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Verb Incorporation and Agreement in Crow

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by

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This dissertation is dedicated to my parents,
Lee and Olive Wallace,
with all my love and gratitude.

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LIST OF ABBREVIATIONS

1	1st person possessive agreement
1.I	1st person set I (nominative) agreement
1.focus	1st person focus pronoun
1.obj	1st person object recipient
1s.II	1st person singular set II (accusative) clitic
1p.II	1st person plural set II (accusative) clitic
2	2nd person possessive agreement
2.I	2nd person set I (nominative) agreement
2.focus	2nd person focus pronoun
2.obj	2nd person object recipient
2.II	2nd person set II (accusative) clitic
3.II	3rd person set II clitic (in number predicates)
cit	citation form of the given element
cond	conditional (*-nak*
cont	continuative auxiliary
decl	declarative (*-k*)
def	definite determiner (*-sh*)
desid	desiderative (*wia* 'want', *isshi* 'feel like')
dimin	diminutive (*káata*)
distrib	distributive (*-aahi*
epist	epistemic (*-was, -shoo*)
excl	exclamatory (*-wík, -mmá*)
fut.aux	future auxiliary
fut.pl	future auxiliary, suppletive plural stem form
imp	imperative
indef	indefinite determiner (*-m*)
instr	instrumental postposition (*ii, aak*)
int	interrogative
irr	irrealis
modal	modal suffix (*-shtaachi, -mmaachi*)
neg	negation suffix (*-ssaa*)
nonspec	indefinite, nonspecific determiner (*-nak*)
part	participial (*-(a)ak*)
pl	plural agreement
poss	possessive clitic (*ish*)
qual	qualifier (*-aachi/-(l)ichi*)
recip	reciprocal clitic (*bach*)
rel	relative clause clitic (*ak, ala*)
trans	transitivizing prefix (*aa*)
vol.be	volitional be/become (*dee*)

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Chapter 1

Introduction

1.1 Overview

This dissertation has two related goals. The first is to give an accurate description of some aspects of the phonology, morphology and syntax of Crow, a Siouan language spoken in Montana. The second is to present an analysis of some of these facts, and to investigate how the data from this language bear on recent proposals in syntactic theory regarding incorporation and agreement. The way in which features of person and number are realized in complex verbs in Crow is unique and surprising for most syntactic approaches to complex morphology.

Chapter 2 contains a description of the phonology of Crow, including the main patterns of allomorphy in first and second person nominative agreement. Some issues of interest are pointed out, but since my real focus here is on agreement and complex verbs, the discussion is limited to description and observations intended to prime these topics for future research.

Chapter 4 presents a description and analysis of clause structure and person and number agreement marking in simplex predicates. Following recent work in syntax, I propose a clause structure for Crow in which each of the clause's functional heads (elements of Inflection) projects a phrase in syntax. However, eschewing the proliferation of phrases which would be necessary if the functional makeup of clauses were the same across languages, only the functional elements actually observed in the language are given a syntactic projection in the structures assumed here.

My analysis of the active system of agreement in Crow is based on the hypothesis that the class of predicates which select only an internal argument also

assign accusative Case to that argument, although not by direct Case assignment under sisterhood. Set I agreement marking arises as a result of nominative Case assignment by Aspect, and set II marking arises as a result of accusative Case assignment by V. In addition, I argue that the set I predicates have a structured lexical representation, and that this representation allows an elegant account of the idiosyncratic patterns of apparent infixing, suffixing, and doubling of the set I agreement element.

In chapter 5, several verb incorporation constructions are described, with focus on the patterning of agreement marking within the complex verb. The incorporating verbs examined here are the modal auxiliaries, causatives, benefactive, desideratives, and existentials.

In the benefactive and desiderative constructions, set I (nominative) agreement marking is prefixed to both the embedded verb and to the incorporating verb. As a result, it appears that an inflected verb has been incorporated. However, I argue that the phrase embedded under the incorporating verb is not clausal in the benefactive and desiderative constructions, and that the set I marking which appears on both verbs can be treated in exactly the same way as idiosyncratically doubled set I marking in lexically complex stems. This allows the simplest and least stipulative account of the facts, and it explains why person marking, but not plural marking or other inflection, occurs on the embedded verb stem.

The patterning of agreement in causatives requires an analysis in which the embedded phrase is a clausal verb phrase whose subject is assigned accusative Case by the causative verb. In the existential construction, the embedded phrase is argued to be AspectP, where Aspect is the highest functional category of the elements of Inflection.

Chapter 6 concludes with a summary and some observations concerning implications of the analysis for syntactic and morphological theory.

The Appendix contains the text of a traditional story, *Thunder Medicine*.

The remaining part of this chapter contains some background on previous work on the Crow language.

1.2 The Crow Language

Crow is spoken today by approximately 5000 people living in southeastern Montana. Hidatsa and Crow together form the Missouri River branch of the Siouan language family. Relative to other Siouan languages, Crow has a small inventory of contrastive sounds, but correspondingly, more complex phonological processes. Crow has a rich system of morphology which includes prefixed and suffixed inflectional elements, numerous clitics of different kinds, and noun and verb incorporation.

The description given here is based on data gathered primarily in elicitation sessions with native speakers. In 1987 and 1988, a field methods class at UCLA worked with April Dillon Storey, originally of Pryor, Montana. The other speakers I have worked with are all originally from Wyola, Montana. These include John Leroy Stewart (1988 – 1989), Magdalene Medicine Horse (summers, 1988 – 1990), and Betty Blackrock (1990 – 1992).

The Crow Reservation in Montana has six districts, according to Graczyk (1991): Wyola, Lodge Grass, Reno and Black Lodge (Crow Agency), St. Xavier, and Pryor. There are not substantial differences between dialects of Crow spoken in these areas; however, insofar as there are differences, the description given here reflects the dialect spoken in Wyola.

Previous work on Crow

Up until 1991, there was no standard descriptive grammar of the Crow language. However, this has recently been remedied by a University of Chicago dissertation (Graczyk, 1991). Graczyk's work provides very broad descriptive coverage of Crow phonology, morphology, syntax, and discourse, as well as analyses of incorporation and cliticization within the framework of autolexical syntax (Sadock, 1985).

Lowie (1941) provides a short description of the morphology and syntax, while Kaschube (1967) gives an analysis of of the phonology, morphology, and syntax within a structuralist framework. Old Horn (1974) is a master's thesis from M.I.T. which provides some insight into complementation in Crow.

The pitch-accent system has received some attention in the literature, but no comprehensive treatment (Matthews, 1959, Gordon, 1972, Kaschube, 1954).

The Bilingual Materials Development Center at Crow Agency has published a learner's dictionary of Crow (Medicine Horse, 1987), pedagogical material (Kates and Matthews, 1986), and a number of stories written in Crow and English.

Chapter 2

Sketch of Crow Phonology

This chapter describes some aspects of the sound pattern of Crow. It begins with the phonemes and description of orthography used, followed by phonetic descriptions and statements of some of the more commonly found phonological processes. The pitch accent system in simplex and complex words is then described, as well as the treatment of certain systematic exceptions to general phonological rules. This is followed by an explication of the allomorphy in set I person agreement, allomorphy in plural agreement, and ablaut. Discussion of some aspects of the phonology as they relate to morphological phenomena are discussed in sections dealing with those phenomena.

The charts below give the distinctive sounds of Crow.

(1) *Crow phonemes*

a. Consonants

	bilabial	alveolar	palato-alv	velar	glottal
stop	p	t		k	(ʔ)
affricate			č		
fricative		s	š	x	h
nasal	m	n			

b. Vowels

	front	back
high	i, i:	u, u:
mid	e:	o:
low	a, a:	

c. Diphthongs

front	back
ia	ua
ea	

The glottal stop does not participate in the alternations seen with the other stops in the language; it is only used as a grammatical marker of illocutionary force, signalling a question.

The orthography standardly used to write Crow is the result of an effort by members of the Crow Indian Bilingual Education Program[1] to improve a writing system developed in the 1950s by Raymond Gordon. It is now used by the Bilingual Materials Development Center in Crow Agency, Montana, to develop teaching materials and to preserve Crow literature, language, history, and culture. This orthography is used in the examples throughout the dissertation (except in parts of this chapter where a broad phonetic transcription is used to illustrate pronunciation or a phonological rule).

The orthography is given in (2). Doubled vowels represent long vowels; doubled consonants represent geminates. A doubled *ch* (/č/) is written *tch*, and a doubled *sh* (/š/) is written *ssh*. Note also that the sounds [b, m, w] and [d, n, l] are all represented in the orthography, even though phonemically there is only a contrast in place of articulation. The glottal stop is written with an apostrophe;[2] an acute accent marks the position of the lexical pitch accent of a word.

[1]Euna Rose He Does It, Dale Old Horn, George Reed, Jr., and Hu Matthews.

[2]The BMDC orthography uses a question mark in place of any other diacritic for the glottal stop, which is appropriate since the glottal stop occurs only at the end of a question. The reason I use the apostrophe (in addition to a question mark) is that, although the word with the glottal stop is usually the last word in the sentence, this is not always the case.

(2) *Crow orthography*

Vowels		Consonants				
i, ii	u, uu	p, pp	t, tt	ch, tch	k, kk	'
e, ee	o, oo	b	d			
	a, aa		s, ss	sh, ssh	x, xx	h
Diphthongs		m	n			
ia	ua	w	l			
ea						

2.1 Phonetic Descriptions and Alternations

2.1.1 Vowels

The short high front vowel has a vowel quality typically a little higher than English [ɪ]. Likewise, the short high back vowel is slightly higher than [ʊ].[3] Long high vowels are pure and tense. To illustrate, the phonetic realizations of some words with high front and back vowels are given below. The words are written in standard practical orthography in the left column. A broad phonetic transcription is given in the center column, and a gloss is given in the right column. The pitch pattern of these words is not represented phonetically in these examples; the pitch accent system is discussed in § 2.6. The consonant alternations here are also explained in sections to follow.

(3) *High vowels*

Orthography	Phonetic	Gloss
ítchik	ɪtčɪkʰ	'it's good'
ilísheek	ɪlɪše:kʰ	'he/she screams'
biím	bi:m	'a rock'
dútchik	dʊtčɪkʰ	'he/she gets'
bulutchík	bʊlʊtčɪkʰ	'I get'
duushík	du:šɪkʰ	'he/she eats'

The mid vowels are tense ([e], [o]) in non-final open syllables. In closed syllables with a short mid vowel, both [e] and a slightly lower [ɛ] are heard, as well

[3]Especially in open syllables, short high vowels sometimes have the same vowel quality as long high vowels; both [ɪlɪše:k] and [ilíše:k] may be heard.

as both short [o] and a slightly lower [ɔ]. In syllables closed by the velar stop, only the tense vowel quality [e] is heard. Phrase-finally, the front mid vowel is lowered to [æ]. The phonetic realizations of some words with mid vowels are given in (4).

(4) *Mid vowels*

Orthography	Phonemic	Phonetic	Gloss
hem	he:m	hɛm	'and then'
élahchek	e:nahče:k	e:ləhček^h	'you know'
bacheém	mače:m	bəǰe:m	'a man'
bacheé	mače:	bəǰæ	'[the] man'
sapéelak	sape:nak	səbe:lək^h	'someone'
póttee	po:tte:	p^{h}ɔtt^{h}e:k^h	'it snapped'
póopahtee	po:pahte:	p^{h}o:bəttæ	'owl'
chóosak	čo:sak	čo:sək^h	'it's faded'

I adopt the phonemic analysis of Graczyk (1991), who posits that there is no phonemic contrast between short and long mid vowels. Graczyk's evidence for the lack of phonemic short /e/ and /o/ can be summarized as follows: (i) Non-stem-final short mid vowels are rare and occur only in closed syllables. They can be derived with a phonetic rule shortening mid vowels within a morpheme in closed syllables. For example, this rule shortens the mid vowel in the first word in (4), *hem*, which hypothetically has a long vowel underlyingly; but not in the third word, *bacheém*, because the consonant which closes the syllable in this word constitutes a separate morpheme. (ii) The conditions for determining the form of the plural suffix appear to provide evidence for a length contrast for front mid vowels, but this evidence is weak because of certain exceptions to those conditions on plural allomorphy.[4] Additional evidence supporting this phonemic analysis can be found by looking at vowel elision environments (§ 2.5).

Short /a/ is almost always realized as [ə]. Long /a:/ is almost always back, low, and unrounded. Following a velar stop which has been palatalized by a pre-

[4]See § 2.10. On the hypothesis that the form of the plural suffix is *-uu* only for stems ending in a short vowel, one might argue for a contrast between *e* and *ee*, because some stems ending in the mid front vowel form a plural in *-uu*, while others do not. However, this hypothesis regarding the *-uu* plural is incorrect: many stems ending in *aa* also have an *-uu* plural, and many stems ending in *ee* become *aa* stems from the process of ablaut (discussed in § 2.11).

ceding front vowel or palatal consonant, a long /a:/ may be fronted to [æ:].[5] The examples below illustrate.

(5) *Low Vowels*

Orthography	Phonetic	Gloss
sapéelak	səbe:ləkʰ	'someone'
sáapii	sa:bi:	'why'
sáapdak	sa:pdəkʰ	'what'
káalikaate	kʰa:ligʸædæ	'little old woman'

The diphthongs *ia*, *ea*, and *ua* occur root-internally; *ea* occurs only rarely. Other vowel sequences (consisting of a long vowel followed by a long or short vowel) arise only through concatenation. The diphthongs are tautosyllabic, and behave as long vowels in the phonology, while other vowel sequences are not. /Ia/ and /ua/ are usually perceived as high vowels with a schwa offglide ([iᵊ], [uᵊ]), but in faster speech can be perceived as [ɪ] and [ʊ]. The examples below illustrate; bars in the phonetic representation mark syllable boundaries; in the second part of the table, some non-diphthong vowel sequences are given for comparison.

(6) *Diphthongs*

Orthography	Phonetic	Gloss
dáakuak	da:ˈguᵊkʰ, da:ˈgʊkʰ	'he/she went home'
íasseek	iᵊsˈse:kʰ, ɪsˈse:kʰ	'he/she watched him/her'
deáxkaashe	deᵊxˈka:ˈžæ	'eagle'
díak	diᵊkʰ, dɪkʰ	'he/she did it'
díook	diˈo:kʰ	'they did it'
kúuok	kʰu:ˈokʰ	'they gave it'

2.1.2 Voiceless consonants

The places of articulation for voiceless stops in Crow are bilabial (p), alveolar (t), and velar (k). The palato-alveolar affricate (č) patterns together with the voiceless stops.

The voiceless stops are aspirated word-initially, word-finally, in geminate sequences, and in clusters following other voiceless stops. Intervocalically, the voiceless stops are always unaspirated, and often voiced. Likewise, the fricatives /s/

[5]This appears to be a recent innovation.

and /š/ (but not /x/) are often voiced intervocalically. Voiceless stops are typically unaspirated following fricatives (in clusters like /xk/, /xp/, /št/); a voiceless stop preceding a fricative or a voiced consonant is unaspirated or unreleased (in clusters like /km/ → [kb], /ps/ → [ps], and /tn/ → [td]). Some examples are given in (7). Within a complex word consisting of more than one noun or verb stem, or at a clitic boundary, voicing is optional: a voiceless stop may be aspirated, unaspirated, or voiced, and a fricative may be voiced or voiceless.

The velar stop is palatalized to [kʸ] following a front vowel (i, e) or a palatal consonant (č, š); thus /íkah/ 'look' is phonetically [ɪkʸə] or [ɪgʸə].

Consonant clusters consisting of /h/ followed by a fricative are rare and perhaps non-existent. Clusters of /h/ followed by other consonants are common, however; examples may be found in (8). When followed by č, /h/ is often realized as [š], but may also be heard as [h]. A cluster of /h/ followed by a voiceless stop is usually heard as an unaspirated geminate sequence, not perceptibly different from a sequence of a voiceless stop followed by a homorganic voiced stop. Spectrograms show that in most cases neither kind of cluster shows any voicing, although both may be perceived as having voicing on the second segment. This makes it difficult to distinguish the sequence /hp/ from the sequence /pb/, and the sequence /ht/ from the sequence /td/. The examples below demonstrate some of the voicing and aspiration alternations for the sounds /s/ and /t/. In these examples, geminates such as /tt/ are written phonetically with aspiration [ttʰ] to distinguish them from unaspirated phonetic geminates such as /td/ or /ht/, which are both written here phonetically as [tt]).

(7) *Voicing*

Orthography	Phonetic	Gloss
sasía	səsiᵊ, səziᵊ	'early'
apté	əptʰæ	'liver'
iíttaashte	i:ttʰa:štæ	'her dress'
tatéek	tʰəde:kʰ	'he/she is good at it'
shoótdak	šottəkʰ	'how would it be'
kootdáhtaa	kʰottətta:	'even if it is'

A sequence of /h/ followed by a nasal — /hm/ or /hn/ — is usually not distinguishable from the sequence /mm/ or /nn/. Graczyk (1991) reports that

/h/ followed by /m/ or /n/ assimilates in nasality but not voicing, resulting in a voiceless-voiced nasal geminate [m̥m]. The occurrence of voiceless nasals in this environment is also reported by G.H. Matthews (personal communication, 1988). However, my data contains almost no examples of voiceless nasals.[6]

In the phonetic representations below, unaspirated geminates are written with a doubled consonant (for example, geminate unaspirated *p* arising from the sequence /hp/ or /pb/ is written [pp]).

(8) *Words with /h/*

Orthography	Phonetic	Gloss
sáhpua	səppuᵊ	'seven'
óopbiik	oppi:kʰ	'I smoke'
kootdáhtaa	kʰottətta:	'even if it is'
ihchipúak	ɪhčɪbuᵊkʰ	'he/she jumped'
ihchipúak	ɪščɪbuᵊkʰ	'he/she jumped'
annútche	ənnʊtčæ	'how/where he got it'
ahnútchik	ənnʊtčɪkʰ	'he got a lot'
ammulutché	əmmulʊtčæ	'how/where I got it'
ahmulutchík	əmmulʊtčɪkʰ	'I got a lot'

Clusters consisting of a consonant followed by *h* arise only rarely (in compounds and incorporation). In this case, *h* is deleted. An example is the set II predicate *iíphisaa* 'strong, potent.' The word *iíphisaak* 'it's strong' is pronounced [i:bisa:k]; notice that /p/ is pronounced as if it were between vowels. The second part of this compound is apparently related to *hiisée* 'loud.'

2.1.3 Voiced consonants

Voiced consonants in Crow vary allophonically in manner of articulation and nasality.[7] The sounds [b], [m], and [w] can be characterized as allophones of a single

[6]This may reflect a genuine dialect difference, since I believe Graczyk and Matthews worked primarily with speakers in Crow Agency and Pryor, while I worked almost exclusively with speakers from Wyola. I almost never heard voiceless nasals. However, I found that voiceless nasals were produced in very careful speech by a Wyola speaker who was asked to pronounce pairs of words contrasting minimally in this regard (/hm/ vs. /mm/, /hn/ vs. /nn/).

[7]In earlier work on Crow, the liquid [l] was represented with an [r] (Lowie, 1941, Kaschube, 1967). This reflects the fact that this sound was often phonetically a flap at the time those descriptions were written. For today's speakers, this sound is nearly always the lateral liquid, like the *l* of English. However, the flap is still present in the speech of older speakers, and appears to alternate freely with the liquid.

phoneme /m/, and the sounds [d], [n], and [l] as allophones of a single phoneme /n/. The distribution is as follows: the continuants [w] and [l] occur between vowels; the voiced oral stops [b] and [d] occur word-initially and medially following a voiceless obstruent; and the nasals [m] and [n] occur syllable-finally, following /h/, and following a voiced consonant (note that /m/ and /n/ are the only voiced consonants). There are no consonant clusters consisting of a voiced consonant followed by a voiceless consonant; therefore, a medial syllable-final /m/ or /n/ will always be followed by /m/ or /n/. The bilabial nasal [m] occurs in free variation with [b] word-initially.[8] This distribution is represented in the chart below. The crosshatch (#) represents a word boundary; V represents a vowel; $\_\ ]_\sigma$ indicates syllable-final position; [+sl] indicates 'supralaryngeal' consonants (excluding h and ʔ); and [–voi] indicate voiceless consonants.

(9) *The distribution of voiced consonants*

	# _	[+sl –voi] _	V _ V	_]$_\sigma$, h _ , _ #	_ [+sl –voi]
/b m w/	b, m	b	w	m	none
/d n l/	d	d	l	n	none

For purposes of phonemic analysis, note that the nasal variants have the widest distribution. Choosing the nasals /m/, /n/ to represent the voiced consonants allows a simpler statement of the allophonic distribution than would otherwise be possible.

(10) *The BMW rule*

A nasal stop becomes a non-nasal continuant between vowels; a nasal stop becomes an oral stop word-initially or following a voiceless non-laryngeal consonant.

Martin (1988b) gives a historical argument for treating the nasals as the underlying sounds. However, since manner and nasality are predictable in these segments, I believe that it would be worthwhile to pursue an analysis in which voiced consonants are underspecified for the features [± continuant] and [± nasal].

[8] In the speech of younger speakers, word-initial nasals seem to be much less frequent.

Note that while a phonemic representations of Crow would never display all of the sounds [b], [d], [m], [n], [w], and [l], these sounds are all represented in the practical orthography used for writing Crow.

The distribution in (9) is exemplified in various forms of the verb stem *baláxi* 'sing' given in (11). The initial segment of the root (underlined) is the phoneme /m/ in its different realizations as [b], [m], or [w]. In these examples and elsewhere, "=" indicates a clitic boundary.

(11) *BMW alternations*

a. baláxi-k
sing-decl
'he/she sang'

b. maláxi-k
sing-decl
'he/she sang'

c. kam=maláxi-k
now=sing-decl
'he/she sang'

d. bat=balák-ku-oo-k
recip=sing-give-pl-decl
'they sang for each other'

e. baa-waláxi-k
1.I-sing-decl
'I sang'

The BMW rule operates across word boundaries in fluent speech. Within a complex word, the rule applies optionally. In such cases, the BMW rule can operate within the entire complex word (as in (12a)), or it can operate within each subword, as demonstrated in (12b). The affected consonant is underlined in these examples..

(12) *Different domains for the BMW rule*

a. iichíil=aakinee-k
horse=ride-decl
'he/she is riding'

b. iichíin=aakinee-k
horse=ride-decl
'he/she is riding'

When the noun stem *iichíili* 'horse' is incorporated, the final vowel of the stem is deleted by Vowel Elision (§ 2.5). If the BMW rule applies within the domain of the complex word, as in (12a), the /n/ of /i:či:ni/ surfaces as [l], since it is between vowels. However, the BMW rule can also treat 'horse' and 'ride' as separate domains (as in (12b)); in this case, /n/ surfaces as [n], since it is treated as though it were word-final.

2.1.4 L-deletion

One of the more elusive phenomena of Crow phonology is that of *l-deletion*. In some words, *l* deletes optionally (and quite commonly) between *aa* on the left and short, unaccented *i* on the right.[9] An example is given below; the word on the right side is a common pronunciation of the word on the left.

(13) *L-deletion*

a. baa-lichí-k — baaichík
1.I-hit-decl
'I hit him/her/it'

2.2 Obstruent alternations

2.2.1 Alveolarization

There is an alternation between alveolar and palato-alveolar obstruents, with the alveolar variants (t, s) occurring before back vowels and the palato-alveolar variants (č, š) occurring before front vowels. The evidence supports an analysis in which the palato-alveolar variant is the underlying sound, despite the fact that it is less common cross-linguistically. Compare the examples below; the relevant consonants are underlined.

(14) *Palatal ~ alveolar alternations*

stem	_ V[+back]	_ V[–back]
daásitchi	a. daásitt-uu-k happy-pl-decl 'they are happy'	b. daásitch-ii-mma happy-fut.aux-irr 'he/she will be happy'
kalaaxtá	c. kalaaxt-úu-k forget-pl-decl 'they forgot it'	d. kalaaxt-íi-mma forget-fut.aux-irr 'he/she will forget it'

If the alveolar /t/ is posited as the underlying sound in (14a,b), and a rule palatalizing it before front vowels applies in (14b), we cannot predict the fact that *t* palatalizes in (14b), but fails to palatalize in the same environment in (14d).

[9]Independently of this, in the context of set I marking, /na/ at the beginning of a verb stem is deleted when the set I prefix is added (see § 2.9.2).

