) sa-ibbak --> sabbak 'my hand'
    lsAcc-hand

(26) chi-nakshoka' 'your face'
    2Acc-face

(27) pi-ishki' --> pishki' 'our mother'
    IpAcc-mother

(28) Pam oshi' 'Pam's son'
    P. son

Dative markers are used for possessors of other
inalienables, and of all alienables (cf. section 7.2.3.).

Nicklas (1972:32ff, 1975:238) states that there is a
third person passive (i.e. accusative) prefix i-, which is
found on certain inalienably possessed nouns and in the
clitics im- (dative), ik- (hypothetical), imi-
(benefactive), and ibaa- (comitative). (Cf. sections
7.2.3., 7.2.4., 7.3.1., 7.3.5. below.) However, these
clitics are best analyzed as containing initial /i/, which
is deleted after a vowel in the non-third person forms by
the same rule that applies when accusative prefixes are
attached to i-initial verbs.

The reason that these clitics should not be analyzed
as containing a separate third person morpheme i- is that
they are not necessarily third person in meaning. For
example, when bannah 'to want' has the same subject as its
complement, that subject typically is not marked on the
embedded verb: 7
(29) Ish-hilha-h 'You dance' 
2Nom-dance-v

(30) Hilha-h chi-banna-h 'You want to dance' 
dance-v 2Acc-want-v

(31) Chi-chaaha-h 'You're tall' 
2Acc-tall-v

(32) Chaaha-h chi-banna-h 'You want to be tall' 
tall-v 2Acc-want-v

When the embedded verb takes dative agreement with its subject, it is not the entire dative marker that is omitted in this construction. The person-marking portion is omitted, but the dative clitic im- remains:

(33) Chi-takoobi-h 'You're lazy' 
2Dat-lazy-v

(34) I-takoobi-h chi-banna-h 'You want to be lazy' 
Dat-lazy-v 2Acc-want-v

(35) *Takoobi-h chi-banna-h

In sentences such as (34), then, im- does not have third person reference. If anything, it has second person reference. But it is better analyzed as indicating a dative argument, without indicating the person of that argument. In most contexts, absence of first or second person marking will entail third person reference, without the need for any overt marking of third person agreement. In contexts such as this equi construction, however, the absence of first or second person marking is syntactically triggered, and thus does not entail third person reference.

Similarly, subject agreement is omitted in

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imperatives:

(36) Hilha-h! 'Dance!'  
dance-v

Verbs taking dative agreement with their subjects retain im- in this construction:

(37) Chim-alhtaha-h 'You're ready'  
2Dat-ready-v

(38) Im-alhtaha-h! 'Be ready!'  
Dat-ready:N-v

Again, im- has no third-person reference. The imperative intonation requires that the subject be understood as second person.

Another context in which putative third person markers do not agree with third person arguments is morphological negation of verbs without nominative arguments (cf. section 7.2.4. below):

(39) Sa-chaa-ha-h 'I'm tall'  
1Acc-tall-v.

(40) Ik-sa-cháah-o-h 'I'm not tall'  
Hyp-1Acc-tall:′-neg-v

Here the hypothetical marker ik- is not agreeing with any third person argument; there is no third person argument in the sentence. It is merely a mark of morphological negation, along with the lengthened grade and the -o suffix.

Since the forms im- and ik- need not have third person reference, and since the absence of /i/ from their non-third person counterparts can be handled with an

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independently motivated rule, they should be analyzed as monomorphemic, not as containing a third person prefix i-.
This analysis can then be extended to imi- and ibaa-, and to the ablative clitic imaa-, not discussed by Nicklas.

There are also cases where i- appears to mark a third person possessor:

(41) pashı' 'hair'
sappashı' 'my hair'
ippashı' 'his/her hair'

(42) pokni' 'grandmother'
sappokni' 'my grandmother'
ippokni' 'his/her grandmother'

All such cases that I know of involve geminate consonants. The forms without /i/ can be derived from the forms with /i/ by the optional rule of Initial I-Deletion (cf. sections 6.7.4., 7.4.) followed by simplification of the now-initial geminate consonant by Stray Erasure. (Compare issıto' - síto' 'pumpkin' where the first variant does not denote an inalienably possessed pumpkin.) These pairs of forms, differing by the application of an optional phonological rule, may have been reanalyzed as possessed and unpossessed forms. In any case, this distinction is not absolute. For example, chókash is preferable to ichchókash for '(unpossessed) hearts', while waak ichchókash is preferable to waak chókash for 'beef hearts', but all are acceptable.

Given the substantial number of body parts beginning with /i/ followed by a geminate consonant, one might posit
a non-productive prefix of the shape ic-, whose empty C-slot would be filled by leftward spreading from the root-initial consonant. This prefix might originally have indicated a possessor, or it might have simply meant 'body part'. That is, it might or might not have been omissible when the body part was thought of as unpossessed. The current situation can be analyzed as involving either an optional ic- which is losing its meaning of possession, or a non-optional ic- whose deletion by independently motivated rules is being reanalyzed as indicating an unpossessed body part.

In any case, there is little or no evidence for separating the ic- prefix into a third person i- prefix and a c- possessive prefix. In the absence of clear cases of third person possessed forms with i- before a single consonant, the ic- prefix can be analyzed as indicating a possessor but not specifying the person of that possessor, just as im- and ik- indicate dative and hypothetical arguments but not the person of those arguments. The ic- prefix occurs when a root that takes it is possessed by any person, but its vowel is deleted by the independently motivated rule of Post-Vocalic I-Deletion when ic- is preceded by an overt person marker, and surfaces only when the possessor is third person and thus unmarked.
7.2.3. Dative Agreement Markers

Dative agreement markers have the following forms:

<table>
<thead>
<tr>
<th>Person Type</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>First person singular</td>
<td>sam/-am-</td>
</tr>
<tr>
<td>First person plural</td>
<td>pim-</td>
</tr>
<tr>
<td>Second person</td>
<td>hapim-</td>
</tr>
<tr>
<td>Second person plural</td>
<td>chim-</td>
</tr>
<tr>
<td>Unmarked/third person</td>
<td>hachim-</td>
</tr>
<tr>
<td></td>
<td>im-</td>
</tr>
</tbody>
</table>

Table 7.3.

They undergo Nasalization (cf. section 3.3.) pre-consonantly:

(43)  \texttt{Pi-poota-h} 'He lent it to us'
\hspace{1cm} \texttt{1pDat-lend-v}

(44)  \texttt{I-nokshoopa-h} 'He's scared of her'
\hspace{1cm} \texttt{Dat-be:scared-v}

The first person singular dative marker has the form sam- after nominative (45) and hypothetical markers (46), and the form am- word-initially (47) and after oblique markers (48) or participial clitics (49):

(45)  \texttt{Is-sam-anooli-tok} 'You told me'
\hspace{1cm} \texttt{2Nom-1sDat-tell-pt}

(46)  \texttt{Ik-sam-ach\'okm-o-h} 'I don't feel good'
\hspace{1cm} \texttt{Hyp-1sDat-good:-neg-v}

(47)  \texttt{Am-achokma-h} 'I feel good'
\hspace{1cm} \texttt{1sDat-good-v}

(48)  \texttt{Ibaa-a-poota-tok} 'He lent it to me with her'
\hspace{1cm} \texttt{Com-1sDat-borrow-pt}

(49)  \texttt{Iit-a-waali-h} 'He waved to me'
\hspace{1cm} \texttt{dir-1sDat-wave-v}

A parallel allomorphy is exhibited by first person singular benefactive and ablative markers (cf. section
Non-third person dative markers have the form of accusative prefixes followed by /m/. However, the "third person" dative marker is im-, while third person accusative arguments are unmarked. But, as discussed in section 7.2.2., /i/ is deleted after another vowel, and im- is not specifically third person. Thus, the dative markers can be analyzed as accusative prefixes followed by a dative clitic im-. Note, however, that the initial /s/ of the first person singular dative marker is deleted in word-initial position (and after oblique and participial agreement markers), while that of the first person singular accusative prefix is always retained.

Dative markers are commonly used to mark agreement with experiencers, recipients, and beneficiaries. Arguments governing dative agreement may be subjects of intransitive verbs (50) or non-subjects of transitive (51, 52) or ditransitive verbs (53):

(50) A-takoobi-h 'I'm lazy'
     IsDat-lazy-v

(51) Pi-hilha-h 'He danced for us'
     1pDat-dance-v

(52) Chim-akostinichi-h 'He understands you'
     2Dat-understand:N-v

(53) Hapim-a-tok 'He gave it to us all'
     1pDat-give-pt

Dative markers also occur on possessed nouns, including all semantically alienable possessions and some
semantically inalienable possessions:

(54) a-lópi' 'my brain'
     IsDat-brain

(55) chi-ki' 'your father'
     2Dat-father

(56) pi-chokka' 'our house'
     1pDat-house

(57) Lynn im-ofi' 'Lynn's dog'
     L.  Dat-dog

Other semantically inalienable possessions take accusative prefixes.

7.2.4. Hypothetical Agreement Markers

Hypothetical agreement markers have the following forms:

| First person singular | ak- |
| Second person        | chik- |
| Second person plural  | hachik- |
| Unmarked/third person | ik- |

Table 7.4.

Just as the dative markers have the form of accusative prefixes followed by im-, the hypothetical markers—with the exception of the first person plural marker—have the form of accusative prefixes followed by ik-. Again, /i/ is deleted after a vowel (cf. section 7.2.2.). As in the corresponding dative marker, the first person singular hypothetical marker loses its initial /s/. The first person singular dative marker sam-/am- retains its initial
/s/ after a nominative or hypothetical marker, but hypothetical markers never follow nominative or hypothetical markers, so *sak- never occurs.  

The first person plural hypothetical marker has the form of the first person plural nominative marker preceded by /k/. Its allomorphy is parallel to that of the nominative marker: it appears as kil- before a vowel and as kii- before a consonant:

(58) Kil-alhko'o-l-o-h 'We didn't go'
    lplHyp-go:pl:'-neg-v

(59) Kii-h'ilh-o-h 'We didn't dance'
    lplHyp-dance:'-neg-v

Like the corresponding nominative marker, the first person plural hypothetical marker does not cooccur with the plural prefix ha-: *hakil-, *hakii-. Some speakers have the forms kiloh- and kiiho- corresponding to the nominative markers iloh- and iilo- (Byington 1915: kiloh, keho), but Mrs. Wade does not use these forms. These forms appear to contain the oh/ho plural affix also found in imperatives (cf. section 7.5.) and in verb stems (cf. section 5.2.1.). In Chickasaw (Munro and Willmond 1984a), kiloo- is used before vowels as well as before consonants. Verbs in Choctaw can be negated in two ways. Syntactic negation consists of following the verb with the negative auxiliary kiyo-:

(60) Ii-patoli-h 'We touched it'
    lpNom-touch-v
(61)   li-patoli-h  kiyoh  'We didn't touch it'
       1pNom-touch-v  not-v

Morphological negation consists of using the '−grade of
the verb (cf. section 6.6.) substituting hypothetical
agreement for nominative agreement, and suffixing the
negative suffix -o:

(62)   kii-patooli-o-h  →  kii-patooloh
       1pHyp-touch:'−neg-v
       'We didn't touch it'

The stem-final vowel is deleted by Short Vowel Deletion
(cf. section 5.4.).

In some dialects of Choctaw (Nicklas 1972:195) and in
Chickasaw (Munro and Willmond 1984a), -ki is suffixed
after the negative suffix -o before -tok:

(63)   kii-hali'l-o-ki-tok  (Cs)
       1pHyp-touch:'−neg−neg−pt
       'We didn't touch it'

This -ki suffix is probably related to the negative
auxiliary kiyoh. In all dialects, -ki is suffixed between
-o and the future suffix -aachi:

(64)   kii-patooli-o-ki-aachi  →  kii-patoolokaachi
       1pHyp-touch:'−neg−neg−fut
       'We're not going to touch it'

The /i/ is deleted by the rule of Short Vowel Deletion.

When the affirmative verb does not take a nominative
argument, the so-called "third person" hypothetical marker
is used on the negated verb:

(65)   sa-niye-h  'I'm fat'
       1sACC-fat-v

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(66)  Ik-sa-n\text{\textsuperscript{\text{n}}}iy-o-h  'I'm not fat'
Hyp-1sACC-fat:'-neg-v

The unmarked hypothetical marker is thus used both to
agree with third person subjects of negated verbs (on
verbs that take nominative affixes) and simply as a mark
of negation (on verbs that do not take nominative
affixes).

Hypothetical markers are also used on first and third
person imperatives. In this construction, the basic
grade, not the '-grade, is used, and the -o suffix is not
added. The verb may end with either /h/ or '/:'

(67)  Kil-iya-h!  'Let's go!'
lpHyp-go-v

(68)  Ak-toksali'!  'Let me work!'
1sHyp-work:n

(69)  Ik-ibaa-hilha'!  'Let her dance with him!'
Hyp-Com-dance:n

(70)  Pallaskaa-chapoli' ik-\text{\textipa}a'!  'Let them eat cake!'
bread-sweet:n  Hyp-eat:n

7.2.5. Reflexive and Reciprocal Agreement Markers

Reflexive and reciprocal agreement markers have the
following forms:

Accusative reflexive   ili-
Accusative reciprocal  itti-
Dative reflexive      ilim-
Dative reciprocal      ittim-

Table 7.5.

Like the other dative markers, the dative reflexive and

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reciprocal markers consist of their accusative prefixes plus the dative clitic im-. Also like the other dative markers, the dative reflexive and reciprocal markers undergo Nasalization before consonants.

Accusative reflexive and reciprocal markers are used on verbs that take accusative agreement with their objects:

(71) Ili-bashli-li-h
    rfl-cut-1sNom-v
    'I cut myself'

(72) Il-ili-achifa-h --> Ililachifah
    1pNom-rfl-wash-v
    'We washed ourselves'

(73) Il-itti-haabli-h
    1pNom-rcp-kick-v
    'We kicked each other'

(74) Itti-pisa-h
    rcp-see-v
    'They saw each other'

The accusative reciprocal prefix is commonly ti-after the second person plural nominative marker hash-:

(75) Hash-itti-kobli-h-a?  hash-ti-kobli-h-a?
    2pNom-rcp-bite-v=Q
    'Did you bite each other?'

Dative reflexive and reciprocal markers are used on verbs that take dative agreement with their objects:

(76) Ilaap ili-hollo-h 'He loves himself'
    self  rfl:Dat-love-v

(77) Ish-ili-shaffi-h 'You shave yourself'
    2Nom-rfl:Dat-shave-v

(78) Il-itti-yimmi-h 'We believe each other'
    1pNom-rcp:Dat-believe-v
The dative reciprocal marker commonly appears as tim- (or ti-) after the second person plural nominative marker hash-:

(79) Kan’himikma hash-ti-holissochi?
    often 2pNom-rcp:Dat-write:Q
    'Do you write to each other often?'

7.2.6. Cooccurrence of Nuclear Agreement Markers

The first person singular nominative suffix immediately follows the verb stem. That is, it is preceded by the valence-changing suffixes -a, -li, and -chi, which form verb stems, but it precedes all other suffixes:

(80) Okcha-li-chi-li-tok
    wake-act-caus-1sNom-pt
    'I made him wake her up'

(81) wakay-a-li-aachi-haatokoo-n -->
    rise-mp-1sNom-fut-because-ds
    wakayalaachihaatoko
    'because I'm going to stand up'

Markers from all the nuclear agreement sets can cooccur with one another, with the exception that nominative and hypothetical markers cannot cooccur. Nuclear agreement markers occur in the following order:

(82) \{hypothetical\} dative accusative root nominative

Sentences (83) through (86) illustrate this ordering:

(83) Ish-pi-haabli-h
    2Nom-1pAcc-kick-v
    (Nom>Acc)
    'You kicked us'

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Ii-chi-talow-aachi
1pNom-2Dat-sing-fut
'We'll sing for you'

Chi-sa-noktalha-h
2Dat-1sAcc-jealous-v
'I'm jealous of you'

Ik-chi-pi-bann-o-h
Hyp-2Dat-1pAcc-want:-neg-v
'We don't want you'

There is one specific combination of nuclear agreement markers that does not normally occur. As Heath (1977:205) points out, the second person accusative prefix chi- does not cooccur with the first person singular dative marker sam--; instead the second person nominative marker ish- is used:

Is-sa-hofaaya-h-o
2Nom-1sDat-ashamed-v-Q
'Are you ashamed of me?'

