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STUDIES IN STONEY MORPHOLOGY AND PHONOLOGY

by

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ABSTRACT

This thesis examines certain aspects of Stoney verbal morphology and phonology. Chapter I presents a morphological sketch of the language and Chapter II consists of a taxonomic classification of the verbal prefixes and suffices. Although the affixes exhibit relatively little phonological and morphological variation, one of the prefix categories exhibits a great deal. This category has been examined in detail in Chapter III and it is hypothesized that the possessive prefix gi-, the benefactive prefix giŋi-, and the reflexive prefix iči- are all derived from the same underlying source, #ki#, through application of rules such as "Palatalization," "Reduplication," "Tri-Syllabic Reduction," and "Reflexive Syllable Deletion." Reduplication itself is examined in Chapter IV. It is shown that an underlying monosyllabic form must be postulated to account for reduplication of some disyllabic surface forms. The phonological process of "Consonant Cluster Devoicing" and "Coronal Dissimilation" are also discussed in relation to the process of reduplication.

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ABBREVIATIONS

an	animate	pot	potential
aux	auxilliary	redup	reduplication
ben	benefactive	reflx	reflexive
cont	continuative	sg	singular
Dak	Dakota	sub	subject
dec	declarative	vd	voiced
dim	diminutive	vl	voiceless
exc	exclusive	1	first person
imp	imperfective	2	second person
imper	imperative	3	third person
inc	inclusive		
inter	interrogative		
indef	indefinite		
inst	instrumental		
loc	locative		
neg	negative		
nom	nominalizer		
obj	object		
per	performative		
perf	perfective		
pl	plural		
pre	prefix		
poss	possessive		

CHAPTER I

INTRODUCTION AND A MORPHOLOGICAL

SKETCH OF STONEY

Stoney is one of the Canadian varieties of Assiniboiné, a branch of the Siouan family of languages. It is the first language of about two thousand people¹ who live on the Morley, Eden Valley and Big Horn Reserves of Alberta.

In examining the literature on Siouan languages, one quickly notices the scarcity of material pertaining to Stoney. With the exception of the unpublished work of John Robinson Twoyoungman, Rod Mark, and Warren Harbeck of the Stoney Cultural Education Center, and of John Laurie of the Glenbow Institute, the available work on Stoney is limited to a few passing remarks in other studies.

This thesis is, therefore, an attempt to add to our knowledge of the Stoney language.

We have chosen to discuss that aspect of grammar which is generally considered to be the most interesting and the most complex, namely, the verb.

In the traditional, structuralist tradition we must consider this thesis a study of Stoney verbal phonology and morphology. The reason, of course, is that pre-generative linguistics generally holds that a grammar of a language normally consists of three separate components: phonological, morphological, and syntactic, and that each of these is autonomous and independent of the other. Generative linguists, on the other hand, tend not to recognize the morphological level as an independent level of representation.

However, the positioning of the morpheme-structure rules present something of a problem. In structure these rules clearly belong with the other phonological rules (Bach, 1966:135).

Be that as it may, the reader will notice that although this paper is not concerned with the question of the place of the morphological component, it does indicate a bias toward the generative model.

Whichever model is used, a comprehensive grammar would be beyond the scope of this thesis. Therefore, as much as possible we have tried to exclude any discussion of Stoney syntax. It will become apparent, however, that adherence to the structuralist notion of strict separation of levels does not allow us to fully explicate some of the data.

1.0 A Brief Grammatical Sketch of Stoney

1.1 The symbols for the consonants and vowels of Stoney are given in Tables 1 and 2, respectively.

Table 1
Consonants

		Bilabial	Dental	Palatal	Velar	Pharyngeal	Glottal
Stops	vl	p	t		k		
	vd	b	d		g		
Affricates	vl			ʧ			
	vd			ʤ			
Fricatives	vl		s	ʃ		ħ	h
	vd		z	ʒ		ħ	
Nasals		m	n				
Glides		w		y			

Table 1 is self explanatory but a few points should be noted.

Firstly, the dental and palatal affricates of Stoney have the

feature [+ coronal], that is, they are articulated with the blade rather than the apex of the tongue.

Secondly, the stop and affricate series both have aspirated variants but as this feature [+ aspiration] is non-distinctive, it shall not be indicated.

Finally, older speakers of Stoney exhibit a glottalized series of voiceless stops (p', t', k'). They seem to be in free variation with the non-glottalized counterparts and are probably becoming extinct because they do not appear in the speech of younger speakers. We do not consider them.

Table 2

Vowels

Oral		Nasal	
i	u	ĩ	ũ
e	o	ẽ	
a			

There are two vowel series, one oral and the other nasal. The following minimal pairs demonstrate that nasalization is distinctive:

1. (a) ha 'skin'
- (b) hã 'yes'
2. (a) hi 'blade of knife'
- (b) hĩ 'fur'
3. (a) hu 'howl'
- (b) hũ 'how about it?'

When an oral vowel is followed by a nasal consonant in the same syllable, a homorganic stop appears between the two, thus preventing assimilation of nasality by the vowel. For example:

4. (a) $[hi:d_{nc}^v]$ /hi -n - \check{c} /²
 'he came back' return perf dec
- (b) $[eyágu^b_m]$ /e- yagu -m /³
 'take it!' pre take imper

This homorganic stop is non-distinctive and shall not be marked in the orthography.

1.2 Syllabic Structure

All syllables consist of a single vowel with or without consonants. There may be a single consonant or a consonant cluster preceding or following the vowel. The canonical shapes of Stoney syllables are as follows:

5.	V	i	'mouth'
	CV	pa	'head'
	CCV	mne	'lake'
	VC	is	'also'
	CVC	tin	'inside'
	CCVC	skas	'unmoving, still'

All Stoney "words" consist of syllables of this shape. Carter (1974:97) notes that while not all Dakota stems are analyzable, it is probable that those with more than two syllables are, in fact, compounds. While we have not examined this closely, the situation seems to be the same in Stoney.

1.3 Stress

A general rule of stress assignment will place primary stress on the final syllable in disyllabic forms and on the penultimate syllable in polysyllabic forms.

6. Disyllabic

- (a) čipó 'fog'
- (b) mumú 'to thunder repeatedly' (from redup of mu 'thunder')⁴
- (c) tapú 'check'

7. Polysyllabic

- (a) dokúhã 'by what means?'
- (b) hũyága 'to see'
- (c) ĩsníyes 'thank you'

There is one category of disyllabic stems, however, which do exhibit primary stress on the penultimate (initial) syllable.

- 8. (a) bóña 'a puff'
- (b) káda 'to be hot'
- (c) mína 'a knife'
- (d) sáka 'raw'
- (e) šúga 'dog'

Later on we shall show that there is evidence indicating that these forms consist of an underlying monosyllabic stem followed by an epenthetic final a. If we assume that this is the case in 8 then we may also assume that stress is placed on the underlying monosyllable before the epenthetic final a is attached.

Note that as suffixes are added, the underlying stress on the stem

(c) EPENTHESIS

káda

(d) OUTPUT

hūyága

tapú

káda

1.4 Palatalization and Vowel Alternation

The phonological processes of palatalization of velar stops and final vowel alternation (VA) are found in many Siouan languages, including Stoney. Since we shall be referring to them further on, it would be well to discuss them briefly at this point.

Palatalization is a process whereby velar stops become palatalized, i.e., k becomes č and g becomes ǰ. The restrictions seem to be that this process takes place only when the stop occurs intervocalically and the preceding vowel is a front vowel, i.e., e or i.

For example:

12. (a) akídač ←———— a- kida -č^v
 'he looks at it' pre look aux
- (b) agičídač ←———— a- gi- kida -č^v
 'he looks at his own' pre poss look aux
13. (a) ewagíyač ←———— e- wa- giya -č^v
 'I say to him' pre I say aux
- (b) eǰíyač ←———— e- ǰiya -č^v
 'he says to him' pre say aux
14. (a) kuwáč ←———— kuwa -č^v
 'he is involved in it' involved with aux
- (b) ĭčičúwač ←———— ĭči-⁸ kuwa -č^v
 'he is involved with himself' reflx involve aux

Whether or not all the palatal consonants (i.e., aux -č) are derivable from underlying velar stops is an interesting question but one that must await further analysis.

The second phonological process that we shall mention is 'Vowel Alternation' (VA). Final vowel a of many verb stems, and some suffixes, alternates with e in certain environments.

15. (a) $\text{hũyagač} \longleftarrow \text{hũ- yaga -č}$
 'he sees it' pre see aux
- (b) $\text{hũyage:nč} \longleftarrow \text{hũ- yaga -n -č}$
 'he saw it' pre see perf aux
- (c) $\text{hũyagésič} \longleftarrow \text{hũ- yaga si -č}$
 'he didn't see it' pre see neg aux
- (d) $\text{hũyagēnĩ} \longleftarrow \text{hũ- yaga -nĩ}$
 'did he see it?' pre see inter

Notice that final a becomes e when followed by the suffixes -n (perf), -šĩ (neg), and -nĩ (int).⁹

VA does not occur before the suffixes -kta (pot) and -ga (cont) but they themselves are subject to it.

16. (a) $\text{yawač} \longleftarrow \text{yawa -č}$
 'he counts it' count aux
- (b) $\text{yawaktač} \longleftarrow \text{yawa -kta -č}$
 'he will count it' count pot aux
- (c) $\text{yawaktenĩ} \longleftarrow \text{yawa -kta -nĩ}$
 'does he count it?' count pot inter
17. (a) $\text{dasáč} \longleftarrow \text{dasa -č}$
 'he freezes it' freeze aux

- (b) $\text{daságač} \longleftarrow \text{dasa} \quad -\text{ga} \quad -\check{\text{c}}$
 'he freezes it freeze cont aux
 continually"
- (c) $\text{daságe:nč} \longleftarrow \text{dasa} \quad -\text{ga} \quad -\text{n} \quad -\check{\text{c}}$
 'he froze it freeze cont perf aux
 continually"

The Stoney data indicates that all stem final a's undergo VA in the correct environment. This situation does not hold in Dakota. Carter (1974:209-10) points out that some final a's in Dakota do not alternate with e, but that there is no phonological criteria for determining which ones do and which ones do not. This fact indicates that regularization has possibly occurred in Stoney and that historically there might have been final a's which did not exhibit this alternation.

The purpose of the above section has simply been to present the relevant facts of the phonological processes of palatalization and VA. We shall refer to them in later discussions but a detailed analyses of these rules, as they pertain to Stoney, must await further investigation.

1.5 Constituent Structure of the Sentence

Noun phrases appear in the order subject - object, followed by a verb phrase. The sentence may also not exhibit any surface noun phrases and may consist of the verb phrase alone.

18. (a) Noun Phrase and Verb

- $\text{Tom George kteč} \longleftarrow \text{Tom} \quad \text{George} \quad \text{kte} \quad -\check{\text{c}}$
 'Tom killed George' Sub Obj Kill aux

(b) Noun Phrase (Independent Personal Pronoun) and Verb

niye	nĩkteč	←	niye	nĩ-	kte	-č
'he killed	<u>you</u> (sg)'		<u>you</u> (sg)	you	kill	aux

(c) Verb

nĩkteč	←	nĩ-	kte	-č
'he killed	you(sg)	you(sg)	kill	aux

Note that niye 18(b) indicates emphasis; we shall discuss this further in Section 2.9.

1.6 Grammatical Processes

The most common morphological process in Stoney is affixation, although reduplication plays a large part. It is the verb which expresses most of the grammatical relationships and it exhibits a complex affix morphology. In comparison, the morphology of the noun is rather simple.

1.7 Grammatical Categories

The most obvious grammatical categories of Stoney are those of person, number, and gender.