However, if the palatal /č/ is the underlying sound in (14a,b), and a rule alveolarizing it before back vowels applies in (14a), then (14c,d) are not problematic because we can say that /t/ is underlying and the rule does not apply.

This is a derived-environment rule, applying only at morpheme edges, and it is fed by Vowel Elision (§ 2.5). Thus, there are words like *shóo* 'where', *chóose* 'faded', *shúa* 'blue', and *ichuúke* 'his brother' which show that within a morpheme, palato-alveolars before back vowels do not become alveolar.

(15) *Alveolarization*

At the right edge of a morpheme, palatal consonants become alveolar before [+back] vowels.

2.2.2 Palatalization of /k/

There is also a less widespread alternation between the palato-alveolar affricate /č/ and the velar stop /k/. The velar segment occurs before back vowels, and the palato-alveolar segment before front vowels. However, this alternation is limited to a very few commonly occurring verb stems, including the bound causative verb *-hchee*. The verb *kée* 'give away' is somewhat exceptional in this regard, because although the alternation is present, it is apparently optional (see example (52) for a paradigm).

(16) *Palatal ~ velar alternations*

a. éhchee-k	b. éhk-uu-k
know-decl	know-pl-decl
'he/she knows it'	'they know it'

2.2.3 Palatalization of /s/

Alveolar and palato-alveolar fricatives also alternate, but differently from the distribution described in § 2.2.1: palato-alveolar /š/ occurs before consonants, and alveolar /s/ occurs before vowels. This is exemplified below, in the clitic and non-clitic forms of the postposition *kussé* 'to'.

(17) *Palatal ~ alveolar fricative alternations*[10]

a. Káale kush=kam=mée-wia-w-uu-k
Grandma to=now=go.1pl-desid-1.I-pl-decl
'we're going to Grandma's'

b. Káale kússe kam=mée-wia-w-uu-k
Grandma to now=go.1pl-desid-1.I-pl-decl
'we're going to Grandma's'

c. Káale kuss=aa-lée-k
Grandma to=trans-go-decl
'he/she brought it to Grandma'

2.3 Citation form

Open class lexical items (nouns and verbs) always end in a vowel. However, these stems do not surface as words without further modification. As predicates, stems obligatorily receive a final suffix indicating illocutionary force, complementation, or speaker attitude. If they do not receive a final complementizer suffix, however, a verb stem can surface as a (zero) nominalization. Nominalized verb stems and noun stems not bearing a final determiner suffix undergo a vowel mutation process, affecting the stem-final vowel; the result is the 'citation form' of the word. The definite determiner *-sh* is always attached to the citation form of a noun; the indefinite determiner *-m* attaches to nouns either in the citation form or in the original stem form, with a difference in interpretation corresponding to specific (root + m) or nonspecific (citation + m) indefinites.[11] Some examples are given in (19). These examples reflect the orthographic tradition, which distinguishes between short and long mid vowels; in a phonemic representation these would all be /ee/, pronounced [æ:] phrase-finally, or /oo/, pronounced [o:].

[10]In (17a,b), this suppletive stem form of the verb 'go' (*mée*) appears only in complex verbs in which the subject is first person plural (compare 1sg *baalée*), hence the gloss 'go.1pl;' see discussion following example (68).

In (17c), the notation 'trans' is used to mark the transitivizing prefix *aa*, which combines lexically with an intransitive verb (in this case *dée* 'go') to create the transitive verb *aalée* 'bring'. This process is viewed here as a lexical morphological process; it is not productive.

[11]Graczyk (1991) points out two other non-final environments where the citation form is found, namely, before the locative postposition *-n* and before the 'path' postposition *-taa*.

(18) *Citation form*

a. The short high vowels /i/, /u/ are lowered to /e/, /o/.

b. The long high vowels /ii/, /uu/ are suffixed with /a/ to derive /iia/ [iə] or /uua/ [uə].

c. The low vowels /a/, /aa/ are fronted to /e/, /ee/.

d. Diphthongs and mid vowels are unchanged.

(19) *Citation form examples*

rule	gloss	stem form	citation form
(18a)	'horse'	iichíili	iichíile
(18a)	'many'	ahú	ahó
(18b)	'rock'	bií	biiá
(18b)	'house'	awaasúu	awaasúua
(18c)	'two'	dúupa	dúupe
(18c)	'money'	bálaa	bálee
(18d)	'woman'	bía	bía
(18d)	'fish'	búa	búa
(18d)	'man'	bacheé	bacheé

2.4 Syllable structure

The canonic syllable is (C)V(V)(C). The voiced consonants, /m/ and /n/, may occur in the syllable coda word-finally or followed by /m/ or /n/. However, there are no consonant clusters consisting of a voiced consonant (/m/ or /n/, in any of their forms) followed by a voiceless consonant (/p, t, č, k, s, š, x/). This phonotactic constraint restricts the operation of Vowel Elision, as discussed below.

The following table exemplifies consonant clusters attested in my data. The following clusters are unattested in my notes: chp, cht, chs, chsh, hs, hsh, hx, sb, sd, sp, st, sch, ssh, sx, tp.[12] The rightmost column indicates whether there is a morpheme boundary (+) or a clitic/incorporation boundary (=) between the consonants in the cluster in the given word. (Note that *ssh* does not occur distinct from geminate *š*; *tch* does not occur distinct from geminate *č*. Note also that *s* is realized as *š* before most consonants, as discussed in § 2.2.3.)

[12]Those clusters which are not attested in my data may well exist; I have not researched the phonology of consonant clusters in any extensive way.

(20) *Consonant clusters*

cluster	*word*	*gloss*	*phonetic*	*boundary*
pb	óopbiik	I smoked	[pp]	+
pd	óopdiik	you smoked	[pt]	+
pp	huúppia	soup	[pp^h]	
pt	apté	liver	[pt^h]	
pch	áapche	voice	[pč]	
pk	duupkaáshe	two	[pk]	+
ps	Apsáalooke	Crow	[ps]	
psh	baapshoónnak	someday	[pš]	=
px	dáapxik	s/he bit it	[px]	
tb	atbáalik	I stole it	[tp]	+
td	atdáalik	you stole it	[tt]	+
tt	iíttaashte	hat	[tt^h]	
tk	baatkáate	little dish	[tk]	+
ts	sapáatsaak	it's not fun	[ts]	+
tsh	eétshileek	s/he scattered it	[tš]	
tx	itxachíik	it still moved	[tx]	=
chb	bachbaluúok	they fought	[čp]	=
chd	bachdiíok	they met	[čt]	=
chch	ítche	good	[čč]	
chk	háchkak	it's tall	[čk]	
chx	baatachxaxúa	everything	[čx]	=
kb	akbaalía	doctor	[kp]	=
kd	akdisshé	dancer	[kt]	=
kd	shikáakdak	any boy	[kt]	+
kp	ilúkpashkuk	s/he cut meat	[kp^h]	=
kt	aktatée	capable one	[kt^h]	=
kch	akchilakée	driver	[kč]	=
kk	bikké	grass	[kk^h]	
ks	háakse	finally	[ks]	
ksh	ítchikshik	funny	[kš]	
kx	ilúkxaape	steak	[kx]	=
sk	doósko	this side	[sk]	
ss	kusséek	s/he attached it	[ss]	
shb	ishbíik	I drank it	[šp]	+
shd	ishdíik	you drank it	[št]	+
shp	iishpáhche	kiss	[šp]	
sht	ishté	eye	[št]	
shch	íashchilik	s/he bought it	[šč]	
shk	isaashké	his horse	[šk]	

shs	ishsáake	his frog	[šs]	=
shsh	íisshiwik	s/he washed it	[šš]	
shx	bishxoóxaashe	my corn	[šx]	=
xb	baláxbiak	s/he wants to sing	[xp]	=
xd	baláxdak	if s/he sings	[xt]	+
xp	áxpe	with	[xp]	
xt	alaaxták	s/he doesn't know	[xt]	
xch	daxché	choke	[xč]	
xk	deáxkaashe	eagle	[xk]	
xs	kuxsáalah	help! (pl)	[xs]	
xsh	kuxshík	s/he helped	[xš]	
xx	xáxxe	spotted	[xx]	
hm	ahmuushík	I ate a lot	[mm], [m̥m]	=
hm	ahnuushík	s/he ate a lot	[nn], [n̥n]	=
hp	ahpé	ear	[pp]	
ht	xúhtak	it's raggedy	[tt]	
hch	eéhcheek	s/he knows it	[hč], [šč]	
hk	eéhkuuk	they know it	[kk^y]	
mm	iímme	that (moving)	[mm]	
mn	hámneetak	there is none	[mn]	=
nn	hinné	this	[nn]	

2.5 Vowel Elision

Short vowels are deleted at the right edge of a stem, affix, or clitic when it is concatenated with another morpheme. The operation of this rule is blocked when its output would be ill-formed according to the phonotactic constraints, as outlined above. Because the onset and coda can contain at most a single consonant each, there are no CCC clusters. Vowel Elision is difficult to state formally, since it is constrained by the phonotactics of Crow, which include not just the CV structure but the prohibition against [+voice][–voice] consonant clusters. In the statement below, the bracket represents a morpheme boundary.

(21) *Vowel Elision:*

$V \rightarrow 0 \ / \ C \ \_ \ ] \ X$

Conditions: X nonnull; resulting consonant clusters must obey phonotactic constraints.

Vowel Elision is an 'edge rule': it applies to the right edge of a morphological unit, but does not apply morpheme-internally. For example, consider the following word:

(22) *No morpheme-internal vowel elision*

baa-waláxi-k
1.I-sing-decl
'I sang'

This word consists of three elements: the first person set I agreement prefix, the verb stem 'sing', and the declarative suffix. Vowel Elision fails to delete the short final vowel of the stem 'sing' because the result would be a final consonant cluster, which is ruled out by the phonotactics. If Vowel Elision were not sensitive to the edge of the domain, and applied across the word, we would expect the first vowel of the stem to delete, since the output is well-formed according to the syllable constraints. This is not the case: **baamnáxik* is a possible word phonotactically, but it is not a word.

The operation of Vowel Elision (VE) is further illustrated in the examples in (23). Crow has a particle *kala* 'already, now' which usually cliticizes to the beginning of a word. Where it can, VE deletes the final vowel of *kala*. VE can apply in (23a), since no cluster results, and in (23b), since an acceptable /n+n/ consonant cluster results. In (23c), VE does not apply, since the result would be the illformed cluster /n+h/. Likewise, in (23d) and (23e), VE fails to apply since it would produce the illformed clusters /n+x/ and /n+k/.

(23) *Words showing Vowel Elision*

a. John kal=iháali-k
John now=finish-decl
'John already finished'

b. hinne kan=née-ii-mma
this now=go-fut.aux-irr
'this one will go'

c. Aprilsh kala=húu-k
April now=come-decl
'April already came'

d. kala=xúhta-k
now=worn.out-decl
'it's worn out'

e. kala=koowi-k
now=finish-decl
'it's done'

VE is not the only phonological process in Crow which deletes vowels. In some stems following a set I agreement prefix, a short *i* on the left edge of the stem deletes (instead of the predicted deletion from Vowel Elision, which would be the vowel on the right edge of the prefix). Short *i* deletion is unpredictable and limited to this particular morphological environment, and must be marked in the stems where it applies (see § 2.9).

Within words, Vowel Elision is obligatory. However, in cases where a long vowel is shortened, Elision applies only optionally. For example, the long vowel of the benefactive verb /kuu/ 'give' is shortened as a result of prefixation. If it is then followed by another syllable, the shortened vowel may delete, as in (24c), but may it may also remain, as in (24d).

(24) *Vowel Elision in complex words*

a. balax-kuu-k
sing-give-decl
'he/she sang for him/her'

b. baa-walax-ba-ku-k
1.I-sing-1.I-give-decl
'I sang for him/her'

c. baa-walax-ba-k-b-i-mma
1.I-sing-1.I-give-1.I-fut.aux-irr
'I will sing for him/her'

d. baa-walax-ba-ku-w-i-mma
1.I-sing-1.I-give-1.I-fut.aux-irr
'I will sing for him/her'

2.5.1 Evidence for lack of phonemic short mid vowels

Vowel Elision provides additional evidence for the proposal of Graczyk (1991) that there are no underlying short front mid vowels. Since VE deletes a short vowel

at the right edge of a morpheme boundary, if there are no underlying short front mid vowels, there should be no cases in which the final underlying mid vowel of a stem deletes. This prediction is borne out: stems which are listed in the Dictionary of Everyday Crow (DEC) (Medicine Horse, 1987) as having short front mid stem vowels nevertheless do not undergo Vowel Elision, as shown in (25) and (26). (27) is given for comparison, with an example of a short vowel which does delete; compare also (24).

(25) *Short /e/: exceptions to Vowel Elision*

stem: <u>páachile</u> 'to push' (DEC: 32)

a. páachile-wia-k
push-desid-decl
'he/she's going to push it'

b.*páachim-mia-k
push-desid-decl

(26) stem: <u>chiké</u> 'to dig' (DEC: 25)

a. awee-chike-wía-k
earth-dig-desid-decl
'he/she's going to dig'

b.*awee-chik-bía-k
earth-dig-desid-decl

(27) stem: <u>íashchili</u> 'buy'

íashchim-mia-k
buy-desid-decl
'he/she's going to buy it'

These examples are unexplained exceptions to VE if these words have short mid vowels. The fact that VE does not delete the final vowel of the verb stems in (25) and (26) supports the hypothesis that these stems actually have long final vowels, i.e., *páachilee* and *chikeé*.

2.5.2 Truncation and reduction

A concatenated sequence of three or more identical vowels is are reduced to a single long vowel at a morpheme boundary (Graczyk, 1991). Thus, when the stem *íkaa* 'see' combines with the suffix *-aahi* 'distributive', the result is a single long vowel in *baa=íkaahik* 'she looked around.'

Similarly, the second mora of a diphthong is deleted when it is followed by a vowel-initial suffix. For example, when *día* 'do' combines with the plural suffix *oo*, the result is *díook* 'they did it.'

Unlike Vowel Elision, these vowel reductions do not apply at clitic boundaries. Thus, in *baa=aaléek* 'he/she took things along with him/her' the indefinite object clitic *baa* is not reduced in combination with the initial *aa* of the verb stem *aalée* 'take.'

2.6 The pitch accent system

Crow words have a lexical accent which may occur on any vowel of the stem. Within a long vowel or diphthong, the lexical accent may occur on either mora. The pitch pattern of the word is derived by the following rule (cf. Old Horn (1974)).

(28) *High Pitch Plateau Rule*

> Within a word, create a high pitch plateau extending from the first mora of the leftmost long vowel or diphthong rightward to the marked lexical accent; all other syllables have low pitch.

If lexical accent occurs on the first mora of a long vowel or diphthong, the syllable has falling tone. If lexical accent occurs on the second mora, the syllable will have level high or slightly rising tone (Matthews, 1981).

The following examples are minimal or near-minimal pairs demonstrating the lexicality of accent. The high pitch plateau is represented with overlining in these examples.

(29) *Lexicality of accent*

a. sheék	b. sheek	c. balé	d. bále
say-decl	die-decl	wood.cit	money.cit
'he/she said it'	'he/she died'	'wood'	'money'

(30) duushík 'he/she ate it'
dúushiik 'he/she put it down'
duúshik a possible word (this one unattested)
*duushík not a possible word

The high pitch plateau rule is further demonstrated in the words below. Lexical accent is placed on the final vowel of the stem *dichí* 'hit'.

(31) *High pitch plateau examples*

dichí-k	'he/she hit him'
bihchi=lichí-k	'I hit myself'
bii=lichí-k	'he/she hit me'
bii=wihchi=lichí-hche-k	'he/she made me hit myself'

2.7 Pitch accent in complex words

The domain of the High Pitch Plateau Rule (HPPR) is the phonological word; thus, the HPPR can be used as a diagnostic for finding phonological word boundaries. When two morphs bearing a lexical accent are combined by compounding, suffixation, or incorporation, only one accent prevails in the resulting complex word. The following rule accounts for pitch accent patterns in this context.

(32) *Accent Conflict Rule*

Within a phonological word, if two morphs bear a lexical accent, delete the first accent if it is on the final vowel of the morph. Otherwise, delete the second accent.

The Accent Conflict Rule (ACR) and the High Pitch Plateau Rule both reapply as a word is built.

The ACR essentially follows an analysis given by Matthews (1981). Matthews gives the following (ordered, disjunctive) rules; he uses the term 'stress' for what I have been calling 'lexical accent'. These rules, when followed by the application of the HPPR, also account for the observed pattern.

> HGH STS LSS. [High Stress Loss] A morpheme-final high stress is lost if it is followed by a stressed morpheme.
>
> STS RDC. [Stress Reduction] A stress is reduced if it is preceded by a stressed morpheme.

The account of accent in compounds proposed by Martin (1988a) is slightly different. Martin proposes the following rule to account for the accent pattern of compounds:

> DEACCENTUATION: Given a compound [[W1][W2]] where W1 is tonic, deaccentuate W2.
>
> A tonic word is a word containing a high tone followed by a low.

Deaccentuation is essentially Matthews' Stress Reduction, except that it incorporates High Stress Loss through the definition of tonicity. Martin's formulation would require the additional assumption that the high-pitch plateau rule will always operate with respect to the rightmost accent in the word, since no rule is given to delete the accent of a 'non-tonic' W1.

2.7.1 Pitch accent in compounds

The pitch pattern of complex words is demonstrated in the examples of lexical compounds given in (33). Here, I have indicated only the lexical accent on the stems which make up each compound on the left. The prevailing accent is marked on the right, as well as overlining showing the high pitch plateau of the complex word. In examples (33a-c), the first stem has final accent. This accent is deleted, and the high pitch plateau of the compound is computed with the accent of the second stem. In examples (33d-e), the first stem has a non-final accent. Accent is deleted in the second stem, and the high pitch plateau of the compound is computed with the accent of the first stem. The forms on the left are stem forms, which in some cases are non-words.

(33) *Accent in compounds*

a.	baaxuá 'bread' chikúa 'sweet'	baaxuachikúa 'cookie'
b.	bilí 'water' chikúa 'sweet'	bilichikúa 'soda pop'
c.	buá 'fish' xáxxi 'spotted'	buaxáxxe 'trout'
d.	bulúxi 'ice' bilí 'water'	bulúxbile 'ice water'
e.	áhpaa 'evening' ítchi 'good'	áhpaaitche 'nice evening'[13]

2.7.2 Pitch accent in incorporation

The following examples show that the pitch accent pattern in incorporation, which is assumed here to apply in the syntax, is exactly like the pattern in compounds: a non-final accent in the incorporated stem wins, and any lexical accents following it are deleted; a final accent in the incorporated stem is deleted. As above, only the stem form of the lefthand compound word is given.

(34) *Accent in incorporation*

a.	iichíili 'horse' basítchiwaak 'I like it'	iichíinmasitchiwaak 'I like horses'
b.	óosshee 'cook' dúupiak 'he/she hates it'	óossheeluupiak 'he/she hates to cook'
c.	baákush 'upwards' awákaak 'I looked'	baákussawakaak 'I looked up'
d.	bacheé 'man' basítchiwaak 'I like it'	bacheewasítchiwaak 'I like men'
e.	disshí 'dance' dúupiak 'he/she hates it'	disshilúupiak 'he/she hates dancing'

[13]The compound in (33e) is taken from Medicine Horse (1987); many of the other compounds here were found in Martin (1988a).

2.7.3 Well-behaved suffixes with lexical accent

Some suffixes bearing accent combine with stems to produce the same pattern as in compounding and incorporation. The examples in (35) show the behavior of the diminutive suffix *-káata* and the intensive suffix *-kaáshi*. The stem form of the word is given on the left.

(35) *Diminutive and intensive suffixes*

bacheé 'man'	bacheekáate 'little man'
káali 'old woman'	kaálikaate 'little old woman'
disshí 'dance'	disshikaáshik 'he/she really danced'
káa 'laugh'	kaákaashik 'he/she really laughed'

2.7.4 Maverick suffixes with lexical accent

The 'punctual' suffixes *-Cée -áhi* behave exceptionally with respect to accent. Their distribution is predictable based on the form of the stem they attach to; this suggests that they are allomorphs of a single morpheme indicating punctuality. Stems ending in a short vowel take *-(C)ée/(C)óo*; stems ending in a long vowel take *aáhi*.[14]

The *Cée* variant occurs if the deleted vowel is non-round; *Cóo* occurs if it is round. In this representation of the suffix (*Cée/Cóo*), C represents gemination of the final consonant of the stem (following Vowel Elision, which deletes the stem-final short vowel). Gemination of the final consonant of the stem occurs if the the syllable preceding the final syllable of the stem is open; otherwise the phonotactics would be violated with a triple-consonant cluster. A geminated final consonant is alveolarized if it is palato-alveolar.

In the *-aáhi* variant of the punctual suffix, the long vowel of the stem is replaced by the long vowel of the suffix, unless the final vowel is a diphthong, in which case only the second mora of the diphthong is deleted.

The punctual suffixes are unusual with respect to rules of combination for morphs bearing an accent. Unlike other stems and suffixes, the punctual suffixes

[14]This distribution was pointed out to me by R. Graczyk (p.c., 1990).

always bear the accent for the word as a whole. This is illustrated in the examples below. Overlining represents the high pitch plateau.

(36) *Accent with punctual suffixes*

Stem	Punctual form
óosshee 'burn'	oossée̅k 'he/she just now burned it'
iháali 'finish'	ihaannée̅k 'he/she just finished it'
dútchi 'get, grab'	duttée̅k 'he/she just now grabbed it'
axxí 'cough'	axxe̅́ek 'he/she just now coughed'
íkaa 'see'	awakaáhik 'I looked quickly'
día 'do'	diawaáhik 'I did it quickly'
hoowéetchee 'clean'	hooweetbaáhik 'I cleaned it quickly'

Neither the ACR nor the rules proposed by Matthews and Martin account for the pitch pattern of a word with the suffixes in (36).

In the stem *íkaa* 'see, look', the accent on the initial vowel is responsible for that particular allomorph of the first person prefix, which has an initial epenthetic *a* (see § 2.9). We can reason that the first person prefix must be attached prior to suffixation of *aáhi*, since the initial accent of the stem is lost to the suffix in *awakaáhik* 'I looked.' Thus, it is clear that the HPPR applies following the attachment of these suffixes. Yet these suffixes do not obey the regular rule for deriving the accent of a complex word.

My solution to this problem is to attribute robust accenthood to the punctual suffixes as a lexical property. For these suffixes only, the lexical accent is unaffected by application of the Accent Conflict Rule. As a result, the accent on the suffix fails to delete, and the HPPR takes the rightmost accent as the prevailing accent for the complex word.

2.8 Exceptions involving evidential suffixes

There is a class of suffixes which obligatorily terminate every clause in Crow. These 'final suffixes' can be functionally divided further into subclasses: those indicating illocutionary force (declarative, interrogative, imperative), coordination or

subordination ('if/when,' 'although,' 'and,' 'or'), or evidentiality (probable, emphatic, surprise/emphatic, epistemic 'it must be that' (see §3.6.3)). Only one of the final suffixes occurs in a given predicate word in Crow. Among these suffixes, the subclass of evidentials exhibits certain systematic exceptions to regular phonological processes.

2.8.1 Evidentials with accent

Two final suffixes, both exclamatory evidentials, bear a lexical accent. However, unlike the other suffixes which bear accent, these suffixes bear accent *in addition* to the accent pattern of the rest of the word. For example, consider the words in (37).

(37) *Exceptions to the HPPR*

a. Atchía-wík!
strong-excl
'He sure is strong!'

b. Batchoolée-wík!
embarrassing-excl
'How embarrassing!'

c. Aa-láa-sshipi-wík!
trans-2.I-overdo-excl
'You overdid it!'

d. Baa-chilíi-mmá!
1.I-afraid.of-excl
'I'm really afraid of him!

e. Ítchi-mmá!
good-excl
'[It's] really good!'

Pitch accent is thus one area of the phonology for which exceptional handling is required for the evidential suffixes. The evidentials also behave exceptionally with respect to Vowel Elision (§ 2.5), as discussed below.

2.8.2 Evidentials and Vowel Elision

The final short vowel of a stem preceding an evidential suffix systematically fails to delete, even when the output would be phonotactically perfect. Vowel Elision does apply (where applicable) before other complementizer suffixes (such as the conditional *-nak* 'if'), as shown in (38a). However, VE fails to apply before evidential suffixes (such as the epistemic *-was* 'it must be that'), as shown in (38c).