*A-chi-hofaaya-h-o
1sDat-2Acc-ashamed-v-Q

However, the possible motivation Heath provides for the restriction is not valid. He states that sam- always follows a consonant, so the forbidden sequence *chi-sam- must be avoided. However, as shown above, dative markers precede accusative prefixes, so the sequence would be a-chi-. In Chickasaw, there is a more general restriction: overt accusative and dative markers never cooccur (Munro and Gordon 1982).

It should also be noted that the occurrence of nominative agreement here is not unique to this person.
combination:

(89) Chi-hofaaya-li-h Chi-sa-hofaaya-h
     2Dat-ashamed-1sNom-v 2Dat-1sAcc-ashamed-v
     'I'm ashamed of you'

As far as I know, all verbs taking accusative and dative agreement can alternatively take nominative and dative agreement. Thus, it is not the case that there is a rule specifically replacing chi- with ish- in the presence of sam-. Rather, these verbs always allow nominative agreement with their subjects, and the prohibition against a-chi- makes that the only option when the subject is second person and the object is first person singular.

In fact, it is possible for the agreement markers a- and chi- to cooccur when the dative argument is derived by syntactic rule:

(90) A-nípi' chi-noktakali-h
     lIsDat-meat 2Acc-choke-v
     'You choked on my meat'

(91) Nípi' a-chi-noktakali-h
     meat lIsDat-2Acc-choke-v
     'You choked on my meat'

Sentence (91) is derived from sentence (90) by the rule of Object Possessor Raising (Munro 1984a). The first person singular dative marker agreeing with the raised possessor can cooccur with the second person accusative prefix, although this combination is ungrammatical elsewhere. Thus, the constraint against a-chi- does not hold after Object Possessor Raising.

There are transitive verbs subcategorized for

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nominative agreement with their subjects and accusative agreement with their objects (e.g. ahpalih 'to kiss'), nominative agreement with their subjects and dative agreement with their objects (e.g. anoolih 'to tell'), and accusative agreement with their subjects and dative agreement with their objects (e.g. nokshoopah 'to be afraid'):

(92)  Chi-ahpali-li-h 'I kissed you'
      2Acc-kiss-1sNom-v

(93)  Chim-anooli-li-h 'I told you'
      2Dat-tell-1sNom-v

(94)  Chi-sa-nokshoopah-h 'I'm afraid of you'
      2Dat-isAcc-afraid-v

There are also transitive verbs subcategorized for nominative or accusative agreement with their subjects, and no marking of their obligatorily third-person objects:

(95)  Talaali-li-h 'I set it down'
      set-1sNom-v

(96)  *Chi-talaali-li-h ('I set you down')
      *Ish-talaali-li-h

(97)  Nípi' sa-nokbikili-h 'I gagged on the meat
      meat 1sAcc-gag-v

(98)  *Chi-sa-nokbikili-h ('I gagged on you')
      *Is-sa-nokbikili-h

Heath (1977) sets up a hierarchy\textsuperscript{12} for subject selection as follows:

(99)  Nominative > Accusative > Dative > Other
      (JH: A > P > D > Other)

That is, any nominal governing (overt or zero) nominative agreement will be subject; a nominal governing accusative agreement

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agreement will be subject in the absence of a nominal
determining nominative agreement; and a nominal governing
dative agreement will be subject in the absence of any
nominals governing nominative or accusative agreement.
While this hierarchy holds for most cases, various
violations of it do occur (Nicklas 1972:162ff; Heath 1977;
Munro and Gordon 1982; Carden, Gordon, and Munro in
preparation).

Nominals determining oblique agreement can be
subjects in a few cases (cf. sections 7.3.1., 7.3.2., and
7.3.4. below.). These can all be analyzed as
syntactically derived subjects.

7.3. Oblique Agreement Markers

The oblique agreement markers have not been as
extensively studied as the nuclear agreement affixes.
Nicklas (1972) mentions briefly all the oblique agreement
elements, but assigns a name only to the "free dative",
which is known here as "benefactive", after Davies (1981).
The other oblique markers are the locative, the ablative,
the superessive, and the comitative.

While various verbs take nominative, accusative, and
dative agreement with their underlying subjects, no verb
takes oblique agreement with its underlying subject. In a
few cases, oblique markers can agree with derived
subjects.

I know of no verbs that cannot occur without oblique agreement. There are, on the other hand, verbs that never occur without dative agreement, e.g. iponnah 'to know how'.

Oblique markers follow nominative and hypothetical markers (except, of course, the first person singular nominative suffix). To the extent that oblique markers cooccur with accusative prefixes, dative markers, and each other, subcategorized agreement tends to follow non-subcategorized agreement.

Benefactive agreement is discussed in section 7.3.1, locative agreement in section 7.3.2, ablative agreement in section 7.3.3, superessive agreement in section 7.3.4, and comitative agreement in section 7.3.5.

7.3.1. Benefactive Agreement Markers

The benefactive agreement markers have the forms:

<table>
<thead>
<tr>
<th>Subject Type</th>
<th>Benefactive Marker</th>
</tr>
</thead>
<tbody>
<tr>
<td>First person singular</td>
<td>sami-/ami-</td>
</tr>
<tr>
<td>First person plural</td>
<td>pimi-</td>
</tr>
<tr>
<td>Second person</td>
<td>hapimi-</td>
</tr>
<tr>
<td>Second person plural</td>
<td>chimi-</td>
</tr>
<tr>
<td>Unmarked/third person</td>
<td>hachimi-</td>
</tr>
<tr>
<td></td>
<td>imi-</td>
</tr>
</tbody>
</table>

Table 7.6.

The first person singular benefactive marker, like its dative counterpart, loses its initial /s/ in word-
initial position (100) or after a participial clitic (101), but retains it after a nominative (102) or negative marker (103):

(100) Ami-talowa-tok
     1sBen-sing-pt
     'He sang for me'

(101) Pit-ami-tahpala-h
     dir-1sBen-yell-v
     'She yelled to her for me'

(102) Is-sami-hilh-aahina-h-o?
     2Nom-1sBen-dance-mod-v-Q
     'Will you dance for me?'

(103) Ik-sami-hilh-o-tok
     Hyp-1sBen-dance:’-neg-pt
     'She didn't dance for me'

The benefactive agreement markers sometimes appear with an oral /i/:

(104) Imi-taklama-h ofii-t im-illi-cha-h
     Ben-bother-v dog-su Dat-die:’-sbr:ss-v
     'It bothers him that his dog died'

(105) Ami-o-fimmi-h
     1sBen-Sup-splash-v
     'She splashed him for me'

No meaning difference is apparent between nasalized and non-nasalized benefactive markers.13

The benefactive agreement markers have the form of dative markers followed by /i/ or /i/. Nicklas (1972:32) analyzes them as free datives plus bound datives, where free datives are passive (i.e. accusative) prefixes plus "the element -mi". For example, he would analyze the first person plural benefactive marker as follows:

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He states moreover that the possessive pronouns (e.g. pîmmi' 'ours') are the intensive forms (i.e. g-grade—cf. section 6.5.) of the free datives. However, other than this putative case, only verbs have g-grades. Moreover, if *pimih were a verb, its g-grade would be *pîlmih, not *pîmmih. On the other hand, the occurrence of benefactive markers with oral vowels provides evidence for the /i/ after the /m/ in his element -mi. However, the source of the nasalization when benefactives are nasalized cannot be the dative im-, but must be -n, as shown in section 7.6.

Benefactive markers are used primarily to agree with semantic beneficiaries:

(107) Ami-balili-h 'He ran for me'
     1sBen-run-v

(108) Pimi-hilha-tok 'She danced for us'
     1pBen-dance-pt

(109) Chimi-mihchi-li-tok 'I did it for you'
     2Ben-do-1sNom-pt

(110) Imi-chali-li-h 'I chopped it for them'
     Ben-chöp-1sNom-v

Dative markers may also be used to agree with beneficiaries, so sentences with benefactive agreement may be synonymous with sentences with dative agreement:

(111) Is-sa-talow-aana-h-o?
     2Nom-1sDat-sing-mod-v-Q
     'Will you sing for me?'
(112)  Is-sami-talow-aana-h-o?
   2Nom-1sBen-sing-mod-v-Q
   'Will you sing for me?'

In certain cases, benefactive markers may agree with subjects:

(113)  Pam-at imi-taklama-h
          P.-su  Ben-bother-v
          'It bothers Pam'

(114)  Ami-kallo-h  si-abiika-cha-h
              lsBen-hard-v  lsAcc-sick:'-sbr:ss-v
              'It's hard on me that I got sick'

That the argument triggering benefactive agreement is a subject is shown by the case-marking in sentence (113) and the same-subject marker -cha in sentence (114). Benefactive agreement with subjects also occurs in an odd causative construction (cf. section 5.3.).

Another verb that can take benefactive markers for an argument other than a semantic beneficiary is kaniyah:

(115)  Imi-kaniya-li-h  ~  I-kaniya-li-h
        Ben-go:away-1sNom-v     Dat-go:away-1sNom-v
        'I got away from him'

(116)  Ofii-t  ami-kaniya-h  ~  a-kaniya-h
        dog-su  lsBen-go:away-v     lsDat-go:away-v
        'I lost my dog'

Benefactive markers are occasionally used in place of dative markers on possessed nouns:

(117)  chi-holiso'  ~  chimi-holiso'  'your book'
        2Dat-book     2Ben-book

This construction is extremely rare. I have heard it volunteered only once, though Mrs. Wade has accepted other forms that I asked. Byington (1915:111) reports having
once heard imichokash (CB: imichuŋkvsh) for 'his heart'.

Benefactive markers do not exist in Chickasaw, nor, as far as I have been able to determine, in Mississippi Choctaw of Oklahoma. Semantic beneficiaries may be expressed with dative markers in all dialects.

7.3.2. Locative Agreement Markers

Locative agreement markers have the form of accusative agreement markers plus aa-:

<table>
<thead>
<tr>
<th>First person singular</th>
<th>siaa-</th>
</tr>
</thead>
<tbody>
<tr>
<td>First person plural</td>
<td>piaa-</td>
</tr>
<tr>
<td>Second person</td>
<td>hapiaa-</td>
</tr>
<tr>
<td>Second person plural</td>
<td>chiaa-</td>
</tr>
<tr>
<td>Unmarked/third person</td>
<td>hachiaa-</td>
</tr>
<tr>
<td></td>
<td>aa-</td>
</tr>
</tbody>
</table>

Table 7.7.

Some speakers of Oklahoma Choctaw, including Mrs. Wade, contract the sequence /iaa/ within the locative markers to [ɔː]:

(118) Siaa-holabi-h [sɔː:holabih]

lsLoc-lie-v

'He lied about me'

This contraction is parallel to that undergone when accusative markers are attached to verbs beginning with long or short /a/ (cf. sections 7.2.2., 7.6.).

For some speakers, the locative marker is aay- before vowels: 15

262
(119)  Aboh-anôka' aay-anopolih
house-inside Loc-talk-v
'They talked in the house'

(120)  Waanotaama aay-ikbi-h
yard-dem:ns Loc-make-v
'He made it in the yard'

Mrs. Wade sometimes uses aay- before consonants:

(121)  Bahtâ' aakochchili-tok - aakochchili-tok
bag Loc-take:out-1sNom-pt
'I took it out of the bag'

(122)  Aa-chi-pîsa-li-tok - Aay-chipîsa-li-tok
Loc-2Acc-see:N-1sNom-pt
'I saw you there'

In fact, aay- may be more common than aa- before /ch/ in
Mrs. Wade's speech.

Locative markers are used primarily to mark
locations:

(123)  Aa-fammi-tok  'She whipped her there'
Loc-whip-pt

(124)  Yamuma il-aa-hilha-h 'We danced there'
there:ns 1pNom-Loc-dance-v

Locative arguments of weather verbs that otherwise have no
subjects may optionally be promoted to subject:

(125)  Oklahoma-aanoh aay-oktosha-h
O.-topic:ns Loc-snow-v
'It's snowing in Oklahoma'

(126)  Oklahoma-aatooh aay-oktosha-h
O.-topic:su Loc-snow-v
'It's snowing in Oklahoma'

(127)  Nanih apaknâk-aanoh aa-lashpa-h
mtn top-topic:ns Loc-hot-v
'It's hot in the mountains'

(128)  Nanih apaknâk-aatooh aa-lashpa-h
mtn top-topic:su Loc-hot-v
'It's hot in the mountains'
A similar construction is possible with superessive arguments of weather verbs (cf. section 7.3.4.).

Since locations are usually not humans, the locative marker most often occurs uninflected for person. However, non-third person locative markers can occur on a handful of verbs that take locative agreement with arguments other than semantic locations:

(129) Siaa-holabi-h
    lsLoc-lie-v
    'He lied about me'

(130) Chiaa-anooli-li-aachi → Chiaanoolilaachi
    2Loc-tell-1sNom-fut
    'I'm going to tell on you'

(131) Ish-piaa-hochifo-h-a?
    2Nom-1pLoc-read-v-Q
    'Did you read about us?'

(132) Chiaa-mihachi-li-h
    2Loc-talk-1sNom-v
    'I'm talking about you'

Locative agreement markers are used in all dialects of Choctaw. The uninflected locative marker aa- is used in Chickasaw, but it cannot be inflected for non-third person. In Mississippi Choctaw, locative markers are also used to agree with certain semantic ablatives:

(133) Siaa-ishi-tok 'He took it from me' (MISS)
    lsLoc-take-pt

(134) Aa-pota-li-tok 'I borrowed it from her' (MISS)
    Loc-Borrow-1sNom-pt

In Oklahoma Choctaw, Mississippi Choctaw of Oklahoma, and Chickasaw, such arguments typically trigger ablative agreement (cf. section 7.3.3.), though the locative
construction is also found, especially with inanimate arguments.

Locative agreement markers are sometimes used in conjunction with the instrumental clitic isht- to mark agreement with what in English would be objects of the preposition about:

(135) Chaht-apii-hómma-′ aayímma′ isht-aa-holissorshi-h Choctaw-trunk-red-n about inst-Loc-write-v 'He wrote about the Choctaws'

7.3.3. Ablative Agreement Markers

Ablative agreement markers have the form of dative agreement markers plus aa-:

<table>
<thead>
<tr>
<th></th>
<th>First person singular</th>
<th>First person plural</th>
<th>Second person</th>
<th>Second person plural</th>
<th>Unmarked/third person</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>samaa-/amaa-</td>
<td>pimaa-</td>
<td>hapimaa-</td>
<td>hachimaa-</td>
<td>imaa-</td>
</tr>
</tbody>
</table>

Table 7.8.

Like its dative counterpart, the first person singular ablative marker loses its initial /s/ word-initially (136) and after a participial clitic (137), but retains it after a nominative (138) or hypothetical marker (139):

(136) Amaay-chopa-tok
lsAbl-buy-pt
'He bought it from me'
(137)  At-amaa-chopa-h  
dir-1sAbl-buy-v  
'He came and bought it from me'

(138)  Is-samaay-chopa-h  
2Nom-1sAbl-buy-v  
'You bought it from me'

(139)  Ik-samaay-chop-o-h  
Hyp-1sAbl-buy-neg-v  
'He didn't buy it from me'

Like locative markers, ablative markers sometimes end in /y/ for some Choctaw speakers.