The person category makes a distinction between first, second, and third persons but there is no overt morpheme for the third person.¹⁰

Number distinguishes between singular, plural and dual. Plural and dual are marked while singular is unmarked (hereafter dual shall be referred to as 1pl).

Gender distinguishes between animate - inanimate and human - non-human.

1.8 The Noun

Since noun morphology is not the main purpose of this study, relatively little shall be said about it. However, the following observations have been made.

Stoney nouns inflect for possession, number, and gender, the latter two being combined.

Nouns are either inalienable or alienable. In general, possession of inalienable nouns is marked by noun prefixes, whereas alienable possession is marked by a verb prefix.

Stoney distinguishes morphologically between possession of body parts and kin terms by the use of different prefixes. These prefixes are illustrated below:

19. (a) Kin Terms		Body Parts
mĩ-	1sg	mã-
nĩ-	2sg	nĩ-
ĩ-	3sg	∅
ĩgĩ-	1pl(exc) ¹²	ĩg-

Some examples of inalienable possession are:

20. Kin Terms

(a) <u>mĩ</u> čũk'si	mĩ-	čũk'si
'my daughter'	my	daughter
(b) <u>mĩ</u> táhã	mĩ-	táhã
'my brother-in-law(man's)'	my	brother-in-law(man's)

Body Parts

(c) <u>mã</u> ñabe	mã-	ñabe
'my hand'	my	hand

- | | | | |
|-----|-----------|-----|------|
| (d) | mǎpá | mǎ- | pa |
| | 'my head' | my | head |

Possession of alienable nouns is marked by the verbal prefix -gi-. As mentioned, we shall discuss this in Chapter III. An example of alienable possession is:

- | | | | | | | | | |
|-----|------------------|--------|---|------|-----|------|-----|-----|
| 21. | šūga | agípač | ← | šūga | a- | gi- | pa | -č |
| | 'he hit his dog' | | | dog | pre | poss | hit | aux |

Unpossessed human nouns inflect for number where the plural is marked by the suffix -bi and the singular is unmarked. Unpossessed non-human nouns do not inflect for number. In this manner a morphological distinction is made between human and non-human.¹³ The following are examples:

- | | | | |
|---------|----------|----------|--------------|
| 22. (a) | čaba | nūm | 'two beaver' |
| | beaver | two | |
| | čaba | wázi | 'one beaver' |
| | beaver | one | |
| (b) | šūga | yamni | 'three dogs' |
| | dog | three | |
| | šūga | wázi | 'one dog' |
| | dog | one | |
| (c) | wīyabi | nāpčuwik | 'nine women' |
| | woman pl | nine | |
| | wīya | wázi | 'one woman' |
| | woman | one | |
| (d) | wīčabi | nūm | 'two men' |
| | man pl | two | |

wĩča wázi

'one man'

man one

Notice that in 22(a) and 22(b) the nouns are non-human and they do not inflect for number, whereas in 22(c) and 22(d) they are animate and the plural is marked.

There are many nouns that are derived from verb stems. This seems to be morphologically indicated by the plural suffix. An example is:

23. oyužábi ← oyuža- bi
(pull) 'to boil' pl

We shall discuss this further in Chapter II.

Correspondingly, some stative verbs may be derived from noun stems. This is morphologically marked by the suffix -č which is a declarative morpheme. Some examples are:

24. (a) sudáč ← suda -č
'it is hard' metal dec
(b) šnáč ← šna -č
'it is greasy' grease dec

The noun will also take the diminutive suffix.

25. (a) ĩbĩná ← ĩbi -ná
'little blanket' blanket dim
(b) wĩčaná ← wĩča -ná
'boy' man dim

And finally, the noun will undergo reduplication to indicate the distributive plural.

26. (a) čaḥčaḥa ← čaḥa + redup
'icy spots' 'ice'

1.9 The Verb

As mentioned previously, it is the verb which expresses the greatest number of grammatical relationships, mainly through the processes of reduplication and affixation. With the limited data available it is difficult to define, with any degree of certainty, all of the functions of all of the processes. Therefore, we shall not attempt to make many generalizations. What we present is a number of observations, some hypotheses, and some speculations about verbal phonology and morphology. In Chapter II we shall discuss the verbal affixes. Reduplication is treated in Chapter IV.

The Stoney verb form typically consists of a verb stem plus a varying number of affixes, both suffixes and prefixes.

A distinction is made between "stative" verbs which define "conditions" or "states" and "active" verbs which define activities. Morphologically, they are distinguished by the use of different sets of person prefixes.

The person prefixes can, in fact, be considered agreement affixes because they agree in person with the subject and object of the sentence.

In order to illustrate this, we must first consider the two sets of person prefixes. As mentioned, one appears before active verbs (I) and the other before stative verbs (II):

I			II
27.	wa-	1sg	mā-
	ya-	2sg	nĩ-
	ø	3sg	ø
	ĩg-	1pl(exc)	ĩg-

The suffix -bi indicates plural. Notice that 1pl(ex) plus -bi gives 1pl(inc).

I			II		
28.	<u>ĩg-</u>	-bi 1pl(inc)	<u>ĩg-</u>	-bi	
	<u>ya-</u>	-bi 2pl	<u>nĩ-</u>	-bi	
	<u>ø-</u>	-bi 3pl	<u>ø-</u>	-bi	

Some examples of these prefixes are as follows:

I (Active)

29. (a)	<u>owáneč</u> ←	o-	<u>wa-</u>	ne	-č	
	'I look for it'	pre	I	look	aux	
(b)	<u>oyáneč</u> ←	o-	<u>ya-</u>	ne	-č	
	'you(sg) look for it'	pre	you	look	aux	
(c)	<u>oneč</u> ←	o-	ne	-č		
	'he looks for it'	pre	look	aux		
(d)	<u>ĩgóneč</u> ←	<u>ĩg-</u>	o-	ne	-č	
	'you(sg) and I look for it'	You and I	pre	look	aux	
(e)	<u>ĩgonebíč</u> ←	<u>ĩg-</u>	o-	ne	-bi -č	
	'We (all) look for it'	you and I	pre	look	pl aux	
(f)	<u>oyanébič</u> ←	o-	<u>ya-</u>	ne	-bi -č	
	'you (pl) look for it'	pre	you	look	pl aux	
(g)	<u>onebíč</u> ←	o-	ne	-bi -č		
	'they look for it'	pre	look	pl aux		

II (Stative)

30. (a)	<u>mākadač</u> ←	<u>mā-</u>	kada	-č	
	'I am hot'	I	hot	aux	

- (b) nĩkáduč ←———— nĩ- kada -č
'you(sg) are hot' you hot aux
- (c) kádač ←———— kada -č
'he is hot' hot aux
- (d) ĩkádač ←———— ĩg- kada -č
'you(sg) and I are hot' you(sg) and I hot aux
- (e) ĩka**dá**bič ←———— ĩg- kada -bi -č
'we(all) are hot' you(sg) and I hot pl aux
- (f) nĩka**dá**bič ←———— nĩ- kada -bi -č
'you(pl) are hot' you hot pl aux
- (g) ka**dá**bič ←———— kada -bi -č
'they are hot' hot pl aux

Notice that the consonant g of *lpl(inc)* and *lpl(exc)* deletes in 30(d) and 30(e). In fact, the consonant deletes whenever this prefix precedes another consonant.

We see also that Set II of the person prefixes marks the objective of transitive verbs, as in 31:

31. (a) hũyágač ←———— hũ- yaga -č
'he sees it' pre see aux
- (b) hũmǎyágač ————— hũ- mǎ- yaga -č
'he sees me' pre me see aux
- (c) hũnĩyágač ←———— hũ- nĩ- yaga -č
'he sees you(sg)' pre you(sg) see aux

Two more person morphemes must be mentioned. The prefix či- is a "portmanteau" morpheme indicating *1sg* subject and *2sg* object, as in:

32. (a) ačipač ← a- či- pa -č
 'I hit you(sg)' pre I-you hit aux
- (b) ačipabič ← a- či- pa -bi -č
 'I hit you(pl)' pre I-you hit pl aux

The prefix wica- ('man') is the only overt 3p morpheme. We shall present evidence later to show that it indicates 3pl animate objects.

33. (a) awičapač ← a- wiča- pa -č
 'I hit them [+an]' pre them [+an] hit aux
- (b) awičakidač ← a- wiča- kida -č
 'he looks at them [+an]' pre them [+an] look aux

Before continuing, let us consider the independent personal pronouns of Stoney. They consist of iye 'to be' preceded by person prefix Set II (stative).

34. (a) miyé ← mā- iye
 (b) niyé ← nĩ- iye
 (c) ĩgiyé ← ĩg- iye

These pronouns function as subject noun phrase or object noun phrase in a sentence where the noun phrase is emphasized, otherwise they are deleted. Furthermore, only one may appear on the surface in the sentence.

For example, consider the following sentences:¹⁴

35. (a) mākočĩ ne miye wagáñač 'I made this land'
 land this I I made it
- (b) mākočĩ ne iye wagáñač 'I made this land'
 land this it I made it
- (c) mākočĩ ne wagáñač 'I made this land'
- (d) *mākočĩ ne miye iye wagáñač 'I made this land'

In 35(a) emphasis is on the subject noun phrase and the pronoun miye appears in the sentence, whereas in 35(b) emphasis is on the object noun phrase and iye appears. If neither subject or object noun phrase is emphasized 35(c), then no pronoun will appear. It is ungrammatical for more than one to appear in the sentence 35(d).

The pronoun may also appear in a sentence as the only noun phrase, i.e., pronoun - verb, as in 36.

36. (a) miye waktéč 'I killed him'
 I I kill him
 (b) iye waktéč 'I killed him'
 him I kill him
 (c) waktéč 'I killed him'
 (d) *miye iye wakteč 'I killed him'

If we assume that every sentence has an underlying subject noun phrase and/or object noun phrase, and that the underlying pronoun is deleted unless emphasized, we may further assume that the person prefixes in the verb are derivable by an agreement rule or rules. For example:

37. (a) UNDERLYING miye iye kte-č
 (b) AGREEMENT miye iye wa-kte-č
 (c) WEAK PRONOUN DELETION wakteč

Correspondingly, there is evidence that the plural suffix and the animate plural object prefix are derivable by agreement rules as well. Consider the following sentences:

38. (a) čaba nũm hibič ←———— čaba nũm hi -bi -č
 'Two beavers have arrived' beaver two arrive pl aux

- (b) ča nŭm hič ←———— ča nŭm hi -č
 'Two sticks have arrived' sticks two arrive dec

Notice that the plural suffix appears with the verb stem when the subject noun phrase is animate 38(a), whereas it does not appear when the noun phrase is inanimate, as in 38(b). Therefore, we may assume that the plural suffix is derivable by an agreement rule (or rules) as well. In 38(a) and 38(b) this rule attaches the plural suffix, i.e., -bi to the verb stem when the plural subject noun phrase is animate but it does not attach the suffix if the plural noun phrase is inanimate

The "number agreement rule" applies when the object noun phrase is animate as well but, in this case, it is a prefix wiča- which is attached.

39. (a) šŭga nŭm awičápač ←———— šŭga nŭm a- wīča- pa -č
 'he hit two dogs' dog two pre them hit aux
 (b) ča nŭm apáč ←———— ča nŭm a- pa -č
 'he hit two sticks' stick two pre hit aux

In 39(a) the object noun phrase is animate and the prefix wīča- appears before the verb stem while in 39(b) the object noun phrase is inanimate and no prefix appears. The prefix wīča- appears only under these conditions. Therefore, we may assume that it is derivable by a rule of agreement with plural animate object noun phrases.

A derivation similar to 37 would account for plural agreement in sentences which do not have surface noun phrases. The difference would be that we must include the feature "animate" as part of the structural description of the underlying pronoun. For example, a sentence such as 40:

40. apábič 'they hit him'

would be derived from a structure similar to 41.