(38) *Exceptions to Vowel Elision*

a. balá́x-dak
sing-cond
'if he/she sings'

b. *balá́xi-lak
sing-cond

c. balá́xi-was
sing-epist
'he/she must have sung'

d. *balá́x-bas
sing-epist

If we assume that Vowel Elision applies only lexically, we could try to solve the problem posed by (38) by saying that the complementizer suffixes are attached lexically, while the evidential suffixes are attached in the syntax (where VE is no longer applicable).[15] However, this approach is problematic. First, note that for most linguists, the prosodic category of the host that a clitic attaches to is minimally a phonological word (see, for example, Klavans (1985)). Yet in the example in (38c), the evidential element attaches to a non-word stem, *balá́xi*. Moreover, clitics are typically defined as stressless; in this connection the evidentials in (37) would be unusual clitics, since they bear a distinct and robust accent.

Second, if we say that VE does not apply before evidentials because they are clitics (and thus attached after VE is no longer applicable), we are committed to a lexical analysis of both noun and verb incorporation, because VE applies regularly to delete the final vowel of noun and verb stems which are incorporated. But this position is untenable in any case, because there is evidence that VE applies to delete the final vowel of proclitic elements. As the examples in (23) show, *kala*, an element which has all of the characteristics of a phrasal clitic, undergoes VE regularly.

Third, there are elements which do seem to be classifiable as enclitics which follow the final suffix. These include the 'reminder' particle *ba* (used to indicate that the hearer already knows what is being said, or that something is obvious); the 'reportative' *huuk*; and the verbs *iliachi* 'think' and *hee* 'say'. These verbs can be inflected with person, number, and another final suffix, and subsequently encliticized to the predicate. There is some phonological evidence that these elements are true clitics: (i) They fail to bear any accent when they are encliticized, whereas in their

[15]This seems to be what Graczyk (1991:49) is advocating, since he suggests that the evidential elements are clitics, based on this kind of example.

non-clitic forms (if there is one) they bear a distinct accent. (ii) They cannot be attached to phrases postposed to the verb, but always attach to the verb itself. This is evidence that they are not actually separate words. (iii) They always attach to a phonological word, which means that they must attach to a verb bearing a final suffix.[16]

For these reasons, I claim that the evidentials listed in section 3.6.3 are in fact suffixes and not clitics. But if this is so, what will account for the exceptional behavior of the evidentials with respect to vowel elision and pitch accent?

My solution is to treat this subclass of final suffixes as prosodically 'invisible' elements which are excluded from the domain of phonological rules (Inkelas, 1989:154). The requirements on invisible elements within Inkelas' theory are met; these include the Across-the-Board Condition (the suffixes are invisible for all applicable cyclic rules, namely Vowel Elision and the two pitch accent rules); the Edge Condition (the suffixes are word-peripheral); and cyclic loss (the suffixes are visible for application of the BMW rule, which is postcyclic).

This means that the evidential suffixes as a class will have a lexical representation which specifies that the suffix is excluded from the prosodic domain of the phonological constituent to which they attach.

2.9 Allomorphy in set I agreement

Verbs in Crow show agreement with first and second person subjects. Verbs can be divided into two main classes, depending on the kind of marking the verb shows for its subject. Set I agreement marking references the subject of transitive verbs and some intransitive verbs; set II agreement marking references the subject of other intransitive verbs and the object of transitive verbs. See chapter 4 for a discussion of this agreement pattern.

The prefixes which indicate set I person agreement exhibit considerable allomorphy, in some cases also effecting stem allomorphy on the verb to which they attach. In this section I will describe the more widespread patterns and the stem

[16]Gordon (1986) describes similar kinds of clitics in an unrelated language, Maricopa. Maricopa predicates, like Crow predicates, have an obligatory 'final suffix' which must precede any clitics.

shapes which characterize each pattern. For the most part, the operations involved cannot be reduced to general phonological processes, and each class has lexical exceptions.[17]

In general, first person is indicated by /ma-/, and second person is indicated by /na-/. For most verbs, these are prefixes. Some verbs appear to select suffixed or infixed person markers; however, in § 4.3.2 I analyze these stems as lexically complex, which allows a uniform analysis of the set I person markers as prefixes.

The set I prefixes alternate in vowel shape, vowel length, and in whether there is an initial epenthetic vowel; stems alternate in vowel length in the first syllable, placement of accent, and loss of an initial syllable. Much of the allomorphy in set I prefixes is systematic, and depends on the shape of the verb stem to which the prefix attaches. These patterns are explicated in the subsections below.

The table in (39) summarizes most of these patterns of allomorphy with one or two representative stems, along with first and second person forms (with person marking underlined). The initial segments of the stem determine the pattern; these segments are in boldface. For example, stems which select the first pattern in the table are characterized by an initial *d* followed by an accented back vowel.

[17]The analytical work in this section was largely carried out in the first two years of work on Crow done at UCLA. I gratefully acknowledge the work of members of the Crow group at UCLA (Deanna Bradshaw, Aaron Broadwell, Tom Cornell, Laurie Crain, Chris Golston, Roger Janeway, Jack Martin, Pamela Munro, Danae Paolino, and Ran Yaniv). A set of rules for person agreement allomorphy can also be found in Kates and Matthews (1986:34ff.).

(39) *Summary: set I allomorphy*

stem	gloss	first person	second person
dáapxi	bite	balapxík	dalápxik
dúushii	put down	bulushíik	dilúshiik
páachilee	push	bapchílek	dápchilek
dakaá	pull	baakaák	dáakaak
alapeé	kick	baapeék	dáapeek
íkaa	see	awákaak	alákaak
úa	step on	awúak	alúak
aashí	hunt for	baashík	dáashik
ilíi	talk	balíik	dalíik
iháwi	sleep	biháwik	diháwik
alaaxtá	not know	baalaaxták	dáalaaxtak
kuleé	carry	bahkuleék	dáhkuleek
kulée	chase	baakuléek	dakúleek
disshí	dance	baalisshík	dáalisshik

2.9.1 Stem vowel shortening with accent shift and harmony

Verbs which have an initial *d* followed by an accented back vowel undergo initial stem vowel shortening (unless the stem vowel is short already) when prefixed with the set I person marker. In first person forms, accent is shifted rightward to the first mora of the following syllable. The prefix vowel harmonizes with the stem vowel: it becomes *u* if the stem vowel is *u*. (As far as I have been able to determine, there are no set I stems beginning with *doo*.)

In second person forms, the prefix vowel becomes *i* if the stem vowel is *u*.[18] In the examples below, only singular forms are given; allomorphy in plural forms is discussed in § 2.10.

(40)

	dáapxi 'bite'	dúupia 'dislike'	dútatchi 'chop up'
1s	balapxík	bulupíak	bulutátchik
2s	dalápxik	dilúpiak	dilútatchik
3s	dáapxik	dúupiak	dútatchik

Many verbs inflected in this way appear to belong to a class of verbs originally derived with the so-called 'instrumental' prefixes common in other Siouan languages. Lowie (1941:35) lists among these *daa-* 'with the mouth', *du-* 'with the

[18]In the speech of some modern speakers of Crow, a short unaccented *i* can generally reduce to schwa, so this distinction is neutralized.

hand'. However, not all verbs derived from instrumental prefixes belong to this inflectional class, but rather only those in which the first stem vowel bears a lexical accent. In addition, verbs derived by incorporating the noun *daáse* 'heart' fit into this class. The point is that the pattern observed here cannot be characterized uniformly according to their derivational history, although it may be that the pattern arose from the prefixed verbs and generalized to all verbs having the stated shape.

There is a small set of verbs which have an initial *p* followed by accented *a* which patterns closely after the class of verbs introduced above. They differ, however, in that (i) the stem vowel is deleted entirely, even if it is long, as long as no ill-formed consonant clusters would result, and (ii) in second person forms, accent moves leftward to the affix vowel, even if the stem vowel is only shortened.[19]

(41)

	páachile 'push'	páshku 'cut'
1s	bapchílek	bapashkúk
2s	dápchilek	dápashkuk
3s	páachilek	páshkuk

Verbs which begin with other consonants and are followed by an accented back vowel do not follow this pattern. For example, *báxxu* 'ask' has first person *baawáxxuk*.

There are irregular verbs which constitute exceptions to the pattern above. For example, the verb *dáakua* 'go home' (first person *baakuák*; expected **balakúak*). In addition, the verbs *daaxémmi* 'break off with the teeth' and *dushchíhchi* 'snatch' follow this pattern even though the vowel of the first syllable is not accented.

2.9.2 Verbs beginning with *da*

In verbs with an initial unaccented *da* or the instrumental prefix *ala-* 'with the foot', *da* (or *ala*) disappears when the set I prefix is added. In first person forms, the prefix vowel is long when the stem begins with *ala-*; otherwise, it is long only if the initial *da* is in an open syllable. In second person forms, the prefix vowel is always long.

In second person forms, the prefix vowel is always long, and accent shifts to the first mora of the prefix.

[19] I have found that younger speakers are more likely not to delete or shorten the stem vowel.

(42)

	alapeé 'kick'	dassachí 'hit'	dakaá 'pull'
1s	baapeék	bassachík	baakaák
2s	dáapeek	dáassachik	dáakaak
3s	alapeék	dassachík	dakaák

Exceptional verbs in this class include *dappée* 'kill', which has an unexpected long-vowel prefix in the first person form (1sg. *baappéek*), and *dahpí* 'go into', where the initial syllable of the stem does not drop (1sg. *baalahpík*).

It may be that all of the verbs having this inflectional pattern derive historically from verbs having an instrumental prefix, such as *ala-* 'with the foot' or *da-* 'with force' (Lowie, 1941).

2.9.3 Epenthesis

Verbs which have a stem-initial accented vowel receive a short-vowel form of the set I prefix, with an additional initial epenthetic *a*. The prefix is underlined in the forms below.

(43)

	óolapi 'find'	íkaa 'see'	úa 'step on'
1s	awóolapik	awákaak	awúak
2s	alóolapik	alákaak	alúak
3s	óolapik	íkaak	úak

Right-edge short vowels are usually deleted by the rule of Vowel Elision (see § 2.5). However, if the stem-initial vowel is a short *i* (as in the verb 'see'), this vowel sometimes deletes instead, as in the verb 'see'. This is also true for unaccented vowel-initial stems, which take a short-vowel prefix with no epenthesis (see (46)). I know of no good characterization of the cases where the short *i* vowel of the stem deletes instead of the prefix vowel, and therefore will assume that an initial stem vowel which deletes must be marked lexically as such.

There are exceptions to the epenthesis pattern, two of which are given below.

(44)

	íiwee 'cry'	íishihta 'lazy'
1s	bíiweek	bíishihtak
2s	díiweek	díishihtak
3s	íiweek	íishihtak

Martin (1988a) suggests that exceptions to epenthesis involve incorporated nouns. Since epenthesis is is restricted to verbs, it does not apply if the verb consists of a noun-verb compound. In the verb 'cry', for example, the incorporated noun might be *íia* 'mouth'. This is a plausible historical explanation for why epenthesis does not apply in these cases. However, these stems are lexicalized; as far as I am aware, the other half of the N-V compound, in these cases, no longer exists as a verb stem (**wee* , **shihta*). Thus, in a synchronic account these words must simply be marked as exceptions to epenthesis.

2.9.4 Affix vowel length alternations

For the most part, the agreeing forms of the remaining verbs show alternations only in whether the affix vowel is long or short, and in the placement of accent in second person forms.

2.9.4.1 Vowel-initial verb stems

Verbs beginning with a long unaccented vowel take a short-vowel prefix in both first and second persons. The vowel of the prefix is deleted by the regular rule of Vowel Elision.

(45)

	iikukkú 'hear'	eé 'own'
1s	biikukkúk	beék
2s	diikukkúk	deék
1s	iikukkúk	eék

Verbs beginning with a short unaccented vowel fall into three classes: (i) the verb stem takes a short vowel prefix, which is deleted by Vowel Elision; (ii) the verb stem has an initial unaccented short *i* which is deleted (unpredictably) instead of the prefix vowel; and (iii) a few verb stems with a short, unaccented initial *i* or *a* select a long-vowel prefix, with the initial vowel of the stem (unpredictably) deleted. Recall that the exceptional deletion of a stem-initial short *i* also occurs with epenthesis verbs (e.g., 'see', (43)).

These three classes are illustrated in the paradigms in (46) and (47).

(46)

	ilíi 'talk'	iháwi 'sleep'
1s	balíik	biháwik
2s	dalíik	diháwik
3s	ilíik	iháwik

(47)

	alaaxtá 'not know'	ilikkáa 'laugh at'
1s	baalaaxták	baalikkáak
2s	dáalaaxtak	dáalikkaak
3s	alaaxták	ilikkáak

2.9.4.2 Consonant-initial verb stems

With stems having an initial voiceless consonant, it is not always possible to predict the first and second person forms from the shape of the stem. Specifically, if the first consonant is *č* or *k*, the first person prefix might have a long vowel, or it might be a short vowel followed by *h*. Stems beginning with other consonants (e.g., x or š) have only the long-vowel form.

(48) shows the paradigms for two stems which are near-minimal pairs, but which contrast unpredictably in agreement pattern. The paradigm in (49) shows the paradigm for stems beginning with *x* and *s*.

(48)

	/hkuleé/ 'carry'	/kulée/ 'chase'
1s	bahkuleék	baakuléek
2s	dáhkuleek	dakúleek
3s	kuleék	kuléek

(49)

	/xapí/ 'fall over'	/sáaxi/ 'snore'
1s	baaxapík	baasáaxik
2s	daxápik	dasáaxik
3s	xapík	sáaxik

The first person form for 'carry' includes a short vowel prefix followed by *h*, while the first person form for 'chase' has a long vowel prefix and no *h*. Notice that both 'carry' and 'chase' take a short vowel prefix for the second person form.

I will assume that underlyingly, verbs like 'carry' have an initial *h* which is deleted if no prefix is attached. Then we can generalize:

(50) *First person set I allomorphy rule*

For stems beginning with a consonant, the first person prefix vowel is short if it ends up in a closed syllable (by attaching to a verb with an initial consonant cluster), and long if it ends up in an open syllable.

The second person forms of the verbs in (48) both have a short prefix vowel, differing only in the placement of the accent. We can appeal to the same principle here:

(51) *Second person set I allomorphy rule*

For stems beginning with a consonant, the second person prefix vowel is short. In addition, the accent occurs on the prefix syllable if it is closed, and otherwise on the initial stem syllable.

In addition to verbs with a posited initial *h*, there are a few verbs for which there appears to be an initial geminate, such as *kée* 'give away'. The initial consonant of the stem undergoes the *k* ~ *ch* palatalization alternation (section 2.2.2), albeit somewhat irregularly, since normally only the palato-alveolar *ch* occurs before a front vowel. Nonetheless, if the underlying representation has an initial geminate (of whatever place of articulation), we can at least characterize this stem as behaving regularly with respect to set I affixation, since we can predict a short-vowel prefix in the initial closed syllable closed by the geminate.

(52)

	/kkée/ 'give away'
1s	batchéek *or* bakkéek
2s	dátcheek *or* dákkeek
3s	chéek *or* kéek

I know of no verb stems having an initial posited underlying /h/ followed by /m/ or /n/, or any verbs with an initial posited geminate /mm/ or /nn/.

Verbs with an initial voiced consonant which do not fit the patterns exemplified in (40) or (42) follow the generalization in (50) above in taking a first person long-vowel prefix, since the prefix will always occur in an open syllable. However,

stems beginning with a voiced consonant[20] do not obey the generalization in (51). In second person forms of such verbs, the prefix vowel is long, as exemplified in (53).

(53)

	disshí 'dance'	baláxi 'sing'
1s	baalisshík	baawaláxik
2s	dáalisshik	dáawalaxik
3s	disshík	baláxik

Thus, the generalization in (51) must be modified:

(54) *Second person set I allomorphy rule (revision)*

For stems beginning with a voiceless consonant, the second person prefix vowel is short, with the accent on the prefix syllable if it is closed, and otherwise on the initial stem syllable. For stems beginning with a voiced consonant, the second person prefix vowel is long, and accent is on the first mora of the prefix.

Again, there are exceptions: the verbs *bíiwi* 'swim', *díili* 'walk', and *dée* 'go' take short-vowel second person prefixes (*dawíiwik, dalíilik, daléek*); and the verbs *aa-xúa* 'hide' (note, person marking ignores the lexical prefix) and *shée* 'die' take unexpected long-vowel prefixes in the second person form (*aaláaxuak, dáasheek*.

2.9.5 Apparent suffixing, infixing, and doubling

Many verbs in Crow must be marked lexically not only for the form, but for placement of set I agreement marking, which appears to occur infixed, suffixed, or multiply within the verb stem. These types of patterns are discussed below in turn. It is more than likely that predicates like these derive historically from a combination of verb stems (Lowie, 1941:18). In chapter 4 I propose a bracketed representation for these verbs which allows set I marking to be characterized uniformly as prefixing.

2.9.5.1 Suffixed agreement

Some verbs appear to select suffixed agreement markers. Without exception, suffixed set I person markers take a long vowel form, as illustrated in (55). Agreement elements are underlined.

[20]Not including the stem shapes exemplified in (40) and (42).

(55)

	día 'do'
1s	día<u>w</u>aak
2s	día<u>l</u>aak
3s	díak

My hypothesis is that all verbs with a suffixing pattern are lexically complex, consisting of a verb stem plus the bound causative verb *ee*. In most cases, only the causative portion of the stem is inflected with set I marking, although some verbs show marking on both. Note that the base stem to which the causative verb is suffixed no longer exists for 'do' and several other such verbs.

The idea that suffixing verbs are lexicalized causatives is supported by the fact that there are no semantically non-volitional or stative verbs among the suffixing verb stems, although there are a number of other set I verbs which are semantically non-volitional and/or stative. Moreover, all of the verbs in this class are transitive.

To understand how verbs like *día* could arise historically from verbs with an *ee* causative, we must first look at how person is marked in *ee* causative predicates for which the base verb still exists.

Set I marking in causatives

Crow has two bound causative verbs, *ee* and *hchee*, which are suffixed to open-class predicates to form complex causative verbs. In the resulting complex verbs, set I agreement is prefixed to the bound causative verb, rather than to the whole complex. (See § 5.5 for examples and discussion.) The table below gives the inflected stem forms for the 'direct' causative, *ee*; person marking is underlined.

(56) *Set I forms of <u>ee</u> causative*

	first person	second person	third person
singular	<u>b</u>aa	<u>d</u>aa	ee
plural	<u>b</u>uu	<u>d</u>uu	eeo

The bound causative verb *ee* becomes *aa* when prefixed with agreement; the plural form of the inflected stem is *uu*, while the plural form of the uninflected stem is *eeo*. An earlier hypothesis was that long-vowel forms of the first and second person set I prefix obliterate the segmental content of the causative stem. However,

there are two arguments against this. first, note that elsewhere, the long-vowel form of the second person prefix bears an accent *dáa-*, but not here. Second, no other vowel-initial verb stems select a long-vowel prefix.

In stems whose final short vowel is deleted by Vowel Elision, an alveolar stem consonant is both geminated and palatalized in combination with the uninflected *ee* causative. For example, *shipíta* 'black' becomes *shipítchee* 'blacken'. If the base stem ends in a long front vowel, there is sometimes a coalescence effect when the causative stem is added. For example, *xapíi* 'be lost' becomes *xapíia* 'lose'. These effects surface only when the causative stem does not bear a set I prefix. When *ee* is inflected with a set I prefix, the consonant indicating first or second person intervenes between the stem vowel and the causative stem, nullifying any coalescence or gemination effects.

Two paradigms are given below for illustration, with agreement underlined. In (57a), the intransitive set II predicate *bakáchi* 'be dry, melt' is suffixed with the *ee* causative verb to derive transitive *bakátchee*. In (57b), when the intransitive set II predicate *xapíi* is suffixed with the uninflected causative stem *ee*, the result is transitive *xapíia*.

(57) a.

	bakáchi 'be dry; melt'	bakátchee 'melt (transitive)'
1s	bii=wakáchik	bakát<u>b</u>aak
2s	dii=wakáchik	bakát<u>d</u>aak
3s	bakáchik	bakátcheek

b.

	xapíi 'be lost'	xapía 'lose (transitive)'
1s	bii=xapíik	xapíi<u>w</u>aak
2s	dii=xapíik	xapíi<u>l</u>aak
3s	xapíik	xapíiak

(58) a. B-ikkúhpe xapíi-<u>w</u>aa-k.
1.poss-hat.cit lost-1.I.caus-decl
'I lost my hat.'

b. D-íkkuhp-ua xapíi-<u>l</u>-uu-k.
2.poss-hat-pl.cit lost-2.I-caus.pl-decl
'You (pl.) lost your hats.'

Note that the first and second person forms of the *ee* causative are /maa/ and /naa/, respectively. These inflected causative stems are identical to the long-vowel

forms of set I prefixes alone in other verb forms (compare *baa-waláxi-k* 'I sing'). It is not unreasonable to suppose that the inflected causative stems /maa/ and /naa/ could be undergoing a reanalysis as suffixes. Under reanalysis, the only remaining clue to the presence of the causative verb is that person marking *follows* the stem of a verb which, in non-causative forms, would select either prefixed set I marking or set II pronominal clitic agreement marking. A semantic shift could subsequently result in the complex verb stem having a non-causative sense, and the original non-causative verb could be lost.

When the base stem ends in a diphthong, adding the causative form results in a stem form which is identical to the base stem. In such cases, some speakers choose to distinguish the causative stem from the base stem by using only the indirect causative in third person forms, as illustrated in the paradigm below.

(59)

	chía 'burn out' (of fire)	chía 'extinguish'
1s	bii=chíak	chíawaak
2s	dii=chíak	chíalaak
3s	chíak	chíak *or* chíahcheek

In lexicalized forms where the base stem has been lost, this strategy for distinguishing the causative and non-causative stem forms is not necessary (or even possible without adding causative meaning). This may explain why the stem form of verb 'do', which takes lexicalized causative agreement, does not vary in this way (see (55)).

2.9.5.2 Infixed agreement

Infixing verbs have a similar historical explanation. There are numerous elements in Crow which may be attached to the front of the verb, including prefixes, clitics, and incorporated nouns. When this happens, the head of the derived verb stem retains its status as a set I verb. Accordingly, person marking attaches to the verbal part of the stem as if the prefix or clitic were not there. If the unprefixed verb stem and/or prefix are subsequently lost or undergo a semantic shift, the result is a lexicalized form which must be marked as taking infixed set I agreement. The

paradigms in (60) illustrate this; agreement affixes are underlined. The verb 'take' consists of a transitivizing prefix *aa-* and the verb *dée* 'go'. 'Go outside' is an example of a verb whose unprefixed verb form has been lost, so that only the form with the incorporated noun *ashé* 'house' remains. The verb 'drink' has *íi* 'mouth' as one of its components, but I do not know what the prefix here was.

(60)

	aalée 'take'	asaalí 'go outside'	isshíi 'drink'
1s	aawaaléek	ashbáalik	ishbíik
2s	aalaléek	ashdáalik	ishdíik
3s	aaléeek	asaalík	isshíik

These forms have additional lexical exceptions as well: for one thing, the accent pattern of the first and second person forms of 'go outside' is unexpected.

2.9.5.3 Doubled agreement

In addition to suffixing and infixing verbs, there are a number of verbs which idiosycratically require doubled set I person marking, as exemplified in (61). Agreement affixes are underlined.

(61)

	íassee 'watch'	isítchee 'like'
1s	awíassaawaak	basítchiwaak
2s	alíassaalaak	dasítchilaak
3s	íasseek	isítcheek

The doubling of agreement in the verb 'like' is obligatory. However, for the verb 'watch', doubling is apparently optional, with agreement marking prefixed, suffixed, or in both positions. The representation and analysis of agreement for verbs with idiosyncratically infixed or doubled agreement is discussed further in § 4.3.2.

2.9.6 Irregular verbs

There are a number of verbs which do not fit into any of the groups discussed above. Such verbs have one or more suppletive stems, unpredictable shortening of a medial stem vowel, or unpredictable vowel length in the affix. The first and second person forms for these verbs must simply be listed.

Examples of a few irregular verbs are given in (62). The verb *dée* 'go' is irregular in its second person singular form, with expected **dáaleek*; *duushí* 'eat' has an unexpected suppletive stem in the first person, and unexpected shortening in the second person form. Finally, the first and second person forms of *húu* 'come' have suppletive stems *bóo* and *dóo*.