Ablative agreement markers are used to agree with semantic ablatives:

(140)  Imaa-poota-li-h  
Abl-borrow-1sNom-v  
'I borrowed it from him'

(141)  Ibishshano' chima hüküli-li-h  
cold 2Abl-touch-1sNom-v  
'I caught a cold from you'

(142)  Pimaa-habina-h  
lpAbl-receive-v  
'He received it from us'

Dative agreement markers are also sometimes used to agree with semantic ablatives:

(143)  Imaa-hokopa-li-h  'I stole it from her'  
Abl-steal-1sNom-v

(144)  I-hokopa-li-h  'I stole it from her'  
Dat-steal-1sNom-v

(145)  Amaay-chopa-h  'He bought it from me'  
1sAbl-buy-v

(146)  A-chopa-h  'He bought it from/for me'  
1sDat-buy-v

As far as I know, ablative markers are not used in Mississippi Choctaw; locative markers are used instead.
(cf. section 7.3.2.).

7.3.4. Superessive Agreement Markers

Superessive agreement markers have the form of accusative prefixes plus the superessive marker on-:

<table>
<thead>
<tr>
<th>Person/Pronoun Type</th>
<th>Prefix</th>
</tr>
</thead>
<tbody>
<tr>
<td>First person singular</td>
<td>sion-</td>
</tr>
<tr>
<td>First person plural</td>
<td>pion-</td>
</tr>
<tr>
<td>Second person</td>
<td>hapion-</td>
</tr>
<tr>
<td>Second person plural</td>
<td>chion-</td>
</tr>
<tr>
<td>Unmarked/third person</td>
<td>hachion-</td>
</tr>
<tr>
<td></td>
<td>on-</td>
</tr>
</tbody>
</table>

Table 7.9.

Before a consonant, they undergo Nasalization (cf. section 3.3.):

(147) Iit-sig-wiili-tok 'He pointed it at me'
     dir-1sSup-point-pt

(148) Pio-finibili-h 'He splashed us'
     lpSup-splash-v

(149) Il-o-chalaka-h 'We screamed at him'
     lpNom-Sup-scream-v

Superessive agreement markers are used to agree with certain semantic locations. In most cases, they can be translated with the English prepositions on or at (in its directional sense):

(150) Iit-sig-balili-h
     dir-1sSup-run-v
     'He ran to me'

(151) Pion-oktosha-h
     lpSup-snow-v
     'It snowed on us'
(152) Tanapo' chio-wiili-h-a?
gun 2Sup-point-v-Q
'Did he point a gun at you?'

(153) Aayipa-pakna-ma on-apa-li-h
table-top-that:ns Sup-eat-1sNom-v
'I ate it on the table'

Superessive arguments of weather verbs that otherwise have no subjects may optionally be promoted to subject:

(154) Mike(-a) on-oktosha-h
M.(-ns) Sup-snow-v
'It snowed on Mike'

(155) Mike-at on-oktosha-h
M.-su Sup-snow-v
'Mike got snowed on'

(156) Nanih-ma on-oba-tok
mountain-dem:ns Sup-rain-pt
'It rained in the mountains'

(157) Nanih-ma-t on-oba-tok
mountain-dem-su Sup-rain-pt
'The mountains got rained on'

A similar phenomenon is found with locative arguments of weather verbs (cf. section 7.3.2.).

Superessive agreement markers are used in all dialects of Choctaw and in Chickasaw.

7.3.5. Comitative Agreement Markers

Comitative agreement markers have the form of accusative prefixes plus the comitative marker ibaa-. As with i-initial verbs, the initial vowel of ibaa- is deleted after an accusative prefix:
First person singular      sabaa-
First person plural      pibaa-
                      hapibaa-
Second person           chibaa-
Second person plural   hachibaa-
Unmarked/third person   ibaa-

Table 7.10.

Like the locative and ablative markers, comitative agreement markers end in aay- before vowels (and sometimes before consonants) for some speakers:

(158) Ibaay-okpani-li-tok  Com-break-1sNom-pt
     'I broke it with him'

(159) Chibaay-chopa-1-aachi  Chibaa-chopa-1-aachi
     2Com-buy-1sNom-fut
     'I'll buy it with you'

Comitative agreement markers are used in all dialects of Choctaw and in Chickasaw to agree with semantic comitatives:

(160) Sabaa-yaaya-h  'She cried with me'
     1sCom-cry-v

(161) Hapibaa-balili-h  'They ran with us all'
     1pCom-run-v

(162) II-chibaa-hilh-a-h  'We danced with you'
     1pNom-2Com-dance-v

(163) Ibaa-fama-li-h  'I got whipped with him'
     Com-get:whipped-1sNom-v

7.4. Participial Clitics

Several contracted participles can occur at the beginning of an inflected verb. These are isht-, at-,
_ot-, _iit-, and _pit-. Before discussing them, I will give a quick overview of participles in general. Participles are formed by suffixing -t to the verb stem:

(164) oochi-h 'to draw water'
      oochi-t (participle)

Since participles are always understood as having the same subject as the following verb, the participial -t may be equated with the same-subject marker -t.

Many participles undergo the non-productive process of Li-Deletion (Munro and Willmond 1984a, Munro 1985c). This process deletes the active suffix -li between a heavy syllable and level one suffix beginning with a coronal consonant:

(165) bashli-h 'to cut'
      bashli-t → basht (participle)

Other participles undergo the non-productive process of Strident-Coronal Cluster Formation (Munro and Willmond 1984a, Munro and Ulrich 1984a). This process deletes unlengthened vowels between a strident consonant and a level one suffix beginning with a coronal consonant:

(166) pisa-h 'to see'
      pisa-t → pist (participle)

Both of these processes are still productive for some speakers of Chickasaw. The participial clitics exhibit these and other deletions (cf. sections 7.3.1.-7.3.3.).

A participle followed by a main verb may be used to indicate simultaneous or sequential actions (Nicklas
1972:257):

(167) Mike-at ihishko-t abiika-tok
M.-su drink:HN-ss sick-pt
'Mike drank until he got sick'

(168) Pala-homma-h balii-t lhopolli-t
light-red-n run-ss go:through-ss
ot-si-apookafa-h
dir-1sAcc-hit-v
'He ran a red light and hit me'

As sentence (168) shows, more than one participle may
precede the main verb.

Participles are also used with auxiliary verbs such
as pisah 'to try', issah 'to stop', and tahlih
'already':16

(169) Nosi-t pisa-li-h
sleep-ss see-1sNom-v
'I tried to sleep'

(170) Talowa-t issa-tok
sing-ss stop-pt
'He stopped singing'

(171) Pisa-chi-t tahli-li-h
see-caus-ss finish-1sNom-v
'I already showed him'

Munro (1984e) discusses the use of participles both before
auxiliaries and before main verbs in Chickasaw.

The participial clitics, isht-, at-, ot-, iit-, and
pit-, are peripherally related to the Choctaw agreement
system. Isht- marks on the verb the presence of an
instrumental argument. It can cooccur with accusative
prefixes to indicate non-third person arguments (cf.
section 7.4.1.). The other participial clitics are
directional in meaning. Speakers sometimes identify them
as meaning 'I' or 'me' because they indicate motion
directed toward or away from the speaker.

Participial clitics are not resyllabified after
cliticization. Thus, their final /t/ is always in the
syllable coda, even before a vowel:

(172) At-apa-tok (a.t.a.pa.tok)
    dir-eat-pt
    'He came and ate it'

(173) Shákbaa-t a-tap-a-tok (a.ta.pa.tok)
    arm-su IsDat-cut-mp-pt
    'My arm is cut off'

Phonetically, the verbs of (172) and (173) differ only in
syllabification. The verb tapah in (173) shows that
syllable boundaries do not always coincide with morpheme
boundaries (cf. section 3.1.).

On the other hand, the final /t/ of isht may be
deleted when it is cliticized to a consonant-initial verb.
In careful speech, the /t/ is typically retained (174),
probably partly to avoid synonymy with the second person
nominative marker. However, it can be deleted in rapid
speech (175):

(174) Bot-òkchi' isht-sokko-chi-li-tok
    flour-juice inst-thick-caus-1sNom-pt 17
    'I thickened it with flour'

(175) Botókchi' issokkochilitok
    'I thickened it with flour'

(After the /t/ is deleted in (175), the /sh/ assimilates
to the following /s/. Thus optionality suggests that
actual cliticization of isht is optional. If it is
cliticized to the verb, the /t/ is no longer word-final, so it cannot fill the extrasyllabic position in the word template (cf. section 3.1.2.).

The second-person nominative clitic often loses its /i/ when it occurs after a participial clitic and before a vowel:

(176) Pit-ish-i-waali-h-a? Pitshiwaaliha?
dir-2Nom-Dat-wave-v-Q
'Did you wave to him?'

The second person nominative clitic may be lost entirely when it occurs after a participial clitic and before a first person singular accusative or dative marker:

(177) Isht-is-si-anopoli-h-a? Ishit-si-anopoli-h-a?
inst-2Nom-1sAcc-talk-v-Q
'Did you talk about me?'

(178) Iit-is-sa-pila-h-a? Iit-sa-pila-h-a?
dir-2Nom-1sDat-send-v-Q
'Did you send it to me?'

The second variant of sentence (177), with the /i/ deleted and the /s/ degeminated, is homophonous with a sentence meaning 'Did he talk about me?', with no ish- to start with. In the second variant of sentence (178), the second person argument is indicated only by the form of the first person dative marker, which would be a- if it was preceded only by the participial clitic, as in sentence (179), which has an unmarked third person subject:

(179) Iit-a-pila-h?
dir-1sDat-send-v
'Did he send it to me?'

Such simplifications of the second person nominative
clitic are also possible when it occurs in absolute word-
initial position:

(180) Ish-o-tilobli-h-a? _ Sho_tilobliha?
2Nom-Sup-jump-v-Q
'Did you jump at him?'

(181) Is-sa-tahpala-h _ Sa_tahpalah
2Nom-1sDat-yell-v
'You yelled at me'

But deletion is actually preferred (though still optional)
after a participial clitic.

Isht- is discussed in section 7.4.1, at- and ot- in
section 7.4.2, and iit- and pit- in section 7.4.3.

7.4.1. The Instrumental Clitic Isht-

Isht- is a reduction of ishit, the participle of
ishih 'to take, get, hold'. It sometimes appears as
ishit- or as shit-. Isht- appears on a verb to indicate
the presence of an instrumental argument:

(182) Itti' isht-ioso-li-h
stick inst-hit-1sNom-v
'I hit him with a stick'

(183) Oka' ishit-pokkaha-li-h
water inst-splash-1sNom-v
'I splashed him with water'

(184) Bâshpo' isht-sa-bahaffi-h
knife inst-1sAcc-stab-v
'He stabbed me with a knife'

On a few verbs, isht- is used to mark agreement with
the subject matter of communication. As such it is
analogous to the English preposition about:
(185)  Kátaho isht-ish-anopoli-h?
     who:ns inst-2Nom-talk-v
     'Who are you talking about?'

     When the 'about' argument is non-third person, an
     accusative prefix is used together with isht-. This
     accusative prefix may occur before isht-, immediately
     after isht-, or in the normal position for accusative
     prefixes, immediately before the verb root:

(186)  Chi-isht-il-anopoli-h --> Chishtilangopolih
     2Acc-inst-1pNom-talk-v
     'We talk about you'

(187)  Isht-chi-il-anopoli-h --> Ishtchilangopolih
     inst-2Acc-1pNom-talk-v
     'We talk about you'

(188)  Isht-ii-chi-anopoli-h 'We talk about you'
     inst-1pNom-2Acc-talk-v

     The order exemplified in sentence (186), with the
     accusative prefix preceding the instrumental clitic, is
     easiest to relate to a two-clause source for the isht-
     construction. Compare the following sentence:

(189)  Chi-ishih-h --> Chishih
     2Acc-take-v
     'He got you'

     Sentence (189) might then be translated as 'Taking you [as
     our subject matter], we talked'. However, the order
     exemplified in sentence (188), with the accusative prefix
     immediately before the main verb root, is the most usual
     one, and the only order possible for this construction in
     Chickasaw.
7.4.2. The Dynamic Directional Clitics At- and Ot-

The dynamic directional clitics are used to indicate motion of the subject. They are the contracted participles of ayah 'to walk, go' and onah 'to arrive there' (Byington 1870:354).\(^{18}\) At- indicates motion toward the speaker, and ot- motion away from the speaker:

(190) At-a-talowa-h 'Come and sing for me'
\hspace{1cm} dir-1sDat-sing-v

(191) Ot-tilobl-h 'He went and jumped'
\hspace{1cm} dir-jump-v

The clitics at- and ot- can be translated as 'come and' and 'go and', but it should be noted that only the literal meaning of the English phrase 'go and', involving physical motion, can be expressed with ot-. Thus, the sentence,

(192) Pam-at ot-nokowa-h 'Pam went and got mad'
\hspace{1cm} P.-su dir-mad-v

can only mean 'Pam went over there and got mad'.

The verb ittolah 'to fall down' frequently occurs with at-, most commonly with third person subjects and in questions:

(193) Mike-at at-tola-h 'Mike fell down'
\hspace{1cm} M.-su dir-fall-v

(194) At-chi-ttola-h-a? 'Did you fall down?'
\hspace{1cm} dir-2Acc-fall-v-Q

In sentence (193), the root undergoes Initial I-Deletion and degemination by Stray Erasure (cf. section 7.6.).

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7.4.3. The Static Directional Clitics Iit- and Pit-

Iit- and pit- are like at- and ot- in indicating actions directed toward (iit-) or away from (pit-) the speaker. However, the static directional clitics are used when the subject is not itself moving, but merely sending something else, physical or otherwise: 19

(195) Iit-a-toobli-h 'He pushed it at me'
dir-IsDat-push-v

(196) Iit-a-pila-h 'He sent it to me'
dir-IsDat-send-v

(197) Iit-a-tahpala-h 'He yelled to me'
dir-IsDat-yell-v

(198) Pit-hosa-li-h 'I shot at him'
dir-shoot:at-IsNom-v

(199) Pit-chi-toobli-h 'I pushed it at you'
dir-2Dat-push-v

(200) Pit-i-waali-li-h 'I waved to him'
dir-Dat-wave-IsNom-v

Byington (1870:354) and Nicklas (1972:209) agree that pit- comes from pilah 'to send'. The deletion of /la/ is irregular, but compare tot, the participle of tolah 'to lie' (itself the n-grade of ittolah 'to fall').

Byington (1870:354) states that iit- comes from iichih 'to hand this way', a verb used only in the imperative at the time of his research and not at all by Mrs. Wade. Nicklas (1972:209), on the other hand, states that it comes from iyah 'to go'. Alternatively, it can be straightforwardly derived from the unattested v2 suggested
by these two verbs, *iilih:

(201) iy-a-h --> iyah
go-mp-v

(202) iy-li-h --> iilih
go-act-v

(203) iy-li-t --> iilit --> iit
go-act-ss

(204) iy-li-chi-h --> iilichih --> iichih
go-act-caus-v

Before the consonant-initial active suffix -li, the root will undergo Glide Deletion (cf. section 5.4.), yielding iili-. Before the participial -t and causative -chi suffixes, the active suffix is deleted by the rule of Li-Deletion (Munro & Willmond 1984a, Munro 1985c). This rule, no longer productive in Choctaw (though it is in Chickasaw), deletes the active suffix when it follows a heavy syllable and precedes a coronal consonant.

7.5. Number Agreement Markers

There are a few other agreement markers that have not yet been described. These include the plural imperative prefix oh-/ho-, the plural subject marker oklah, and the dual subject marker toklah. There is no evidence that the last two are clitics rather than separate words, but they are dealt with here because they occur outside the noun phrase whose number they mark.