41. UNDERLYING	iyebi	[+an]	iyē	apa	-č̣
AGREEMENT	iyebi	[+an]	iyē	apa	<u>-bi</u> -č̣
WEAK PRONOUN DELETION					apábič̣

FOOTNOTES

- ¹Source: The Stoney Cultural Education Center.
- ²The lengthening of the vowel is discussed in Chapter II, Section 5.
- ³Hereafter we shall not use the phonemic slash marks, nor the phonetic brackets. In the body of the text the following orthographic conventions shall be followed:
 - a. Syllables, words or phonetic elements are underlined, e.g., ab
 - b. Prefixes appear with a trailing hyphen, e.g., ab-
 - c. Suffixes appear with a preceding hyphen, e.g., -ab
 - d. All underlying representations are bracketed with the sign (#), e.g., #abc#.
- ⁴We assume, of course, that all monosyllabic forms have primary stress.
- ⁵There is no overt morpheme for the third person in Stoney.
- ⁶The declarative suffix -č shall be referred to by the more general term "Auxiliary."
- ⁷Notice that the consonant cluster gč surfaces as kč. This is due to a rule which devoices (with a few exceptions) all underlying voiced elements of cluster. Discussed further in Chapter IV.
- ⁸Note the segment č of the reflexive prefix iči- (14b). In Chapter III we shall show that this is probably derived from underlying k as well.
- ⁹The evidence is not strong enough to assume that these suffixes trigger VA.
- ¹⁰An exception is the 3pl objective morpheme, discussed in Section 1.9.
- ¹¹Later on we shall show these prefixes are derived from another prefix followed by the segment ĩ.
- ¹²Plural is indicated by the plural suffix -bi.
- ¹³Animate - inanimate is defined by verbal inflection.
- ¹⁴Stoney legend, Stoney Cultural Education Program. Unpublished.

CHAPTER II

TAXONOMIC CLASSIFICATION OF AFFIXES

In this section we shall present a taxonomic classification of the affix categories of the Stoney verb.

1.0 Prefixes

Several verbs in Stoney seem to infix the person agreement morphemes.

Some examples are:

1. (a) $\text{hũmágač} \leftarrow \text{hũ mã- yaga -č}$
 'I saw him' ? I see aux
- (b) $\text{wačimátač} \leftarrow \text{wači mã- ta -c}$
 'I am forgetful' ? I forgetful aux
- (c) $\text{weḡawakač} \leftarrow \text{weḡa wa- ka -č}$
 'I am right' ? I right aux

The fact that these initial unidentifiable elements ie, hũ, wači and weḡa do not appear in other forms suggest that the verb stems are discontinuous and that the affixes are, in fact, infixes. But this does not preclude the possibility that the verb forms of (1) consist of an initial element which is a fossilized prefix. This would have the effect of making the so-called infixes, in reality, prefixes.

The evidence is insufficient to allow for any conclusions, and for ease of description we shall consider that these verbs consist of a prefix whose function is unknown.

2.1 Prefix Vowel Deletion

Many prefixes exhibit vowel deletion when they precede a stem initial vowel or y. This is most apparent with the person agreement morphemes and we shall use these prefixes as illustrations. In 2 note

that the initial y of the verb stem does not appear on the surface after person agreement.

2. (a) $\underline{má}\check{\text{č}} \longleftarrow \underline{mā}-$ ya $-č̣$
 'I go' I go aux
 $\underline{ná}\check{\text{č}} \longleftarrow \underline{nī}-$ ya $-č̣$
 'you(sg) go' you(sg) go aux
 $\underline{yá}\check{\text{č}} \longleftarrow$ ya $-č̣$
 'he goes' go aux
- (b) $\underline{muhá}\check{\text{č}} \longleftarrow \underline{mā}-$ yuha $-č̣$
 'I have' I have aux
 $\underline{nuhá}\check{\text{č}} \longleftarrow \underline{nī}-$ yuha $-č̣$
 'you(sg) have' you(sg) have aux
 $\underline{yuhá}\check{\text{č}} \longleftarrow$ yuha $-č̣$
 'he has' have aux

It is interesting to note that the vowel does not delete when the prefix marks agreement with the object of a sentence. For example:

3. (a) Object Agreement

- i. $\underline{hū}\underline{mā}yá\check{\text{č}} \longleftarrow \underline{hū}- \underline{mā}-$ yaga $-č̣$
 'he sees me' pre me(obj) see aux
 ii. $\underline{hū}\underline{nī}yá\check{\text{č}} \longleftarrow \underline{hū}- \underline{nī}-$ yaga $-č̣$
 'he sees you (sg)' pre you(obj) see aux

(b) Subject Agreement

- iii. $\underline{hū}\underline{mā}\check{\text{č}} \longleftarrow \underline{hū} \underline{mā}-$ yaga $-č̣$
 'I see him' pre I(sub) see aux
 iv. $\underline{hū}\underline{nā}\check{\text{č}} \longleftarrow \underline{hū}- \underline{nī}-$ yaga $-č̣$
 'you(sg) see him' pre you(sub) see aux

The possessive noun prefixes can, in this way, be shown to consist of person agreement prefixes followed by the vowel ĩ.

4. (a) $\text{mĩ-} \longleftarrow \text{mā-} \quad \text{ĩ}$
 'my'
- (b) $\text{nĩ-} \longleftarrow \text{nā-} \quad \text{ĩ}^1$
 'your'

Boas and Deloria (1941:42) consider the Dakota cognate of ĩ to be an historic possessive morpheme. The evidence certainly indicates that it is the same in Stoney.

The prefixes whose functions are definable are presented below in order from the "left" of the stem.

Prefix Category (PC) I wa-

This category contains two homophonous prefixes. One serves as an indefinite object marker and the other as a kind of nominalizer.

wa- as indefinite object:

5. (a) waspáwač wa- spa- wa- ya -č̣
 'I cook something' indef obj pre I cook aux
- (b) wamáwač wa- mā- yawa -č̣
 'I count something' indef obj I count aux

wa- as nominalizer

6. (a) wa'awiyága wa- awiyaga
 'the guarding' nom 'to guard'
- (b) watága wa- tāga
 'grizzly bear' nom 'to be big'

It is apparent that the nominal forms above contain the same (phonetically, at least) prefix. There are, however, forms where this is not as apparent. For example:

7. (a) wĩktá ← wa- ĩkta
 'egg' nom 'offspring'
- (b) wĩka ← wa- ĩka
 'rope' nom 'a long narrow thing used for
 any purpose'

There is no further evidence available to allow us to state conclusively that the initial w in the nominal forms of 7 are derived from wa-. But considering their glosses it seems reasonable to assume that this is the case after prefix vowel deletion has applied. There might be some restrictions on the application of this rule (vowel deletion) because we notice that it has not applied in 6. Perhaps this has something to do with the vowel quality because in 6 the vowel is a whereas in 7 it is ĩ. This matter shall be left for future investigation.

PC II o- and i-

The function of this category seems to be nominalizing as well. The data indicates that they apply exclusively to verb stems.

8. (a) onápe ← o- napa²
 'a refuge' nom 'to run away'
- (b) oyé ← o- ya
 'a footprint' nom 'to go'
- (c) oyužábi ← o- yuža -bi
 'a pail' nom to boil pl
9. (a) iyogápte ← i- o- gapta³
 'a dipper' nom loc 'to bail out'

- (b) iǵáške⁴ ← i- gaška
 'a bridle' nom 'to tie'

PC III ǵg-

This category is the 1pl (exc) agreement prefix. Recall (from Chapter I, 1.9) that 1pl (inc) is formed by this prefix plus the plural suffix -bi.

PC IV a-, i-, o-

These are locative prefixes with the following meanings:

- a- 'on' or 'on the surface of.'
i- The meaning of this prefix is not clear but it obviously indicates some kind of locational feature.
o- 'in a container or confined space.'

10. (a) ahnébač ← a- hneba -č
 'he vomits on it' loc to vomit aux

- (b) awápač ← a- wapa -č
 'it snows on it' loc to snow aux

11. (a) ikiyāč ← i- kiyā -č
 'near to' loc near aux

- (b) iyéyač ← i- yeya -č
 'he throws it somewhere' loc throw aux

12. (a) ogáptač ← o- gapta -č
 'he dips into' loc boil out aux

- (b) onápač ← o- napa -č
 'he hides in something' loc hide aux

Recall that we considered o- a nominalizing morpheme in PC II. If we compare these forms of PC II with the forms of the present category including o-, we notice that the stems co-occurring with PC II all exhibit final vowel e whereas the forms co-occurring with the present category retain the final a of the stem. In other words, the nominal forms undergo vowel alternations.

13.	Stem	PC II (nom)	PC IV (loc)
(a)	yá 'to go'	oyé 'a footprint'	
(b)	gápta 'to boil out'	iyogápte 'a dipper'	ogápta 'to dip into'
(c)	nápa 'to run away'	onápe 'a refuge'	onápa 'to hide somewhere'

It seems that all the forms with the nominal prefix also include the semantic feature of the prefix o-, PC IV (loc), namely 'in a container, to be contained, or in a confined space.' This, of course, leads to the speculation that the prefix o- of PC II is not a nominalizer but rather a locative prefix, with the nominalizing function being rendered by the phonological alternation a~e. But this suggestion can be fairly readily discounted. First of all, the a to e alternation is a common phenomenon in many Siouan languages and to date none of the investigators who have examined it have been able to attach any morphemicity to it. Secondly, the following nominal form does not show the vowel alternation.

14.	oyužábi	←	oyuža	-bi
	'a pail'		'to boil'	pl

Notice that the final syllable of the nominal form of 14 is the same as the plural suffix. There is no clear evidence that this syllable is,

in fact, the plural morpheme, but we assume that the final bi is, etymologically at least, the plural form.

Let us assume that the final syllable of 14 is indeed the plural suffix -bi. Because this suffix never appears after VA, it is not surprising that the vowel alternation does not occur in this example. There are other examples of nominal forms with final -bi preceded by a. We have no corresponding verb forms but the point is that they are nominals with vowel a preceding final bi.

15. (a) gahnábi 'rattle'
 (b) ĭdukábi 'cigarette, tobacco'
 (c) iyazábi 'arrow'

Thus, we may assume that the vowel alternation is not the significant feature of the nominal forms and that there are probably two homophonous prefixes; nominalizer o- (PC II) and locative o- (PC IV).

We have assumed that the vowel change has no semantic import, but this may not be the case entirely. Even though the data indicates that the final vowel alternation is not the significant feature of nominalization, it seems that it does play some part. The fact that final a changes to e only when the stem is preceded by nom o- and not loc o- indicates that there is at least some significance attributable to this change. A solution to this problem must await further data and analysis.

PC V ma-, mo-, na-

This category consists of prefixes whose function is similar to that of manner or instrumental adverbials. We shall refer to them collectively as instrumental prefixes.

ma- indicates action performed by means of a blade or sharp instrument

mo- indicates action performed by means of a pointed instrument or in a 'poking' manner

nã- indicates action performed with or by the feet

15. (a) makšác ← ma- kša -č
'he cut it' inst break aux

(b) maktáč ← ma- kta -č
'he killed it' inst kill aux

17. (a) mokšác ← mo- kša -č
'he poked it (and broke it)' inst break aux

(b) moktáč ← mo- kta -č
'he killed him with a spear, arrow, etc.' inst kill aux

18. (a) nãkšác ← nã- kša -č
'he broke it by foot' inst break aux

(b) nãktáč ← nã- kta -č
'he killed him by foot (kicking)' inst kill aux

PC VI wĩca-

The 3pl animate object agreement prefix wĩca- is in this position.