(62) *Some irregular verbs*

	dée 'go'	húu 'come'	duushí 'eat'
1s	baaléek	boók	buushík
1p	báauk	buúok	buusúuk
2s	daléek	dalóok	dilúshik
2p	daláauk	daluúok	dilúsuuk
3s	déek	húuk	duushík
3p	dáauk	duúok	duusúuk

Exactly one verb in Crow, the verb *kuú* 'give', displays a different kind of irregularity, having to do with the logical role of the argument represented with set I marking. This is discussed in chapter 4.

2.10 Plural agreement allomorphy

Crow predicates take a plural agreement suffix whose basic form is *-uu*. In verbs, this suffix marks agreement with plural subjects of set I verbs, second and third person plural subjects of set II verbs, and second person objects of transitive set I verbs (see § 4.2 for an explanation of these distinctions). In nouns, this suffix marks agreement with a plural possessor; if there is no possessor, it may be used to mark plural number of the noun referent.

Kates and Matthews (1986:25) give the following algorithm for forming plurals:

(63)
1. If the stem ends with a short vowel other than o, replace it with a long uu.
2. If the stem ends with o, oo, aa, add u for plural.
3. If the stem ends with ii, ee, uu, add o.

Exceptions: Some long ii or ee will change to aa, then it follows rule 2. Some long ee will become long ii. (The rule that changes stem-final ii and e to aa is called assimilation. Most nouns and some verbs do not assimilate. It is necessary to learn the exceptions.)

4. If the stem ends with a diphthong, ia or ua, replace the a with long oo.

The words in (64a) are examples of rule 1; the words in (64b) are examples of rule 2; the words in (64c) are examples of rule 3; the words in (64d) are examples of some of the Exceptions in rule 3; and the words in (64d) are examples of rule 4. Plural marking is underlined.

(64)

a.	stem	páshku 'cut'	díili 'walk'	ítchi 'good'	áxpa 'marry'
	3 pl.	páshkuuk	díiluuk	íttuuk	áxpuuk

b.	stem	iáxxoo 'hurt'	káataa 'blow'
	3 pl.	iáxxoook	káataauk

c.	stem	isshíi 'drink'	tatée 'capable'	iluú 'stand'
	3 pl.	isshíiok	tatéeok	iluúok

d.	stem	chilíi 'afraid of'	chiweé 'tell'	alapeé 'kick'
	3 pl.	chiláauk	chiwaáuk	alapiíok

e.	stem	aaxuá 'hide'	día 'do'
	3 pl.	aaxuóok	díook

Graczyk (1991:57) gives the following statement for plural stem formation:

> For stems ending in short vowels, the plural form is /uu/. For stems ending in /ii/, /ee/, /uu/, /ia/ and /ua/, the plural form is /o/. (Since diphthongs delete the final mora by reason of rule 13, their stems are phonetically [ii] and [uu].) For stems ending in /aa/ and /oo/ the plural is /u/.

Note that while the rules in (63) must treat /o/ differently from other short vowels, Graczyk's phonemic analysis, in which mid vowels are always underlyingly long, allows short-vowel stems to be treated in a uniform way. This statement of plural allomorphy can also account for many of the exceptions noted in (63) as

instances of ablaut. For those stems which undergo ablaut, the plural stem form is built on the ablauted stem form.

This distribution of plural allomorphs can be restated more generally as follows:

(65) *Plural Allomorphy Rule:* The plural suffix is /-uu/ following short vowels and /-u/ following [+back, –high] long vowels. Elsewhere, the plural suffix is /-o/.

Note that for all stems ending in a short vowel (i, a, u), that vowel will be deleted by the regular rule of Vowel Elision (section 2.5).

In the statement in (65), the basic (elsewhere) form of the plural suffix is /-o/, which may seem odd since the majority of stems in Crow end in a short vowel, and thus take the /-uu/ form of the plural. However, notice that the statement in (65) is much simpler than the one that would be necessary to characterize plural allomorphy if /-uu/ is taken as the elsewhere case:

(66) *Alternate Plural Allomorphy Rule:* The plural suffix is /-o/ following diphthongs, and following long vowels which are either [–back] or [+high]. Following other long vowels, the plural suffix is /-u/. Elsewhere, the plural suffix is /-uu/.

Therefore, the statement in (65) is adopted here.

2.10.1 Plural forms of stems with final diphthongs

The statement of plural allomorphy in (65) does not account for the fact that in stems with diphthongs, the second mora of the diphthong is lost when it is combined with the plural suffix. Thus, the forms in (64e) require an additional statement. Graczyk (1991) proposes a general rule deleting the final mora of a diphthong before a vowel-initial suffix. Aside from noting that this might be treatable as a subcase of the general rule of Vowel Elision, I will simply adopt this analysis.

2.10.2 Vowel length in plural forms

The plural allomorphy rules in Kates and Matthews (1986) make a distinction between stems with long vowels stems with diphthongs. For example, the plural form for *xapíi* 'be lost' would be *xapíiok* , but the plural form for *día* 'do' would be *díook*. However, there is no difference *phonetically* between the plural forms ending in *iio* and *ioo* (Matthews, 1981, Kates and Matthews, 1986, Graczyk, 1991). The distinction is made as an orthographic convention, so that it is easier to deduce the shape of the stem vowel from the plural form. The statement in (65) is thus adequate descriptively, although the orthographic convention can still be retained as a useful device.

2.10.3 More exceptions

Despite the improvement afforded by the statement in (65), there are still exceptions. There is a whole class of stems ending in *aa* which are treated as if the vowel is short, with a *uu* plural. Although it is tempting to analyze these stems as having an underlying short final vowel, this would require an otherwise unmotivated lengthening rule to apply before every other suffix but the plural. Thus, a better analysis is simply to mark these stems as taking an exceptional plural form. However, we can maintain the generalization that this class of exceptions includes only stems ending in *aa*. Verbs ending in *ee* which belong to this exceptional class of stems (such as the one in (67b)) are all stems which ablaut to *aa*, and the plural is formed on an ablauted stem base.

(67)

stem	ablaut stem	plural stem	imperative	*-ak* form
a. kaláa 'run away'	—	kalúu	kaláh	kaláak
b. kulée 'chase'	kuláa	kulúu	kuláh	kulaák

Other kinds of exceptions must simply be marked lexically. For example, *dáakua* 'come home' has an exceptional plural stem, *dáakau*; the plural form of the habitual suffix *ii* is *iiluu*.

The verb *dée* 'go' is an interesting exceptional case. This is an ablauting stem; but in addition, a suppletive stem replaces the expected first person plural form (which would be **baaláauk*), as shown in the paradigm below.

(68)

dée 'go'	singular	plural
1	baaléek	báauk
2	daléek	daláauk
3	déek	dáauk

What is interesting is that in complex verb forms, the plural marking — but not the person marking — is extracted from the first person plural form, exposing the suppletive stem *bee*, which never surfaces in non-complex verb forms. Thus, in the example below, the verb 'go' is incorporated into the bound verb stem *bía* (which can mean either 'want to' or 'be about to').

(69) Bee-wiá-w-uu-k.
go.1pl-desid-1.I-pl-decl
'We want to go.'

2.11 Ablaut in Crow

Crow, like many other Siouan languages, has a certain amount of stem ablaut. As in other Siouan languages, stems which undergo ablaut must be lexically marked as such, and ablaut is triggered only in certain morphological environments. Moreover, in Crow ablaut occurs only in stem-final long vowels.

2.11.1 Graczyk's analysis of ablaut

Graczyk (1991:53ff.) discusses three types of ablaut in Crow. These are as follows: *ii* → *aa; ee* → *ii; and ee* → *aa*. Graczyk gives several examples of each kind of ablaut; in (70) I have repeated one example of each kind. Graczyk explains that the third rule, *ee* → *aa*, has two variants, and he suggests that some stems in this class do not ablaut before the plural suffix, while others do. This is to account for the fact that some stems in this class do not have the expected plural form ending in *aau*, but instead take a *-uu* plural form.

Imperative and conjunctive forms, like plural forms, are built on an ablauted stem base (for those stems which ablaut). Most singular ablauted imperative forms surface with a short vowel, despite the final long vowel of the stem; Graczyk (1991) argues that a rule shortening long vowels before *h* is needed independently. This

rule appears to apply everywhere except in the stems which ablaut /ee/ → /aa/ — namely *dée* 'go' and *kuleé* 'hold, carry'. The conjunctive form of a verb is derived by adding the predicate final suffix *-ak* to the stem. Vowel Elision deletes a short final vowel in this environment, so long vowels are unaffected. If the stem-final long vowel is *aa*, the three-vowel sequence *aa-a* is reduced to *aa*.

In the examples below, both the plural form and the imperative forms are given; the ablauting stem vowel is underlined.

(70) Examples of Ablaut

	ii → aa	ee → ii
stem	dáschii 'chew'	íassee 'watch'
3 pl.	dástaau	íassiio
imp.	dástah	íassiiah

	ee → aa (pl. aau)	ee → aa (pl. uu)
stem	chiweé 'tell'	kalée 'vomit'
3 pl.	chiwaáu	kalúu
imp.	chiwaáh	kaláh

Examples of stems with final long vowels which do not undergo ablaut are given for comparison in (71). Also given is a stem ending in *aa* which is not derived from ablaut.

(71) Non-ablauting stems

	ii	ee	aa
stem	isshíi 'drink'	tatée 'capable'	káataa 'blow'
3 pl.	isshíio	tateéo	káataauk
imp.	isshíih	—	káatah

2.11.2 An alternative analysis

Without going into detail, I will now suggest the inverse analysis of ablaut in Crow. Suppose that the vowels underlying the ablauting stems are *aa* and *ii*, and the derived vowels are *ii* and *ee*. The three ablaut rules would thus be *aa* → *ii; aa* → *ee; ii* → *ee*. Note that choice of *aa* → *ii* vs. *aa* → *ee* would be lexical, just as the choice of *ee* → *aa* vs. *ee* → *ii* is lexical in the original analysis. In the inverse analysis, ablaut would apply in just those environments where ablaut fails to apply in the original analysis outlined above.

One argument which supports this analysis comes from a comparison with Dakota (Lakhota), a language belonging to a different branch of the Siouan family. In Dakota, there is one main process of ablaut, namely *a* or *ą* → *e* (Shaw, 1980).[21] As in Crow, not all stems with a suitable vowel show ablaut, so those that do must bear a lexical specification.

The environments that trigger ablaut in Dakota include, among others, the negative suffix (*shni*); the augmentative suffix (*xcha*); the sentence terminal (', glottal stop); the interrogative suffix (*so*); the habitual suffix (*s'a*); determiners (*ki, či*); the predicative suffix (*e*); the qualitative suffix (*cha*); and various bound verbs including 'seem,' 'cause,' 'intend,' etc. Shaw does not consider the possibility of an inverse analysis in Dakota, possibly because it is a weak alternative, given that the inverse rule (*e* → *a*) would have to specify for each stem whether the resulting vowel is nasalized or not (Pamela Munro, personal communication).

What is striking is that the environments which trigger ablaut in Dakota seem to be just the environments in Crow where the rules of ablaut presented in § 2.11.1 *do not* apply. The vowels *ee* and *ii* (the underlying vowels of the original analysis, but the derived vowels in the proposed inverse analysis) occur before the negative suffix *-ssaa*, the intensive suffix *-shta* (possibly cognate with Dakota *xcha*), the habitual suffix *-ii*, and most of the sentence-final suffixes (including declarative *-k* and interrogative *-'*). This inverse analysis would specify that ablaut is triggered by all of these elements, but not by the plural suffix, the conjunctive final suffix *-ak*, the imperative final suffix *-h*.

Since *aa* rather than *ee* is underlying in the inverse analysis, those ablauting stems in *aa* which take a plural form in *uu* (rather than *aau*) can be specified together with other (non-ablauting) stems ending in *aa* as taking a *uu* plural.

On the original analysis, there are two classes of long-vowel stems (some ending in *aa* and some ending in *ee*) which must be marked as taking a plural in

[21] Dakota does not have distinctive vowel length, but it does have nasalized vowels, represented in Shaw's work with a cedilla under the vowel. Shaw discusses ablaut in a number of Dakota dialects. In one of these, Teton, *a* and *ą* ablaut to *e* before most triggering formatives, but may also ablaut to *į* or *i* before others. The other dialects show only ablaut of *a* and *ą* to *e*. Note the contrast with Crow: Crow has more than one ablaut rule, but a given stem ablauts in the same way before all triggering formatives.

uu, instead of one. In addition (as noted by Graczyk), it is necessary to specify two subclasses of *ee* → *aa* stems: those which do not ablaut before the plural and those which do. This is not necessary in the inverse analysis. Finally, notice that in the original analysis it is accidental that all of the stems ending in *ee* which take a plural in *uu* are also ablauting stems. In the inverse analysis, however, we can predict that no stems ending in (underlying) *ee* will take a plural in *uu*.

It is clear that the environments where ablaut is triggered in the inverse analysis outnumber those where it is not. This explains the appeal of the original analysis, where the vowel which surfaces most often is the underlying one. But the inverse analysis is consistent with a generalized historical account of ablaut, while the analysis outlined in § 2.11.1 is not; moreover, it allows a neater account of plural marking. These cannot be considered conclusive arguments in favor of the inverse analysis, but I hope that these observations will open the issue for further research.

Chapter 3

Sketch of Crow Syntax and Morphology

3.1 Introduction

This chapter briefly outlines some aspects of Crow syntax and morphology. Constructions which I am analyzing as verb incorporation are put aside here but addressed in some detail in chapter 5. The goal of this chapter is to give a general outline of the kinds of patterns found in the language, rather than to give a complete description, which is beyond the scope of this study. In the sections that follow, word order and clitic order, categories, noun phrases, relative clauses, pronouns, and predicate suffixes are briefly outlined and exemplified. For a much more comprehensive treatment of these topics, see Graczyk (1991).

3.2 Word order and clitic order

The basic word order in transitive sentences is subject–object–verb (SOV). Crow is a strongly head final language, both in syntax and in morphology. Most functional elements (such as determiners, complementizers, and auxiliary verbs) are suffixes; all inflection except for set I (nominative) agreement is also suffixed. Case-assigning heads (verbs and postpositions) follow their complements, while specifiers (subjects, demonstratives, and possessive phrases) occur to the left of the head. In a ditransitive clause where all three arguments are overt, the indirect object usually precedes the direct object.

(72) Shikáake-sh bíakaate-sh baapáalitchikshi-m kuú-k.
boy.cit-def girl.cit-def flower-indef give-decl
'The boy gave the girl a flower.'

This ordering constraint is not especially strict, however. A subject or object may follow the verb, and the object can be preposed in front of the subject.

When a full NP precedes a ditransitive or causativized verb with a set II clitic attached, there are a number of possible interpretations, as outlined in (73).

(73) a. Aaron balee=kuxshí-hchee-k.
Aaron 1p.II=help-cause-decl
'Aaron had her help us', 'Aaron had us help her',
'She had Aaron help us', 'She had us help Aaron'

3.2.1 Clitics and incorporated nouns

In addition to the verb incorporation constructions discussed in chapter 5, a great deal of other incorporation is possible in Crow. Nouns, postpositions, quantifiers, and adverbs all incorporate quite freely. Incorporation has phonological effects as well as syntactic effects: the incorporated element undergoes elision of its final stem vowel (subject to phonotactic constraints) and conflicting accents must be resolved (see § 2.7). However, elements bearing functional suffixes, such as determiners or complementizers, do not incorporate.

A striking feature of Crow which is quite unusual crosslinguistically is that when more than one clitic is attached to the verb, or when a clitic cooccurs with an incorporated noun, these elements are usually freely ordered. For example, each sentence in (74) is ambiguous, and each has both readings. (Such sentences are typically not ambiguous in context; in cases where context does not disambiguate, a number of other mechanisms can be used to do the job.)

(74) a. Aaron dii=walee=kuxshí-hchee-k.
Aaron 2.II=1p.II=help-cause-decl
'Aaron had you help us.'
'Aaron had us help you.'

b. Aaron balee=lii=kuxshí-hchee-k.
Aaron 1p.II=2.II=help-cause-decl
'Aaron had you help us.'
'Aaron had us help you.'

The sentences in (75) illustrates this point further with three elements of different types. (75a-f) all have the same interpretation, with no apparent ordering

restrictions whatever among the incorporated noun *dakáaka* 'bird', the first person set II clitic *bii*, and the time particle *kala* 'now'.

(75) a. Ba-sahké kan=nakáak=bii=oosshe-hchee-wia-k.
1-mother now=bird=1s.II=cook-cause-want-decl
'My mom wants me to cook the turkey now.'

b. Ba-sahké dakáak=kam=mii=oosshe-hchee-wia-k.
1-mother bird=now=1s.II=cook-cause-want-decl

c. Ba-sahké kam=mii=lakáak=oosshe-hchee-wia-k.
1-mother now=1s.II=bird=cook-cause-want-decl

d. Ba-sahké bii=kan=nakáak=oosshe-hchee-wia-k.
1-mother now=1s.II=bird=cook-cause-want-decl

e. Ba-sahké bii=lakáak=kal=oosshe-hchee-wia-k.
1-mother 1s.II=bird=now=cook-cause-want-decl

f. Ba-sahké dakáak=bii=kal=oosshe-hchee-wia-k.
1-mother 1s.II=bird=now=cook-cause-want-decl

However, the ordering of clitics is not always free. *Ak* and *ala* are relative clause markers, proclitics which attach to the nominalized predicate of a relative clause. *Ak* and *ala* bind subject and adjunct positions, respectively (see § 3.4.3; see also Graczyk (1991) and Cornell (1988)).

A set II clitic which is closer to the verbal predicate than the relative marker *ak* or *ala* is always interpreted as an argument of the verbal predicate. This is illustrated by the clitic *dii* in (76), which is understood as the object of *hawassée* 'take care of.' A set II clitic which is attached to the left of *ak* or *ala* can only be interpreted as an argument of the nominal predicate, as illustrated by the clitic *bii* in (76b) (see also (81b)). Thus, in this case, the ordering of clitics is fixed.

(76) a. Ak=dii=hawassée wíi-k.
rel=2.II=take.care.of me-decl
'I'm the one who takes care of you.'

b. Bii=ak=dii=hawassée-k.
1s.II=rel=2.II=take.care.of-decl
'I'm the the one who takes care of you.'

3.2.2 The status of balee

Section 4.5 introduces three pronominal clitics which are used to mark first and second person objects of prepositions, objects of verbs, and subjects of set II predicates. These are *bii* (first person singular), *balee* (first person plural), and *dii* (second person singular and plural). These clitics are treated here as bound pronouns which cliticize to a head within VP.

In this examples below I will show that *balee* differs from *bii* and *dii* in a number of ways, and I will suggest that *balee* is a kind of morphological hybrid, a cross between a pronoun and an affix. This, I conjecture, is what allows *balee* to appear in the mixed-set paradigms described in § 4.2.1.5.

First, note that *balee* has no analog among the full pronouns used to express various kinds of adjunct or focus pronouns. The table in (101) shows that first and second person focus pronouns are all formed with *bii* and *dii*; no pronoun is formed with *balee* as a base.

Second, quantifications of first person plural pronouns are formed with *bii* rather than *balee*:

(77) Aprilsh bii=xaxúa balee=íkaa-k.
April 1s.II=all 1p.II=see-decl
'April saw all of us.'

Third, note that *bii* and *dii*, but not *balee*, can act as predicates. The first person plural is formed just as the second person plural is, with suffixation of *-luu*:

(78) a. Bíi-k.
me-decl
'It's me.'

b. Bíi-luu-k.
me-pl-decl
'It's us.'

c.*Balee-k.
1p.II-decl

(79) a. Díi-k.
you-decl
'It's you.'

b. Díi-luu-k.
you-pl-decl
'It's you (pl).'

3.3 Categories and subcategorization

I assume that the categories Noun and Verb are universal, although there is much less to distinguish these categories morphologically in Crow than in other languages. Unmodified noun stems may serve as set II predicates, as shown in (80).

(80) Randysh shikáak-kaata-k.
Randy boy-dimin-decl
'Randy is a little boy.'

Verbs can be nominalized and can subsequently serve as predicate nominals, taking set II agreement regardless of the agreement class of the verbal predicate. For example, the transitive verb *dútchi* 'get, catch' is a set I predicate, as shown in (81a), but as a predicate nominal, 'one who catches' is a set II predicate, as demonstrated in (81b).

(81) a. Ilak iichíile wu-lutchí-w-i-k.
that horse.cit 1.I-catch-1.I-fut.aux-decl
'I'm going to catch that horse.'

b. Iichíile bii=ak=dútchi-k.
horse.cit 1s.II=rel=catch-decl
'I'm the one who catches the horses.'

There is no motivation for the category Adjective in Crow. Words translated into English with adjectives are not different morphologically or syntactically from other set II predicates. There is no adjectival modification of nouns; a noun can be modified by a predicate in a relative clause (see § 3.4.3).

In the past, I have considered whether the distinction between set I and set II predicates (§ 4.5) should be treated as a categorial distinction between verbs and adjectives. Given the differences in the way agreement is marked in set I and set II predicates, it seems reasonable to suppose that set II predicates might be non-verbal predicates. However, they are treated here as verbs, for the following reasons. First, note that in English, adjectives and nouns can serve as predicates, but not directly:

the presence of a copula — one of a small class of verbs such as *seem, be, become, look* — is obligatory, at least in root clauses. But in Crow, set II predicates do not occur with a copula, and they take the same suffixes or auxiliaries indicating tense, aspect, illocutionary force, subordination, and speaker attitude as are found with the set I predicates. The examples in (82) through (85) are a partial demonstration of this fact. Each kind of predicate (the intransitive set I predicate 'sing', and the set II predicates 'tall', 'grow', and 'man') is shown (a) with the declarative suffix *-k*, and (b) with a future auxiliary verb.

(82) a. Tom baláxi-k.
Tom sing-decl
'Tom is singing.'

b. Tom balax-ii-mma.
Tom sing-fut.aux-irr
'Tom will sing.'

(83) a. Rogersh háchka-k.
Roger tall-decl
'Roger is tall.'

b. Rogersh háchk-ii-mma.
Roger tall-fut.aux-irr
'Roger will be tall.'

(84) a. Randysh apáali-k.
Randy grow-decl
'Randy is growing.'

b. Randysh apaál-ii-mma.
Randy grow-fut.aux-irr
'Randy will grow.'

(85) a. Dii=wacheé-k.
2.II=man-decl
'You are a man.'

b. Dii=wacheé-ii-mma.
2.II=man-fut.aux-irr
'You will be a man.'

Among set II predicates, there are no grammatical properties that I know of which would distinguish between an 'adjective' predicate like *háchka* 'tall', a 'verb' predicate like *apáali* 'grow', and a 'noun' predicate like *bacheé* 'man.'

3.4 Nouns and noun phrases

3.4.1 Determiners

A noun or verb stem not suffixed with a determiner or complementizer suffix undergoes mutation of the final vowel of the stem to produce the 'citation form' (§ 2.3). An element in citation form can only be used as an argument category, and not as a predicate.

The indefinite determiner *-m* may be suffixed to a noun stem (not in citation form), indicating a specific member of that class of things. *-M* is usually suffixed to a noun in its initial introduction into the discourse; in subsequent references to the same NP, the determiner *-sh* is used.

If *-m* is suffixed to a noun in citation form, it indicates an indefinite and non-specific member of that class of things. Compare (86a,b):

(86) a. Ikkúhpa-m Alice kush=baa-kaalí-k.
hat-indef Alice from=1.I-borrow-decl
'I borrowed a hat from Alice.'

b. Ikkúhpe-m Alice kush=baa-kaám-m-i-k.
hat.cit-indef Alice from=1.I-borrow-1.I-fut-decl
'I'll borrow some hat from Alice.'

The definite determiner *-sh* attaches to a noun in citation form rather than to the bare noun stem. It is usually suffixed to a noun following its initial introduction into the discourse. According to Graczyk (1991:134), *-sh* is used when 'the referent is uniquely identifiable by the addressee,' although there are contexts in which *-sh* is omitted even when this condition holds, for example, possessed nouns and nouns preceded by a demonstrative. *-Sh* is also suffixed to names ending in a vowel or a liquid. Graczyk (1991:117, fn. 1) mentions that *-sh* never occurs with some names, and is optional with all names. It is never used in vocative contexts.