Second person imperatives take no person agreement
with their subjects:

(205) Ish-akammi-h 'You closed it'
     2Nom-close-v

(206) Akammi-h! 'Close it!'
     close-v

(207) Chi-naayókpa-h-o? 'Are you happy?'
     2Acc-happy-v-Q

(208) Naayókpa-h! 'Be happy!'
     happy-v

However, plural subject number is optionally marked with
oh- before a vowel or ho- before a consonant:

(209) Oh-akammi-h! 'Close it (plural subject)'
     pl-close-v

(210) Ho-naayókpa-h! 'Be happy!' (plural subject)'
     pl-happy-v

The plural imperative prefix oh-/ho- is within the domain
of Rhythmic Lengthening. Thus, the first syllable of the
root in example (209) may be lengthened. Sometimes the
plural imperative prefix has a long vowel: ooh-, hoo-.

The word oklah 'people' can be used to indicate a
plural (not dual) subject:

(211) Ohooyoo-t oklah hilha-h 'The women (pl) danced'
     woman-su people dance-v

(212) Oklah pi-chaaha-h 'We (pl) are tall'
     people 1pAcc-tall-v

(213) Oklah ha-chi-takoobi-h 'You (pl) are lazy'
     people pl-2Dat-lazy-v

Oklah is not part of the subject noun phrase. Note that
it follows the subject case-marker in (211). It need not

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even be adjacent to the subject noun phrase:

(214) Naknii-t oklah ofii-ma pisa-h
     male-su people dog-dem:ns see-v
     'The men saw the dog'

(215) Naknii-t ofii-ma oklah pisa-h
     male-su dog-dem:ns people see-v
     'The men saw the dog'

In sentence (215), it is still the subject that must be
plural, even though oklah follows the object.

     When a verb has a dual third person subject,\textsuperscript{20} it may
be followed by toklah:

(216) Talowa-h toklah 'Two of them sang'
     sing-v dual

(217) Tikahbi-h toklah 'Two of them are tired'
     tired-v dual

(218) I-takoobi-h toklah 'Two of them are lazy'
     Dat-lazy-v dual

This word is clearly related to the verb tokloh 'to be
two'.

     A dual subject of any person may be indicated by
subordinating the verb tokloh:

(219) Ii-toklo-hoo-sh ii-talowa-h
     lpNom-two-sbr-ss lpNom-sing-v
     'Two of us sang'

(220) Hash-toklo-ka-t ha-chi-tikahbi-h
     2pNom-two-sbr-ss pl-2Acc-tired-v
     'Two of you are tired'

This is the construction used with any quantifier, and is
not peculiar to tokloh:

(221) Ii-lawa-hoo-sh ii-talowa-h
     lpNom-many-sbr-ss lpNom-sing-v
     'A lot of us are singing'
Other numbers do not have special forms like toklah.

7.6. Rules Applying in Inflected Verbs

There are two lexical levels in Choctaw.\textsuperscript{21} Accusative prefixes, the plural imperative prefix, and the first person singular nominative suffix are affixed at level one, like valence and grade affixes. Other nuclear agreement and all oblique agreement is done at level two. Moreover, these markers are clitics. They have their own internal structure and phonological cycles. Participles such as isht- are cliticized post-lexically.

As shown in section 7.2.6., the first person singular nominative agreement suffix immediately follows the verb stem, and is followed by any other suffixes or enclitics (other than stem-forming suffixes such as the medio-passive, active, and causative suffixes—cf. chapter 5). As shown in sections 7.2.6. and 7.3.6., accusative agreement prefixes immediately precede the verb stem, and are preceded by any other prefixes or proclitics.\textsuperscript{22}

Rhythmic Lengthening (cf. section 3.2.) lengthens the vowels of alternate light syllables, i.e. open syllables containing short oral vowels. It can apply to the syllable following an accusative prefix:

\begin{align*}
(222) & \quad \text{Fam-a-h 'He got whipped'} \\
& \quad \text{whip-mp-v}
\end{align*}
(223) Sa-fām-a-h 'I got whipped'
    lsAcc-whip-mp-v

Rhythmic Lengthening can also apply after the plural
imperative prefix oh-/-ho- (cf. section 7.5.):
(224) Oh-ākammi-h 'Close it!'
    pl-close-v

The application of Rhythmic Lengthening indicates that the
final consonant of the prefix is syllabified into the
onset of the following syllable: o.ha.kam.mih. Rhythmic
Lengthening could not apply if the /h/ closed the initial
syllable.

On the other hand, the final consonant of a
nominative, dative, hypothetical, or participial clitic is
syllabified into the rime of the previous syllable, so
Rhythmic Lengthening cannot apply to the following
syllable:
(225) Pit-il-abiha-h (pit.il.á.bi.hah)
    dir-1pNom-enter:pl-v
    'We went in'

(226) Am-anooli-tok (am.á.noo.li.tok)
    lsDat-tell-pt
    'He told me'

(227) Chik-awash1-o-tok (chik.á.wash.lo.tok)
    2Hyp-fry:'-neg-pt
    'You didn't fry it'

The syllabification of clitic-final consonants into the
rime is audible even before a heavy syllable, where
Rhythmic Lengthening could not occur anyway.

Thus, VCV sequences across prefix boundaries are
always syllabified V.CV, while syllabification always
respects proclitic boundaries. This difference follows from the syllabification of clitics before cliticization. Clitics, as roots of a sort, pass through the level one phonology, where they undergo the rules of syllabification (cf. section 3.1.). Consequently, their final consonants are not stray at the time of cliticization, so they cannot be syllabified into the onset of the following syllable. Prefixes, on the other hand, have no cycle of their own; they cannot undergo any phonological rules until they are affixed to a root. Then they can be syllabified into the onset of the following syllable.

The differential syllabification of clitics and prefixes does not, however, enable Rhythmic Lengthening to be assigned to the postlexical component. Suffixes show clear level-ordering effects without any concomitant differences in syllabification (cf. section 3.2.). Thus, Rhythmic Lengthening must be a rule of the lexical phonology, applying at level one, but not at level two.

Most oblique markers do not participate in Rhythmic Lengthening, because they contain no sequences of light syllables. But oblique markers with the plural prefix ha-

\[\text{Ha-chimí-talówa-li-h} \quad '\text{I sang for you-all}\]
\[\text{pl-2Ben-sing-1sNom-v}\]

The lengthening of the second vowel in (228) shows that the benefactive clitic is inflected for person and number
at level one, where Rhythmic Lengthening is still applicable.

Although Rhythmic Lengthening can occur within oblique markers, there is no evidence that it can apply to the syllable after an oblique marker. The only oblique markers ending in light syllables are benefactive markers with oral final vowels (cf. section 7.3.1.). If ha- is prefixed, the last syllable of the benefactive marker is an odd-numbered light syllable, which might trigger Rhythmic Lengthening of the following syllable:

(229) *Ha-chi-mi-hi-lha-li-h 'I danced for you-all'
   pl-2Ben-dance-1sNom-v

Mrs. Wade rejects sentence (229), preferring a nasalized vowel in the benefactive marker.

Unlike dative and superessive markers, which undergo Nasalization (cf. section 3.3.) only before a consonant, benefactive markers undergo Nasalization even before a vowel:

(230) I-mi-abi-li-tok 'I killed it for her'
   Ben-kill-1sNom-pt

It cannot be Pre-Consonantal Nasalization that applies in benefactive markers, because the nasal is not always pre-consonantal. Rather, it must be Final Nasalization. Final Nasalization applies only in derived environments. It cannot apply in im- or on- because these are underived environments. Consequently, they can undergo Nasalization only pre-consonantal. The final nasal of imi-n-,
however, is a separate formative: benefactive markers can occur with or without it. Because it is a separate formative, Final Nasalization can apply.

The application of Final Nasalization provides additional evidence that benefactive markers are clitics, with their own cycle. A nasal-final prefix could not undergo Final Nasalization, because affixes do not undergo phonological rules prior to affixation, and after affixation its nasal would not be in final position. But imi- is a clitic, to which -n is suffixed. Final Nasalization applies on the cycle at which -n is suffixed. The resulting complex is subsequently cliticized to the verb:

(231)  [ [imi] n ] [verb] ]

Just as the -n is suffixed to imi- before cliticization, accusative person marking and ha- are prefixed before cliticization. The oblique markers are constituents, morphologically as well as semantically. They consist of oblique clitics inflected for person and number at level one. While monomorphemic clitics are most familiar to speakers of Indo-European languages, Klavans (1979, 1982) gives examples of pronominal clitics inflected for number in Ngiyambaa, and copular clitics inflected for person and number in Beja.
Aronoff's (1976:21) hypothesis that "all regular word-formation processes are word-based" entails that affixes are attached successively to stems, but that affixes are not attached to other affixes before being jointly attached to stems. Choctaw agreement clitics are not full-fledged words. They cannot be postposed after the verb, nor can anything other than certain other agreement markers intervene between them and the verb stem. Locative, ablative, and comitative markers end in oral vowels, which are not permitted in word-final position. Dative and superessive markers undergo the lexical phonological rule of Pre-Consonantal Nasalization, which does not apply across word boundaries. Nevertheless, as clitics they may be considered words for the sake of Aronoff's hypothesis.

Progressive L-Assimilation (cf. section 5.4.) applies at level one, but not at level two:

(232) ataklam-li-h --> ataklammih
     bother-act-v
     *atakla̱lih

(233) im-lopi' --> ilopi' 'his brain'
     Dat-brain
     *immopi'

Progressive L-Assimilation bleeds Pre-Consonantal Nasalization (cf. section 3.3.) in (232), but the latter applies in (233).

Several agreement markers exhibit allomorphy. The allomorphy of the first person singular accusative prefix
sa-/si- and the first person plural nominative and hypothetical clitics il-/ii- and kil-/kii- is conditioned by the following segment, and thus can be determined at the time of attachment. The allomorphy of the first person singular dative, benefactive, and ablative markers is more problematical.

The first person singular dative marker, for example, appears as sam- after nominative and hypothetical clitics, but as am- in word-initial position and after participial clitics. This distribution could be accounted for with level-ordering: participial clitics are post-lexical, while nominative and hypothetical clitics are lexical. However, it also appears as am- after oblique clitics. The benefactive and ablative markers exhibit parallel allomorphy. There is no other evidence for a level-ordering distinction between oblique clitics on the one hand and nominative and hypothetical clitics on the other.

Although dative, benefactive, ablative, and hypothetical markers otherwise appear to contain accusative prefixes, the first person singular accusative prefix always retains its /s/. The accusative prefixes within these markers are also exceptional with regard to omission under coreference with an independent pronoun.

Independent pronouns, which are used primarily for emphasis, cooccur with bound agreement on the verb:
(234) Chishnaakoo-sh chi-nalha-tok-o?
you-su 2Acc-shot-pt-Q
'Are you the one who got shot?'

An accusative prefix may be omitted when agreeing with an overt pronoun:

(235) Chishnaakoosh nalhatoko?
'Are you the one who got shot?'

Nominative markers, on the other hand, may not be omitted:

(236) Chishnaakoo-sh ish-talowa-tok-o?
you-su 2Nom-sing-pt-Q
'Are you the one who sang?'

(237) *Chishnaakoosh talowatoko?

Accusative prefixes may be omitted within a locative, superessive, or comitative marker:

(238) Pishnaako ish-pi-aa-holabi-h
you/us 2Nom-1pAcc-Loc-ia-loc-v
'You lied about us'

(239) Pishnaako ishaaholabih
'You lied about us'

(240) Chishnaako cho-ji-finibli-tok-o?
you/ins 2Acc-Sup-splash(pt-q)
'Are you the one who got splashed?'

(241) Chishnaako ofinibli-toko?
'Are you the one who got splashed?'

(242) Anaako Pam-at sa-baa-hilha-h
me P.-su isAcc-Com-dance-v
'I'm the one Pam danced with'

(243) Anaako Pam-at ibaa-hilha-h
'I'm the one Pam danced with'

However, omission of person marking from those markers that lose the /s/ in the first person singular is of questionable acceptability:
(244) Anaakoo-sh a-takoobi-h
I-su  IsDat-lazy-v
'I'm the one who's lazy'

(245) ?Anaakoosh itakoobih
'I'm the one who's lazy'

(246) Anaakoo-sh ak-taloowo-tok
I-su  IsHyp-sing:'-pt
'I'm the one who didn't sing'

(247) ?Anaakoosh iktaloowotok
'I'm the one who didn't sing'

(248) Chishnaako chima-poota-li-tok-o?
you:ns  2Abl-borrow-IsNom-pt-Q
'Are you the one I borrowed it from?'

(249) ?Chishnaako imaa-poota-litoko?
'Are you the one I borrowed it from?'

Thus, the person prefixes in dative, hypothetical, benefactive, and ablative markers behave slightly differently from accusative prefixes elsewhere.

The dialectal rule of AE-Simulation applies at the word level to sequences of /ia/ and /iaa/ to give [əː]:

(250) AE-Simulation
[-low]  [+low]               [+low]
|       / \                     / \ 
 V     V  (V)  =>  V  V
|       \ /                     \ / 
[-back]  [+back]               [-back]

AE-Simulation is bled by Short Vowel Deletion (cf. section 5.4.), which deletes a short vowel before another vowel:

(251) bili-a-h  -->  bilah  'to melt (intr)'
melt-mp-v

However, accusative prefixes, whether prefixed to verbs or to oblique clitics, are exceptions to Short Vowel Deletion, and thus can undergo AE-Simulation:
(252) Pi-apila-h [p:i.x:pi:la:h]
   lpAcc-help-v
       'He helped us'

(253) Is-siia-holabi-h-a [iss;i.x:holabiha]
   2Nom-1sLoc-lie-v-Q
       'Did you lie about me?'

Aside from accusative prefixes, AE-Simulation applies only
in a few underived environments:25

(254) itialbi' 'lip'

(255) shiapa' 'huckleberry'

Short Vowel Deletion does not apply in underived
environments, so these /ia/ sequences are left to undergo
AE-Simulation, which does apply in underived environments.

When /i/ follows another vowel, it is deleted:

(256) Post-Vocalic I-Deletion
   \begin{verbatim}
V --> $\beta / V$
   \end{verbatim}
   \begin{verbatim}
   [i]
   \end{verbatim}

Post-Vocalic I-Deletion applies when accusative prefixes
are attached to i-initial verbs or agreement clitics, and
in the second person plural nominative marker:

(257) Sa-isse-so-h --> Sassoh 'She hit me'
   lsAcc-hit-v

(258) sa-im- --> sam-
   lsAcc-Dat  lsDat

(259) chi-ik- --> chik-
   2Acc-Hyp  2Hyp

(260) ha-ish- --> hash-
   pl-2Nom  2pNom

Post-Vocalic I-Deletion bleeds Short Vowel Deletion, which
deletes a short vowel before another vowel.
Initial /i/ is optionally deleted:

(261) Initial I-Deletion (Optional)

\[ V \rightarrow \emptyset / [ ___ \]

[i]
Condition: Application does not strand melodic material.

A syllable whose vowel is deleted is destroyed. Initial I-Deletion does not apply when loss of the vowel and syllable will strand a consonant:

(262) ikbh 'to make'

*kbh (Initial I-Deletion)
*bih (Stray Erasure)

Ikbh cannot be pronounced *kbh or *bih.

On the other hand, Initial I-Deletion can apply before a geminate consonant, because doing so strands a C-slot but no melodic material:

(263) 6 6 6 'pumpkin'

| /| /|
R OR OR
\ | | |\VC CV CVC
||/ | ||!
is i to'

6 6 (Initial I-Deletion)

| | |
OR OR
|| | |\CV CV CVC
||/ | ||!
si to'

6 6 (Stray Erasure)
Because Initial I-Deletion is optional, this word can be pronounced either isíto' or síto'.

Initial I-Deletion can also apply before a sibilant followed by another consonant:

(264)  iskáli' - skáli' 'money'

An initial extrasyllabic sibilant is allowed by the Choctaw Word Template (cf. section 3.1.2.).