PC VII wa- mã-

These are the first person singular agreement prefixes which appear with active and stative verbs respectively. Recall that the "stative" prefixes are also used as object agreement prefixes with transitive verbs.

We also include the "portmanteau" morpheme ci- in this category. Since it indicates 1sg subject and 2sg object, there is difficulty in assigning it to any one positional category and we arbitrarily consider it to be a member of this one.

PC VIII ya- nĩ-

The second person agreement prefixes; they appear with active and stative verb stems respectively. The prefix nĩ- is also an object agreement marker.

PC IX gi-, giĵi-, ĩči-

gi- is the possessive prefix

giĵi- is the benefactive prefix

ĩči- is the reflexive prefix

19. gi- (poss)

- | | | | | | |
|-----|------------------------|---|------------|-------|-----|
| (a) | <u>gi</u> hnóč | ← | <u>gi-</u> | hno | -č |
| | 'he growls at his own' | | poss | growl | aux |
| (b) | <u>gi</u> šóč | ← | <u>gi-</u> | šõ | -č |
| | 'he braids his own' | | poss | braid | aux |

20. giĵi- (ben)

- | | | | | | | |
|-----|-----------------------|---|--------------|-------------|-------|-----|
| (a) | ma <u>giĵi</u> kšač | ← | ma- | <u>giĵi</u> | kša | -č |
| | 'he cuts for (him)' | | inst | ben | break | aux |
| (b) | <u>giĵi</u> bážoč | ← | <u>giĵi-</u> | bažo | -č | |
| | 'he points for (him)' | | ben | point | aux | |

21. ĩči- (refl)

- | | | | | | |
|-----|--------------------|---|-------------|------|-----|
| (a) | <u>ĩči</u> hnač | ← | <u>ĩči-</u> | hna | -č |
| | 'he fools himself' | | refl | fool | aux |

- (b) maĩčĩškĩdač ←———— ma- ěĩ- škida -č
 'he scratches himself' inst refl to ridge aux

PC X ba-, bu-, ga-, ya-, yu-

This category consists of another group (cf PC V) of instrumental prefixes. Even though the prefixes of this category and those of PC V are mutually exclusive and have similar functions, we consider them as members of different positional categories because there are other intervening categories.

- ba- Indicates action performed by hand. It may indicate that the direction of the action is away from the body.
- bu- Also indicates action by hand, possibly with no determinate direction. This prefix is relatively rare in its occurrence.
- ga- Indicates an action done by force or in a striking motion.
- ya- Indicates that the action is performed by the mouth or teeth.
- yu- Again indicates that the action is performed with the use of the hands. It possibly means that the direction of the action is toward the body.

22. ba-

- (a) bahnořač ←———— ba- hnořa -č
 'he made a hole in it by pushing' inst hole aux
- (b) baptač ←———— ba- pta -č
 'he bumped it' inst bump aux

23. bu-

- (a) bušpáč ←———— bu- špa -č
'he sealed it' inst push aux
- (b) butágač ←———— bu- taga -č
'he touched it' inst touch aux

24. ga-

- (a) gakšáč ←———— ga- kša -č
'he chopped it' inst break aux
- (b) gaktáč ←———— ga- kta -č
'he killed him by striking it' inst kill aux

25. ya-

- (a) yahtáč ←———— ya- hta -č
'he bit it' inst bite aux
- (b) yamnáč ←———— ya- mna -č
'he persuaded him' inst persuade aux

26. yu-

- (a) yukšáč ←———— yu- kša -č
'he broke it by hand' inst break aux
- (b) yušpáč ←———— yu- špa -č
'he opened it' inst push aux

This is the final prefix category before the verb stem.

2.2 Suffixes

The suffixes exhibit much less phonological variation than the prefixes; in fact, the only variations observed are those due to final vowel alternation (VA).

The suffixes shall be classified according to their grammatical categories. The term "suffix category (SC)" plus a Roman numeral indicates their position from the "right" of the stem.

A. The aspect categories include:

i. Continuative: -ga (SC I)

27. (a) čeyágač ←———— čeya -ga -č
'he is crying' cry cont aux
- (b) apágač ←———— a- pa -ga -č
'he is hitting him' pre hit cont aux
- (c) sihnágač ←———— sihna -ga -č
'he is getting angry' angry cont aux

ii. Potential: -kta (SC IV)

28. (a) hnáktač ←———— hna -kta -č
'he'll go home' to go home pot aux
- (b) yazáktač ←———— yazā -kta -č
'he'll be sick' to be sick pot aux
- (c) hũyagáktač ←———— hũ- yaga -kta -č
'he'll see it' pre see pot aux

iii. Perfective: -n (SC V)

29. (a) ěktú:nč ←———— ěktu -n -č
'it was on fire' fire perf aux
- (b) gibā:nč ←———— gibā -n -č
'he called him' call perf aux

- (c) hũyáge:nč̣ ← hũ- yaga -n -č̣
 'he saw it' pre see perf aux

Imperfective is indicated by the absence of any suffix in this category position.

The suffix -n is unusual in that it is one of the few that have the canonical shape C. But we see that it often appears following a lengthened preceding vowel. It is thus reasonable to assume that -n is derived from an underlying suffix with the form #Vn# and that the vowel is realized on the surface by lengthening of the preceding vowel.

B. The number category consists of the suffix -bi (SC II).

C. The categories of mode are:

i. Negative: -ṣ̌ị̃ (SC III)

30. (a) yuhéṣ̌ị̃č̣ ← yuha -ṣ̌ị̃ -č̣
 'he doesn't have it' have neg aux
 (b) yakteṣ̌ị̃č̣ ← yakta -ṣ̌ị̃ -č̣
 'he doesn't drink it' drink neg aux
 (c) hniṣ̌ị̃č̣ ← hni -ṣ̌ị̃ -č̣
 'he didn't return' return neg aux

ii. This subcategory consists of the "performative"

(McCawley, 1968) morphemes which mark the verb form as being declarative, imperative or interrogative (SC VI).

ii a. The declarative morphemes are:

-č which is used in addressing someone with deference,
or of the opposite sex.

-če in a female to female situation

-no in a male to male situation

31. (a) hŭčimagáktač 'I'll see you' (m ↔ f)
 (b) hŭčimagáktače 'I'll see you' (f ↔ f)
 (c) hŭčimagáktano 'I'll see you' (m ↔ m)

ii b. The imperative suffixes also indicate the sex of the speaker and the audience, but they differ when directed toward one or more than one listener.

-wo m ↔ m (sg)

-bo m ↔ m (pl)

-we f ↔ f (sg)

-m f ↔ f (pl)

32. (a) eyagúwo 'take it!' (m ↔ m (sg))
 (b) eyagúbo 'take it!' (m ↔ m (pl))
 (c) eyagúwe 'take it!' (f ↔ f (sg))
 (d) eyagúm 'take it!' (f ↔ f (pl))

These suffixes are used to indicate a "polite" order such as "take one, won't you?" whereas the uninflected verb stem indicates an imperative with no deference.

The non-deferential form of the imperative is the only instance of a verb form appearing without any suffix.

33. eyágu 'take it!' (non-def)

ii c. The interrogative suffix -nĩ

34. (a) hnaktanĩ 'will he go home?'
 (b) iktunĩ 'is it on fire?'
 (c) gibanĩ 'is he calling him?'

The preceding taxonomic classification is by no means exhaustive. There are more affixes, both suffixes and prefixes, whose meaning is unclear and therefore have not been presented. This is an area of study which deserves more investigation.

In summary, Table 3 presents the construction of the Stoney verbs in schematic form.

Table 3

Positional Categories of Affixes

Prefixes										Suffixes							
I	II	III	IV	V	VI	VII	VIII	IX	X	STEM	I	II	III	IV	V	V	
Nom	Nom	1pl	Loc	Inst	3pl(Obj)	1sg	2		Inst		Cont	Pl	Neg	Pot	Perf	Per	
wa-	i-	ĩg-	{a- i- o-}	{ma- mo- nã-}	wĩča-	{wa- mã-}	{ya- nĩ-}	{gi-(poss) giĵi-(ben) ĩči-(reflx)}	{ba- bu- ga- ya- yu-}		-ga	-bi	-šĩ	-kta	-n	<div> <div>{-no -če -č}</div> <div>{-wo -bo -we -m}</div> <div>-nĩ</div> </div>	<div>dec</div> <div>imper</div> <div>inter</div>

FOOTNOTES

¹We assume, of course, that the prefix vowel deletes.

²We shall discuss the vowel alternation in the section dealing with PC IV.

³We assume that this form consists of the nominalizing prefix ĩ- followed by the locative prefix o- (PC IV). The glide y is assumed to be epenthetic. This is common in the transition from i to o.

⁴Notice that "palatalization" has applied, resulting in the alternation g~j̣.

⁵The possessive gi- is a verbal prefix which indicates that the verb is associated with possession of alienable nouns (cf Chapter I, 1.8).

CHAPTER III

AN INVESTIGATION OF THE PHONOLOGICAL PROBLEMS
OF PREFIX CATEGORY IX

3.0 In this chapter we shall examine some of the phonological problems of the prefixes gi- (possessive), gi^ŷi- (benefactive), and ĩ^ŷci- (reflexive) of PC IX. The evidence that we shall present leads to the conclusion that they are all derived (historically at least) from the same form. They are interesting in that reduplication, which is a productive process in the derivation of certain verbs and nouns, is an integral part of their derivation.

3.1 Possessive Prefix

The possessive prefix appears in three different surface forms, gi-, k-, and hn-.

1. gi-

- | | | | | | |
|-----|------------------------|---|------------|------------|--------------------|
| (a) | <u>gi</u> hnóč | ← | <u>gi-</u> | hno | -č ^ŷ |
| | 'he growls at his own' | | poss | growl | aux |
| (b) | o <u>gi</u> neč | ← | o- | <u>gi-</u> | ne -č ^ŷ |
| | 'he looks for his own' | | pre | poss | look aux |

2. k-

- | | | | | | |
|-----|---------------------------|---|-----------|------------|-----------------|
| (a) | <u>k</u> pámnač | ← | <u>k-</u> | bamna | -č ^ŷ |
| | 'he levels/irons his own' | | poss | level | aux |
| (b) | <u>k</u> pádac | ← | <u>k-</u> | pada | -č ^ŷ |
| | 'he accumulates his own' | | poss | accumulate | aux |

3. hn-

- | | | | | | |
|-----|--------------------|---|------------|------------|----------------------|
| (a) | <u>hn</u> áškač | ← | <u>hn-</u> | gaška | -č ^ŷ |
| | 'he ties his own' | | poss | tie | aux |
| (b) | e <u>hn</u> águč | ← | e- | <u>hn-</u> | yagu -č ^ŷ |
| | 'he takes his own' | | pre | poss | take aux |

It is possible to make some generalizations about the phonological environments of each variant, which seems to indicate that they may be phonologically conditioned.

i. The possessive is realized as k- before stem initial p or b.

4. (a) kpámnač ← k- bamna -č
 'he levels, irons his own' poss level, iron aux
- (b) kpuspáč ← k- buspa -č
 'he seals his own' poss seal aux
- (c) kpádač ← k- pada -č
 'he accumulates his own' poss accumulate aux
- (d) kpaháč ← k- paħa -č
 'he wants to sell his own' poss want to sell aux

ii. The second alternation, hn-, appears before stems with initial g or y. These initial segments seem to delete after hn-.

5. (a) hnaškač ← hn- gaška -č
 'he ties his own' poss tie aux
- (b) hnanač ← hn- gana -č
 'he scatters his own' poss scatter aux
- (c) hnaskač ← hn- gaska -č
 'he breaks his own' poss break aux
- (d) hnušpáč ← hn- yušpa -č
 'he opens his own' poss open aux

- (e) hnawáč ← hn- yawa -č
'he counts his own' poss count aux

iii. The third alternate gi- appears in all other environments.