At one time, I postulated that the indefinite determiner *-nak* is a negative polarity item, because it most often occurs in environments where it is under the scope of negation or an interrogative, and seems to be unfelicitous in other environments (compare (87a-c). According to Graczyk (1991), *-nak* is not appreciably different from *-eem* (indefinite *-m* attached to a citation form stem). If this is so, however,

it is difficult to explain why my consultant found sentences like (87a) unacceptable. But Graczyk's data exemplifying *-nak* include an example where it is not embedded under a negative or interrogative element, suggesting that my characterization of *-nak* as a negative polarity determiner is too simplistic.

(87) a.*Shikáak-dak awá-kaa-k.
boy-nonspec 1.I-see-decl
('I saw a boy.')

b. Shikáak-dak alá-kaa-'?
boy-nonspec 2.I-see-int
'Did you see a boy?'

c. Hawash=baa-láa-h-maa-kahku-k, shikáak-dak awá-ka-ssaa-k.
around=1.I-go-distrib-1.I-cont-decl boy-nonspec 1.I-see-neg-decl
'I went around, here and there, and didn't see any boys.'

3.4.2 Noun specifiers

Only demonstratives (listed in (91) and possessive phrases precede the noun.

3.4.2.1 Possessives

A possessor NP immediately precedes the possessed noun. A subset of nouns must be marked lexically as being inalienably possessed. Although many inalienably possessed nouns are kin terms or body part terms, not all of these are inalienably possessed; and many other nouns are.

Nouns which are inalienably possessed are unmarked following the possessor NP; the possessive clitic *ish* attaches to nouns which are not inalienably possessed.

(88) a. Aprilsh dáake
April child.cit
'April's child'

b. Aprilsh ish=bále
April poss=money.cit
'April's money'

As in set I agreement, a first or second person possessor is typically null, but the possessed noun shows agreement in person. As the examples in (89) show, the first and second person possessive agreement prefixes are *ba* and *dá*. The complex allomorphy of the set I agreement prefixes is largely absent in possessives, although there are some exceptional forms. The agreement prefix attaches to the possessive

clitic *ish* (as in (89a,b)), unless the noun is inalienably possessed, in which case the agreement prefix attaches to the noun (as in (89c,d)).

(89) a. b-ish=bilishpíte
1-poss=coffee.cit
'my coffee'

b. d-ísh=bilishpite
2-poss=coffee.cit
'your coffee'

c. b-ikkúhpe
1-hat.cit
'my hat'

d. d-íkkuhpe
2-hat.cit
'your hat'

A plural suffix attached to a possessed noun is always associated with a plural possessor; compare the noun form in (90a,b) with that in (90c,d). However, the plural number indexed on the predicate always reflects plural number inherent to the subject's head noun, rather than the possessor; compare the verb form in (90a,c) with that in (90b,d).

(90) a. Ba-s=iílaalee hísshi-k.
1-poss=car.cit red-decl
'My car is red.'

b. Ba-s=iílaalee híss-uu-k.
1-poss=car.cit red-pl-decl
'My cars are red.'

c. Ba-s=iílaalee-o hísshi-k.
1-poss=car-pl.cit red-decl
'Our car is red.'

d. Ba-s=iílaalee-o híss-uu-k.
1-poss=car-pl.cit red-pl-decl
'Our cars are red.'

3.4.2.2 Demonstratives

The table in (91) shows third person demonstrative pronouns.

(91) *Demonstratives*

this	hinná
these	hileén
that (nearby)	éehk
that (distant) ílak	
that (distant) íak	
those (distant)	ákian
that (moving)	iímme
those (moving)	áhian
that (anaphoric)	koó

Except for *koó*, the demonstratives are deictic: they point to something in the discourse (figuratively or literally). The demonstrative pronoun precedes the noun, but can also appear without the head noun (just as in English, where both *I like that one* and *I like that* are acceptable). Demonstratives in Crow can also cooccur with names.

(92) a. hinná wía
this woman.cit
'this woman'

b. ílak bacheé
that man.cit
'that (distant) man'

c. iímme Angelash
that Angela
'Angela' (implies that Angela is moving)

Koó is only used anaphorically. Thus, *koó wía* 'that woman' is only used in a context where the preceding discourse provides a referent.

3.4.3 Relative clauses

All other modifications of the noun take the form of a relative clause. Relative clauses are internally headed: this means that the noun phrase consists of the relative clause, with no head noun external to the relative clause. An example is given in (93), where the head noun is the direct object of the relative clause, but the subject of the root clause.

(93) Ba-laakbía iiwaalíoo-m nútche-sh iíphisaa-k.
1-daughter.cit medicine-indef take.cit-def strong-decl
'The medicine my daughter took was strong.'

The head noun is usually (but not obligatorily) suffixed with *-m*, to the exclusion of other determiners. The verb of the relative clause is nominalized and suffixed with the determiner which marks specificity and/or definiteness of the head noun.

In (94a), the nominalized verb is suffixed with the indefinite determiner *-m*, indicating that the head noun is specific but indefinite (it is the first mention of this individual in the discourse). In the connected sentence (94b), since the referent is now uniquely identifiable following initial mention in the discourse, the definite determiner *-sh* is suffixed to the nominalized verb. Note that the head noun in both sentences is suffixed with *-m*.

(94) a. Bía-m eé-wa-hchee-m awá-kaa-k.
woman-indef know-1.I-know.cit-indef 1.I-see-decl
'I saw a woman I know.'

b. Bía-m awá-ke-sh kal-aák dée-k.
woman-indef 1.I-see.cit-def run.away-part go-decl
'The woman I saw ran away.'

When the head noun is the subject of the relative clause, the proclitic *ak* is usually attached to the nominalized relative clause predicate; an example is given in (95a). Graczyk (1991) notes that *ak* is only used if the subject of the relative clause is animate, and that it is used with either set I or set II subjects. In (95b), *ak* has been used for a head noun which is the possessor of a set II subject.

(95) a. Bacheé-m ak=bii=óolape-sh dáakua-k.
man-indef rel=2s.II=find.cit-def go.home-decl
'The man that found me went home.'

b. Éehk bacheé-m ichuuké ak=baalíshee-sh dáakua-k.
that man-indef younger.brother rel=sick.cit-def go.home-decl
That man whose younger brother is sick went home.

As noted above in § 3.2.1, *ala* is the clitic used to indicate that the head noun is a place or manner adjunct. The head noun is empty in most of my data with *ala*.

(96) a. al=awá-ke
rel=1.I-see.cit
the way I see it

b. Ba-sahkáate am=maalía-w-ee alaaxtá-k.
1-older.sister.cit rel=work-1.I-caus.cit not.know-decl
My older sister doesn't know where I'm working.

The head noun can also be omitted in relative clauses in which the head is an argument, in which case the class of nominals is restricted only by the relative clause; see (76).

3.5 Pronouns

3.5.1 Null pronouns

Crow is a pro-drop language. First and second person null pronominal subjects are identified by verbal agreement in clauses headed by a set I predicate, as illustrated in (97).

(97) a. Jack awá-kaa-k.
Jack 1.I-see-decl
'I saw Jack.'

b. Jack alá-kaa-'?
Jack 2.I-see-int
'Did you see Jack?'

First and second person objects, and subjects of set II predicates, are realized as accusative clitics which usually attach to the Case assigning head (a verb or postposition). However, they may also cliticize to another head, such as a postposition, adverb, or noun. For example, in (98b), the clitic attaches to *awéeleen*, a location adverbial:

(98) a. Huúlesh awéeleen nii=awá-kaa-k.
yesterday outside 2.II=1.I-see-decl
'I saw you outside yesterday.'

b. Huúlesh dii=awéeleen awá-kaa-k.
yesterday 2.II=outside 1.I-see-decl
'I saw you outside yesterday.'

A third person pronominal subject (he, she, it, they) which has a referent in discourse is typically null. This is shown in the following pair of connected sentences, where the subject of (99b) is interpreted as the subject of (99a).

(99) a. Aprilsh hileeláa-'?
April here-int
'Is April here?'

b. Awaasúa akúke kush=dée-k.
house.cit other.cit to=go-decl
'She went to the other house.'

Third person pronominal objects can also be null when they can be associated with a discourse referent. In the connected sentences in (100), the object of (100a), *díshbaate* 'your dish', is null in (100b-c).

(100) a. Huúlesh Alice d-ísh=baate dassheechí-k.
yesterday Alice 2-poss=dish break-decl
'Yesterday Alice broke your dish.'

b. Shóot-aak dassheechí-'?
how-part break-int
'How did she break it?'

c. Dúuchish-dak ba-laskawíi-w-i-m.
drop-cond 1.I-mad-1.I-fut.aux-irr
'If she dropped it I'll be mad.'

3.5.2 Focus pronouns

There are a number of pronouns which are used in emphatic, contrastive, focus, or other marked discourse environments. These are given in the table in (101).

(101) *Focus pronouns*

	adjunct	object	agent	contrast	coord	also
1sg	biiléen	biiwií	bíílaa	bik	bíílak	bih
1pl	bíílun	bíílaa	bííluuk	bíílunnak	biiluh	
2sg	diiléen	diilií	díílaa	dik	díílak	dih
2pl	díílun	díílaa	dííluuk	díílunnak	diiluh	
3sg/pl	koón	koó	iílaa	kuk		kuh

The pronouns in the first column, labeled 'adjunct' pronouns, are generally used to focus subjects, while those in the second column, labeled 'object' pronouns, are generally used to focus objects. Either of these sets of pronouns can be used to focus the subject of a set II predicate.

(102) a. Diilií Chris dichí-k.
2.focus Chris hit-decl
'You're the one that Chris hit.'

b. Chris diilií lichí-k.
Chris 2.focus hit-decl
'You're the one that Chris hit.'

c.*Diiléen Chris dichí-k.
2.focus Chris hit-decl

d. Diiléen Chris dáa-lichi-k.
2.focus Chris 2.I-hit-decl
'You're the one that hit Chris.'

The pronouns in column (c) of (101) are used to indicate that the subject acted independently, on his or her own volition. Consequently, they are not used with nonvolitional predicates. The examples in (103d-e) shows that the pronoun cannot replace agreement.

(103) a. Biílaa día-w-aa-k.
1.agent do-1.I-caus-decl
'I did it myself.'

b. Biílaa awá-k-uu-k.
1.agent 1.I-see-pl-decl
'We saw it ourselves, on our own.'

c.*Biílaa bii=háchka-k.
1.agent 1s.II=tall-decl
('I'm tall myself.')

d. Biílaa waa-lichí-k.
1.agent 1.I-hit-decl
'I hit him on purpose'.

e.*Biílaa lichík.
1.agent hit-decl

Except for *biiwií* and *diilií*, all of the first and second person pronouns in (101) are viewed here as adjuncts rather than arguments. *Biiwií* and *diilií* can be moved apart from the verb, with no additional marking necessary on the verb. This is in contrast to the other first and second person focus pronouns, which never occur without set I agreement marking or a set II clitic. This is partially demonstrated in (102). When *biiwii* or *diilii* do not occur in argument position, clitic doubling on the verb is possible, but not obligatory.

Focussed third person arguments are put into an adjunct phrase which is headed by *koo* or *koon*. A focussed third person subject is typically followed by *koón*, while a focussed third person object is followed by *koó*.

Note that, unless it is followed by *koón*, an NP immediately preceding the verb is preferentially interpreted as the direct object, as illustrated in (104b). (104d) shows that *koón* marks this NP as the subject, so that the postposed NP must be the object.

(104) a. Jerrysh Randysh óo-k.
Jerry Randy bring-decl
'Jerry brought Randy.'

b. Randysh óo-k Jerrysh.
Randy bring-decl Jerry
'Jerry brought Randy.'

c. Randysh óo-k Jerrysh koón.
Randy bring-decl Jerry focus
'It was Jerry that brought Randy.'

d. Randysh koón óo-k Jerrysh.
Randy focus bring-decl Jerry
'It was Randy that brought Jerry.'

(105) a. Jack koón íkaa-k.
Jack focus see-decl
'Jack is the one who saw [it/him/her/them].'

b. Jack koó íkaa-k.
Jack focus see-decl
'Jack is the one that [he/she/it] saw.'

3.5.3 Reflexives

Crow has a reflexive clitic, *ihchi*, which can be inflected with a first or second person possessive prefix. The reflexive clitics do not bear plural marking; instead, the verb is marked with the plural suffix. There are no independent pronoun forms for reflexives.

(106) B-ihch=aw-íisshiw-uu-k.
1-self=1.I-wash-pl-decl
'We washed ourselves.'

With respect to ordering, reflexive clitics behave exactly like set II clitics. If both a reflexive clitic and a set II clitic are arguments of the verb, they are freely ordered. This is illustrated in (107).

(107) a. Aprilsh bii=ihchi=chiweé-wa-hchee-k.
April 1s.II=self=tell-1.I-caus-decl
'I had April tell me about herself.'

a. Aprilsh ihchi=wii=chiweé-wa-hchee-k.
April self=1s.II=tell-1.I-caus-decl
'I had April tell me about herself.'

3.6 The structure of predicates

This section provides a description of the morphological structure of predicates in Crow, concentrating on those elements which are suffixed to a predicate but which never bear agreement. In considering the syntactic status of the non-final suffixes, it is argued that most of the non-final suffixes described here can be characterized as derivational, since they appear to have no relevance to the syntax, although they do affect the semantic interpretation. The final suffixes are viewed here as belonging to a unified syntactic class of Complementizers. These are grouped below into three subclasses: markers of illocutionary force, evidentials, and true complementizers. The first two subclasses contain final suffixes found on predicates in root clauses, while the last subclass holds suffixes found on subordinated and coordinated clauses.

The structure of a simplex predicate (a predicate not involved in a verb incorporation structure) is schematized in (108).

(108) *Structure of predicates*

$$(\text{clitic}=)^* \; [_C \; [_{\text{Infl}} \; [_V \; \text{Verb root} + \text{dsufs} \;] + \text{Aspect} \;] + \text{Comp} \;] \; (=\text{clitic})$$

This schema only roughly characterizes the constituents of a predicate. First, the verb stem can be preceded by one or more (freely ordered) proclitic elements and/or incorporated nouns or postpositions. The verb root, together with any derivational suffixes (those in (109a)) comprise the verb stem. Aspect is the main element of Inflection, instantiated with the habitual suffix, zero, or (as argued in § 5.2) a modal auxiliary. Comp represents the obligatory complementizer suffix, chosen from the list in (120). Finally, there may be a clitic representing speaker attitude (such as quotative *huuk*, *ba* 'obviously', or *baliachik* 'I think').

3.6.1 Non-final suffixes

Distinctions of tense, aspect, and mood are made in four ways in Crow: (i) with adverbs or proclitics; (ii) with incorporating verbs; (iii) with non-final suffixes; (iv) with word-final complementizer suffixes. Chapter 5 deals extensively with some of the complex verbs derived with verb incorporation.

The non-final suffixes serve various functions. Some qualify the meaning of the verb in some way, such as the punctual suffixes (*-Cée, -aáhi*), the distributive suffix (*-aahi*). Others are more relevant to the clause as a whole, including the habitual suffix (*-ii*) and the negation suffix (*-ssaa*). The list given in (109) is probably not comprehensive, although it covers most of the suffixes in my data.[1]

(109) *Non-final predicate suffixes*

a. *-aáhi* punctual
-Cée/Cóo punctual
-aahi distributive, 'here and there', 'now and again'
-aachi/-(l)ichi qualifier, 'sort of'
-shta intensive, 'really'
-kaáshi intensive, 'really'
-taahili/-taali emphatic, 'truly'

b. *-ii* habitual

c. *-ssaa* 'not'

3.6.2 Syntactic status of nonfinal suffixes

There appears to be no reason to treat the suffixes in (109a) as inflectional, and good reason to consider them derivational. Note first that the ordering of the suffixes in (109a), when more than one occurs in a predicate, is not fixed. This is a characteristic of derivational suffixes, but not of inflectional suffixes.

Crow has bound elements with aspectual meaning which, when suffixed, bear set I person marking identical to that borne by the main verb. I assume here that those elements are bound verbs. The pattern of agreement marking in complex

[1]Agreement suffixes, which are considered inflectional, are omitted from this list. They are treated extensively in chapter 4. In addition, elements which take an agreement prefix are viewed here as verbs, and are discussed in chapter 5.

verbs with modal auxiliaries is discussed in chapter 5). None of the elements in (109) bear set I person marking; I take this as an indication that these elements are not verbs.

I assume that inflectional suffixes are those which are 'relevant to the syntax' (Anderson, 1982). By this criterion, the suffixes in (109a) are not inflectional: they affect the interpretation of the stem they attach to, but not its syntactic properties. In addition, they do not depend in any way on the syntactic configuration they occur in.

It has been observed that, across a wide spectrum of languages with verb incorporation of one type or another, proper subparts of complex verbs (analyzed as involving syntactic head movement, rather than lexical compounding) do not bear inflection (Li, 1990). Instead, the complex verb is inflected as a whole. Li proposes a revision of the binding theory under which no inflected verb is ever incorporated into another verb.

Now, the suffixes in (109a) do appear on predicates which are incorporated into other predicates. In contrast, the habitual suffix can only appear on the highest (rightmost) stem within a complex verb. If inflected verbs do not incorporate, then the limited distribution of the habitual suffix is an indication that it is part of the inflectional feature matrix of the clause as a whole, rather than a derivational suffix. Additional arguments that the habitual suffix is an element of inflection are provided in § 5.2.3.

Some of the suffixes which I have classed as derivational are described and exemplified below.

3.6.2.1 The qualifier suffix

The distribution of allomorphs of the 'qualifier' suffix is based on the length of the final vowel of the stem: if it is short, *-aachi* occurs, and if it is long, *-(l)ichi* occurs.[2] When it follows a diphthong (*ia* or *ua*), the low vowel of the diphthong and the high vowel of the suffix coalesce, as shown in example (111). This suffix usually indicates a qualification on the part of the speaker, much like 'sort of' or

[2]The *l* in this suffix is usually deleted in normal speech.

'kind of' in English. However, it is also used in conjunction with the doubled bound verb *deelee* to create the bound verb 'pretend' (see chapter 5).

(110) a. Ba-hkáa-k.
1.I-laugh-decl
'I laughed.'

b. Ba-hkáa-ichi-k.
1.I-laugh-qual-decl
'I sort of laughed; I smiled.'

(111) a. Día-k.
do-decl
'He/she did it.'

b. Dí-eechi-k.
do-qual-decl
'He/she sort of did it.'

3.6.2.2 The punctual suffixes

The distribution of the punctual suffixes is predictable and depends on the phonological shape of the stem (see § 2.7.4). This suggests that they are allomorphs of a single morpheme indicating punctuality. The punctual suffixes are illustrated in the examples below.

(112) a. B-uushí-k.
1.I-eat-decl
'I ate it.'

b. B-uus-sée-k.
1.I-eat-punct-decl
'I just now ate it.'

c. Ba-hkáa-k.
1.I-laugh-decl
'I laughed.'

d. Ba-hk-aáhi-k.
1.I-laugh-punct-decl
'I just now laughed.'

My treatment of the punctual suffixes as derivational differs from the analysis of Crain (1989). Crain suggests that a common crosslinguistic aspectual opposition, that of *perfective vs. imperfective*, is instantiated in Crow with the punctual suffixes (perfectives) opposite the habitual suffix and continuatives (imperfectives). (See below for further discussion of the habitual suffix.) This analysis implies that the punctual and habitual suffixes could not cooccur. However, as the examples below show, they can cooccur.[3]

(113) a. Balee=alaaxtá-htaa b-att-aáh-ii-luu-k.
1p.II=not.know-although 1.I-wake-punct-hab-pl-decl
'Without knowing, we always just wake up.'

(verb stem: *atchée* 'wake up'; punctual *attaáhi* 'wake up quickly/suddenly')

[3]These data were not available to Crain, as far as I am aware.

b. Bassée duus-sée-ii-luu-k.
before eat-punct-hab-pl-decl
'They used to gobble it down.'

(verb stem: *duushí* 'eat'; punctual *duussée* 'gobble, eat quickly')

3.6.2.3 The distributive suffix

The distributive suffix is formally similar to the long vowel form of the punctual suffix. However, unlike the punctual suffix, it does not bear an accent. Moreover, as the examples below demonstrate, both short and long vowel stems occur with this suffix.

(114) a. Ba-pashkú-k.
1.I-cut-decl
'I cut it.'

b. Ba-pashk-óo-k.
1.I-cut-punct-decl
'I cut it off (quick).'

c. Ba-pashk-aáhi-k.
1.I-cut-distr-decl
'I cut it up.'

(115) a. Páachilee-k.
push-decl
'He pushed it.'

b. Paachil-aáhi-k.
push-punct-decl
'He gave it a push.'

c. Páachil-aahi-k.
push-distr-decl
'He pushed it now and again.

The surface forms in (115b,c) are identical segmentally but differ in their pitch accent patterns; in words with accent on a long vowel at the end of the stem, the punctual form and distributive form are indistinguishable. I have not found any words in which the punctual and distributive suffixes cooccur, perhaps because of a conflict in semantic effect on the stem.

3.6.2.4 The habitual suffix

This suffix is used to indicate that some activity takes place habitually. When a verb with the habitual suffix cooccurs with the adverb *bassée* 'before, long ago', they indicate a habitual activity in the past; this translates to English 'used to', as in the examples in (116).

The form of the suffix is *ii* in most phonological contexts. When the plural suffix follows, an *l* appears.

(116) a. Bassée wa-hkáa-ii-k.
before 1.I-laugh-hab-decl
'I used to laugh.'

b. Bassée wa-hkáa-ii-luu-k.
before 1.I-laugh-hab.pl-decl
'We used to laugh.'

It is tempting to analyze the habitual suffix as underlingly *ili*, with a rule deleting *l*. This rule would not apply when the plural suffix follows, because the second short *i* is deleted in that case by Vowel Elision. Note that *l* is deleted in other contexts as well (see § 2.1.4). Unfortunately, this particular case of *l* deletion would have to be restricted to this morphological environment, since in other environments, *l* between *i*'s does not delete. Moreover, Crain (1989) points out that *luu* also surfaces as the form of the plural suffix in pronoun forms. The singular set II clitics can be used predicatively, as shown in the example below.

(117) a. Bíi-k.
1.pron-decl
'It's me.'

b. Bíi-luu-k.
1.pron-pl-decl
'It's us.'

Under the *ili* analysis, it is accidental that *l* also appears in the pronominal plural form, unless we say that pronouns also have an abstract form containing an *l*. Thus, I adopt Crain's hypothesis that the form of the plural suffix is *luu* following the habitual suffix *ii*, in plural pronoun forms, and following certain future auxiliary verbs (§ 5.2).

The final stem vowel is affected in different ways preceding the habitual suffix:

(a) When the vowel preceding the habitual suffix is long, it is unaffected. This is shown by the example in (116).

(b) When the vowel preceding the habitual suffix is a diphthong (*ua* or *ia*), the low vowel of the diphthong coalesces with the high front vowel of the suffix to produce *ee*. Thus, a habitual form of the verb *día* 'do' would be *díeek* 'he/she does it'.

(c) When the vowel preceding the habitual suffix is round, it fails to delete, even if it is short. This is shown in the habitual form of the verb 'cut', which is *páshku-ii-k* 'he/she cuts it'. I know of no explanation for this violation of the rule of Vowel Elision (note that short round vowels delete in other environments, for example, before the punctual suffix).

(d) When the vowel preceding the habitual suffix is short and non-round, it is deleted (as expected, from Vowel Elision). This is shown in the habitual forms of the verb *alaaxtá* 'not know':

(118) a. Bik baa-laaxtá-k.
me 1.I-not.know-decl
'As for me, I don't know.'

b. Bik baa-laaxt-íi-k.
me 1.I-not.know-hab-decl
'As for me, I always don't know.'

In § 5.2.3 it is argued that the habitual suffix is an inflectional head, and in particular that it is an element of Aspect. However, it is unlike other elements of Aspect, in that it is not lexically specified as a verb. In this respect, it differs minimally with the future tense auxiliary, which also has the form *-ii*.

3.6.2.5 Negation

There are two elements in Crow which are used in negation. One, a suffix of the form *-ssaa* (attached to the verb stem), is used in most ordinary contexts involving simple negation. The other, a bound element of the form *-deeta*, is hypothesized to be an existential predicate. An example contrasting these two is given in (119b).

(119) a. Baa-waláxi-ssaa-k.
1.I-sing-neg-decl
'I didn't sing.'

b. Puxxée-leeta-k.
beer-not.exist-decl
'There's no beer.'