Initial I-Deletion applies lexically at the word level. It can apply before cliticization of post-lexical participial clitics, as in attolah 'he fell down':

(265)  ittolah         'to fall'
      ttolah          (Initial I-Deletion)
      tolah           (Stray Erasure)
      *attolah        [Directional Clitic]

As a word-level rule, Initial I-Deletion cannot apply before the level one prefixation of accusative agreement, as in sattolah 'I fell down':

(266)  ittola
      saittola       [1sAcc]
      sattola        (Post-Vocalic I-Deletion)
      sattolah       [Verbal -h]

(267)  ittola
      ttola          (Initial I-Deletion)
      tola           (Stray Erasure)
      satola         [1sAcc]
      *satolah       [Verbal -h]

This word cannot be pronounced *satolah. In the correct derivation in (266), the /i/ is deleted by the separate (obligatory) rule of Post-Vocalic I-Deletion. Because the /i/ is deleted after prefixation of sa-, the first /t/ is syllabified into the prefix syllable, and Stray Erasure
does not apply.

The interaction of Initial I-Deletion and level two lexical clitics is not clear. The reciprocal prefixitti-
may lose its first syllable in word-initial position or after the second person nominative clitic, but not, for Mrs. Wade, after the first person nominative clitic:

(268) Hash-itti-bóli-h₁ Hashtibólih  
      2pNom-rcp-hit-v  
      'You hit each other'

(269) Il-itti-bóli-h₁ → *Itibólih  
      1pNom-rcp-hit-v  
      'We hit each other'

If this is an example of the same deletion process, applying in initial position (before cliticization of nominative agreement), it should not be conditioned by subsequent cliticization.

The /sh/ of the second person nominative clitic assimilates to a following /s/:

(270) Sibilant Assimilation  

\[ \text{C} \quad \text{C} \quad \text{C} \quad \text{s} \]

\[ \text{sh} \quad \text{s} \]

Sibilant Assimilation is postlexical; it can apply to the instrumental clitic isht- (cf. section 7.4.).

For some speakers, Glide Insertion (cf. section 5.4.) inserts /y/ at level two between a locative, ablative, or comitative clitic and a vowel-initial verb. However, Mrs. Wade sometimes uses the - the y-final variants of these clitics before consonants. She occasionally uses the
vowel-final variants before vowels. Level one Glide Insertion, on the other hand, is obligatory. Consequently, the variation in shape of the these clitics, at least for Mrs. Wade, should be attributed to irregular allomorphy rather than to phonological rule.
Notes

1. In a few cases, oblique markers can be used to agree with subjects. Cf. section 7.3.

2. Nicklas (1975) refers to "series I" and "series II" agreement affixes, but his I is equivalent to Munro and Gordon's (1982) II, and vice versa.

3. Alhkoolih means 'to go (pl)', for Mrs. Wade as well as Nicklas's consultants (1972:58), in addition to meaning 'to move, wiggle'. Mrs. Wade also accepts ilhkoolih for 'to go (pl)'. Moreover, Broadwell (1985) records both forms for 'to go (pl)' in Mississippi Choctaw. Heath's (1980:9) suggestion that "either Nicklas or his informants have gotten the two mixed up" is incorrect, except as a prescriptivist's view of an historical change. Presumably there has been a change in Oklahoma Choctaw and in some dialects of Mississippi Choctaw, whereby alhkoolih, earlier meaning only 'to move, wiggle', has tended to replace ilhkoolih, the earlier verb for 'to go (pl)'. Actually, the two verbs are not homophonous in Mrs. Wade's speech, as the verb meaning 'to wiggle' is accented on the penult, while the verb meaning 'to go (pl)', whatever its initial vowel, bears no lexical accent. Interestingly enough, in Chickasaw (Munro & Willmon 1984b) there is no cognate of the Choctaw verb meaning 'to go (pl)', but ilhko'li means 'to move, shake'. Similarly, Broadwell (1985) lists ilhkoolichii (GAB: ilkooličih) and ilhkoočih (GAB: ilkoočih) as variants of alhkoolih 'to wiggle' (GAB: ałkoolih). Byington (1915) does not list any verb alhkoolih.

4. Nominative agreement with non-subjects occurs in a causative construction of questionable grammaticality (cf. section 5.3.).

5. Byington (1870:337) identifies hapi- as distinctive, pi- as definite. For a brief discussion of Byington's definite-distinctive opposition, cf. section 4.4.1.

6. The two versions of sentence (24) differ not only in the affix agreeing with the subject (sa- vs. -li), but also in the nasalization of the first vowel in the verb root: nokowah vs. nokowah. What triggers nasalization in this verb is unknown. It is in the wrong syllable to be the n-grade (cf. section 6.3.).

7. Different-subject complements of bannah have overt
switch-reference marking, as well as normal agreement on the embedded verb. Subject agreement on the embedded verb in the same-subject construction is also possible:

(i) Ish-hilha-h chi-banna-h 'You want to dance'
   2Nom-dance-v 2Acc-want-v

(ii) Chi-chaaha-h chi-banna-h 'You want to be tall'
    2Acc-tall-v 2Acc-want-v

(iii) Chi-takoobi-h chi-banna-h 'You want to be lazy'
     2Dat-lazy-v 2Acc-want-v

Cf. sentences (30, 32, 34) in the text, without person marking on the embedded verb.

8. Nicklas (1972:43) states that there are nouns that take the i- prefix without a geminate consonant. However, his example, nishkin 'eye', does not take i- for Mrs. Wade. Rather, it may take either zero or the dative im- for third person possessors, though it takes only accusative prefixes for non-third person possessors:

(i) sa-nishkin 'my eye'
     1sAcc-eye

(ii) *a-nishkin ('my eye')
     1sDat-eye

(iii) Pam i-nishkin - Pam nishkin 'Pam's eye'
     P. Dat-eye      P. eye

Noshkóbo' 'head' and nakshoka' 'face' behave similarly. These three nouns contain an n- prefix borrowed from Algonquian (Jacobs, Nicklas, and Spencer 1977; cf. Chickasaw ishkin, ishkobo', ishshoka'), which seems relevant, though hardly explanatory.

9. Nicklas derives these geminates from total assimilation of an l- (1972:44ff) or h- (1975:245f) prefix. However, such assimilation is quite distinct from the behavior of clear cases of -l- and -h- infixation. The medio-passive infix -l- (cf. section 5.2.3.) assimilates in voicing to any consonant, but it assimilates totally only to /n/ and /h/. The -h- of the h-grade (cf. section 6.2.) does not assimilate to any consonant.

Bob Rankin convinced me of the desirability of recognizing an iC- prefix, though I do not agree that it is third person in reference.
10. The first person singular form of ikshoh 'not to exist' is ıksakshoh, which appears to contain *sak- after a hypothetical marker. However, the first person plural form is ikpiikshoh. If ıksakshoh really contained a first person singular hypothetical marker after the ik- hypothetical marker, one would expect the first person plural form to be *ikkiishoh, with the hypothetical marker kii-. (Nicklas (1972:70) lists an alternate form kilikshoh, which contains the first person plural hypothetical marker, but in a different position. This form is not in Byington (1915).) The forms used by Mrs. Wade have the form ik-ACC-ikshoh-h, except for the third person form ikshoh, which lacks the second /ik/. Byington (1915) states that ikshoh is the negative of ashah, which occurs most commonly in the y-grade (ayyashah) and the n-grade (ashah), meaning 'to exist (pl)' and, with dative markers, 'to have'.

11. The verb anopolih 'to talk' is exceptional in that it takes the accusative reflexive prefix (i), although it takes dative agreement with non-reflexive objects (ii, iii):

(i) Ish-ili-anopolih-o? --> Ishilangpolihoh
+Nom-rfl-talk-v-Q
'Do you talk to yourself?'

(ii) Im-anopolih
Dat-talk-v
'She talked to him'

(iii) Ittim-anopolih
rcp:Dat-talk-v
'They talked to each other'

12. This hierarchy is derived from one proposed by Nicklas (1972:149), which, however, omits "dative". Nicklas treats dative agreement with subjects as a special case of patient agreement.

13. Davies (1981a:40) states that the nasalized benefactive markers are "used to denote the fact that subject A performed some act because B, whose nominal determines benefactive agreement, was unable to." However, this generalization does not hold for my data. For instance, both imitaklamah and imitaklamah occur, meaning 'it bothers him (that S)'. The latter does not, of course, mean 'it (the embedded clause) bothers her (an unmarked argument) because he (the person bothered) was unable to'.
14. Different-subject marking is also possible in this construction:

   (i)   Ami-kallo-h si-abíka-na-h
        1sBen-hard-v 1sAcc-sick:'sbr:ds-v
        'It's hard on me that I got sick'

Similarly, the benefactive argument of this verb need not be marked as subject:

   (ii)  Charles imi-kallo-h abika-tok-a
          C.    Ben-hard-v  sick-pt-sbř:ds
          'It's hard on Charles that he got sick'

These two facts suggest that the argument triggering benefactive agreement is not the underlying subject, but is promoted to subject by a rule similar to III-Subjectivization (Munro and Gordon 1982).

15. The observation that some Choctaw speakers do not have aay- comes from Nicklas (1979:40). Chickasaw does not have aay-, except in a few words that are probably Choctaw loans (Pam Munro, personal communication).

16. All of these auxiliaries also occur as main verbs. Pisah means 'to see' when used as a main verb. The perfective auxiliary tahlín (Broadwell 1984) means 'to finish' when used as a main verb.

17. Bot-ókchi', from bótá' 'flour' plus ókchi' 'juice', refers to a mixture of water and flour.

18. Nicklas (1972:190) states that at- is from alah 'to arrive here'. While this derivation is semantically parallel to that of ot-, Byington's etymology is phonologically much more plausible.

19. Toloblih 'to jump' is an exception to this generalization: it takes pit- and iit-, rather than at- and ot-:

   (i)   Iit-sig-tolobli-h 'He jumped at me'
          dir-1sSup-jump-v

   (ii)  Naksíka' pit-tolobli-h 'He jumped away from me'
          away  dir-jump-v

20. It is not clear whether toklah can be used with non-third person subjects. One day Mrs. Wade insisted that it could not, but on other occasions she has given such sentences without hesitation.
21. In an earlier paper (Ulrich 1984), I argued that there were at least three levels in Choctaw, including at least two postlexical levels. Further investigation has eroded the apparent evidence for those claims.

22. There do not seem to be any prefixes that appear between accusative prefixes and verb roots. If a- and ho- are synchronically segmentable, which seems dubious, then they fall into this category of stem-forming prefixes (cf. section 5.2.3.).

23. Rhythmic Lengthening appears to be less common in plural comitative and ablative markers than in plural benefactive markers. For example, hapibaa- is preferable to hapibaa-. Cf. the variable application of Rhythmic Lengthening after accusative prefixes.

24. For some speakers, the noun ishki' 'mother' takes a- to mark a first person singular possessor: ashki'. Some speakers say hashki'. But most speakers say sashki'. Of the two irregular forms, I have heard hashki' more often, and it is the form given, as <hvshki>, by Byington (1915).

25. These are both compounds etymologically. The first element of itialbi' is the archaic word itih 'mouth' (CB: iti, itih), which also occurs in itakha' 'mouth' and itókchi' 'saliva' (cf. ókchi' 'juice'). Shiapa' comes from hoshi' 'bird' plus ápa', the nominalization of apah 'to eat (tr)'. Neither itialbi' nor shiapa' is analyzable synchronically.
## Appendix 1.  Index of Rules

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Appendix 2. Rule I Neglected to Formulate in the Text, Taking the Place of an Index I Decided Not to Compile, So That I Don't Have to Change References in the Text to Appendices 3 and 4

(1) \( \text{Default L} \)

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Appendix 3. Choctaw Legumonomy

The following is a list of Choctaw compounds naming different types of beans and peas, extracted from Ulrich (in preparation a). Items 10, 39, 40, 48, and 55 contain second elements for which I have no independent gloss from contemporary speakers. Of these, at least 40 and 55 are used or recognized by speakers who do not recognize the second element as an independent word. (Mrs. Wade does not recognize items 10, 39, and 48, and I failed to ask the speakers who did use them for the independent gloss of the second element.)

1. Chahta' ñóbi' [Chahta' 'Choctaw'] 'peas'.
2. chòkfi' nishkin tóbi' [chòkfi' 'rabbit', nishkin 'eye'] 'English peas'.
3. chokkilabal' tóbi' [chokbilabih, chokkilabila', etc. 'whippoorwill'] 'speckled peas'.
4. hayyichi' tóbi', tóbi' hayyichi' [hayyihchi', hayyichi' 'kidney'] 'kidney beans'. (This term was probably coined as a joke by my consultant.)
5. naahólo' ñóbi', naahollitóbi' [naahólo' 'Anglo', im- dative] 'English peas'.
6. nishkin chito' [nishkin 'eye', chitoh 'to be big'] 'fuzzy beans'.
7. saapa' tóbi' [saapa', osaapa' 'field'] 'field peas'.
8. siti' okchamáli' ñóbi' [siti' 'snake', okchamalih 'to be green'] 'snake beans'.
9. tóbi' aba' ñóya' [aba' 'up', oyyah to climb'] 'pole beans'.

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10. tóbi' abílhá' [CB abilha' (abihla) 'poled'] 'pole beans'.
11. tóbi' balálí' [balallih 'to creep'] 'runner beans'.
12. tóbi' basówá', tobi' baso'yá', bala' basowa' [basowah (MCO basoyah) 'to be striped', Cs bala' 'beans'] 'pinto beans, whippoorwill peas, speckled peas'.
13. tóbi' chalatók [chalatak 'treefrog'] 'peas'.
14. tóbi' chikchikí', tobi' chokchóki' [chikchikih, chokchokih 'to be speckled'] 'speckled peas, crowder beans'.
15. tóbi' chító' [chitoh 'to be big'] 'blue limas, butter beans'.
16. tóbi' chokfi' [chókfi' 'rabbit'] 'speckled peas'.
17. tóbi' falamlí', falammlí' tobi' [falammi 'north'] 'great northern beans'. (This term was probably coined as a joke by my consultant.)
18. tóbi' faláya' [falayah 'to be long'] 'crowder peas, yard beans'.
19. tóbi' hákshop lósa' [hákshop 'shell', losah 'to be black'] 'purple hull peas'.
20. tóbi' háta' [hatah 'to be pale'] 'navy beans'.
21. tóbi' hikit áni', tóbi' ikit áni' [hikiyah 'to be standing', ani 'to bear fruit'] 'bush beans'.
22. tóbi' himóna' [himonah 'to be new'] 'string beans'.
23. tóbi' hocchító' [hochitoh 'to be big (pl)'] 'crowder peas'.
24. tóbi' hólló', tob-ohóllo' [holloh 'to be sacred'; naahóllo' 'Anglo'] 'peas'.
25. tob-ohóllo' hákshop hómmá' [hákshop 'shell', hommah 'to be red'] 'purple hull peas'.
26. tóbi' hómí' [homih 'to be bitter'] 'Mexican red beans'.
27. tóbi' hómmá' [hommah 'to be red'] 'red beans, pinto beans, kidney beans'.

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28. tóbi' hómma' chító' [hommah 'to be red', chitoh 'to be big'] 'pinto beans'.

29. tóbi' itti' aabalálílì' [itti' 'tree, stick', a-alocative, balallih 'to creep'] 'pole beans'.

30. tóbi' itti' óyya' - tóbi' ittoyya' [itti' 'tree, stick', oyyah 'to climb'] Kentucky Wonder beans, pole beans, whippoorwill beans'.

31. tóbi' katólha' [katolhah 'to be chopped, snapped'] 'snap beans'.

32. tóbi' kosómá' [kosomah 'to stink'] 'English peas'.

33. tóbi' kowasha' [kowashah 'to be short'] 'bush beans'.