6. (a) agičídač ← a- gi- kida -č
'he looks at his own' pre poss look aux
- (b) agípač ← a- gi- pa -č
'he hits his own' pre poss hit aux
- (c) gihnóč ← gi- hno -č
'he growls at his own' poss growl aux
- (d) iginágač ← i- gi- naga -č
'he uses his own' pre poss use aux
- (e) magiskídač ← ma gi- škida -č
'he scratches his own with a blade' pre poss scratch aux
- (f) nagihmač ← na- gi- hma -č
'he hides his own' pre poss hide aux
- (g) ogínač ← o- gi- na -č
'he looks for his own' pre poss look aux
- (h) gišoč ← gi- šō -č
'he braids his own' poss braid aux

These types of generalizations, even though they seem to describe the data, are ad hoc (see below). Moreover, they create difficulties which will probably require other ad hoc solutions.

For instance, the presence or absence of voicing in the feature

specification of the first segment of the stem does not seem to be a significant factor in the choice of alternating forms in 7(a) and 7(b); k- appears before both p and b.

- | | | | | | |
|--------|--|---|-----------|----------------|-----|
| 7. (a) | <u>k</u> pa [́] kí [́] dač | ← | <u>k-</u> | <u>b</u> akida | -č |
| | 'he wipes his own' | | poss | wipe | aux |
| (b) | <u>k</u> pá [́] dač | ← | <u>k-</u> | <u>p</u> ada | -č |
| | 'he accumulates his own' | | poss | accumulate | aux |

But in 7(c) and 7(d) voicing seems to be a significant factor.

- | | | | | | |
|-----|---|---|------------|----------------|-----|
| (c) | <u>h</u> naš [́] káč | ← | <u>hn-</u> | <u>g</u> aška | -č |
| | 'he ties his own' | | poss | tie | aux |
| (d) | <u>g</u> ič [́] u [́] wač | ← | <u>gi-</u> | <u>k</u> uwa | -č |
| | 'he is involved with his own' | | poss | to be involved | aux |

Here it looks as if the initial voiced segment of the stem 7(c) becomes hn- while initial voiceless segment of 7(d) takes gi-. As we now see, the solution is probably not as simple and straightforward as first surmised. Its inadequacies are due to the fact that it attempts a phonological analysis without regard to relevant morphological facts.

The following alternate solution is therefore based upon morphological as well as phonological considerations.

We have shown in Chapter II that the possessive, as well as the reflexive and the benefactive morphemes, belong to PC IX, i.e., it occurs before the instrumental prefixes of PC X. The instrumental prefixes of this category were:

- | | | | |
|--------|------------|-----|--------------------------|
| 8. (a) | <u>ga-</u> | (d) | <u>ba-</u> or <u>pa-</u> |
| (b) | <u>ya-</u> | (e) | <u>bu-</u> or <u>pu-</u> |
| (c) | <u>yu-</u> | | |

Thus, if the verb stem is preceded by a prefix of PC X, the possessive prefix will occur before g, y, b, or p. If this category of prefixes is not present the possessive will, of course, appear immediately preceding the verb stem. In other words, the following derivations are envisioned:

9.	Poss	Inst	Stem		
(a)	<u>gi</u> -	<u>ba</u> -	<u>k</u> ĩda	→	<u>kpa</u> kĩda 'to wipe one's own'
(b)	<u>gi</u> -	<u>ga</u> -	ška	→	<u>hna</u> ška 'to tie one's own'
(c)	<u>gi</u> -	<u>yu</u>	špa	→	<u>hnu</u> špa 'to open one's own'
(d)	<u>gi</u> -		hno	→	<u>gi</u> hno 'to growl at one's own'

If the above derivations are correct, we see that k- and hn- occur only when the possessive prefix appears before a verb stem which is, in turn, preceded by an instrumental prefix of PC X. If no prefix of PC X is present, then the possessive will be realized as gi-.

The occurrences of the possessive alternates are illustrated in 10.

10.	Poss Prefix		Inst Prefix
	<u>k</u> -	appears before	<u>ba</u> -, <u>bu</u> -, <u>pa</u> -, <u>pu</u> -
	<u>hn</u> -		<u>ga</u> -, <u>ya</u> -, <u>yu</u>
	<u>gi</u> -		none

Thus, we see that the prefix gi- appears directly before any stem initial segment. Its occurrence is therefore morphologically conditioned. The other two (k- and hn-) are morphologically as well as phonologically conditioned in that they occur only before prefixes of PC IX, i.e., k- occurs before prefix initial p or b and hn- before g or y. Because gi- is not phonologically constrained we postulate that it is the underlying form of the possessive morpheme and that k- and hn- are phonologically

derived representations of this underlying form.

Let us now examine the derivations of the different surface forms of the possessive prefix.

As mentioned previously, prefix vowel deletion is a fairly common process in Stoney. Let us assume, therefore, that underlying gi- undergoes vowel deletion when it precedes an instrumental prefix and that the vowel is not deleted preceding the verb stem.

Application of this rule will yield the following consonant clusters:

$$11. \quad \underline{gi-} + \begin{bmatrix} p \\ b \\ g \\ y \end{bmatrix} \rightarrow \begin{bmatrix} *gp \\ *gb \\ *gg \\ *gy \end{bmatrix}$$

Notice that none of these clusters appear on the surface.

With the exception of the nasal consonants, the data reveals that no consonant clusters may consist of any voiced segments.¹ We may assume from this that any underlying cluster which has a voiced segment is subject to a devoicing rule. We may now assume that the clusters of 11 are intermediate representations which are input to this rule; yielding kp from underlying #gb# and #gp#, and kk from underlying #gg#. We must consider that the underlying cluster #gy# also acts as input to this rule. If the analysis is to remain consistent, we must assume that the rule yields the sequence #ky# where the y is also devoiced.²

The cluster kp is realized on the surface as the first two segments of the possessive form of verbs with the instrumental prefixes ba-, bu-, pa-, and pu- of PCX. But there must be other steps in the derivation of hn- from underlying #kk# and #ky# because the Stoney data reveals no instances of geminate clusters or clusters of the sequence consonant-

glide. We have been assuming that this alternative is somehow different from the other two in that it "replaces" the initial segment of the instrumental prefix. There are, however, indications that this is not the case.

In the following examples of reduplication we note the alternation of n with k.

12. (a) $\text{ot}\tilde{\text{a}}\underline{\text{n}} \xrightarrow{\text{redup}} \text{ot}\tilde{\text{a}}\underline{\text{k}}\text{t}\tilde{\text{a}}\underline{\text{n}}$
 'to be straight, upright' 'to be straight in spots'
- (b) $\text{d}\acute{\text{o}}\underline{\text{n}}\text{a} \xrightarrow{\text{redup}} \text{d}\acute{\text{o}}\underline{\text{k}}\text{d}\acute{\text{o}}\text{na}$
 'to be few' 'to be sparse in places'

This data suggests that there is a rule which changes the second element of the underlying clusters #kk# to n, but the evidence is too tenuous to postulate such a rule at this time.

A further question is why one k (the second segment of #kk#) changes to n while the first alternates with h.

The data is insufficient to solve this problem but one possible hypothesis is that each underlying #k# of #kk# comes from a different source.

These problems must await further analysis and at this point we must resort to a rule which simply states that underlying #kk# and #ky# appear on the surface as hn-, no matter how unnatural this may sound.

In summary, we have shown that the possessive prefix has the underlying form #gi# and three surface representations, gi-, hn-, and k-. The underlying form undergoes vowel deletion when it is followed by an instrumental prefix of PC X. The resulting consonant clusters are

subject to devoicing which produces either k- or clusters which undergo further rules yielding hn-.

To exemplify the above discussion, consider the derivations of the possessive verb forms hnaškáč 'he ties his own', kpámnač 'he levels his own', and giššóč 'he braids his own'.

13. INPUT	gi- gašká -č	gi- báma -č	gi- šš -č
VOWEL DELETION	g gašká -č	g báma -č	
DEVOICING	k kašká -č	k páma -č	
OTHER RULES	hnašká -č		
OUTPUT	hnaškáč	kpámnač	giššóč

3.2 Benefactive Prefix

We now turn to a consideration of the benefactive prefix which is realized as giŷi-. Consider the following:

14. (a)	magiŷíksač ←	ma- giŷi- ksa -č
	'he cuts for him'	inst pre ben break aux
(b)	giŷíkteč ←	giŷi- kte -č
	'he kills for him'	ben kill aux
(c)	giŷibázoč ←	giŷi- bazo -č
	'he points for him'	ben point aux
(d)	giŷičígač ←	giŷi- čiga -č
	'he wants for him'	ben want aux

This prefix exhibits little phonological variation, but a consideration of it and the possessive prefix leads to some interesting speculations. First of all, it belongs to the same positional category as the possessive and, secondly, they are phonologically similar.

- | | | | |
|-----|----------------------------|------------|--------------|
| 15. | | Poss | Ben |
| (a) | maškídač 'he scratches it' | magiškídač | magijiškídač |
| (b) | čígač 'he wants it' | gičígač | giŷičígač |

As discussed in Chapter IV, reduplication is a productive process in Stoney so it seems reasonable to consider that giŷi- is the reduplicated form of the possessive morpheme gi after palatalization has caused the underlying velar stop g to become ŷ (after i).

Recall that the possessive prefix triggers palatalization, as follows:

- | | | | | | | |
|---------|-------------------------------|---|-----|------|---------|-----|
| 16. (a) | agičídač | ← | a- | gi- | kida | -č |
| | 'he looks at his own' | | pre | poss | look | aux |
| (b) | gičízač | ← | a- | gi- | kiza | -č |
| | 'he fights his own' | | pre | poss | fight | aux |
| (c) | gičuwač | ← | a- | gi- | kuwa | -č |
| | 'he is involved with his own' | | pre | poss | involve | aux |

If it is assumed that the benefactive prefix is underlying #gi gi#, then the second consonant is subject to palatalization.

- | | | |
|---------|----------------|------|
| 17. (a) | INPUT | gi |
| (b) | REDUPLICATION | gigi |
| (c) | PALATALIZATION | giŷi |

The benefactive prefix exhibits little phonological variation; however, the data includes the following apparently deviant forms. One of the syllables (gi) seems to have been deleted when the benefactive prefix appears before a verb stem with initial gi:

18. (a) agiǵipeč ← a- gigi- gipe -č
 'he waits for him' pre ben wait aux
 *agiǵigipeč
- (b) giǵinač ← gigi- gina -č
 'he asks for him' ben ask aux
 *giǵiginač
- (c) giǵišićač ← gigi- gišića -č
 'he is 'foxy' for him' ben 'foxy' aux
 *giǵigišićač

This syllable deletion does not occur when the verb stem does not have initial gi.

19. (a) giǵigaškač ← gigi- gaška -č
 'he ties it for him' ben tie aux
- (b) giǵigánač ← gigi- gana -č
 'he scatters it for him' ben scatter aux
- (c) giǵikízač ← gigi- kiza -č
 'he fights it for him' ben fight aux

Since we assume that the underlying form of the benefactive prefix is #gi+gi#, the underlying forms of 18 would be #gi+gi+verb stem#. Because these stems have initial syllable gi, the result is an underlying sequence of three homophonous syllables, i.e., #gi+gi+gi#. The data, however, shows no surface instances of an homophonous tri-syllabic sequence. Therefore, we may assume that there exists a rule which deletes one of them. This rule shall be called tri-syllabic reduction (TSR).

The following derivations (20) of the benefactive form of the verb stems gina 'to ask' and čĩga 'to want' illustrate the above discussion.