Bradshaw (1989) argues that *ssaa* and *deeta* differ in properties of scope: *ssaa* takes scope over VP, while *deeta* takes scope over NP and S. My analysis is consistent with this hypothesis. As a predicate, *deeta* can take arguments of various sorts, including NP and S (AspectP), while *ssaa* is treated as a functional head which can only incorporate a VP. Note that the predicate *deeta* has a positive counterpart in the predicate *bishi* 'exist'. (The existential predicates are discussed further in chapter 5.)

3.6.3 Complementizer suffixes

Below is a list of the suffixes which occur as the final morphological element in verbal and non-verbal predicates.[4] Old Horn (1974) uses the label 'Complementizer' in discussing two of these suffixes, *ak* and *m*. I believe that this characterization is correct. The list in (120) is divided into three lexical subclasses: (a) markers of illocutionary force, (b) evidentials, and (c) true complementizers. The suffixes in (120) do not cooccur with each other within a word. In addition, these suffixes transform a non-word verb stem into a phonological word.

[4]Graczyk (1991) discusses some suffixes in this class which I have not encountered or have only passing familiarity with, such as *sht* 'strong assertion'. Moreover, Graczyk's work should be consulted for discussion of the distribution of these elements in text and discourse.

(120) *Predicate-final suffixes*

a. Markers of Illocutionary Force

-' root interrogative
-k declarative
-h singular imperative
-aalah plural imperative
-h irrealis ('might') (follows future aux)
-m/-mma irrealis (follows future aux)[5]

b. Evidentials

-shoo epistemic1 ('it must be')
-sh emphatic/perfective/past
-wis/-was epistemic2 ('it must be; probably')
-wík surprise/emphatic
-mmá emphatic declarative

c. True complementizers

-ak conjunctive participial ('and', 'while')
-htaa 'although'
-m 'and/when/since'
-nak conditional ('if '); embedded interrogative ('whether')
-t 'when', 'whenever'
-x/-xoo coordinate ('or')

[5]The analytical status of the putative irrealis suffixes *-m*, *-mma* and *-h* is somewhat tentative. The other suffixes are unrestricted in the kind of predicate which precedes them, while these suffixes only follow the future tense auxiliary *-ii*. See § 5.2.

Chapter 4

Agreement and predicate structure

4.1 Introduction

The aim of this chapter is to present an analysis of subject–predicate agreement and predicate structure in Crow. The basic theoretical framework for the analyses proposed here is the principles and parameters framework (Chomsky, 1981, Chomsky, 1986a, Chomsky, 1986b), together with the incorporation theory of Baker (1988).

In § 3.6, nonfinal and final suffixes within the predicate were discussed with respect to their function and syntactic status. § 4.2 describes subject–predicate agreement in simplex predicates, where a 'simplex predicate' is one which contains no more than one lexical verbal stem. § 4.3 discusses the semantic characteristics of predicates with respect to grammatical agreement properties, and proposes a lexical analysis which allows idiosyncratically 'suffixed' or 'infixed' agreement to be treated uniformly as prefixation. In § 4.4, the syntactic and morphological analysis for the agreement system is presented. The proposed syntactic structure of the clause is based on the observed patterns, taken together with recent hypotheses in syntax in which the node Infl is 'exploded' into constituent parts, each of which is treated as a head in the syntax (Pollock, 1989, Chomsky, 1989). § 4.5 proposes and defends the syntactic analysis of agreement assumed here.

4.1.1 Agreement and Case

It is difficult to find a consensus among linguists as to the function and derivation of agreement processes in language. Ferguson and Barlow (1988) identify

a number of different areas to be considered; two of these are the domain of agreement (what agrees with what?) and its syntactic or semantic function. These issues are of interest in characterizing agreement in a language like Crow, especially when it is contrasted with more well-understood agreement systems.

Consider the agreement marking found on verbs, which usually identifies the structural subject (and/or direct object) of a clause. In an *Aspects*-style framework (Chomsky, 1965), agreement is a transformation which copies features from a noun phrase in a structurally defined subject position to the verb. This kind of operation is still assumed in much current work, implicitly if not explicitly.

However, in other recent work, two different — though not necessarily incompatible — approaches to characterizing syntactic agreement have developed. In one approach, agreement is taken to be the overt realization of abstract Case assignment. For example, Baker (1988) proposes the following condition on the relationship between Phonological Form (PF) and S-structure:

(121) *The Principle of PF Interpretation*

Every Case indexing relationship at S-structure must be interpreted by the rules of PF.

Baker assumes that the PF-interpretation component takes place between S-structure and PF (Baker, 1988:488), and that it has access to whatever formal mechanisms in syntax and morphology are employed by the language. Thus, a given Case-indexing relationship could be realized with an overt morphological case affix on a noun, word order restrictions, and/or agreement morphology on a verb.

Note that the principle in (121) does not claim that every instance of morphological case or agreement is the realization of a distinct Case indexing relationship. Thus, a single assignment of abstract Case could conceivably have realizations in numerous places.

In a second approach, agreement is viewed as the realization of a structural relationship between a nominal in a specifier position and a head (N, V, Infl, etc.) (Carstens and Kinyalolo, 1989, Koopman and Sportiche, 1988):

(122) *Spec-Head Agreement*

Copy the ϕ-features of a nominal in [Spec,XP] to X.

When an argument lands in a specifier position, Spec-Head Agreement results in the relevant features (person, number, gender) being transferred to the head of that phrase. NP Movement is usually motivated by Case; but on this view, the agreement appearing on the head of a phrase is not necessarily the direct result of Case assignment. A good example is found in KiLega, a Bantu language of Zaïre. As (123) shows, in this language, an adjunct can surface in the highest specifier position as the nominative subject; verbal agreement appears on each head between VP and TP (Kinyalolo, 1991:238, example (4)). In Kinyalolo's analysis, agreement with the place nominal 'Lúgushwá' (class 17) occurs as a result of successive movement of this nominal through the specifier positions of various functional heads.

(123)

ku-Lúgushwá	kú-kili	ku-á-twag-a	nzogu	maswá
17-Lúgushwá	17agr-be still	17agr-A-stampede-fv	10elephant	6farm

'At Lugushwa are elephants still stampeding over (the) farms.'

It is easy to see that the two approaches outlined above say different things about the domain of agreement. In the PF-Interpretation approach, agreement is linked inexorably with abstract Case assignment, and the rules of PF-Interpretation must be responsible for spelling out exactly how a Case relationship is realized (including the multiple occurrences of the agreement element in (123)). In the Spec-Head Agreement approach, overt agreement is always linked to a structural relation between a specifier and a head. Here, the problem is in constraining movement (since many languages would not allow an adjunct to trigger subject agreement) and in defining which heads agree in which features. For example, in Crow, one kind of agreement is *always* linked to a predicate's external argument; and several suffixes (such as negation and habitual aspect) are assumed to be functional heads, but never bear agreement marking.

In the next sections, the system of agreement in Crow is described, and an analysis is proposed which makes use of both abstract Case assignment and the Spec-Head relation.

4.2 A description of subject–predicate agreement

Many languages of the Americas have what is known as an active agreement system. Active agreement systems are characterized by a split among predicates with respect to the way that subjects are marked on the verb. Intransitive predicates must be specified lexically for whether their subjects are marked like transitive subjects or like transitive objects (Munro and Gordon, 1982).

Agreement in Crow has some characteristics of an active system and some characteristics of a nominative/accusative system. The active pattern appears in person and number agreement with first and second person arguments; the accusative pattern appears in number agreement with third person arguments.[1]

To a large extent, person and number marking are marked separately in the predicate, rather than together paradigmatically or in portmanteau affixes. The one exception to this generalization is in the first person plural clitic (*balee*).

4.2.1 The active agreement pattern

In the active pattern of agreement marking in Crow, subjects of one class of intransitive verbs and subjects of most transitive verbs are marked on the verb with a *set I prefix* indicating first or second person. Subjects of another class of intransitive verbs, objects of postpositions, and objects of transitive verbs are marked with a *set II clitic* indicating first person singular, first person plural, or second person. Person features for third person arguments are typically not marked on the verb (but see below).

I will refer to the class of verbs that select set I marking for subjects as set I verbs, and to the class of verbs that select set II marking for subjects as set II verbs.

My terminology differs from that of Matthews (1981) and Graczyk (1991), who use the terms 'active' and 'stative' for the two main subcategories of verbs, although both acknowledge the fact that the agreement class of a verb cannot be predicted from its semantics. I avoid these terms for this reason. Matthews refers

[1]It appears that languages with an active agreement pattern show that pattern in person marking, or in a combination of person and number marking, but never only in number marking (Pamela Munro, personal communication).

to the pronominal agreement elements as 'actor' and 'goal' markers, while Graczyk uses the terms 'A-set' and 'B-set' (respectively).

A subset of the set I verbs, the transitive verbs, also employ set II marking to reference first and second person objects (in addition to set I marking referencing first and second person subjects). Crow also has a very small number of verbs which mark both subject and object with set II clitics. An example of such a verb is *chichée* 'resemble'. In addition, there is a class of verbs whose subjects are marked as set I predicates, but which also allow set II marking for first person plural subjects. I call these verbs 'mixed-set' predicates; an example is the verb apásshee 'be tired'. Finally, a very few predicates allow either set I or set II marking for all subjects. I call these 'fluid' predicates; an example is the verb *xachíi* 'move'.

The set I prefixes are given in (124); the paradigm in (130) shows these prefixes with the verb 'sing'. The set I prefixes are used to reference both singular and plural subjects.

(124) *Set I prefixes*

first person	second person
ba, baa	da, dáa

These are highly idealized representations. There is a great deal of allomorphy within the set I affixes, including alternations in the shape of the affix, the shape of the verb stem, and in pitch accent (see § 2.9 for details).

The set II clitics are given in (125); the paradigm in (131) shows these clitics with the verb 'fall off'.

(125) *Set II clitics*

	1st person	2nd person
singular	bii	dii
plural	balee	dii

Unlike the set I affixes, the set II markers do not show any allomorphy. The only alternations which occur are instances of the BMW rule (§ 2.1.3), the regular allophonic distribution of the sounds [b m w] and [d n l].

4.2.1.1 Number predicates

For most predicates, agreement in person is unmarked for third person subjects. The exception to this rule is that predicates indicating number are marked with a proclitic *ii* when the third person subject is animate (Matthews, 1981). Note that plural agreement in the predicate is also sensitive to this distinction. In (126a), where the subject is 'balls', the predicate *pilaká* 'ten' is unmarked; but in (126b), where the subject is 'people', this predicate bears the pronominal clitic *ii* and the plural suffix *uu*.[2]

(126) a. Íilaalee awúa buútche pilaká-k.
car inside ball 10-decl
'There are 10 balls in the car.' Lit. 'The balls in the car are 10.'

b. Íilaalee awúa bilaxpáake ii=pilak-úu-k.
car inside people 3.II=10-pl-decl
'There are 10 people in the car.' Lit. 'The people in the car are 10.'

Number agreement in predicates not denoting number is not apparently sensitive to animacy or sentience distinctions, as shown by sentences like the one in (127).

(127) Bala-xáap-uu-m xap-úu-k.
wood-flat-pl-indef fall.over-pl-decl
'Some boards fell over.'

4.2.1.2 Reflexive marking

When the subject and object are interpreted coreferent, a reflexive proclitic appears in place of the set II clitic. The reflexive clitic appears in addition to set I marking, and can be segmented into a possessive prefix (first person *ba-*, second person *da-*) and the bound reflexive pronominal *ihchi*. The paradigms in (132) through (134) show third, first, and second person reflexives, respectively, with the transitive verb 'help'.

[2]In Matthews' work, a grammar for learning Crow, the difference is described as a human vs. non-human distinction. However, in work with a consultant, I found that nouns denoting certain animals (e.g., *bird, rabbit, horse*) optionally trigger agreement, while nouns like *fish* and *car* could not. This suggests that the distinction turns on some perception of sentience.

(128) *Reflexive clitics*

1st person	2nd person	3rd person
bihchi	dihchi	ihchi

4.2.1.3 Plural marking

The plural agreement suffix attaches to the verb stem; it varies in shape according to the shape of the vowel it attaches to. The shape that surfaces most often is *-uu* (see § 2.10). The plural suffix is used in conjunction with set I or set II markers to indicate plural number of various arguments. As noted earlier, the set II clitic *balee* indicates both first person and plural number. In full pronoun forms, however, first person *bii* combines with the plural suffix, just as the second person bound pronominal does (*biiluu, diiluu*). It seems clear that the first person plural set II clitic *balee* is an exceptional form which takes precedence over the expected clitic—suffix combination *bii* + *-uu*; in verb forms, the first person set II clitic *bii* indicates singular number merely by virtue of the existence of *balee*. Thus, instead of representing *bii* as specifying singular, it seems correct to say that *bii* and *dii*, like *ba* and *da*, indicate person but not number.

The plural suffix indicates agreement with (a) first person plural subjects of set I verbs; (b) third person plural subjects of both set I and set II verbs; and (c) second person plural objects, and subjects of both set I and set II verbs. The set II clitic *balee* indicates both first person and plural number for objects and set II subjects. This pattern is schematized in (129); here, *-uu* is an idealized representation for the plural suffix. Examples showing plural agreement marking can be found in the paradigms in (130) through (134).

(129) *How plural number is referenced*

	set I subject	set II subject	object
first person	-uu	balee=	balee=
second person	-uu	-uu	-uu
third person	-uu	-uu	—

Notice that plural number of all first and second person arguments (set I subjects, set II subjects, and objects) is *always* referenced in some way. The plural number of first person plural objects and set II subjects is already in the clitic *balee*, thus obviating the need to mark plurality with the suffix. The second person set II clitic cannot bear number marking, so plural objects and set II subjects trigger the plural suffix. Only plural third person non-subjects fail to trigger any plural marking in either position (clitic or suffix).

4.2.1.4 Agreement paradigms

The verb forms in the tables below illustrate set I and set II person and number agreement. All of the verb forms below are suffixed with the declarative final suffix *-k*. To make it easier to see how these words are put together, set I person affixes are underlined once; the plural agreement suffix is underlined twice; and set II clitics and reflexive clitics are in boldface.

Four types of predicate are illustrated here: intransitive set I, (130); intransitive set II, (131); transitive set I, (132)-(134); and transitive set II, (135)-(137). Transitive set II predicates are quite rare.

(130) *Agreement paradigm for* baláxi *'sing'*

	1st	2nd	3rd
singular	baawaláxik 'I sang'	dáawalaxik 'you (sg.) sang'	baláxik 'he/she sang'
plural	baawaláxuuk 'we sang'	dáawalaxuuk 'you (pl.) sang'	baláxuuk 'they sang'

(131) *Agreement paradigm for* passhí *'fall off'*

	1st	2nd	3rd
singular	**bii**passhík 'I fell off'	**dii**passhík 'you (sg.) fell off'	passhík 'he/she fell off'
plural	**balee**passhík 'we fell off'	**dii**passúuk 'you (pl.) fell off'	passúuk 'they fell off'

(132) is the paradigm for *kuxshí* 'help', a transitive set I verb, as it occurs with third person objects. When the subject and object are interpreted coreferent, the reflexive proclitic *ihchi* appears.

(132) *Agreement paradigm for* kuxshí *'help' (3rd person objects)*

subj ↓	3rd person obj	
1sg	bahkuxshík	'I helped him/her/them'
1pl	bahkuxsúuk	'we helped him/her/them'
2sg	dáhkuxshik	'you (sg.) helped him/her/them'
2pl	dáhkuxsuuk	you (pl.) helped him/her/them'
3sg	kuxshík	'he/she helped him/her/them'
3sg refl	**ihchi**kuxshík	'he/she helped him/herself'
3pl	kuxsúuk	'they helped him/her/them'
3pl refl	**ihchi**kuxsúuk	'they helped themselves'

The paradigm for *kuxshí* 'help' with first person objects (singular and plural) is in (133). When the subject and object are both first person, the first person form of the reflective clitic appears in addition to set I marking.

(133) *Agreement paradigm for* kuxshí *'help' (1st person objects)*

subj ↓	1sg obj	1pl obj
1sg refl	**bihchi**wahkuxshík 'I helped myself'	
1pl refl		**bihchi**wahkuxsúuk 'we helped ourselves'
2sg	**bii**láhkuxshik 'you (sg.) helped me'	**balee**láhkuxshik 'you (sg.) helped us'
2pl	**bii**láhkuxsuuk 'you (pl.) helped me'	**balee**láhkuxsuuk 'you (pl.) helped us'
3sg	**bii**kuxshík 'he/she helped me'	**balee**kuxshík 'he/she helped us'
3pl	**bii**kuxsúuk 'they helped me'	**balee**kuxsúuk 'they helped us'

The paradigm for *kuxshí* 'help' with second person objects is in (134). When the subject and object are both second person, a second person form of the clitic appears in addition to set I marking. Notice also that the forms for 'he/she helped you (pl)', 'they helped you (sg)', and 'they helped you (pl)' are identical, as are the forms for 'I helped you (pl)', 'we helped you (sg)', and 'we helped you (pl).'

(134) *Agreement paradigm for* kuxshí *'help' (2nd person objects)*

subj ↓	2sg obj	2pl obj
1sg	**dii**wahkuxshík	**dii**wahkuxsúuk
	'I helped you (sg.)'	'I helped you (pl.)'
1pl	**dii**wahkuxsúuk	**dii**wahkuxsúuk
	'we helped you (sg.)'	'we helped you (pl.)'
2sg refl	**dihchi**láhkuxshik	
	'you helped yourself'	
2pl refl		**dihchi**láhkuxsuuk
		'you helped yourselves'
3sg	**dii**kuxshík	**dii**kuxsúuk
	'he/she helped you (sg.)'	'he/she helped you (pl.)'
3pl	**dii**kuxsúuk	**dii**kuxsúuk
	'they helped you (sg.)'	'they helped you (pl.)'

(135) is the paradigm for *chichée* 'resemble', a transitive set II verb, as it occurs with third person objects. As before, when the subject and object are interpreted coreferent, the reflexive proclitic *ihchi* appears.

(135) *Agreement paradigm for* chichée *'resemble' (3rd person objects)*

subj ↓	3rd person obj	
1sg	**bii**chichéek	'I resemble him/her/them'
1pl	**balee**chichéek	'we resemble him/her/them'
2sg	**dii**chichéek	'you (sg.) resemble him/her/them'
2pl	**dii**chichéeok	'you (pl.) resemble him/her/them'
3sg	chichéek	'he/she resembles him/her/them'
3sg refl	**ihchi**chichéek	'he/she resembles him/herself'
3pl	chichéeok	'they resemble him/her/them'
3pl refl	**ihchi**chichéeok	'they resemble themselves'

The paradigm for *chichée* 'resemble' with first person objects (singular and plural) is in (136). When the subject and object are both first person, the first person form of the reflective clitic appears in addition to set II marking.

(136) *Agreement paradigm for* chichée *'resemble' (1st person objects)*

subj ↓	1sg obj	1pl obj
1sg refl	**bihchiwii**chichéek 'I resemble myself'	
1pl refl		**bihchiwaalee**chichéek 'we resemble ourselves'
2sg	**biiliichichéek** 'you (sg.) resemble me'	**baleeliichichéek** 'you (sg.) resemble us'
2pl	**biiliichichéeok** 'you (pl.) resemble me'	**baleeliichichéeok** 'you (pl.) resemble us'
3sg	**biichichéek** 'he/she resemble me'	**baleechichéek** 'he/she resemble us'
3pl	**biichichéeok** 'they resemble me'	**baleechichéeok** 'they resemble us'

The paradigm for *chichée* 'resemble' with second person objects is in (137). When the subject and object are both second person, a second person form of the clitic appears in addition to set II marking. As with the set I predicates, the forms for 'he/she resembles you (pl)', 'they resemble you (sg)', and 'they resemble you (pl)' are identical. However, unlike in set I predicates, here the forms for 'I resemble you (pl)', 'we resemble you (sg)', and 'we resemble you (pl)' are all distinct from each other, because the first person singular and plural set II clitics differ.

(137) *Agreement paradigm for* chichée *'resemble' (2nd person objects)*

subj ↓	2sg obj	2pl obj
1sg	**diiwii**chichéek 'I resemble you (sg.)'	**diiwii**chichéeok 'I resemble you (pl.)'
1pl	**diiwalee**chichéek 'we resemble you (sg.)'	**diiwalee**chichéeok 'we resemble you (pl.)'
2sg refl	**dihchilii**chichéek 'you resemble yourself'	
2pl refl		**dihchilii**chichéeok 'you resemble yourselves'
3sg	**dii**chichéek 'he/she resembles you (sg.)'	**dii**chichéeok 'he/she resembles you (pl.)'
3pl	**dii**chichéeok 'they resemble you (sg.)'	**dii**chichéeok 'they resemble you (pl.)'

When two or more set II clitics cooccur, they are freely ordered. Thus, many of the forms above are ambiguous with respect to which argument is the subject

and which is the object. With the verb *chichée*, the semantic distinction between the arguments is difficult to make because the predicate is symmetric. If I resemble you, then it is also true that you resemble me; this would be true whether or not the ordering of clitics were free. However, note that in constructions with causatives and benefactives (chapter 5), where two set II clitics also cooccur within the same word, the distinction between arguments is clear, yet clitics are freely ordered there as well.

4.2.1.5 Mixed-set predicates

The mixed-set predicates in Crow have a mixed paradigm of person marking. The first person plural form can take either set I or set II marking, but only set I marking is available for second person forms and first person singular forms. Many such verbs express a cognitive state, although this is not an absolute criterion. In addition to *apásshee* 'tired', other mixed-set predicates include *kalaaxtá* 'forget', *itchía* 'be strong', and *baa-ilísshi* 'be afraid'. For some speakers, first person singular set II marking is also accepted for some of these predicates. Here and elsewhere, the % symbol indicates that some speakers found the indicated word acceptable, while others did not.

(138) a. *Paradigm for* apásshee *'tired'*

	Set I marking	Set II marking
1s	bapássheek	%bii=apássheek
1p	bapássuuk	balee=apássheek
2s	dapássheek	*dii=apássheek
2p	dapássuuk	*dii=apássuuk
3s	apássheek	
3p	apássuuk	

b. *Paradigm for* kalaaxtá *'forget'*

	Set I marking	Set II marking
1s	baalaaxták	*bii=alaaxták[3]
1p	baalaaxtúuk	balee=alaaxták
2s	dáalaaxtak	*dii=alaaxták
2p	dáalaaxtuuk	*dii=alaaxtúuk
3s	alaaxták	
3p	alaaxtúuk	

4.2.1.6 Fluid predicates

Very few verbs in Crow have 'fluid' marking, allowing either set I or set II marking for subjects. However, there are a few, including *shée* 'die' and *xachíi* 'move'. I will assume here that fluid predicates have a dual subcategorization, so that either kind of agreement for the subject is possible. The paradigms for *xachíi* 'move' are given below. (This verb is also an ablauting verb; see § 2.11.)

(139) *Paradigm for* xachíi *'move', a fluid predicate*

a. Set I marking

	1st	2nd	3rd
singular	baaxachíik 'I moved'	daxáchiik 'you (sg.) moved'	xachíik 'he/she moved'
plural	baaxatáauk 'we moved'	daxátaauk 'you (pl.) moved'	xatáauk 'they moved'

b. Set II marking

	1st	2nd	3rd
singular	**bii**xachíik 'I moved'	**dii**xáchiik 'you (sg.) moved'	xachíik 'he/she moved'
plural	**balee**xachíik 'we moved'	**dii**xátaauk 'you (pl.) moved'	xatáauk 'they moved'

Interestingly, fluid predicates in Crow are not mixed-set predicates. While they allow either kind of marking for subjects, if set I marking is chosen, the predicate behaves as a strict set I predicate; if set II marking is chosen, it behaves as

[3]This word is well-formed on the translation 'he/she forgot me', but it cannot mean 'I forgot (it).' Similarly, *dii-alaaxták* and *dii-alaaxtúuk* are bad on the reading 'you forgot (it)', but OK if they mean 'he/she forgot you' and 'they forgot you'. However, *balee-alaaxták* is ambiguous: it can mean either 'he/she forgot us' or 'we forgot it'.

a strict set II predicate. This is not evident in simplex clauses, but in complex predicates there is an effect on how agreement is realized on higher verbs, such as desideratives and tense/modal auxiliaries.