34. tóbi' laknà' [laknah 'to be yellow, brown'] 'crowder peas, lima beans'.

35. tóbi' lapássé' [lapassah 'to be flat'] 'lima beans'.

36. tóbi' liilawachi' [ililawachih 'to reproduce asexually': ili- reflexive, law- 'many', -a mediopassive, -chi causative] 'bunch beans, string beans'.

37. tóbi' lófé' [lofah 'to be peeled'] 'snap beans'.

38. tóbi' losá' [losah 'to be black'] 'black beans'.

39. tóbi' lhibálli' [CB lhibata' (hlibata) 'leather string'] 'string beans'.

40. tóbi' lhoibókta' [CB lhoiboktah (hloibukta) 'to be short and round'; cf. boloktah 'to be round'] 'crowder peas'.

41. tóbi' nishkin hómma' [nishkin 'eye', hommah 'to be red'] 'pink-eyed purple hulls'.

42. tóbi' nishkin losá', nishkin losa', niskin losa' [nishkin 'eye', losah 'to be black'] 'black-eyed peas'.

43. tóbi' okchákko' [okchakkoh 'to be purple, blue, green'] 'purple hull peas, velvet beans, green beans'.

44. tóbi' okchamáli', tobokchamáli' [okchamalih 'to be green, blue, purple'] 'green beans, purple hull
peas'.

45. **tóbi' okcháki'** [okcháki 'to be raw'] 'green beans, raw beans'.

46. **tóbi' oklhawíya'** [CB oklhawilih (okhlauinli) 'to be striped'] 'whippoorwill peas'. (Oklhawíyah may mean 'to have a dirty face'.)

47. **tóbi' okmiloli'** [okmilolih 'to be bug-eyed', CB 'to be bald'] 'some kind of beans'.

48. **tóbi' oksholóli'** [CB okshololi' (oksholonli) 'having hollow eyes'] 'crowder beans'.

49. **tóbi' osaapa'asha'** [osaapa' 'field', ashah 'to be located'] 'field peas'.

50. **tóbi' oski' óyya', tóbi' oskóyya', CB tóbi' oski' aatóyya' (tobí uski us tyaa) [oski' 'reed', óyyah 'to climb'] 'pole beans'.

51. **tóbi' patássa'** [patassah 'to be flat'] 'lima beans, butter beans'.

52. **tóbi' patássa' hochító'** [patassah 'to be flat', hochitoh 'to be big (pl)'] 'butter beans'.

53. **tóbi' síta'** [síta' 'ribbon'] 'Mexican beans'.

54. **tóbi' siti'** [siti' 'snake'] 'yard beans'.

55. **tóbi' shawíya', tóbi' shawíha'** [CB shawiyah (shawiyah) 'having small specks'] 'speckled peas, whippoorwill beans'.

56. **tóbi' shíla'** [shilah 'to be dried'] 'dried beans'.

57. **tóbi' takássa'** [takassah 'to be flat'] 'butter beans, lima beans'.

58. **tóbi' tohbi'** [tohbi'h 'to be white'] 'navy beans, lima beans, butter beans'.

59. **tóbi' tohbi' latássa'** [tohbi'h 'to be white', latassah 'to be flat'] 'lima beans'.

60. **tóbi' tohbi' patássa'** [tohbi'h 'to be white', patassah 'to be flat'] 'butter beans, lima beans'.

61. **tóbi' wálówa', tobi' wálóha'** [walowah 'to be soft,
tender'] 'green beans'.

62. waak itóbi' [waak 'cow', im- dative] 'crowder beans, cow peas, small red peas'.
Appendix 4. Western Muskogean V1 and V2 List

This is a list of v1's and v2's, i.e. verb pairs distinguished by the presence or absence of any of the affixes -l-, -a, and -li. In a few cases, pairs are given where either the v1 or the v2 occurs only with another suffix added, e.g. the nominalizing -' or the causative -chi. Words marked with the initials CB are from Byington (1915), although that work contains many further examples not included here. Words marked with the initials GAB are Mississippi Choctaw forms from George A. Broadwell (personal communication). Words marked Cs are Chickasaw forms from Catherine Willmond or from Munro and Willmond (1984b). Words marked MCO are Mississippi Choctaw of Oklahoma forms from various speakers. All other words are Oklahoma Choctaw forms from Josephine Wade.

The first list includes verb pairs distinguished by the presence of -a in the v1 and/or the presence of -li in the v2. In most cases, both suffixes are involved; verb pairs containing only one of these two suffixes are specially noted. Verb pairs are listed by root-final segment, in the following order: b, ch, f, h, k, l, lh, m, n, p, s, sh, t, w, y, ', a, aa, i, ii, o, oo.

The second list includes verb pairs in which the v1 contains -l-. Verb pairs in which the v1 contains -l- before a single consonant are listed alphabetically by
that consonant. Verb pairs in which the v1 contains -l- before a copy vowel and a consonant cluster are listed afterwards.

Where English glosses are ambiguous as to transitivity, transitive glosses should be understood for v2's, intransitive for v1's, except where noted. Indications of singular, dual, and plural refer to the objects of transitive verbs or the subjects of intransitive verbs, unless otherwise specified. In the first list, I have omitted glosses for v1's where they are the passive or intransitive (middle or unaccusative) form of the gloss for the v2. I have omitted glosses for Chickasaw verbs when they are synonymous with the Choctaw verbs in the same entry.

-A/-LI

B

1. alhtobah; atobbih 'to pay'. GAB atobbih, atoblih. Cs alhtoba; atobbi.
2. ittahobah; ittahobbih, CB ittahoblih (ittahobli) 'to gather'. GAB ittahoblih. Cs ittahoba; ittahobbi. Cf. 240.
3. lobah; lobbih 'to pluck up (pl)'.
4. shibah; shibbih 'to peel off'.
5. yoshobah; yoshobbih 'to mislead'. Cs yoshoba; yoshobli.

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6. lhabochah 'to be done, boiled'; CB lhaboshlih (hlaboshli) 'to boil (tr)'. Cs lhabocha; lhaboshli.

F

7. atiilofah; atiilloffih 'to break off in'. Cs atiilofa; atiillofi.

8. bahafah; bahaffih 'to stab'.

9. Cs bashafa; bashaffi 'to cut'

10. bokafah; bokaffih 'to pop'. Cs bokafa; bokaffi

11. Cs bokshikofa; bokshikoffi 'to bundle'

12. boyafah; boyaffih 'to pull out (grass, hair)'. Cs boyafa; boyaffi.

13. CB chinifa' (chinifa) 'a small piece'; chiniffih 'to pinch'. Cs chinofa; chinoffi.

14. cholhafah; cholhaffih 'to split'. Cs chalhafa; chalhaffi 'to cut'.

15. Cs holhtofa; hotoffi 'to untie'.

16. kalafah; kalaffih 'to scratch'. Cs ishkalla'fa' 'rake'; kalaffi 'to rake'.

17. kashofah 'to be clean'; kashoffih 'to clean'. Cs kashofa; kashoffi.

18. kinafah 'to fall'; kinaffih 'to fell'. Cs kinafa; kinaffi.

19. kobafah; kobaffih 'to break'. Cs kobafa; kobaffi.

20. kochofah; kochoffih 'to bend'.

21. ittiikolofa' 'stump' (itti 'tree'); koloffih 'to cut deeply'. Cs kolofa; koloffi 'to cut'.

22. Cs koyofa 'to be striped'; koyoffi 'to stripe'.

23. Cs latafa; lataffih 'to stub (toes), etc.'.

24. litafah; litaffih 'to break a thread'.
25. lobafah; lobaffih 'to pluck up (sg)'.
26. lofah; loffi 'to peel'. Cs lofa; loffi.
27. Cs lhachofa; lhachoffi 'to mash'
28. lhakofah 'to come off (e.g. of a scab, or something stuck on a wall)'; lhakoffih 'to heal (intr)'. Cs lhakofa 'to be alone'; lhakoffi 'to be cured'.
29. lhilafah; lhilaffih 'to tear'. Cs lhilafa; lhilaffi.
30. lhitafah; lhitaffih 'to break a thread'.
31. lhokafah; lhokaffih 'to punch holes in'.
32. lhofah; lhoffih 'to skin'. Cs lhofa; lhofi.
33. mitifah; mitiffih 'to rip'. Cs mitafa; mitaffi 'to make a small hole'.
34. mokofah; mokoffih 'to release'. Cs mokofa; mokoffi 'to scratch, rub raw'.
35. noktilhifah; noktilhiffih 'to choke'. Cs noklhitofa; noklhitoffi.
36. Cs pachafah; pachaffih 'to split'.
37. Cs pasafah; pasaffih 'to cut open'.
38. patafah; pataffih 'to split'. Cs patafa; pataffi 'to rip'.
39. payofah; payoffih 'to dent'. Cs pachofa; pachoffi.
40. pichifah; pichiffih 'to squish, e.g. a bug'. Cs pichifa; pichiffi 'to splat'.
41. pikofah; pikoffih 'to skin, e.g. one's leg'. Cs pilhfofa; pilhoffi.
42. Cs sokafah; sokaffi 'to pop'.
43. Cs lowak ishshafah 'poker'; shaffi 'to poke (a fire)'.
44. shafah; shaffih 'to shave'. Cs shafa; shafi.
45. shibafah; shibaffih 'to splinter'. Cs shipafa; shipaffi.
46. shofah 'to be off (e.g. of clothes)'; shoffih 'to take off (e.g. clothes)'. Cs shifa; shifi.

47. shokafah; shokaffih 'to break a piece off'. Cs shokafa; shokaffi 'to chip'.

48. takafah; takaffih 'to dip'. Cs takafa; takaffi.

49. tilofah; tiloffih 'to break a tree'. Cs tilofa; tiloffi 'to break the top off'.

50. tilhofah; tilhoffih 'to sprain'. Cs talhoffa 'to come loose'; talhoffi 'to come loose'.

51. tifah; tifih 'to uproot'. Cs tifa; tifi 'to pull (a tooth)'.

52. tokafah; tokaffih 'to fire'. Cs tokafa; tokaffi.

53. toshafah; toshaffih 'to chip'. Cs toshafa; toshaffi 'to break a piece off'.

54. Cs yabofo 'to be soft'; yaboffi 'to plump up'.

55. Cs yatofa 'to be soft'; yatoffi 'to plump up'.

56. Cs yokofa; yokoffi 'to scald'.

H

57. alottowah; alotolih 'to fill'. Cs alotto'wa; alootoli. Cf. 282.

58. abibah, abibah 'to enter (pl)'; CB abiblih (abehli) 'to put in (pl)'. Cs albi'ha, albi'ya; abilhi 'to put in (du)'.

59. alhtahah; atahligh 'to complete'. Cs alhtaha; atahligh 'to prepare'.

60. apakfowah; apakfolih, apakfohlih 'to wrap, wind up'. Cs apakfoha; apakfohli 'to wind up'.

61. anakshowah; anakshohlih 'to singe'. Cs anakshowa; anakshooli.

62. apootowah 'to lie beside'; apootolih 'to lay beside'. Cs apotto'wa 'to be next to'; apootoli 'to put next to'.

63. Cs asiitowat maa; asiitooli 'to pin on (pl)'.
64. bachohah; bachohlih 'to lay in rows'.
65. bahah; bahlih 'to stab'. Cs baha; bahli 'to punch holes in'.
66. banahah 'banaha (Choctaw tamale)'; banahlih 'to make banaha'.
67. boshowah; boshollih 'to chop up, grate'.
68. chokfolohah; chokfolohlih 'to make dizzy'. Cs chokfoloha; chokfolohli.
69. fakahah, fakowah; fakahlih 'to peel'.
70. fitohah, fothohah; fothohlih 'to grind'. Cs foloha; folooli.
71. fohah 'to be dug out (as jam from jar)', 'to rest'; fohlih, follih 'to dig out (as jam from jar)'. Cs fooha 'to rest'; fohli 'to lick'.
72. Cs intiippo'wa 'to be reinjured'; intiippo'li 'to keep reinjuring' (These are the g-grades of the plurals of 154.)
73. Cs ittanaha, ittanaa; ittanahli 'to gather'.
74. Cs kahat maa; kahli 'to lay down (pl)'.
75. kahpowah; kahpolih 'to lay down (du, pl)'.
76. kashkowah; kashkolih 'to share (pl)'. Cs kashkowa; kashkoli.
77. kashowah; CB kasholicih (kasholichi) 'to wipe'. Cf. 296.
78. Cs koyoha, koyowa; koyohli 'to wrinkle'.
79. kookowah; kookolih 'to break (pl)'. Cs kookowa; kookoli.
80. litihah 'to be dirty'; litihlih 'to dirty'. Cs litiha, litiya; litihli.
81. lhohah; lhohlih 'to skin'. Cs lhoha; lhohli 'to strip of bark'.
82. mishowah; mishochih 'to rub'. Cs shoowalhchhi; shoochi. (The Chickasaw v2 undergoes Li-Deletion
in the base form, but the -li surfaces in the hn-grade shohlihinchi.)

83. Cs okfaha; okfahli 'to expose'.
84. pashpowah; pashpolih 'to sweep'.
85. Cs pofoha, pofowa; pofohli, pofooli 'to swell'.
86. pihah; pihlih 'to shovel'. Cs piha; pihli 'to sweep'.
87. shihah; shihlih 'to card'. Cs shiha; shihli 'to remove (pl)'.
88. shimohah; shimohlih 'to anaesthetize'. Cs shimoha; shimohli.
89. shobohah; shobohlih 'to smoke'.
90. tahah; tahlih 'to finish'. Cs taha; tahli.
91. talohah; talohlih 'to set down, set up (pl)'. Cs talowat maa 'to stand, be set up (pl)'; talooli 'to set up (du, pl)'.
92. taptowah; taptolih 'to cut off'.
93. tihah; tihlih 'to uproot (pl)'. Cs tiha; tihli 'to pluck'.
94. toshtowah; toshtolih 'to shred'. Cs toshtowa; toshtoli.
95. wihah 'to move'; wihlih 'to take, steal'. Cs wiha; aawihli 'to take from'.
96. wihpowah; wihpolih 'to rob'.
97. yohah; yohlih, yohlichih 'to sift'. Cs hayoha, hayowalhchi; hayoochi. (The Chickasaw v2 undergoes Li-Deletion.)

K

98. CB taka' (taka) 'scooped, dipped'; taklih 'to scoop, dip (pl)'.

99. yokah 'to be caught'; hoklih 'to catch'. Cs yoka 'to be in jail'; yokli.
100. Cs alhfola 'to be made into a dumpling'; afolli 'to make boiled dumplings from'.

101. i manokfila' 'mind'; anokfillih 'to think'. Cs i manokfila; anokfilli 'to wish, think about'.

102. CB kala' (kvla) 'scratched'; CB kallih (kvlli) 'to scratch'.

103. kolah; kollih 'to dig'. Cs 'kola; kolli.

104. Cs lhila; lhillichih 'to tear (pl)'.

LH

105. CB abilha' (abihla) 'poled'; abilhlhiih 'to stake (beans)'. Cs abilha; abilhlhi.

106. analhah; analhlhichih 'to nail'. Cs analha; analhlhichi.

107. Cs chalha; chalhlhi 'to cut'.

108. cholhah; cholhlhiih 'to chop'. Cs cholha 'to be cut for shingles'; choolhlhi 'to cut shingles'.

109. CB halha' (hvhlha) 'kicked (pl)'; halhlhiih 'to kick (pl)'. Cs halha; halhlhi.

110. katolhah; katolhlhiih 'to cut (e.g. vegetables)'. Cs katolha; katolhlhi 'to cut (e.g. paper)'.

111. nalhah; nalhlhiih 'to shoot'. Cs nalha; nalhlhi.

112. CB palhah (pvhlha) 'to split (intr, pl); palhlhiih 'to split (tr, pl)'. Cs tanchi' palha' 'grits'; palhlhi 'to split (pl)'.