- | | | |
|--------------------|-------------------|-------------------|
| 20. (a) INPUT | gi- gina -č | gi- čĩga -č |
| (b) REDUPLICATION | gi- + gi- gina -č | gi- + gi- čĩga -č |
| (c) TSR | gi- gina -č | |
| (d) PALATALIZATION | gi- ĵina -č | gi- ĵi čĩga -č |
| (e) OUTPUT | <u>giĵinač</u> | <u>giĵičĩgač</u> |

We have indicated above that TSR applies to one of the syllables but we have not determined which one of the three deletes.

The following data indicates that the first syllable of the prefix is not the one that is deleted. Where TSR has applied, we note that at least one stop becomes palatalized.

- | | | |
|-----------------------|---|------------------|
| 21 (a) <u>giĵinač</u> | ← | gigi- gina -č |
| 'he asks him for him' | | ben ask aux |
| (b) <u>agiĵipeč</u> | ← | a- gigi- gipe -č |
| 'he waits for him' | | pre ben wait aux |

But the second syllable of the benefactive prefix does not trigger palatalization:

- | | | |
|---------------------------|---|------------------------|
| 22. (a) <u>agiĵikidač</u> | ← | a- gigi <u>kida</u> -č |
| 'he looks for him' | | pre ben look aux |
| * <u>agiĵičidač</u> | | |
| (b) <u>giĵikizač</u> | ← | gigi- <u>kiza</u> -č |
| 'he fights for him' | | ben fight aux |
| * <u>giĵičizač</u> | | |

Therefore, we may assume that the first syllable of the prefix is not deleted because it contains the only vowel available to trigger

palatalization. We shall return to this point later but for now, because the third homophonous syllable is part of the stem it seems reasonable to assume that it is more "stable" than the prefix syllables and that it is the second syllable of the prefix which is deleted.

We must also assume that TSR applies before palatalization because once g becomes ǰ, the structural description necessary for the application of TSR does not exist anymore.

3.3 Reflexive Morpheme

So far we have examined the possessive and the benefactive prefixes and have assumed that the underlying form of the possessive is #gi#, while the benefactive is derived from #gi# by reduplication.

The third prefix which belongs to this category is the reflexive morpheme ĩči-.

23. (a) ĩčihnáškač ← ĩči- gaška -č
'he tied himself' reflx tie aux
- (b) ĩčihnač ← ĩči- hna -č
'he fooled himself' reflx fool aux
- (c) ĩčičízač ← ĩči- kiza -č
'he fought himself' reflx fight aux
- (d) ĩčikpadač ← ĩči- pada -č
'he butchered himself' reflx butcher aux
- (e) ĩčihnámnač ← ĩči- yamna -č
'he persuaded himself' reflx persuade aux

Note that ĩči- occurs by itself or followed by either hn- or k-. Furthermore, each of these alternatives occurs in an environment

corresponding exactly with that of the variations of the possessive prefix.

24.	Reflexive	Possessive
Before Verb Stem	<u>ĩ</u> či-	gi-
Before Inst Prefix with Initial <u>g</u> or <u>y</u>	<u>ĩ</u> či- hn-	hn-
Before Inst Prefix with Initial <u>b</u> or <u>p</u>	<u>ĩ</u> či- k-	k-

Some examples of these prefixes are:

25.	Poss	Reflex
(a) kizáč 'he fought it'	<u>gi</u> čízač	<u>ĩ</u> číčízač
(b) gaškáč 'he tied it'	<u>hna</u> škáč	<u>ĩ</u> čihnáškač
(c) bakídač 'he wiped it'	<u>kpak</u> ídač	<u>ĩ</u> čikpakídač

It is apparent that there is some kind of (etymological, at least) relationship between the possessive and reflexive.

Recall that the prefix ĩ- appears in the possessive pronouns mĩ-, nĩ, etc. (from mā- + ĩ-, nĩ- + ĩ, etc.) and also that Boas and Deloria consider its Dakota cognate to be an historic possessive. Given this historical evidence, tenuous as it may be, it is phonologically interesting to consider ĩči- to be composed of two distinct elements, i.e., ĩ- and čĩ-.

If ĩ- triggers palatalization, then again it seems reasonable to assume that the second element čĩ- is derived from underlying #ki#. This assumption is strengthened when we consider that the verbal possessive prefixes of Dakota (Boas and Deloria, 1941:86) as well as Proto-Siouan (Matthews, 1965:72) are k initial, e.g., both ki-.

Considering the process of palatalization (both synchronic and diachronic) we shall assume that the underlying form of iči- is #ĩ ki#.

Matthews (1970:107-108) posits many Proto-Siouan (PS) voiceless consonants which appear voiced in Stoney reflexes:

26.	Stoney	PS
(a)	šáge 'fingernail'	saki 'toe, fingernail'
(b)	ošóda 'smoke'	sate 'grey, smoke'
(c)	súga 'dog'	wsuke 'dog, horse'

Considering both the Proto-Siouan and Stoney data presented above, we shall assume not only that the second syllable of iči- is underlying #k# initial but that #k# is the underlying initial segment of the possessive prefix gi- and of the benefactive prefix giĵi-.

We shall now have to formulate a rule which changes the underlying voiceless consonants of the possessive and the benefactive morphemes to voiced ones.

We see also that hn- and k- appear after iči- in exactly the same environments that they appear in as variants of the possessive morpheme.

27.		Poss	Reflex
(a)	bámnač 'he levels it'	kpámnač	ĩčikpámnač
(b)	buspáč 'he seals it'	kpuspáč	ĩčikpúspač
(c)	gakšáč 'he breaks it'	hnaškáč	ĩčihnáškač
(d)	yužáč 'he boils fruit'	hnužáč	ĩčihnúžač

When there is no instrumental prefix both the reflexive and the possessive occur by themselves with no variation.

Following is a summary of the prefixes of PC X illustrating their surface forms:

28. Prefixes of PC IX:

	Poss	Ben	Reflx
Before a verb stem	<u>gi</u> -	<u>gi</u> ʃi-	ĩči-
Before initial <u>g</u> or <u>y</u> of instrumental prefix	<u>hn</u> -	<u>gi</u> ʃi-	ĩčihñ-
Before initial <u>b</u> or <u>b</u> of instrumental prefix	<u>k</u> -	<u>gi</u> ʃi-	ĩčik-

We have considered #gi# and #gi+gi# to be the underlying forms of the possessive and the benefactive, respectively. It now seems feasible, historically at least, to assume that k underlies the g of the above prefixes. Furthermore, it seems to be a reasonable assumption that the reflexive ĩčihñ- and ĩčik- both have the underlying form #ĩ+ki+ki#.

29. Underlying Forms of PC X Prefixes:

	Possessive	Benefactive	Reflexive
Before Verb Stem	#ki# [gi-]	#ki ki# [giʃi-]	#ĩ ki ki# [ĩči-]
Before Initial <u>g</u> or <u>y</u> of INST Prefix	#ki# [hn-]	#ki ki# [giʃi-]	#ĩ ki ki# [ĩčihñ-]
Before Initial <u>b</u> or <u>p</u> of Inst Prefix	#ki# [k-]	#ki ki# [giʃi-]	#ĩ ki ki# [ĩčik-]

Notice that we have considered reduplication as a process yielding both the benefactive and the reflexive prefixes. But when the reflexive precedes a verb stem, i.e., not before an instrumental prefix, no reduplicated syllable appears on the surface, as in 30.

30. (a) maĩčiškídač ← ma- ĩči- škida -č
 'he scratches himself' pre reflx scratch aux
 *maĩčičiškídač
- (b) ĩčišóč ← ĩči- šó -č
 'he braided himself' reflx braid aux

*ičičišoč

The data offers no evidence for the absence of the reduplicated syllable. Therefore, for the time being, we shall have to assume the existence of an ad hoc "reflexive syllable deletion" rule (RSD) which deletes the reduplicated syllable of the reflexive morpheme when it does not precede an instrumental prefix of PC X.

An alternative solution is to assume that reduplication is blocked in this environment. The problem with this solution lies in the fact that the same environment does not block reduplication of the benefactive prefix. Either way, the point is that the expected syllable does not appear on the surface.

The data on reflexivization indicates a solution to a problem encountered previously. Recall that when the benefactive prefix (giŷi-) precedes a verb stem with initial gi one of the resulting underlying sequences of three homophonous syllables (#gi+gi+gi#) is deleted. We assumed that the deleted syllable had to be either the second prefix syllable or the first one of the verb stem and we chose the prefix syllable. We shall now demonstrate that this choice has some corroborating independent motivation.

We have assumed that the underlying form of the possessive morpheme is #ki#, whereas for the benefactive it is #ki+ki#. The vowel of the possessive and the first vowel of the benefactive prefixes "trigger" palatalization. But when the reflexive prefix occurs with a verb stem which has an initial segment conforming to the structural description necessary for palatalization, the rule does apply, as in 31.

31. (a) $\tilde{a}\tilde{i}\tilde{c}\tilde{i}\tilde{c}\tilde{i}\tilde{d}\tilde{a}\tilde{c}$ \longleftarrow a- $\tilde{i}\tilde{c}\tilde{i}$ - $\tilde{k}\tilde{i}\tilde{d}\tilde{a}$ - \tilde{c}
 'he looked at himself' pre reflx look aux
 $*\tilde{a}\tilde{i}\tilde{c}\tilde{i}\tilde{k}\tilde{i}\tilde{d}\tilde{a}\tilde{c}$
- (b) $\tilde{i}\tilde{c}\tilde{i}\tilde{c}\tilde{i}\tilde{u}\tilde{w}\tilde{a}\tilde{c}$ \longleftarrow $\tilde{i}\tilde{c}\tilde{i}$ - $\tilde{k}\tilde{u}\tilde{w}\tilde{a}$ - \tilde{c}
 'he is involved with himself' reflx be involved aux
 $*\tilde{i}\tilde{c}\tilde{i}\tilde{k}\tilde{i}\tilde{u}\tilde{w}\tilde{a}\tilde{c}$

Therefore, we may make the further assumption that reduplication alters, in some way, the structural description necessary for the application of palatalization. We may also assume that RSD applies before palatalization because if it did not, then the reduplicated syllable of the reflexive prefix would block palatalization. Thus, the syllable that is deleted by both TSR and RSD must be the second syllable of the prefix.

FOOTNOTES

¹Consonant cluster devoicing is further discussed in Chapter IV.

²We shall not indicate the voiceless glide in the orthography.

CHAPTER IV

REDUPLICATION

In Stoney, as in other Siouan languages, reduplication is a very productive process. It is observed in a number of derivational processes:

i. The distributive plural derives from stative verbs by reduplication.

1. (a) buspúza ← ^{redup¹} — búza
'dry spots' (to be) dry'
- (b) ktũsása ← — ktũsa
'four by four' (to be) four'
- (c) tóto ← — tó
'blue spots' (to be) blue'

ii. In active verbs the iterative is formed by reduplication.

2. (a) apápa ←———— apá
'to hit repeatedly' 'to hit'
- (b) múmu ←———— mú
'to thunder repeatedly' 'to thunder'
- (c) nesnéza ←———— nezá
'to urinate repeatedly' 'to urinate'

iii. In inanimate nouns the plural is formed by reduplication.

3. (a) čǣgúgu ←————— čǣgú
 'roads' 'road'

- (b) ganusnúza ← ga- núza
'intermittent wind' 'wind'
- (c) waptaptán ← waptá
'rivulets' 'river'

Note the final nasal segment of 3(c). Because of the following examples, we may assume that this is the diminutive suffix -na whose vowel may be deleted under certain conditions.

4. (a) bispizán ← bíza²
'a mouse' 'to squeak'
- (b) čādedén ← čādē
'strawberries' 'heart'
- (c) waptaptán ← waptá
'rivulets' 'river'

The vowel ā appears following n when the reduplicated form is followed by a determiner.