4.2.1.7 The verb 'give'

As noted in the text and shown in the paradigms in (133) and (134) in this section, first and second person objects are regularly referenced on set I verbs with the set II clitics. Both direct and indirect objects are indicated with set II clitics, with no distinction in agreement or pronominal marking.

However, there is one verb which is singularly exceptional in this respect: set I marking can be used on the verb *kuú* 'give' to mark a first or second person *recipient*. For many speakers of Crow, this verb also allows the regular agreement pattern; however, it seems clear that the regularized pattern is a recent innovation. The paradigms below illustrate irregular agreement (140) and regular agreement (141).[4] Subject markers are underlined once, and plural marking is underlined twice. In (140), set I prefixes used as object markers are boldface; in (141), set II marking is boldface. Dashes in (140) indicate gaps in the paradigm.

(140) *The verb* kuú *'give', irregular paradigm*

	object →				
subj ↓	1 sg	1 pl	2 sg	2 pl	3 sg/pl
1 sg			balákuk	balákuuk	bakúk
1 pl			balákuuk	balákuuk	bakuúk
2 sg	—	—			dákuk
2 pl	—	—			dákuuk
3 sg	**ba**kúk	**bili**kkuúk	**dá**kuk	**dá**kuuk	kuúk
3 pl	**ba**kúuk	**bili**kkúuok	**dá**kuuk	**dá**kuuk	kuúok

[4]Note that prefixing set I agreement marking to this verb causes the vowel of the stem to shorten. Shortening is apparently restricted to set I person marking for some subclass of verb stems. As a result, the plural suffix on a prefixed stem is long *-uu* (the regular form of the plural suffix when the stem vowel is short), while the plural suffix on an unprefixed stem is *-o*. (See § 2.10 for a more complete discussion of plural allomorphy.)

(141) *The verb* kuú *'give', regular paradigm*

	object →				
subj ↓	1sg	1pl	2sg	2pl	3sg/pl
1sg			**dii**wakúk	**dii**wakúuk	bakúk
1pl			**dii**wakúuk	**dii**wakúuk	bakúuk
2sg	**bii**lákuk	**baleelá**kuk			dákuk
2pl	**bii**lákuuk	**baleelá**kuuk			dákuuk
3sg	**bii**kuúk	**baleekuú**k	**dii**kuúk	**dii**kuúok	kuúk
3pl	**bii**kuúok	**baleekuú**ok	**dii**kuúok	**dii**kuúok	kuúok

As the paradigm in (140) shows, in the irregular paradigm for 'give' (and nowhere else in the language, as far as I know) first person plural objects are indicated with *-bili-*. The morphological status of this element is unclear. The evidence from the benefactive construction (§ 5.4) suggests that *bili* is a prefix, since it never attaches to the outside of a complex predicate with 'give'. Note also that if it were a clitic, we should expect the initial stem consonant to be acceptable if unaspirated or voiced, but it is not. However, the stem vowel does not shorten as it does with the prefixes *ba-* and *da-*.

It is reasonable to hypothesize that the irregular agreement for 'give' is a remnant of an earlier stage of the language in which set II markers were affixes rather than clitics. This is based on a comparison with the related language Lakhota, where set I and set II marking are both affixal.

4.2.2 Characteristics of set I and set II markers

The set I markers are clearly affixal in nature; they have considerable allomorphy which is only partly predictable from the form of the stem. In addition, a set I prefix may be idiosyncratically attached to a non-initial part of a stem (giving the appearance of infixing) or to more than one part of a complex but lexicalized stem (giving the appearance of doubled agreement marking). This is discussed and exemplified in chapter 2 (§ 2.9.5). I propose here (in § 4.3.2) that each set I verb has a lexical representation in which the part of the stem taking a set I prefix is specified independently. This representation takes into account both the idiosyncratic nature of 'infixing' and 'suffixing' verb stems, as well as the fact that such stems are historically composed of more than one set I verb taking a set I prefix.

In contrast to the set I markers, the set II agreement markers have properties of pronominal clitics. Unlike the set I affixes, they show no allomorphy at all outside of regular sound alternations; unlike the set I affixes, they are never idiosyncratically infixed, suffixed, or doubled. In addition, like clitics in other languages, set II markers can attach to another VP-internal head (such as a postposition) rather than the verb. This is illustrated in (142b).

(142) a. Ashiilúupe-sh bii=le-hche-k.
room-to 1s.II=go-cause-decl
'She had me go to the other room.'

b. Bii=ashiilúupe-sh de-hche-k.
1s.II=room-to go-cause-decl
'She had me go to the other room.'

4.2.3 Characteristics of plural marking

As the paradigms above show, plural number of first and second person arguments of the verb is *always* referenced on the verb. The plural suffix is not always the means by which plural marking is done, however. Because the first person set II clitic already contains a number distinction, a predicate never shows a plural suffix to reference a first person plural object or first person plural set II subject argument. In addition, plural marking is not doubled if more than one argument of the verb would trigger it. Thus, many plural verb forms are ambiguous out of context.

The pattern of plural agreement for third person arguments is nominative-accusative. The set I ~ set II division of predicates is not relevant for third person plural agreement marking: set I verbs (such as *baláxi* 'sing') and set II verbs (such as *passhí* 'fall off') are both marked to show that the subject is third person plural, but third person plural objects of transitive verbs never trigger the appearance of the plural agreement suffix. This is demonstrated in (132) and in the examples below. In (143a) and (143c), the plural marker references a 3pl subject of a set I verb and a set II verb, respectively. The subject of the transitive verb in (143d) is unambiguously plural; this word could not mean 'He/she bit them.'

(143) a. Baláx-uu-k. b. Dáapxi-k.
sing-pl-decl bite-decl
'They sang.' 'He/she/it bit it/him/her/them.'

c. Pass-úu-k.
fall.off-pl-decl
'They fell off.'

d. Dáapx-uu-k.
bite-pl-decl
'They bit it/him/her/them'.

4.3 Lexical and semantic characteristics of predicates

For the most part, set II predicates denote states or nonvolitional events, and set I predicates denote volitional events. However, there are several exceptions to this: some semantically stative or non-volitional verbs select set I marking. For example, the verb *áappee* is 'to be jealous; to be possessive of (someone).' Only one verb in Crow (that I know of) is semantically volitional and non-stative, yet is marked exclusively with set II person marking. This is the verb *biísshi* 'tell a lie'. It might be suggested that this predicate ought to be translated statively, i.e. 'to be a liar'. However, the evidence does not seem to support this proposal, since *biísshi* can be used with postpositional phrases like 'about' and 'to', as shown in the sentences in (144).

(144) a. Jack dii=aák bí=sh=biisshi-k.
Jack 2.II=about 1s.II=to=lie-decl
'Jack lied to me about you.'

b. Jack kush=bii=wiísshi-k.
Jack to=1s.II=lie-decl
'I lied to Jack.'

A stative predicate would be semantically odd in the contexts in (144a,b), which require an activity type predicate: compare *# Jack was a liar about me* or *# I was a liar to Jack.*

The fact that the selection of set I or set II agreement for subjects is not predictable from the semantic characteristics of predicates is further demonstrated by the sampling of predicates given in (145). Almost all transitive verbs are marked with set I marking for subjects and set II marking for objects, and are largely omitted from (145). However, I have included transitive predicates below, namely those which are semantically stative or nonvolitional (e.g. *chilíi* 'fear, be afraid of').

A very few predicates mark both subject and object with set II clitics (e.g. *chichée* 'look like'). Mixed-set predicates which are transitive, such as *kalaaxtá*

'forget', allow two arguments marked with set II clitics when the subject is first person plural, but otherwise behave like other set I transitive verbs.

(145) *Semantic grouping and agreement class*

a. Movement verbs
   - Set I: huú 'come', hií 'arrive', biléeli 'enter', díili 'walk', dée 'go', xalússhi 'run', chisshíi 'return'
   - Fluid: xachíi 'move'

b. Existence, appearance, location
   - Set I: eé 'have, own', íhchisshi 'rest', iluú 'stand', awáachi 'sit'
   - Set II: hilií 'be alive', bishí 'be born', ashíi 'appear', koolá 'live (in a place)'
   - Fluid: shée 'die'

c. Volitional event
   - Set I: disshí 'dance', baláxi 'sing', ilíi 'speak', káa 'laugh', ihchipúa 'jump', bíiwi 'swim', kóoshi 'whistle'
   - Set II: biísshi '(tell a) lie'

d. Non-volitional event
   - Set I: itchée 'wake up'
   - Set II: tattaáhi 'stagger', apáali 'grow', pásshii 'wreck', aláxii 'burn (intr)', iáxxoo 'hurt (intr)', passhí 'fall off', awéelichi 'fall down'

e. Bodily function
   - Set I: axxí 'cough', apiiaxxí 'sneeze', sáaxi 'snore', ilíahi 'breathe', iháwi 'sleep', kalée 'vomit', pía 'break wind'
   - Set II: daxchí 'choke', tannaá 'shiver'

f. Mental activity
   - Set I: éhchee 'know', chichéhchee 'remember', kalatchí 'believe'
   - Mixed: alaaxtá 'not know', kalaaxtá 'forget', baa-shíali 'dream'

g. Emotion
   - Set I: íiwee 'cry', chilíi 'be afraid of', áappee 'be possessive (of)', íchisshi 'love', dúupia 'hate', óolichi 'envy', ilíshee 'scream'
   - Set II: dúhpapee 'be startled, scared', batchoolée 'be embarrassed'
   - Mixed: baa-ilísshi 'be afraid, frightened'

h. Permanent quality

Set II: batshúa 'be mean', chichúchi 'be hard', tatée 'be capable', chichée 'look like', baaláaxi 'be crazy, wild', datchiláachi 'be dangerous', báhtakaata 'be weak'

Mixed: íishihta 'be lazy', itchía 'be strong', issáa 'be ambitious', isahkupée 'be mischievous', áammishi 'be mischievous', daasátchuchi be 'brave', iluúleeta 'be weak'

i. Temporary quality

Set II: baakuhpaá 'be sick', shishía 'be dirty', chilía 'be cold', káaxutchee 'be drunk', úuchi 'be dry', húa 'have a cold', baahiichí 'be stoned, high'

Mixed: baa-ilíshee 'be unwell', alíishi 'be hungry', apásshee 'be tired', annéewishi 'have a disease', annéeleeta 'be healthy'

Notice that predicates which are semantically very similar may still belong to different classes. For example, compare set II *baakuhpaá* 'be sick' and mixed-set *baa-ilíshee* 'be unwell'; set I *chilíi* 'be afraid of', set II *dúhpapee* 'be startled, scared', and mixed-set *baa-ilísshi* 'be afraid, frightened'. Even in related languages, the semantic principles determining which predicates belong in which grammatical class (set I $\sim$ set II) are hard to pin down, and there are crosslinguistic mismatches. Lakhota, a member of a different branch of the Siouan family, also has an active agreement system (Boas and Deloria, 1941, Munro and Fixico, 1989). But the agreement class of a predicate in Crow does not necessarily match the agreement class of the corresponding predicate in Lakhota. For example, the verb 'sleep' is a set I verb in Crow (*iháwi-*) but a set II verb in Lakhota (*ishtima/e*). Nevertheless, it is interesting to note that the verb meaning 'to tell a lie', which is unexpectedly a set II verb in Crow, is also a set II verb in Lakhota, even though these verbs are not apparently cognate in the two languages (Pamela Munro, personal communication).

4.3.1 Set II predicates are unaccusative

In many languages there is a class of predicates whose subjects pattern with objects in some respects. These predicates, known as unaccusatives, have been proposed to have a lexical specification in which they select an object argument and no subject argument (Perlmutter, 1978, Burzio, 1981). In this section I will defend the hypothesis that set II predicates in Crow are unaccusative (see (Davies, 1986),

who first proposed this kind of analysis of set II predicates in an active agreement system). Since subjects in set II predicates are marked with the same elements used to mark transitive objects, it is natural to consider an analysis in which they are structural objects, at least at some level. However, there are two problems with this hypothesis which must be resolved. First, the semantic characteristics of set II predicates in Crow do not match perfectly with the semantic characteristics of unaccusative predicates of other languages. Second, unaccusative subjects are marked with set II marking, which I analyze as the realization of accusative Case assignment. I will address the second of these problems first.

Levin (1989) appeals to the unaccusative hypothesis to account for the superficially ergative pattern of agreement and auxiliary selection found in Basque. Levin argues that in Basque, the class of verbs whose subjects are marked in the NOR (absolutive) case fit exactly into the semantic parameters described by Perlmutter (1978) for unaccusative verbs. These include verbs of inherently directed motion (go, come), verbs of change of physical state (open, break), verbs of change of psychological state (be surprised, be frightened), verbs of coming into existence and occurrence (happen, stay/be, appear), and aspectual verbs (end, begin). Unergative type intransitives in Basque (predicates like 'run' or 'laugh') are expressed with a construction involving a kind of expletive transitive verb (like 'do') and an event nominal. For example, to say 'we ran', you would literally say something like 'we did running.'

Levin's analysis of agreement in Basque treats absolutive agreement and case marking as accusative case assignment by the verb (Levin, 1983). Now, in most languages where unaccusativity has been studied, the argument of an unaccusative verb does not receive accusative case, but nominative case. This is usually thought to follow from Burzio's Generalization (BG):

(146) *Burzio's Generalization*

> Verbs which do not assign an external theta role cannot assign accusative Case.

If Burzio's Generalization holds, unaccusative verbs as a class cannot assign accusative Case. As a result, the argument which is projected as a complement to such a verb is forced to move to an S-structure position where it can receive Case. But since the argument of unaccusative predicates *is* marked with accusative (=absolutive) case/agreement in Basque, Levin concludes that unaccusativity in Basque is unrelated to a verb's inability to assign Case.

If we regard set II marking as the realization of accusative Case marking, then this analysis can be extended to Crow. In fact, it could be that in general, languages with an active agreement system are languages in which unaccusative predicates assign Case to their arguments. Two questions arise in relation to this hypothesis: first, is the argument of an unaccusative predicate a structural subject? Second, does Burzio's Generalization simply fail to hold in Crow (and other split-intransitive languages)? These questions are addressed in § 4.5.

I will now consider the other problem noted with the characterization of set II predicates in Crow as unaccusative: namely, that these predicates do not match very well with the semantic characteristics of unaccusative predicates cross-linguistically. The class of unaccusative verbs in Basque, Italian, and English overlaps with the class of set II verbs in Crow, but there are fairly serious classes of exceptions. For example, verbs of directed motion (arrive, come, go) are typically set I verbs in Crow; verbs of emotional state (be frightened, be angry) are typically set I or mixed-set verbs in Crow.

It has been argued that semantic characterizations are inadequate for predicting the grammatical distinction between set I and set II verbs (cf. Munro and Gordon (1982), for the Muskogean languages Chickasaw and Choctaw, and Martin (1991), for Crow and Creek). In this respect, Crow is like other languages which split intransitive predicates in this way, if Durie (1985:187f.) is correct:

> There appears to be a consensus that different languages split the "intransitive subject" in different ways: no universal semantic rules apply by which one can always determine which intransitive verb will treat its argument like a "transitive subject", which like a "transitive object" ... the two most important semantic bases for splits are the oppositions active ~ stative and control ~ non-control. ... [T]he North American split-S languages tend to be of a more active ~ stative type.

Mithun (1991), in an extensive study of the various semantic bases for the active pattern, suggests that in Lakhota (and in Siouan in general), controllability of a state or action is one relevant factor in determining the agreement class of a predicate. However, Mithun also introduces notions of performance (of an action), effect (on a participant), and instigation (by a participant); predicates with these characteristics tend to be set I predicates. Mithun suggests that these features comprise a definition for agency, and that it is this, rather than just control or stativity, which determines the case split in Siouan languages.

Therefore, although set II predicates do not match the semantic characteristics of unaccusative predicates in European languages, it seems that we should not expect them to. It remains clear that the set I $\sim$ set II distinction must be lexically specified. Having recognized the lexical nature of this distinction, we can make use of the Unaccusative Hypothesis to let the lexical representation of an intransitive predicate specify the position of its argument as internal (set II) or external (set I).

4.3.2 Lexical representation

The notation I will use for specifying lexical agreement class is a bracket labeled with a bold subscript I (for set I marking). For verbs which select 'infixed', 'suffixed', or doubled agreement (§ 2.9.5), the bracket encloses the part(s) of the stem to be prefixed with set I agreement. This kind of representation expresses the fact that these stems are morphologically complex, and it allows a uniform characterization of set I marking as prefixation. Note that some stems will be specified with two set I brackets around different parts of the stem.

I will assume here that the representation of set II predicates does not include a bracket. Set II marking is never idiosyncratic in form or placement; this fact is predicted in a system where there is no possibility of a lexical specification bracketing only part of a set II predicate. If set II predicates were specified in the same way as set I predicates, the absence of predicates which select infixed set II marking would be accidental.

The unaccusative hypothesis treats set II predicates as verbs which assign a theta-role and Case to a V^1-internal argument.[5] Set I predicates must be treated as verbs which assign a theta-role (but not Case) to a V^1-external argument. Where do mixed-set predicates belong in this system? Given their semantic characteristics, it seems that they ought to be treated as unaccusatives, yet these predicates actually allow set II marking only for first person plural subjects. If predicates are specified with a Case grid (and I will assume they are), then these verbs could be treated as unusual unaccusatives: their arguments are projected internally, but the verb has a set I bracketing and lacks accusative Case. As a result, the argument of a mixed-set verb is forced to move to a position where it can receive nominative Case. Set II marking in first person plural forms of mixed-set predicates must still be stipulated, but could be attributed to the odd morphological status of the clitic *balee*, which differs in several respects from the other pronominal clitics (*bii* and *dii*) (see § 3.2.2).

Note that for mixed-set predicates in which set I marking is 'infixed', if set II marking is chosen for first person plural forms, the set II clitic is not infixed, but prefixed as usual. This is exemplified in the paradigm of segmented forms of *baailísshi* 'to be afraid' given in (147).[6] Set I marking is underlined once; set II marking is boldface. (The plural suffix is segmented here, but not otherwise emphasized.)

(147) *Paradigm for* baa [$_I$ ilísshi] *'to be afraid'*

	singular	plural	
1	baa-wa-lísshi-k	baa-wa-líss-uu-k	**balee=waailísshi-k**
2	baa-la-lísshi-k	baa-la-líss-uu-k	
3	baailísshi-k	baailíss-uu-k	

In a similar vein, I will assume that the set II predicate *biisshí* 'to lie (tell a lie)' is an unusual unergative predicate, since it projects an argument in [Spec,VP], but (unlike other unergatives) also assigns accusative Case to that position.

[5] I use superscripts to refer to bar level. Thus, V^1 is V-bar, V^2 is VP, and V^0 is equivalent to V.

[6] This verb stem, like all 'infixing' verb stems, is morphologically complex. The initial syllable *baa* may at one time have been the 'generic object' clitic found regularly with transitive verbs; for example, consider *baaluushík* 'he ate' and *duushík* 'he ate it'. Compare 'to be afraid', in which *baa* is always present, indicating that it has been lexicalized as part of the verb stem. Moreover, although the clitic *baa* is ordered freely with other clitics in its productive role as a generic object, in 'to be afraid' *baa* must occur closer to the verbal root than any other clitics.

Examples of specifications for different types of predicate are given below. In sentences with a set I verb, the subject is generated in [Spec,V^2], 'external' to V^1. In sentences with a set II verb, the subject is generated as a sister to V, internal to V^1. The theta-grid representation lists the thematic roles (such as 'agent', 'theme', 'experiencer') assigned by the predicate; underlining in the theta grid indicates an external argument. The Case-grid representation shows whether the verb assigns accusative Case or not.

(148) *Lexical representations for predicates*

a. stem: passhí
category: V
gloss: fall off
θ-grid: (thm)
Case grid: (Acc)

b. stem: [$_I$ íkaa]
category: V
gloss: see
θ-grid: (exp,thm)
Case grid: (Acc)

c. stem: issh [$_I$ íi]
category: V
gloss: drink
θ-grid: (agt,thm)
Case grid: (Acc)

d. stem: baa [$_I$ ilísshi]
category: V
gloss: afraid
θ-grid: (exp)
Case grid: ()

e. stem: [$_I$ isítchi] [$_I$ ee][7]
category: V
gloss: like
θ-grid: (exp,thm)
Case grid: (Acc)

f. stem: háchka
category: V
gloss: tall
θ-grid: (thm)
Case grid: (Acc)

g. stem: [$_I$ xachíi]
category: V
gloss: move
θ-grid: (thm)
Case grid: ()

h. stem: xachíi
category: V
gloss: move
θ-grid: (thm)
Case grid: (Acc)

i. stem: chichée
category: V
gloss: resemble
θ-grid: (thm,thm)
Case grid: (Acc,Acc)

j. stem: biísshi
category: V
gloss: lie (tell a lie)
θ-grid: (agt)
Case grid: (Acc)

4.4 Clause structure

4.4.1 D-structure position of subjects

I assume a clause structure in which subjects are VP-internal at D-structure. This structure has been proposed and defended in a number of works (Koopman and Sportiche, 1988, Kuroda, 1988, Kitagawa, 1986). I follow Kuroda and Kitagawa in putting the subject in [Spec,VP] at D-structure, without the extra VP layers proposed in Koopman and Sportiche (1988) and Sportiche (1990). I view [Spec,VP] as a thematic position for external arguments; however, when no external argument is projected, [Spec,VP] is a non-thematic Case position for unaccusative subjects.

4.4.2 The expansion of Inflection

Within the last several years there have been a number of proposals with respect to the expansion of Inflection from a single functional category which is the head of S (sentence) to a number of functional heads, each of which projects a phrase in the syntax. The proposed categories in these works have varied, including T (Tense), F (Finite), Agr (Agreement), Agr-S (Subject Agreement), Agr-O (Object Agreement), Neg (Negation), and Asp (Aspect), among others. Some of these works, such as Speas (1990) and Carstens and Kinyalolo (1989), claim that the clause structure they propose is universal; others suggest that it holds for families of related languages (Pollock, 1989), or that there may be parametric variation with respect to relative positioning of functional elements (Laka, 1989).

Some authors have proposed that elements such as Tense and Aspect are heads, but Agreement is not, being instead the spellout of Spec-Head Agreement (Koopman and Sportiche, 1988, Carstens and Kinyalolo, 1989). Broadwell (1990) suggests that there is parametric variation among languages as to whether evidentials are functional heads in syntax or whether they are spellouts of features on other functional heads. The idea is that, in cases where a functional element does not have a fixed position with respect to other functional elements, shows extensive allomorphy, or has conditions on occurrence other than those dictated by structure alone, the functional element in question is better represented as a feature or set of

features on another category rather than as a syntactic category in its own right. It seems reasonable to extend this idea to other functional categories: perhaps not only evidentials, but agreement, aspect, tense, and negation can vary along this parameter as well.

Verbs combine with inflectional heads by moving and adjoining to them (Travis, 1984, Koopman, 1984); however, some authors have also proposed lowering operations. A third possibility would be to posit no movement, and assume that the morphological subcategorization requirements of bound elements are satisfied by linear concatenation at S-structure. This kind of proposal will not work for a language in which the heads and specifiers are on the same side, but there is no reason not to consider it in a language where the heads are on the right but the specifiers are on the left.

There are also differences among these proposals as to relative dominance of these elements in the phrase structure tree. For example, Pollock (1989) has T dominating Neg dominating Agr; Chomsky (1989) has Agr-S, F, Neg, Agr-O; Johnson (1990) has Per (person agreement), Neg, Num (number agreement), T; Speas (1990) has Agr-S, T, Asp, Agr-O, Voice; and Carstens and Kinyalolo (1989) have T, Asp, Part (participle).

Speas (1990) presents an interesting proposal: that observed surface variation among different languages is determined by parametric choices as to direction of affixation for function and content elements, and constrained by a principle that in a given language, function elements — in both morphology and syntax — govern in a uniform direction, and content elements (nouns and verbs) govern in a uniform direction in both domains as well. However, Crow is not a language which would support this idea. Since both function and content elements subcategorize for elements to their left, there appears to be no place in this system for set I person marking, which is prefixed. A worse problem for uniform direction of affixation is the system of person marking in Muskogean languages, where first person set I marking is uniformly suffixed, but second person set I marking is uniformly prefixed.