113. polhah; polhlhiih 'to fold'. Cs polha; polhlhi, polhili.

114. Cs talha; talhlhi 'to whittle'.

115. Cs tilhalhchi; tilhlhichih 'to peel'.

M

116. ahammah 'to be smeared'; ahammih 'to smear, to iron'. Cs halma 'to be ironed'; hammi 'to iron'.

314
117. alhkamah; akammih 'to close'.
118. ataklamah; ataktammi 'to bother'. Cs ataklamma 'to be busy'; ataklammi.
119. CB fachama' (fachama) 'thrown by a stick'; CB fachammih (fachvmmi) 'to throw by springing a stick'.
120. falamah; falammichih 'to return'. Cs fala, falammichi.
121. famah; fammih 'to whip'. Cs fama; fammi.
122. filimah; filimmih 'to turn over, unroll'. Cs filima 'to be turned over'; filimmi 'to turn over'.
123. fimah; fimmih 'to splash, scatter'.
124. fitimah; fitimmih 'to open (a pocketknife)'.
125. Cs hapayyima 'to be salty'; hapayyimmi 'to salt'.
126. Cs ittashoma; ittashommi 'to mix up'.
127. lomah; lohmih 'to hide'. Cs loma; lohmi.
128. CB loshoma' (lushoma) 'finished'; loshommi 'to use up'. Cs loshoma 'to die out'; loshommi 'to wipe out'.
129. Cs pitoma; pitommi 'to sprain'.
130. polhomah; polhommih 'to fold'. Cs polhoma; polhommi.
131. shimah; shimmih 'to cut shingles'.
132. wakamah; wakammih 'to open slightly'. MCO wakamah; wakammih 'to open'.

N
133. abanah 'to stack wood'; abanni 'log house'. Cs ittittabaana' aboha 'log cabin'; ittabannichi 'to rick'.
134. afinah; afinnih 'to pry'. Cs afina; afinni 'to insert for prying'.
135. ashanah; ashannichih 'to lock'. Cs ashana;
ashannichi.

136. bonah; bonnih 'to roll up'. MCO bonah; bonnih 'to wrap'. Cf. 306.

137. tachi' lobona 'corn cooked with meat'; CB lobonah (lobona) 'to boil in the kernel (intr)'; CB lobonnih (luboni) 'to boil in the kernel (tr)'. Cs lobona; lobonni.

138. pannah; panni 'to braid'. Cs panaa; panili 'to twist'.

139. shannah; shannah 'to wind up'. Cs shana; shanni 'to wring, twist'.

140. tanah; tannih 'to weave'. Cs tanaa 'crocheted or knitted article'; tanni 'to weave, crochet, knit'. Cf. 345.

P

141. CB afoolopa' (afolupa) 'encircled'; afooloblith 'to go around (tr)'. Cs afoolopa 'to go around (tr)'; afooloblith 'to crowd around (tr, pl su)'.

142. awaanapah; awaanablith 'to go over'. Cs abaanapa; abaanabli.

143. aatapah 'to be too much'; aatabli 'to be too much'. Cs aataha; aatahli.

144. bochopah; bochoblith 'to squeeze'.

145. Cs fachopah; fachoblith 'to open (a knife)'.

146. fakopah; fakoblith 'to unstick'. Cs fakopa 'to open (intr, e.g. of pecans, peaches)'; fakoblith 'to open (a peach), to bud'.

147. finipah; finiblith 'to splash, scatter'.

148. fohopah; fojoblith 'to pour'.

149. Cs halhapa; halhabli 'to kick (sg)'.

150. holiitopah 'to be rich, to be elected'; holiitoblith 'to elect'. Cs holiitopa 'to be rich, to be passed (of a motion)'; holiitoblith 'to treasure, to pass (a motion)'.

316
151. ittafinipah; ittafiniblih 'to scatter'. Cs ittafimmo'pa; ittafimmobli.

152. ittashikonopah 'to be knotted'; ittashikonoblih 'to tie a knot in'. Cs shikoonopa; shikoonobli.

153. ıkatapah; ıkatablih 'to block, forbid'. Cs inkatapa; inkatabli.

154. ıtiipah 'to reinjure one's own sore spot'; ıtiiblih 'to reinjure a sore spot'. Cs intiipa; intiibli.

155. kashapah; kashablih 'to divide up'. Cs kashapa; kashabli.

156. Cs lopa; lobli 'to plug'.

157. lhipah 'to wear out (intr)'; CB lhiblih, hiplihih (hlibli, hipli) 'to wear out (tr)'. Cs lhipa; hlibli.

158. lhitapah; lhitablih 'to spill, pour out'. Cs lhatapa; lhatabli.

159. lhopot; lhoblih 'to pierce'.

160. nokbinipah 'to have one's breath knocked out'; nokbiniblih 'to knock breath out'.

161. nokbiipah 'to have one's breath knocked out'; nokbiiblih 'to knock breath out'. Cs nokbiipa; nokbiibli.

162. nokshoopah; nokshooblih 'to frighten'.

163. oktapah; oktablih 'to clog'. Cs oktapa; oktabl 'to cut off'.

164. Cs satapa 'to be smooth, straightened'; satabli 'to straighten'.

165. shakapah 'to make noise'. Cs shakabli 'to make noise'.

166. shiipah; shiiblih 'to stretch'. Cs shiipa; shiibli.

167. tapah; tablih 'to cut off'. Cs tapa; tabli 'to cut or pull apart'.

168. tiyapah; tiyablih 'to break down, scatter'. Cs tiwapa; tiwabli 'to explode'.
169. yilhipah 'to run (pl)'; CB yilhiblih (yilhibli) 'to run (tr), rout'. Cs yilhipa 'to collapse, be knocked down'; yilhibli 'to knock down'.

170. yohapah; yohablih 'to loosen'.

171. yokopah; yokoblih 'to stop'. Cf. 289.

S

172. Cs ishtalpullo'sa 'to get all over, be slathered on'; apoolosli 'to daub on one's face'. (The v1 is a g-grade.)

173. pasah; paslih 'to slice'. Cs pasa; pasli.

174. yamaskah; yamaslih 'to knead'.

SH

175. alwashah; awashlih 'to fry'.

176. alhposhah; aposhlih 'to roast, bake'. Cs alhposha; aposhli.

177. bashah; bashlih 'cut'. Cs basha; bashli 'to saw'.

178. Cs imbishalhchi; imbishlichi 'to milk'.

179. kalashah; kalashlih 'to cut'.

180. Cs kamoshah; kamoshli 'to tickle'.

181. libishah; libishlih 'to heat'.

182. oktosah 'to snow' (oka 'water'); toshlih 'to crumble'. Cs oktosha; toshli.

T

183. alhkatah; akallih 'to patch'.

184. Cs apakfoota 'to go around once (tr)'; apakfolli 'to wind up'.

185. apatath 'to be next to'; CB apallih (apvli) 'to stand side and side (pl)'. Cs apantat 'next to'; ittapallih 'to sew together'. Cf. 243.

186. Cs apaakota; apaakolli 'to fold around'.

318
187. Cs apaakotalhchi; apaakollichichi 'to hem'.

188. Cs awata 'to be new (of the moon)'; awallili 'to lay across (nonsg)'.

189. bichotah; bichollih 'to bend'. Cs bichota; bicholli.

190. bonotah; bonollih 'to roll up'. Cs banata 'to be crumpled up'; banallili 'to roll up'.

191. Cs chofata 'to be clean'; chofallih 'to clean'.

192. cholhatalah; cholhalla 'to split'

193. Cs filita; fililllichichi 'to turn'.

194. folotah; fololllichichi 'to turn around'. Cs folota; folollichichi.

195. Cs ittalatalah 'to be stuck together'; ittalallili 'to pile up'.

196. Cs lata; laaulli 'to chop up'.

197. Cs lhayita 'to be wet'; lhayillili 'to wash, wet'.

198. malhatalah; malhollih 'to scare'. Cs malhata 'to be surprised'; malholllichichi 'to scare'.

199. Cs okkowatalah 'to be sideways, to be horizontally across (sg)'; okkowallili 'to put across (pl)'. Cf. 262.

200. palhatalah; palhollih 'to split'. Cs palhata; palhali.

201. patalah; palleh 'to spread (pl)'.

202. MCO pakotah; pakollih 'to break'.

203. shobotah; shobollih 'to smoke'.

204. Cs yokotala; yokollih 'to shrink'.

AW

205. CB kawah (kawa) 'to break (intr)'; CB kawwi (kawwi) 'to break (tr)'.

206. lawah 'to be many'; lawwhi 'to be as much'.
207. tiawah; tiwihih 'to open'. Cs tiwa; tiwwi.

208. annowah 'for word to be out'; anoolih 'to tell'. Cs annowa, annoya; anooli.

209. kowah; koolih 'to break'. Cs kowa; kooli.

210. litowah; litoolih 'to bruise, mash'. Cs lotowa; lotooli 'smash'.

211. towa' 'ball'; toolih 'to play ball'. Cf. 235.

212. Cs akanaa; akiili 'to part'.

213. Cs falaa, falaha 'to be long'; falili 'to make long'.

214. Cs hashaa 'to be angry'; hashiili 'to anger'.

215. kachayah; kachiilih 'to cut'. Cs kachaha, kachaa; kachiili 'to cut out'.

216. Cs kilaa 'to burn (intr)'; kilili 'to set afire'.

217. Cs laa; liili 'to plow'.

218. Cs panaa; panili 'to twist'.

219. Cs shanaa 'to be off-balance'; shaniili 'to make wrong, off-balance'.

220. tilhayah 'to run (du)'; tilhihih 'to send (du, pl)'. Cs tilhaa, tilhaa 'to run (du, pl); tilhiili 'to send away (pl)'.

221. wakayah 'to stand'; wakeelih 'to raise'. Cs wakaa, wakaha 'to fly (intr, sg)'; wakiili 'to fly (tr)'.

222. waayah 'to grow'; abawiilih 'to lift'. Cs abaawaa 'to rise'; abaawiili 'to raise'.

223. iyah 'to go'; iit (directional clitic), CB iichih (echi) 'hand, give, put this way into the hand'.
( *Iilih presumably underlies iit and iichih. Cf. section 7.4.3.)

OY

224. ahchowah, achowah; acholih 'to sew'. Cs alhcho'wa; acho'li.
225. MCO bo'yah, booyah; bo'liih, boolih 'to beat up'. Cs bo'wa; bo'li.
226. chayah, chalih 'to chop'. Cs cha'a 'to be pounded'; cha'li 'to chop, pound'.
227. Cs foloto'wa 'to follow a squiggly course'; foloto'chi 'to steer'. (The v2 undergoes Li-Deletion.)
228. ichowah 'to be branded'; choilih 'to brand'. Cs incho'wa; incho'li.
229. Cs ittatabo'wa 'to take turns'; ittatabo'chi 'to take turns with (lovers, children one is caring for) (pl)'. (The v2 undergoes Li-Deletion.)
230. Cs kasho'kalhchi, kasho'walhchi; kasho'chi, kashoochi (The Chickasaw v2 undergoes Li-Deletion in the base form, but the -li surfaces in the grades kasholinchi and kasholihinchi.)
231. Cs lhachow'wa; lhacholi 'to mash (pl)'. Cf. 291.
232. Cs lha'a; lha'li 'to spill'. Cf. 266.
233. tobi' oklahwy'ya' 'whippoorwill beans'; CB oklahwilih (oklahuinli) 'to be striped'.
234. Cs satappo'wa; satappoli 'to stretch'.
235. Cs to'wa 'ball'; to'li 'to play ball'. Cf. 211
236. Cs yolhkon 'mole'; yokochi 'to root in the ground'. (The nl does not contain -a. The v2 undergoes Li-Deletion, but the -li surfaces in the n-grade yokolinchi. Cf. 293.)

A

237. Cs abaana 'to flop across'; abaanali 'to put
across'.

238. achakah; achakali 'to add on'. Cs achaka 'sprout'; achaakali.

239. afachah; afachalih 'to fasten'.

240. imahobah 'to seem'; ahobalih 'to mean a lot'. Cs imahgiba; ishtahobali ki'yo 'not to like'. Cf. 2, 304.²

241. alatah 'to set'; alatalih 'to make a hen set'. Cs alata 'to set, to be patched'; alatali 'to patch'.

242. alhpisah 'to be correct'; CB alhpisalih (vlhpesali) 'to be true or virtuous'. Cs alhpi'sa; alhpissa'li 'to correct'.

243. apatalah 'to be next to'; apatalih 'to put next to'. Cs apatant 'next to'; apaatali. Cf. 185.

244. apissah 'to be straight'; apissalih 'to straighten'. Cs apiussa; apiissali.

245. Cs ashippa 'to be boiled away'; ashippali 'to boil down'.

246. awattah; awattalih 'to spread out'. Cs awatta'a; awattali 'to lay across'.

247. chokoshpah; chokoshpalih 'to gossip'. Cs anompa chokosha 'to be rumored'; chokoshpali.

248. hofayalah 'to be bashful'; CB hofaayalih (hofayali) 'to shame, abash'. Cs hofahya; hofahyali 'to embarrass'.

249. Cs holhpa; holhpali 'to burn'.

250. hopolhah; hopolhalih 'to comfort'. Cs apoolha; apoolhali.

251. Cs hoshba; hoshbali 'to scorch'.

252. hottopah; hottopalih 'to hurt'.

253. Cs imilhlha 'to be wild, scared'; imilhlhali 'to scare'.

254. sikopah 'to eat a lot'; CB issikopalih (isikopali)
'to raven (tr)'. Cs issikopa 'to be mean'; issikalichi 'to make mean'.

255. ittopah; ittopali 'to hurt'.

256. kapassah 'to be cold'; CB kapassallih (kapvssvlli) 'to cool'. Cs kapasa; kapassali.

257. lachah 'to be wet'; lachali 'to wet'.

258. latassah 'to be flat'; latassali 'to flatten'. Cs latassa; latassali.

259. naayókpah 'to be happy'; naayókpali 'to make happy'. Cs ayoppa; isht ayoppali 'to make (someone) happy by taking (them something)'.

260. noktalah; noktalali 'to calm down'. Cs noktala; noktalali.

261. okchah; okchalih 'to wake up'. Cs okcha; okchali.

262. okkowata 'to be sideways'; okkowatali 'to put sideways'. Cf. 199.

263. palah; palali 'to light'.

264. patassah 'to be flat'; patassali 'to flatten'. Cs patassa; patassali.

AA

265. bachayah; bachaali 'to lay'.

266. lhaayah 'to be poured out'; lhaali 'to pour out'. Cf. 232.

267. talaayah; talalih 'to set down (sg)'. Cs talaa 'to be there'; talali 'to set down (sg)'.

I

268. Cs alhiipa; alhiipili 'to cover'.

269. Cs asitti'ya 'to hang'; asiitili 'to pin on'. (The vi appears to be a g-grade derived before application of Short Vowel Deletion.)

270. bichah; bichili 'to pour in'.

271. bilah; bililili 'to melt'. Cs bila; bilili.

323
272. fokkah 'to go in'; fokkih 'to put in'. Cs fokha 'to put on (clothes)'; fokhi 'to put in (sg)'. (The v2 does not contain -li.)

273. hofatih; hofatilih 'to raise (children)'. (The v1 does not contain -a.)

274. kochchah 'to go out'; kochchih 'to take out'. Cs kochcha; kochchi 'to whip it out'. (The v2 does not contain -li.)

275. sita' 'ribbon'; sitilih 'to put one's hair in a bun'. Cs pasita; sitili.

276. shilah; shililih 'to dry'. Cs shila; shilili.

277. Cs ashiyahchih; ashiichi 'to tie in'. (The v2 undergoes li-Deletion.)

278. chiiyah 'to sit (du)'; chiiilih 'to lay eggs'. Cs chii'ya; achiili.