5. (a) bispizānā ga 'that mouse'
- (b) čādedēnā ze 'the strawberries'
- (c) waptaptānā ča 'some rivulets'

Note, incidentally, that the stress is on the penultimate syllable in 5, whereas it is on the final syllable in the reduplicated (4) forms. This suggests that vowel deletion occurs after stress assignment.

When monosyllabic stems are reduplicated, the process is a simple copying of the entire stem.

6. (a) hí → híhí
'brown' 'brown spots'

- (b) ktá → ktakta
 'to be heavy' 'to lift'
- (c) mú → mumu
 'to thunder' 'to thunder repeatedly'

If the stem consists of two syllables, we see from the following examples that either the first or the second syllable may be reduplicated.

i. Final syllable reduplication:

7. (a) apá → apápa
 'to hit' 'to hit repeatedly'
- (b) čǎdé → čǎdedén
 'heart' 'strawberries'
- (c) čapá → čapápa
 'to stop' 'to stop repeatedly'
- (d) čéya → čeyáya
 'to cry' 'to cry repeatedly'

ii. Initial syllable reduplication:

8. (a) búza → buspúza
 '(to be) dry' 'dry spots'
- (b) sába → sapsába
 '(to be) black' 'black spots'
- (c) śága → śaksága
 '(to be) strong' 'strong spots'

- (d) tǎga → tǎktǎga
 '(to be) big' 'big spots'

There seems to be two ways of looking at disyllabic stem reduplication.

First, we notice from 7 and 8 that the great majority of stems which are stressed on the first syllable undergo "leftward" reduplication. That is, their first syllable is copied. For example:

9. (a) sába → sapsába
 (b) néza → nesnéza

The majority of those stems which are stressed on the final syllable exhibit "rightward" reduplication:

10. (a) adé → adéde
 (b) čápá → čápápa

Thus, we see that both the syllable which is copied and the "direction" of reduplication seem to be dependent upon the position of stress in the stem.

There are some exceptions to this rule. In 11, stress is on the initial syllable of the stem, but reduplication is "rightward", while in 12 stress is on the final syllable and reduplication is "leftward." The examples of 13 are two of the few unanalyzable tri-syllabic stems. Therefore, as mentioned in Chapter I, we consider them underlyingly disyllabic. If this is indeed the case and if these initial syllables are perhaps archaic prefixes, then they correspond to the stems of 11. For example (13b): wĩkčémna ← wĩk- čémna.

11. (a) čéya → čeyáya
 'to cry' → 'to cry repeatedly'

- | | | | |
|---------|--------------------|---|-----------------------------|
| (b) | šákpe | → | šakpékpe |
| | '(to be) six' | | 'groups of six' |
| (c) | yámni | → | yamnímni |
| | '(to be) three' | | 'groups of three' |
| (d) | zápta | → | zaptápta |
| | '(to be) five' | | 'groups of five' |
| 12. (a) | sudá | → | suksúda |
| | 'to be hard' | | 'to be hard in spots' |
| (b) | tejá | → | tektéja |
| | 'to be young, new' | | 'to be young repeatedly(?)' |
| 13. (a) | šahnohá | → | šahnoháha |
| | '(to be) eight' | | 'groups of eight' |
| (b) | wíkčémna | → | wíkčemnámna |
| | '(to be) ten' | | 'groups of ten' |

Note that five of the above eight "exceptions" are numerals. Since it is well known that numerals are conservative with respect to change in general, we can speculate that they preserve a kind of archaic form which has been fossilized. The fact that the stem núm 'two', which alternates with núba, exhibits the alternate reduplicated forms núbába and nūmnūm indicates that the numerals may be under some pressure for regularization.

While the numerals might be exceptions with respect to reduplication, they are quite regular if considered as a separate class by themselves. It is always the last syllable which is reduplicated.

- | | | | |
|---------|---------------|---|--------------|
| 14. (a) | waží | → | wažíksi |
| | '(to be) one' | | 'one by one' |

(b)	<u>nũm</u> (or <u>nuba</u>)	—————→	<u>nũmnũm</u> (or <u>nũbába</u>)
	'(to be) two'		'groups of two'
(c)	<u>yámni</u>	—————→	<u>yamnĩmni</u>
	'(to be) three'		'groups of three'
(d)	<u>ktusá</u>	—————→	<u>ktusása</u>
	'(to be) four'		'groups of four'
(e)	<u>zápta</u>	—————→	<u>zaptápta</u>
	'(to be) five'		'groups of five'
(f)	<u>šákpe</u>	—————→	<u>šakpékpe</u>
	'(to be) six'		'groups of six'
(g)	<u>saguwĩ</u>	—————→	<u>saguwĩwĩ</u>
	'(to be) seven'		'groups of seven'
(h)	<u>sahnóŋa</u>	—————→	<u>sohnóŋaŋa</u>
	'(to be) eight'		'groups of eight'
(i)	<u>nāpčuwĩk</u>	—————→	<u>nāpčuwĩkwĩk</u>
	'(to be) nine'		'groups of nine'
(j)	<u>wĩkčémna</u>	—————→	<u>wĩkčemnámna</u>
	'(to be) ten'		'groups of ten'

We see that it is always the last syllable which is copied, no matter where stress is positioned in the stem. This is significant, and we shall return to this point later.

It is possible that exception 11(a) is not a reduplicated form at all and that the final ya is some sort of archaic non-productive suffix. But this is only conjecture and until further data indicates otherwise, we shall have to consider 11(a), 12(a) and 12(b) as unanalyzable exceptions.

Given this formulation of reduplication, we would require two rules, the first being sensitive to stress in the stem and the second copying only the final syllable of the stem and applying (almost exclusively) to numerals. To place these restrictions on a rule seems awkward and unusual.

As noted previously, there is an alternative explanation of reduplication. We have shown that a monosyllabic stem is either consonant or vowel final. But the data shows no disyllabic stems which are consonant final. Moreover, the disyllabic stems seem to fall into two categories.

CATEGORY I

adé 'father'
 apá 'to hit'
 čǎdé 'heart'
 čǎgú 'road'
 čipó 'fog'
 gičí 'to pack on back'
 hazá 'berry'
 ide 'face'

CATEGORY II

bíza 'to squeak'
 bóña 'a puff'
 búza 'to be dry'
 čáña 'ice'
 hóda '(to be) grey'
 káda 'to be hot'
 ktúza 'to be crazy'
 sáka 'to be raw'

In these stems we make the following observations:

CATEGORY I

1. As expected, stress falls on the final syllable.
2. In their reduplicated forms, the stems of this category simply copy the last syllable. For example:

15. (a) ade → ade
 (b) apa → apa

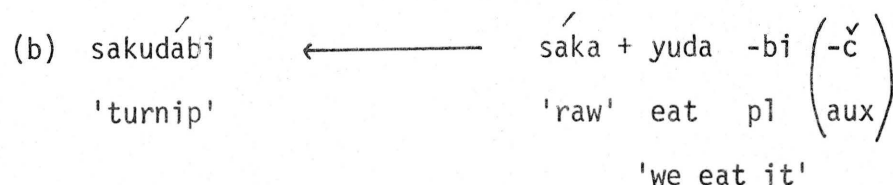
CATEGORY II

1. Stress falls on the penultimate syllable despite the fact that they are disyllabic.
2. The final vowel is always a.
3. The second consonant in each form, with one exception (saka 'to be raw') is always voiced.
4. Reduplication copies the first syllable and there is usually an accompanying phonological change. For instance, the devoicing in 16(a) and the z ~ h alternation in 16(b).

16. (a) saba → sapsaba
 (b) ktuza → ktuhktuza

Both Chambers (MS) and Carter (1974:135) argue that there are two different classes of disyllabic stems in Dakota; those which have an underlying organic final vowel and those which have an epenthetic final vowel. The data above indicates that, as hypothesized for Dakota, there may also be two types of disyllabic stems in Stoney, the first which is underlyingly disyllabic (Category I), the other which is underlyingly monosyllabic and has an epenthetic final vowel (Category II). Further evidence for this hypothesis is found in the formation of compounds of Category II stems.

17. (a) sukciyan ← šuga + ciyan
 'puppy' 'dog' 'young of animals'



Note that the final vowels of súga and sáka are absent from the compound forms. This supports the assumption that it is epenthetic.

If we accept the above solution we can state that some of the stems which are disyllabic on the surface are, in fact, underlyingly monosyllabic. Furthermore, we may also assume that all stems which exhibit final syllable reduplication have a disyllabic stem as an underlying form.

This alternative solution seems to have advantages over the first. It simplifies the rule because it states that reduplication is simply a process of copying the last syllable to the right, whereas previously the rule had to account for both "leftward" and "rightward" reduplication. It expands a generality in that the number of underlying monosyllabic stems is increased and all are treated similarly. It strengthens the assumption that all stems are underlyingly monosyllabic or disyllabic (cf 2.2). And finally, though it still includes some of the "exceptions" noted in the discussion of the first solution, namely, 11(a), 12(a), and 12(b), it treats all numerals as regular reduplicated forms.

It must be noted that this solution works only if a rule which introduces the epenthetic vowel is ordered after the reduplication rule.

One problem remains to be discussed. There seems to be no way to isolate all and only Category II stems with respect to the application of the epenthesis rule. In their underlying representations, Category I

stems are vowel final while Category II stems are all consonant final. This feature of the two categories distinguishes one from the other but not from stems which apparently belong to neither. For instance, the forms skán 'white' and tín 'inside', which belong to neither category, have a surface shape which is identical to the underlying shape of the stems of Category II (CCVC and CVC). If we could establish that these forms (and all others which belong to neither category) have different underlying shapes, i.e., different than the underlying shape of Category I and II stems, then this feature might serve to uniquely specify the two categories. However, the data indicates no reason to assume that the underlying shape of the above two examples is anything other than what it is on the surface.

We shall, therefore, assume that epenthesis is a rule in the grammar of Stoney which applies to a "set" of lexical items.

We now turn to a discussion of some of the other phonological alternations involved in reduplication.

i. Devoicing. Many stems exhibit final voiced consonants which become devoiced as elements of clusters in reduplicated forms (cf Chapter III, 3.3).

- | | | | |
|---------|------------------|---|-------------|
| 18. (a) | bohpóña | ← | bóña |
| | 'to blow (iter)' | | 'to puff' |
| (b) | buspúza | ← | búza |
| | 'dry spots' | | 'to be dry' |
| (c) | čáhčáña | ← | čáña |
| | 'icy spots' | | 'ice' |

- | | | | |
|-----|---------------------|---|---------------|
| (d) | čos <u>č</u> óza | ← | č <u>ó</u> za |
| | 'warm spots' | | 'to be warm' |
| (e) | nes <u>n</u> éza | ← | <u>n</u> éza |
| | 'to urinate (iter)' | | 'to urinate' |

In Stoney, the only intramorphemic consonant clusters with voicing in both or only one of the elements consists of either two nasal segments or a voiceless fricative followed by a nasal. Some examples are:

19. (a) hná 'to go home'
 (b) hní 'to return'
 (c) išníyeš 'thank you'
 (d) hómna 'coffee'
 (e) mné 'take'

There is always, of course, the possibility that the forms of 19 are really compounds or derived forms and that the clusters hn and sn are separated by a morpheme boundary. Be that as it may, at the present time it seems that the only consonant clusters with one or both of the elements being voiced consist of at least one nasal segment.

If we assume that Stoney does not allow voiced clusters (with the above mentioned exceptions) then the clusters *hb, *zb, *hc, *zc, and *zn, which result from the process of reduplication, must be subject to a rule which devoices them. That is, a non-nasal consonant devoices before or after a consonant. An illustration of the application of this rule is as follows:

20.	Input	Reduplicated Form	Surface Form
	(redup)	(devoicing)	
(a)	<u>b</u> ízá	biz <u>b</u> íza	bis <u>p</u> íza
(b)	<u>n</u> éza	nez <u>n</u> éza	nes <u>n</u> éza
(c)	<u>š</u> ága	šag <u>š</u> ága	šak <u>š</u> ága

ii. Coronal Dissimilation. The data shows no consonant clusters which have cluster initial coronal obstruents. But there are stems which, after reduplication and devoicing, should exhibit a cluster initial coronal obstruent. For example:

21.		Expected	Actual
	(redup)	(underlying)	(surface)
(a)	<u>k</u> áda 'to be hot'	kat <u>k</u> ada	kah <u>k</u> áda
(b)	<u>p</u> áda 'to butcher'	pat <u>p</u> ada	pah <u>p</u> áda
22. (a)	<u>s</u> úda 'to be hard'	suts <u>s</u> uda	suks <u>s</u> úda
(b)	<u>ž</u> áda 'to fork'	žat <u>š</u> ada	zak <u>š</u> áda
23. (a)	<u>t</u> éja 'to be new'	teč <u>t</u> eja	tekt <u>t</u> éja
(b)	<u>ž</u> íja 'to stretch'	zič <u>š</u> ija	žik <u>š</u> íja

Notice that the expected clusters (after reduplication and devoicing) do not appear on the surface.

#tk# (21a) surfaces as hk

#tp# (22a) hp

#ts# (22a) ks

#ts# (22b) kš

#ct# (23a) kt

#cs# (23b) kš

Carter (1974:225-6) notices a similar phenomenon in Dakota and he formulates two rules, "Coronal Laxing" and "Coronal Dissimilation" to account for the phonological alternations in the reduplicated forms of stems such as the following two:

(Dak) /p'iča/ 'possible'

/p'ilp'iča/ redup

(Dak) /siča/ 'bad'

/siksiča/ redup

It seems that there are similar processes operating in Stoney, but as yet the data is not sufficient for a comprehensive analysis. Nonetheless, the data does indicate a general rule which accounts for the appearance of both h and k in 21 to 23. Notice that the initial segments of the clusters of 21 to 23 are k if the following segment is coronal while h appears before a non-coronal segment. We shall adopt the terminology from Carter's analysis and call this rule "Coronal Dissimilation (CD)."

It is interesting to note that the corresponding consonants of the velar stops in the reduplicated forms of 23 are palatal. Note also that the palatal consonant in the stems of 23 appear in the environment specified by the palatalization rule, i.e., $\begin{bmatrix} k \\ g \end{bmatrix} \longrightarrow \begin{bmatrix} \check{c} \\ \check{j} \end{bmatrix} / \left\{ \begin{matrix} i \\ e \end{matrix} \right\} \text{---} V$

This fact poses the following problem. Can we assume that palatalization is involved in the alternation of j and k in 23? If so, may we also assume that this rule is somehow involved in the derivation of the segments h and k in 21 and 22 respectively? At this point, we must

assume that palatalization is not involved. The reasons for this conclusion are, first of all, that the data shows no instances of any segments other than k or g acting as input for palatalization, whereas if the rule were involved in the derivation of 21 and 22 d would be involved. Also, the rule would have to be reformulated as a 'de-palatalization' rule to account for 23. Secondly, the palatalization rule is formulated so as to operate only when preceded by a front vowel, whereas the consonants in question in 19 and 20 appear with a preceding central vowel. The alternatives seem to be either to reformulate the palatalization rule or to assume that 21 to 22 are the result of the application of a rule (or rules) other than palatalization. We shall assume that the latter is the case and that this "other" rule is CD. Following is an illustration of the application of the rules discussed so far.

24. INPUT	kad	yamni
REDUPLICATION	kád kad	yamni mni
EPENTHESIS	kad kad a	
DEVOICING	kat kad a	
CD	kah kad a	
OTHER	kahkáda	yamnímni

Incidentally, we have assumed that devoicing is ordered before CD. In a more detailed analysis this may or may not be the case but in the present analysis these two rules are actually unordered with respect to each other.

The data exhibits three forms which require individual discussion. In the first, we see that the segment h is generated, as expected, by

CD before k.

25. ktuhktúza ← ktúza
 'nervous' 'crazy'

The problem is that this is the only instance of a cluster of three consonants. There is no data to provide other instances of tri-consonantal clusters. Therefore, at least for the time being, this form must be considered as exceptional.

In 26 the expected form, after CD, should be *hohhoda.

26. hohoda ← hoda
 'grey spots' '(to be) grey'

Although this is the only example of this sequence of segments in the data it does not seem unreasonable to assume the deletion (or complete assimilation) of the first element of an hh cluster.

Finally, in 27 note the appearance of k in the reduplicated form in an environment where CD obviously does not apply:

27. waziksi wazi
 'one by one' '(to be) one'

A possible historical solution to this problem is offered by a consideration of other Siouan forms for "one" as recorded in Riggs (1893:XXIII). Notice that they all include the velar obstruants q or k in either their final or penultimate syllables.

Cegiha	wi ⁿ aqtc <u>i</u>
Kansa	mi ⁿ qt <u>ci</u>
Osage	wi ⁿ qts <u>i</u>
Kwapa	mi ⁿ qt <u>i</u>
Ciwere	<u>i</u> yanke

Winnebago hijañkida

Mandan magana

This historical evidence leads to the speculation that an earlier form of Stoney waží was *wažík, whose reduplicated form would be *wažíkšik. If this is the case, and also because there are no contemporary k final forms, it is reasonable to assume an historic rule which deleted all final k's. Therefore, a possible derivation of 27 would be 28:

28. (a) Proto-Siouan wažík > Stoney waží
 (b) Proto-Siouan (redup) wazíksik > Stoney wažíksi

FOOTNOTES

¹In this chapter all the arrows will indicate reduplication unless otherwise noted.

²Note that here a reduplicated verb forms a noun. Because this is the only instance of this phenomena in the data we shall not discuss it further but it is a matter that certainly deserves more attention.

CHAPTER V

EPILOGUE

In the introduction to this thesis it was stated that we would exclude discussion of the syntactic component of Stoney grammar. It would seem appropriate, at this point, to comment on how this exclusion does not allow us to fully explicate some of the data.

In a brief discussion of the person and number affixes of Stoney (Chapter I, 2.9) it was demonstrated that the verb agrees in number and person with the subject and object noun phrases of the sentence. This agreement is described in terms of a rule which attaches certain prefixes and suffixes to the stem. In other words, unlike the other affixes of Chapter II, the person and number affixes are classified not only with respect to their phonological shape, position with respect to the verb stem, and meaning, but also in regard to their co-occurrence with other elements of the sentence. In this case they are assumed to agree with either overt noun phrases or with abstract pronouns which are later deleted.

Harris (1957:283) points out that by studying " . . . co-occurrences, we can characterize the distribution of certain classes [of morphemes] which may not be definable in ordinary linguistic terms (e.g., pronouns)." If, in this way, we are able to formulate additional criteria for a more meaningful classification of the person and number affixes then a study of Stoney syntax might reveal other syntactic rules (e.g., attachment rules) whereby other affixes may be specified with respect to co-occurrence restrictions as well.

We have shown that each (simplex) sentence is marked by a "performative" suffix such as $\check{\text{c}}$ (generally glossed as 'aux'). This suffix is

deleted if the simplex sentence is conjoined or embedded as shown in 1:

1. (a) wĩčagastaga hũna awĩčagahič ← wĩča gastaga hũna a-
 'he killed and buried them' them kill and pre
 wĩča gahi -č
 them cover dec
- (b) wĩča ča wĩya ča ktenã ke hič ← wĩča ča wĩya ča
 'the man who has defeated man the woman the
 the woman has arrived' ktenã ke hi -č
 defeat ? arrive dec

We see that the verb gastaga 'kill' in 1(a) has no suffix whereas gahi 'cover' does. In 1(b) the final verb hi 'arrive' exhibits the suffix but the embedded verb ktenã 'defeat' is followed by the element ke (which is, as yet, unidentified). The fact that the performatives have been deleted is, of course, not unexpected from what we know generally of the behaviour of performatives in other languages. However, it is not clear how the other suffixes, e.g., -kta (pot), -šĩ (neg) as in 2, behave in conjoined and embedded sentences.

2. (a) čikuktač ← čí- ku -kta -č
'I'll give it to you' I(sub) you(obj) give pot dec
- (b) wačigěšič ← wa- čīga -ši -č
'I don't want it' I want neg dec

Needless to say, phenomena of this nature cannot be studied without recourse to syntax.

Another, related, problem that can only be resolved by a study of the syntax refers to certain adverbial elements which may be glossed as 'as you know', 'probably' and 'evidently', as in 3 (from Harbeck, 1974).

3. (a) ape wanč ← a- pa wanč
 'as you know, he hit him' pre hit 'as you know'
- (b) apa hāč ← a- pa hāč
 'he probably hit him' pre hit 'probably'
- (c) apa henč ← a- pa henč
 'he evidently hit him' pre hit 'evidently'

We see that the final consonant of each of the above is the same as the declarative suffix -č. The problem now, is to decide whether this is indeed the declarative suffix. If it is, then it may be possible to assume that the examples of 3 are complex sentences such as 1(b) where the suffix does not appear in the embedded sentence.

An alternative is to assume that the consonant is not a morpheme but is simply the final segment of the "adverbials" of 3. An observation that lends precedence to the latter alternative is the fact that the consonant does not always appear, as in 4.

4. (a) ape ĵig ← a- pa ĵig
 'as said before, he pre hit 'the aforesaid'
 hit him'

Again, it is obvious that the criteria of meaning and position relative to the stem cannot fully categorize the occurrences of this suffix. Its classification probably depends upon co-occurrence restrictions existing between it and other elements of the sentence and identification of these restrictions can only be accomplished by a study of syntax. A study of the syntax will possibly offer solutions to other problems encountered in this thesis as well.

In Chapter II we arrived at the conclusion that there were two homophonous prefixes o-; one a locative and the other a nominalizer. This conclusion was reached because, in examples such as 2 we were able to discount two of the three surface phonological differences as being nominal markers.

5.	Noun	Verb
	(a) onape 'refuge'	napa 'to run away, to hide'
	(b) oye 'footprint'	ya 'to go'
	(c) oyuzabi 'pail'	yuža 'to boil'

The apparent phonological differences are:

- i. The noun form of 5(a) and 5(b) exhibits final e whereas the verb forms have final a.
- ii. The noun form (c) does not exhibit this vowel alternation, but it does have a final bi which does not appear in the (sg) verb form. This we assume to be the plural suffix -bi (etymologically at least).
- iii. All noun forms have an initial o which does not appear on the verb form. This is the only phonological variation common to all.

Because alternations (i) and (ii) were discounted it was assumed that the prefix o- was the nominalizer. This assumption was made strictly on the basis of an analysis of the surface phonology and it was, at best, tentative.

In their investigation of Stoney nouns Twoyoungmen and Harbeck (1974: 17-24) conclude that certain nominals may, in fact, be relative clauses. We shall not present their arguments at this time but the fact that they

were able to reach this conclusion suggests the possibility of a syntactically based solution to the problem. If the nominalizing function of the noun forms of 5 is defined by a syntactic process (relative clause formation) rather than by an element in the surface morphology, it is possible to assume that all the prefixes o- of 5 are in fact locatives. This seems reasonable when one considers the glosses of the noun forms; they all seem to include the semantic feature of the locative prefix o-, namely, 'in a container' or 'in a confined space'.

In the light of the above comments we must assume that a comprehensive analysis of Stoney, i.e., one not restricted to only the phonological and morphonological component, would reveal solutions and insights not available in this investigation.

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