279. lhipiiyah; lhipilih 'to turn over, lay prone'. MCO lhipiyah 'to lie prone'; lhipilih 'to turn over, pour out'. (The short /i/ in the v2 is unexplained.)

280. olhipiiyah; olhipilih 'to cover'. Cs alhipiyah 'lid'; ahlhipili. (The short /i/ in the v2 is unexplained.)

281. CB achosha' (achosha) 'to be inserted'; CB achosholih (achoshuli) 'to insert (sg)'.

282. alotah 'to be full'; alotilih 'to fill'. Cs alota; ałootoli. Cf. 57.

283. alhtipo' 'tent'; CB atiipolih (atepuli) 'to make a camp'. Cs alhtipo'; atiipoli 'to put a tent over'. (The nl does not contain -a.)

284. alhtoh; atolih 'to contain'. (The v1 does not contain -a.)

285. alhtakah; atokolah 'to elect'. Cs alhtoka; atookoli.

324
286. annopah 'for word to come out', anopa 'word'; anopolih 'to talk'. Cs anomp; anompoli.  
287. bota 'flour'; CB botolih (botoli) 'to pulverize'. Cs bota; botoli 'to grind fine'.  
288. Cs chiffola; chiffolola 'to bend'.  
289. yokopah; CB 'to grow quiet'; CB yokopolih (yokopuli) 'to allay, quiet'. Cf. 171.  

OO  
290. bowah, boolih 'to beat up'. Cf. 225.  
291. lhachowa 'sore'; CB lhachoollih (hlacho) 'to make a sore'. Cf. 231.  
292. shoowah 'to be carried'; shoolih 'to hug, carry'. Cs sho'wa; shoooli.  
293. CB wokokoowa' (wokoko) 'ground turned or thrown up as by a mole'; CB wokokoli (wokokoni) 'to throw up the earth as moles when rooting'. Cf. 236.  

-ka  
294. Cs bo'kalhchi; bo'chi 'to beat (eggs)'.  
295. Cs hika; hilichi 'to stop, stand up'.  
296. Cs kasho'kalhchi, kasho'walhchi; kasho'chi, kashoochi 'to wipe'. (The v2 undergoes Li-Deletion in the base form, but the -li surfaces in the grades kasholinchi and kasholhinch.) Cf. 77.  
297. Cs tiwa'kalhchi; tiwa'chi 'to stir'.  
298. yamaskah; yamaslih 'to knead'.  

-L-  

B  
299. albanih 'to be barbecued'; abanih 'to barbecue'. Cs albani; abaani.  

325
300. Cs albi 'to be painted'; aabi 'to paint'. (The v1 undergoes Pre-Cluster Shortening.)

301. albihah, abihah 'to enter (pl)'; CB abihlih (abehli) 'to put in'. Cs albi'ha, albi'ya 'to be put in (du)'; abihli 'to put in (du).

302. Cs abililha 'to be trained on poles'; abilhlhi 'to train (plants) on stakes'.

303. halbina 'present'; habinah 'to receive'. Cs halbina; habina, habiina.

304. holbah 'to resemble'; imahobah 'to seem'. Cs holba 'to be photographed'; imahoba 'to seem', ahooba 'to resemble'. Cf. 240.

305. holbih 'to be boiled'; hobih 'to boil'.

306. Cs holbona 'to be wrapped'; hobona 'to wrap'. Cf. 136.

CH

307. ahchifah 'to be washed'; achifah 'to wash'. Cs alhchifa; achifa, achiifa.

308. ahchowah, achowah 'to be sewn'; acholih 'to sew'. Cs'alhcho'wa; acho'li.

309. Cs apaakotalhchi 'to be hemmed'; apaakollichci 'to hem'.

310. Cs ashiiyalhchi 'to be tied in'; ashii<li>chi 'to tie in'.

311. Cs bo'kalhchi 'to be beaten (of eggs)'; bo'chi 'beat (eggs)'.

312. hochiffo 'name'; hochifoh 'to name'. Cs holhchifo; hochifo.

313. Cs imbishalhchi 'to be milked'; imbishlichci 'to milk'.

314. Cs kasho'kalhchi, kashowalhchi 'to be wiped'; kasho'chi, kashoochi 'to wipe'.

315. Cs lofalhchi 'to be peeled'; loffichi 'peel'.

326
316. okohchih 'to be drawn (of water)'; okoochih 'to draw water'. Cs olhchi; oochi.
317. ollohchih 'to be drawn (of water)'; oochih 'to draw water'. Cs olhchi; oochi. (The Choctaw v1 contains two instances of the medio-passive infix)
318. Cs shaalhchih 'to be scraped'; shaachi, shaa-achi 'to scrape'.
319. Cs shoowalhchih 'to be rubbed'; shoochi 'to rub'.
320. Cs tilhalhchih 'to be peeled'; tilhhlchih 'to peel'.
321. Cs tiw'kalhchih 'to be stirred'; tiwa'chi 'to stir'.
322. Cs yilikalmchih 'to slither'; yilikachi 'to slither'.

F
323. alhfabika' 'left'; afábi 'left'.
324. CB alhfasha' (vhlfvsha) 'fastened'; CB afashlih (afvshli) 'to fasten (pl)'
325. CB affowah (vffoa), alhfowa' (vhlfoa) 'to wind round (intr)'; CB afohlilih (afohlili) 'to wind round (tr)'.
326. CB alhfola' (vhlfula), CB affola' (vffula) 'stirred'; CB afollilih (afollili) 'to stir and thicken'. Cs alhfola 'to be made into a dumpling'; afollili 'to make dumplings from'.

H
327. ahhamah 'to be smeared'; ahammih 'to smear'. Cf. 339.

K
328. alhkachchih 'to be canned', CB olhkachchih (ulhkvciih), CB holhkachchih (hulhkvciih) 'to be soaked'; okachchih 'to can'.
329. alhkamah 'to close (intr)'; akammih 'to close (tr)'.
330. alhkatah 'to be patched'; akallih 'to patch'.
331. CB alhkoha' (vhlkoha) 'molded, plated'; CB akkohlih (akkohli) 'to mold, plate'.

327
332. CB holhkopa' (hulhkupa) 'stolen'; hokopah 'to steal'. Cs holhkopa' 'something stolen'; honkopa.
333. oksak olhkómo 'corn cooked with hickory nuts'; okomoh 'to stir'. Cs olhkomo 'to be mixed'; okommo 'to mix'.
334. Cs yolhkon 'mole'; yoko'chi 'to root in the ground'. (The n1 does not contain -a. The v2 undergoes Li-Deletion, but the -li surfaces in the n-grade yolko'linchi.)

L

335. alla' 'child'; alah 'to come'.
336. CB hollo' (hollo) 'drawn on'; holoh 'to draw on (footwear)'.
337. pilah 'to throw', 'over yonder'; pillah 'away'. Cs pila 'way, side'; pilla 'just'. (Cf. footnote 17, chapter 5.)

LH

M

338. almoh 'to be mown'; amoh 'to mow'. Cs almo; amo.
339. Cs halma 'to be ironed'; hammi 'to iron'. Cf. 327.
340. holmo 'roof'; homoh 'to roof'. Cs holmo 'to be roofed'; homo.
341. ophohlmos, opholhmoh 'to be covered'; opohomoh 'to cover'. (The second variant of the v1 has undergone metathesis.) Cf. 357.

N

342. annowah 'to be talked about'; anoolih 'to tell'. Cs annowa, annoyaa; anooli.
343. annopah 'for word to come out'; anopolih 'to talk'.
344. honnih 'to be boiled'; honih 'to boil'.
345. tannah 'to be woven'; tanah 'to weave'. Cf. 140.
346. CB tannahfo' (tynnvffo) 'plaited'; CB tanaffoh

328
(tanvffo) 'to plait'.

P

347. Cs alhpila 'help'; apila 'to help'.

348. alhpisah 'to be set (of a date)'; apiisah 'to set (a date)'. Cs alhpisa 'to be measured'; apiisa 'to measure'.

349. alhpishshi 'pillow'; aaposhshiya 'porch'.

350. alhpittah 'to be in a pen (of animals)'; apittah 'to put into a container'. MCO alhpittah 'to be stuffed'; aapittah 'to stuff'. (The MCO v1 undergoes Pre-Cluster Shortening.)

351. alhposah 'to be roasted, baked'; aposhlih 'to roast, bake'. Cs alhposha; aposhli.

352. alhpoowah 'to be born'; apoowah 'to deliver (a baby)'. Cs alhpooba; apooba.

353. Cs ishtalhpollo'sa 'to get all over'; ishtapoolosli 'to slop, slather with'. (The v1 occurs only in the g-grade.)

354. holhponi 'corn cooked with meat'; hoponih 'to cook'. Cs holhponi 'to be cooked'; hopooni.

355. ilhpak 'food'; ipah 'to eat (intr)'. Cf. 379.

356. ilhpitah 'to be fed'; ipitah 'to feed'. Cs ilhpita; ipita.

357. CB olhpohomo' (ulhpohomo) 'covered'; opohomoh 'to cover'. Cf. 341.

S

358. CB assiitah (vsseta) 'to cleave to, loye', etc.; CB asiitilih (asetili) 'to empty', etc.

SH

T

359. Cs aholhtinachi 'to be counted in'; ahotihnnachi 'to count in'.

360. alhtahah 'to be ready', CB atahah (ataha) 'to have
an end'; CB atahlih (atahli) 'to prepare'. Cs alhtaha; atahli.

361. alhtypo' 'tent'; CB atiipolih (atepuli) 'to make a camp'. Cs alhtypo'; atiipoli 'put a tent over'.

362. alhtobah 'to be paid'; atobbih 'to pay'. Cs alhtoba; atobbi.

363. alhtokah 'to be elected'; atokolih 'to elect'. Cs alhtoka; atookoli.

364. alhtoh 'to be in'; atolih 'to contain'.

365. Cs holhtanna'fo 'to be braided'; hotaanaffo 'to braid'.

366. Cs holhtapi 'to be strung'; hotampi 'to string'.

367. holhtihnah 'to be counted'; hotihnah 'to count'. Cs holhtihnah; hotihnah.

368. Cs holhtofa 'to come untied'; hotoffi 'to untie'.

369. Cs holhtosi 'to be caught, seduced'; hotosi 'to seduce'.

370. ollolhtih 'to be kindled'; ootih 'to kindle'. Cs olhtih; ooti. (The Choctaw v1 contains two instances of the medio-passive infix.)

W

371. alwashah 'to be fried'; awashlih 'to fry'.

Y

CC

372. hollokchih 'to be planted'; hokchih 'to plant'. Cs holokchi; hokchi.

373. hollókso' 'fart'; hoksoh 'to fart'. Cs hollokso'; hokso.

374. holloppih 'to be buried'; hoppih 'to bury'. Cs holloppi; hoppi.

375. hollossih, hollosih 'to be pounded'; hossih, hosih 'to pound'. Cs hollosi; hosi, hossi.
376. CB holoshmi' (holushmi) 'burnt'; hoshmih 'to burn'.
377. CB holofka' (holufka) 'sunned, dried, aired'; hofkah (hufka) 'to sun, dry, air'. Cs holofka 'to be aired'; hofka 'to air'.
378. CB holoyyah (holuya) 'to drip'; hoyyah 'to drip'.
379. illípa' 'food'; ipah 'to eat (intr)'. Cf. 355.
380. Cs okshilitta, okshillitta 'to close (intr)'; okshitta 'to close (tr)'
381. óllochih 'to be drawn (of water)'; oochih 'to draw water'. Cs olhchi; oochi. (The Choctaw vl contains two instances of the medio-passive infix.)
382. ollolhtih 'to be kindled'; ootih 'to kindle'. Cs olhti; ooti. (The Choctaw vl contains two instances of the medio-passive infix.)
383. palláska' 'bread'; paskah 'to make dough'. Cs pallaska'; paska 'to make bread'.
384. tallakchih 'to be tied'; takchih 'to tie'. Cs tallakchi; takchi.
385. toloblih, tiloblih 'to jump'; tooblih 'to push'.

Notes.

1. Afinnih can be used to describe the prying open of a door. In Choctaw, the door is the object. If the lever is expressed in the sentence, the instrumental clitic isht- appears on the verb. In Chickasaw, on the other hand, the lever is the object of afinnih, and the door cannot be expressed in the same clause. It should also be noted that, by itself, afinnih means 'attempt to pry':

(i) Afinni-li-h 'I pried it', 'I tried to pry it'
    pry-1sNom-v

(ii) Afinni-t tiwwi-li-h 'I pried it open'
    pry-ss open-1sNom-v

Sentence (ii) but not sentence (i) entails that I opened
the door.

2. Other related words are imahwah 'to think', hobachih 'to copy', ilahobbih 'to pretend, to be stuck up', nanishtimahowah - nanastamowah 'to care', and possibly aywhaw 'to pick (pl)'.

3. Annopah occurs primarily in the construction annopat annowah 'to be talked about':

(i) Pamat annopat annowah
    'Pam's been talked about'

(ii) Annopat annowah
    'Word has come out'

Annopatok is synonymous with (ii), but less acceptable.

4. These forms appear to illustrate degemination after the medio-passive infix parallel to that found after the h-grade infix (cf. sections 6.2., 6.7.1.). On the other hand, the v2 might be a g-grade (cf. section 6.5.). Mrs. Wade does not know this word.

5. Assiitah may be the only example of the medio-passive infix before /s/. More likely it is a g-grade. Cf. the Chickasaw g-grade assi'ta 'to be pinned on'. Mrs. Wade does not know any of these words.

6. Pamela Munro suggests that the verb meaning 'to tie' was once *akchih, with the reciprocal form itakchih. The reciprocal form, shortened to takchih by Initial I-Deletion and degemination by Stray Erasure (cf. section 7.6.), was then reanalyzed as the basic verb.

   *Akchih might in turn have contained the prefix a- (cf. section 5.2.3.) before *ikchih. Cf. tikchih 'wife', which might be the nominalization of the same verb without the a-. Byington (1915) gives this word as tiikchi' (tekchi). The long vowel suggests a connection with tiik 'female', but Byington does not comment on this resemblance. He does, on the other hand, define the word as "a wife; a consort; a woman who is united to a man in the lawful bonds of matrimony". While the third definition is not atypical of Byington's style, its appearance here and not with any of the other words for 'wife' tempts one to interpret its binding metaphor as glossing the etymology of the Choctaw word.

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REFERENCES


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Costa, David J. 1984. "Western Muskogean intervocalic [h]: Its origins and distribution". Ms.


Munro, Pamela. 1983. "When 'same' is not 'not different'". In Switch-reference and universal grammar, ed. by John Haiman and Pamela Munro.

Munro, Pamela. 1984b. "Some differences between Chickasaw and Choctaw". Ms.

Munro, Pamela. 1984c. "Choctaw Nominal Accent Patterns". Ms.

Munro, Pamela. 1984d. "On the Western Muskogean Source for Mobilian". IJAL 50.4:438-450.


Munro, Pamela. 1985b. "Muskogean Cognate Sets". Ms.

Munro, Pamela. 1985c. "Muskogean LI and li deletion". Ms.


Munro, Pamela., and Charles H. Ulrich 1984b. "Nasals and nasalization in Western Muskogean". Ms.

Munro, Pamela, and Catherine Will mond. 1984a. Introduction to Chickasaw. Ms.

Munro, Pamela, and Catherine Will mond. 1984b. Chickasaw-
English: an analytical dictionary. Ms.


Rankin, Robert L. 1985. "Recent work in Muskogean languages and linguistics". The Muskogean/Southeastern newsletter 1.2:4-10. (Published by George A. Broadwell, Department of Linguistics, UCLA.)


Williams, E. S. 1976. "Underlying tone in Margi and Igbo". LI 7.3.


Wittenstein, W. Andreas. n.d. [untitled term paper.] Ms.