An analysis in which the order of affixes reflects the syntactic structure of the clause would suggest positing at least two Agr nodes for Crow: one for plural number

agreement and one for set I person agreement. This kind of split (into Per and Num, instead of Subj and Obj) has been proposed for the Germanic languages (Johnson, 1990). For example, one might suppose that, given the sequence of inflectional morphemes in a sentence such as (149a), the structure of the clause in Crow is as in (149b).[8]

(149) a. Baa-waláxi-ssaa-ii-luu-k.
1.I-sing-neg-hab-pl-decl
'We don't sing.'

b. $[\,[\,[\,[\,[\,[\,[\text{ sing }]_{V}$ baa- $]_{\text{PerAgr}}$ -ssaa $]_{\text{Neg}}$ -ii $]_{\text{Asp}}$ -luu $]_{\text{NumAgr}}$ -k $]_{C}$

Suppose that the functional category NumAgr is instantiated with the plural suffix whenever the argument in [Spec,NumAgr] (or in some other position governed by NumAgr) is plural. But recall the conditions under which the plural agreement suffix appears: (i) with a first person plural subject and a set I verb (that is, when the first person plural subject is the external argument); (ii) with any second person plural argument, including an object; (iii) with a third person subject (but not object). It seems clear from this that in fact the occurrence of the plural suffix cannot be associated systematically with a plural argument in [Spec,NumAgr], unless the rule which moves arguments to this position is sensitive to both person features and the internal/external argument distinction. I believe an analysis which moves just the arguments noted above to this position would be quite difficult to motivate.

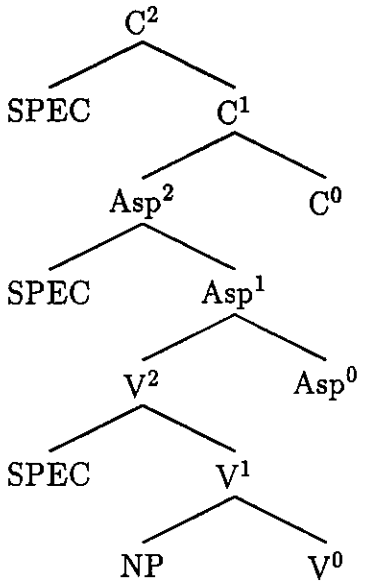
A better approach for handling plural marking in Crow would be to view agreement as paradigmatic, in the sense that number features are interpreted together with person features, despite the fact that the prefix or proclitic indicating person and the suffix indicating number may be formally removed from each other by several intervening morphs. Moreover, since the plural agreement suffix cannot be associated systematically with arguments of any particular structural position, I will not treat the plural suffix as a functional element of Inflection.

[8]Per Agr could actually be anywhere in the hierarchy, since set I person marking is prefixed. The particular place it occupies in this scenario does not matter for purposes of the discussion here.

4.4.3 Crow clause structure

Consider the proposed structure for Crow clauses given in (150).

(150) *Crow Clause Structure*



The lexical category C (complementizer) is instantiated with the suffixes listed in (120). Aspect can be instantiated with zero (indicating completive aspect), with the habitual suffix, (indicating habitual aspect), or with one of a small set of bound auxiliary verbs used in expressing future, subjective, and possible modality (will, might, should, must). In earlier analyses, I treated the modal auxiliaries simply as bound verbs. Arguments supporting the treatment of the modal auxiliaries as elements of Aspect are given in § 5.2. When Aspect is instantiated with zero, the tense of the clause can be interpreted as present or past; past tense readings can be forced with a preceding adverb ('before', 'long ago', 'yesterday', etc). The lack of any overt difference in inflection between present and past tense suggests that the category Tense may be missing or inert in Crow inflection.

If this is correct, it could be the basis for an explanation of the fact that embedded clauses in Crow display none of the effects (involving PRO) found in languages having infinitival clauses. If there is no infinitival Infl, there are no un-

governed specifier positions, and thus no available landing site for PRO, which must be ungoverned.

4.5 An analysis of the active agreement pattern

In this section, I will consider and reject two possible analyses of agreement in Crow, and propose an analysis which avoids the problems inherent in the other two. In all of these analyses, I have assumed that subjects of set II verbs are projected as unaccusative complements of V, while subjects of set I verbs are projected in [Spec,VP] at D-structure (external to V^1; see § 4.3). In addition, it is assumed in these analyses that the element of Inflection which assigns nominative Case in Crow is Aspect, and that Case is assigned right to left.

4.5.1 D-structure Case

First, suppose that set II marking is the realization of Case assignment by the verb at D-structure. Case assignment at D-structure is usually proposed for objects receiving so-called 'inherent' Case, where the Case assignee also receives a thematic role from the Case assigner (Chomsky, 1986b, Baker, 1988). Under this analysis, it must be assumed that Burzio's Generalization does not hold for Crow, since unaccusative predicates assign Case to their arguments. The unaccusative argument is not a structural subject at any level; since it receives Case from the verb at D-structure, there is no Case motivation for movement. This is both an advantage and a drawback. It is an advantage because the D-structures projected from the lexical representations in § 4.3.2 are reflected exactly in the set I ~ set II agreement pattern. The fact that transitive objects and set II subjects receive identical marking can now be seen as the result of the fact that both are assigned Case by the verb at D-structure.

The problem with this is that nothing distinguishes objects from set II subjects structurally. As we have seen, third person plural marking is sensitive to the distinction between subjects and objects: third person plural subjects of *both* set I and set II predicates trigger the plural suffix, while third person plural objects do

not. This is true whether the third person plural subject is silent [pro] or an overt NP.

A second argument that objects and set II subjects need to be distinguishable comes from participial verb phrases. A sequence of verb phrases, where each verb but the last bears the suffix *-ak*, is possible only if the subject of each is the same.[9] This is demonstrated in (151).

(151) a. Bisheeiichíile óoxp-ak xachíi-k.
cow shoot-AK move-decl
'He shot the cow and he moved.'
NOT 'He shot the cow and it moved.'

b. Bisheeiichíile óoxp-uu-m xachíi-k.
cow shoot-pl-comp move-decl
'They shot the cow and it moved.'

c. *Bisheeiichíile xatáa-ak óoxp-uu-k.
cow move-AK shoot-pl-decl
('The cow moved and they shot it.')

The following examples demonstrate that the argument of an unaccusative (set II) predicate in Crow is a subject in this construction.

(152) a. Bii=xapáa-ak ihá-sh=baa-lee-k.
1s.II=be.lost-AK wrong-to=1.I-go-decl
'I was lost and went the wrong way.'

b. Ihá-sh=baa-ak balee=xapíi-k.
wrong-to=1p.go-AK 1p.II=be.lost-decl
'We went the wrong way and were lost.'

In an analysis where the position of the argument of an unaccusative predicate is not distinct from the position of objects, we cannot characterize the set of arguments which can serve as the 'same subject' in a sequence of verb phrases linked with *-ak*.

In the analysis considered in the next section, these problems are handled by moving subjects of set II predicates to a canonical subject position, [Spec,AspP].

[9]My assumption that verbs suffixed with *-ak* are participial (despite the translations, which sometimes make them appear to be coordinate VPs) is based on the fact that they never bear plural agreement; plural marking for a string of verb phrases linked with *-ak* occurs only on the final verb. However, this view of *-ak* remains somewhat tentative. Graczyk (1991) treats *-ak* as a marker of conjoined clauses with the same subject.

4.5.2 Canonical subject position at S-structure

It is usually assumed that nominative Case is assigned at S-structure, and that it is a structural Case relation. In the preceding subsection, reasons were given to distinguish objects from unaccusative subjects structurally. To accomplish this, we might suppose that Burzio's Generalization does hold in Crow, thus ensuring that the argument of an unaccusative verb moves to subject position to receive Case.

While this approach does the job of distinguishing set II subjects structurally from objects, it is unsatisfactory in other ways. Since set I and set II subjects would not be distinguished structurally at S-structure, the distinction between nominative case marking for set I and set II subjects would lie only in how nominative Case is realized for different classes of verbs. As a result, the D-structure position of subjects becomes irrelevant to agreement, even though it is agreement which motivates the structural distinction. In addition, it is accidental on this analysis that the clitics which realize object Case for first and second person arguments are identical to the clitics which realize set II subjects. Therefore, this approach must be rejected.

4.5.3 A hybrid analysis

The main advantage of the 'canonical subject' analysis was that unaccusative subjects were distinguished from objects. The main advantage of the 'D-Structure Case' analysis was that set II marking for both objects and subjects could be treated uniformly as Case assignment by V. Is there a way to get these advantages without the problems of those analyses?

The analysis I will defend in this section is based on two hypotheses: first, that set I agreement is the realization of nominative Case assignment; and second, that the argument of an unaccusative predicate is forced to move from its D-structure position [NP,V^1] to [NP,V^2] in order to receive Case. As a result, unaccusative arguments will be structurally distinct from objects at S-structure, yet still in a position to receive Case from the verb. In order to accomplish this, I will assume the following revision of Burzio's Generalization.

(153) *Burzio's Generalization (revised)*

A verb which does not assign an external θ-role does not assign Case directly (under sisterhood).

I will assume here that Case can be assigned in two ways: directly, under a strict sisterhood requirement, or indirectly, by a Spec-Head relation. Under this analysis, since the argument of an unaccusative verb must move to [Spec,VP] to receive Case, unaccusative subjects receive Case from the verb, but in the Spec-Head way that nominative subjects get Case from Aspect rather than in the direct way that objects typically get Case from V or P.

Note that nominative subjects are generated in [Spec,VP], yet I assume that these arguments must move to [Spec,AspP] to get Case. Why doesn't the verb just assign Case to these arguments as well? I can see two ways to answer this.

First, we could say that Verbs are specified with a Case-grid in addition to a theta-grid, and that intransitive unergative predicates (like 'run' or 'laugh') are not specified to assign accusative Case. Second, we could extend Burzio's Generalization further, and say that verbs which assign an external θ-role *only* assign Case under sisterhood. This second option seems preferable, as a more general solution. But there is a problem with it, and that is that there are a few verbs in Crow which mark two arguments with set II marking. The only verb I know of like this is the verb *chichée*, 'resemble'; however, Graczyk (1991:83) gives several more (including *achí* 'belong to', *baaialeeta* 'be proud of', *íhkuluu* 'be touching', and *íkuxxa* 'be equal to'). The subject and object of 'resemble' can be shown to be structurally distinct: a third person plural subject triggers plural agreement, but a third person plural object does not. Thus, adopting the additional extension of Burzio's Generalization is an option only if we allow the rule to be broken by set II predicates with two arguments. Therefore, I will assume instead that predicates are specified with a Case grid. The representation of 'resemble' given in (4.3.2) shows that it assigns two theta-roles, one internal and one external. Since it assigns an external theta-role, it is not subject to (153) and assigns Case to its internal argument. However, unlike other transitive verbs, 'resemble' has two accusative Cases to assign, so the external argument does not move to [Spec,AspP] to receive Case.

4.6 Syntactic agreement and morphological realization

At the beginning of this chapter, two (not incompatible) approaches to the characterization of agreement were outlined. In the PF-Identification approach, agreement is seen as one of a number of possible available ways to realize a Case-indexing relationship. In the Spec-Head Agreement approach, agreement is seen as the realization of a structural relationship between a head and a nominal in that head's specifier position; Case is not necessarily involved. These principles are stated informally below. (The principle in (154a) is one possible way in which Case-realization as agreement could be generally stated.)

(154) *Agreement (general principles)*

a. A head X is indexed with the person and number features of an argument to which it assigns Case.

b. A head X is indexed with the person and number features of the argument in [Spec,XP].

I assume that these general principles must be instantiated by more specific rules in each language, specifying which heads agree and what features they agree in. I will now address the question of how these principles are instantiated in Crow.

First, note that the set II clitics are viewed here as accusatively case-marked bound pronouns, the realization of Case assignment by V or P to a first or second person pronominal in an argument position. Thus, only set I marking and plural marking involve agreement per se (rather than case).

I have assumed that set I marking is a realization of nominative Case assignment by Aspect: Aspect assigns Case to [Spec,AspP] and is indexed with the person and number features of an argument in that position. This rule of agreement, which is stated in (155), could be seen as an instantiation of either of the general agreement principles in (154), since both Case and a Spec-Head relationship are involved.

(155) *Nominative agreement in Crow*

Aspect is indexed with the person and number features of an argument in [Spec, AspP].

This rule takes care of set I agreement and plural agreement with the subject of set I predicates. But the plural agreement suffix is also triggered by second person plural unaccusative subjects, and objects, as well as third person unaccusative objects. Since second person plural objects receive Case from the verb under sisterhood in my analysis, this source of plural marking on the verb can only be treated as a manifestation of Case assignment: a head which assigns Case to a second person plural argument is indexed with its number features. This rule, which is stated in (156), must be seen as an example of the principle in (154b), since a Spec-Head relationship is not necessarily involved, although it may be.

(156) *Plural agreement in Crow (2nd person)*

A head is indexed with the number features of a second person argument to which it assigns Case.

Note that this rule treats second person plural objects and set II subjects identically (as elements receiving Case from V), even though objects and set II subjects are structurally distinct.

Finally, in order to account for the fact that third person plural unaccusative subjects trigger plural marking on the verb, a third rule of agreement is needed.

(157) *Plural agreement in Crow (3rd person)*

V is indexed with the number features of a third person nominal in [Spec, VP].

These rules seem awkward, although they are instantiations of general principles. Notice that first person plural unaccusative subjects, as well as objects, do not trigger the plural agreement suffix. This is presumably because the pronoun clitic encodes both person and number features. Plural number features cannot be realized in the second person clitic, but they have to be realized, so they end up on the verb. This suggests that there is a requirement in Crow that person and number features of any but a third person object argument must have phonetic realization. The rule in (156) could be seen as a direct result of the lack of a distinct clitic form for second person plural objects; and the rule in (157), as the result of a lack of any obligatory pronoun form for third person arguments.

One way to capture these generalizations would be to replace (156) and (157) with the rule in (158). This rule requires the following definition: a *salient* argument is any but a third person object argument.

(158) *Plural agreement in Crow (revised)*

Index a head with any unrealized number features of a salient argument to which it assigns Case.

Unrealized features can be defined as features not represented in pronominal forms as a result of Case assignment.

Now consider the inflectional head Aspect in the structure in (150), which can be instantiated with the habitual aspect suffix, as exemplified in (159). The Aspect element is underlined in these examples.

(159) a. Bassée waa-lissh-ii-k.
before 1.I-dance-hab-decl
'I used to dance.'

b. Baa-lissh-ii-luu-k.
1.I-dance-hab-pl-decl
'We dance.'

c. Bassée dii=wa-sítchi-w-aa-ii-luu-k.
before 2.II=1.I-like-1.I-cause-hab-pl-decl
'I used to like you (pl).'

(159b,c) show that the plural agreement suffix is attached to Aspect if Aspect is overt, regardless of whether the plural features are generated on Aspect (from the rule in (155) or on V (from the rule in (158). A rule of feature percolation such as the one in (160) is needed to ensure that the plural suffix is attached to Aspect rather than V. This kind of rule has a number of precedents in the literature (Di Sciullo and Williams, 1987, Lieber, 1983).

(160) *Feature percolation*

In head movement, agreement features on an incorporated head are inherited by the incorporating head.

Rules which translate agreement features into affixes are given in (161).

(161) *Morphological realization*

a. $[_{\text{Per}}$ 1]: prefix /ma/ to $[_{\text{I}}$

b. $[_{\text{Per}}$ 2]: prefix /na/ to $[_{\text{I}}$

c. $[_{\text{Num}}$ pl]: suffix /uu/ to Aspect

The first two rules in (161) specify that a prefix is to be attached to a set I bracket.[10] The set I bracket is a necessary lexical specification indicating which part of a stem is specified to receive set I agreement (see § 4.3.2).

An important feature of the rules in (161a,b) is that they must be assumed to attach a prefix to *every* set I bracket within the domain of Aspect. If there is more than one bracket, as is the case with the verb 'like', both are prefixed. A sample derivation is given in (162).

(162)) *Applying set I agreement to a lexically complex stem*

/ $[_{\text{I}}$ isítchi$][_{\text{I}}$ ee] /, [Per 1]

↓

/ ma + $[_{\text{I}}$ isítchi] ma + $[_{\text{I}}$ ee] /

↓

basítchiwaak

The rules in (161) are actually only abstract representations, each one representing a set of rules needed to derive the correct realization in terms of the shapes of stem and affix. These morphosyntactic (MS) statements take a feature set and possibly a stem shape as input, and return an inflected form as output (Anderson, 1983, Anderson, 1988). The particular MS rules for Crow could be constructed from the informal statements of allomorphy presented in chapter 2 (§ 2.9 and § 2.10). I will assume that the MS rules apply at or after S-structure.

[10]Many current studies of clause structure use "I" as a notation for the Inflection node, and a bracketed structure labelled with "I" may look like like this. Thus, using "I" as the notation specifying transitive and unergative predicates in Crow may have been an unfortunate choice. Nevertheless, note that here, "I" is never used to indicate Infl; it is only used for the lexical specification of a set I predicate.

Note that, unlike the set I agreement prefixes, the plural agreement suffix is not dependent on the existence of a lexical bracket. The MS rules specifying the shape of the suffix simply take a verb stem with the agreement feature [plural] as input.

4.7 Discussion

The syntactic and morphological analysis proposed above provides a simple account for the patterns of person and number marking observed in Crow. The agreement rules are motivated as instantiations of the general principles of agreement discussed in § 4.1.1; and the version of Burzio's Generalization proposed in (153) allows the argument of an unaccusative predicate to receive accusative Case.

Chapter 5

Complex predicates and agreement

5.1 Introduction

This chapter gives a description and analysis of incorporation and agreement in several types of verb incorporation found in Crow. Complex predicates are formed by incorporating an open-class verb stem into a bound verb stem forming a single phonological and morphological word. The questions to be resolved include the following:

(i) How are complex predicates derived?

(ii) What explains the distribution of agreement markers in complex predicates?

In work in linguistic theory, languages with complex morphology have been of increasing interest for theories of 'head movement' or 'incorporation' (Sadock, 1985, Baker, 1988). These languages usually have units which constitute single words both syntactically and phonologically, but which consist of more than one basic lexical stem. It has been argued that these constructs are different from lexical compounds in various ways: they are more productive than lexical compounding, and they are constrained in ways that lexical compounds are not.

Patterns of agreement within such complex constructions have in general not been extensively studied. In most languages with verb incorporation which have been discussed in the literature, the whole complex verb is treated as the unit which an inflectional rule (prefixation, suffixation) operates on. As a result, inflectional affixation is typically external to the complex word; there is no issue concerning an interaction between inflection and incorporation. The assumption that inflectional features are realized at or after S-structure is clear in Baker (1988:487f.):

> The Mirror Principle in Baker (1985a) governs not only processes that change GFs, such as those analyzed here, but also processes that REFER to GFs, notably verbal agreement. Note that only the GF changing aspects of the Mirror Principle have in fact been derived from the theory of Incorporation. Much of verbal agreement seems to belong to the PF interpretation system. This takes place between S-structure and PF (cf. 3.4.2, Baker (1986)) *and therefore appears outside all the GF changing morphemes* and refers to derived, Case/Government GFs, consistent with the Mirror Principle. There remains, however, a residue of number agreements and stem suppletions to be accounted for. ['PF' = 'phonological form'; 'GF' = 'grammatical function'; emphasis mine – kkw]

The syntactic analysis of incorporation in Crow proposed here follows recent work in assuming that each verb heads a clause at D-structure and undergoes head-movement in the syntax to adjoin to higher verbs or functional heads. I will consider the Binding Theory revision of Li (1990), under which incorporation is universally restricted so as to prevent head-movement from a functional category (such as Inflection, Tense, Aspect, or Agreement) to an open-class ('lexical') category (such as N or V). The observation that inflection is external to other GF-changing morphology results from constraints on head movement which are forced by Li's revision of the Binding Theory.

The prediction that inflected elements do not incorporate appears to be wildly contradicted by the grammar of Crow, since set I agreement marking sometimes appears on every verbal head within a complex verb. I will show that most of the incorporation structures found are *not* counterexamples since the best solution to the problem is found in the lexical representation of predicates in Crow and in the way that inflectional features are realized. However, at least one construction does appear to pose serious problems for this prediction: namely, the existential construction.

A large part of the discussion of verb incorporation in Baker (1988) involves morphological causatives. Causatives in Crow provide an interesting variation on the types discussed by Baker, and are discussed in § 5.5. However, most of this chapter will concentrate on the other types of verb incorporation found in Crow, including constructions with the benefactive verb (§ 5.4), desiderative verbs (§ 5.3), and existential verbs (§ 5.6).

The next section begins with a discussion of future and modal auxiliaries, which I will argue are elements of the inflectional category Aspect.

5.2 Modal auxiliaries

This section treats complex predicates formed with modal auxiliaries (MAs), beginning with a description of what these auxiliaries are and how person and number are marked in them. I will then address the problem of agreement in complex verbs augmented with a modal auxiliary. The modal auxiliaries are listed in the table in (163).

(163) *Modal auxiliaries*

	MA stem	gloss
a.	ii	future/obligative/possibility (will, must, might)
b.	iimmaachi	future/obligative/possibility (will, must, might)
c.	iimma	future/obligative/possibility (will, must, might)
d.	iishtaachi	subjective modal (should)[1]

The three forms of the future auxiliary given in (163a-c) seem not to differ substantially in meaning and are freely interchangeable in my data. The MAs are bound stems: they obligatorily combine with another predicate. Some examples are given in (164), with the simplex predicate given in (164a) for comparison.

[1]Graczyk (1991) writes *-iishdaachi* instead of *-iishtaachi*. Since /t/ is lenis in this position, there is no phonetic distinction (and no phonological or morphological changes which would separate *sh* and the alveolar stop). I know of no synchronic evidence which would establish whether the stop is /t/ or /d/. However, Graczyk cites a suggestion by Matthews that this form might derive from progressive *-daachi*, which may be correct. However, since I have written /t/ in all of my data, I will continue to write *iishtaachi*.

(164) a. Pam maláxi-k.
Pam sing-decl
'Pam sang.'

b. Pam maláx-iimma.
Pam sing-fut
'Pam will sing.'

c. Pam maláx-iimmaachi-k.
Pam sing-future-decl
'Pam will sing.'

d. Pam maláx-iishtaachi-k.
Pam sing-should-decl
'Pam should sing.'

Observe that in (164b), no additional complementizer suffix is needed or allowed, while the other auxiliaries all require one. The future auxiliary *iimma* appears to be a kind of portmanteau which combines the auxiliary and the complementizer suffix.

The following examples show that there is some additional complexity to sort out: in forms with the modal auxiliary, plural marking is suffixed to *ii* rather than to the whole postulated auxiliary stem forms given in (163). The simplex verb form in (165a) is given for comparison, and plural marking is underlined.

(165) a. Bíakaate waláx-uu-k.
girl sing-pl-decl
'The girls sang.'

b. Bíakaate waláx-ii-o-mma.
girl sing-fut.aux-pl-fut
'The girls will sing.'

c. Bíakaate waláx-ii-o-mmaachi-k.
girl sing-fut.aux-pl-modal-decl
'The girls will/have to sing.'

d. Bíakaate waláx-ii-o-shtaachi-k.
girl sing-fut.aux-pl-modal-decl
'The girls should sing.'

Plural marking is almost always suffixed in Crow. Unlike set I agreement, which requires a special lexical representation, it is quite rare for plural marking to occur anywhere but finally when attached to a stem. But the examples in (165)

show that when there is a modal auxiliary, the plural agreement suffix is attached to *ii*, with the second part of the modal auxiliary following the plural suffix.

These facts motivate a further segmentation of the auxiliaries listed in (163): they consist of a verbal stem, the future auxiliary *ii*, followed by a modal suffix (*-mmaachi* (future/obligative), *-shtaachi* (subjective obligation), or *-mma* (portmanteau future/obligative+complementizer)). This is schematized in (166).

(166) *Modal Auxiliaries (revised)*

	aux. V	modal suffix	comp.	gloss
a.	ii	—	k, m, h	future/obligation (will, might, must)
b.	ii	mmaachi	k	future/obligation (will, might, must)
c.	ii		mma	future/obligation (will, might, must)
d.	ii	shtaachi	k	future/subjective (should)

This segmentation is limited to the lexical representation of the MAs, since *-mma*, *-shtaachi*, and *mmaachi* do not combine with other stems. Moreover, although the complementizer suffixes *-m* and *-h* do combine with other stems, they have substantially different import in combination with the modal auxiliaries. The complementizer suffix *-m*, in combination with most stems, indicates a kind of subordinate or coordinate (realis) clause; in combination with the future auxiliary *ii*, however, *-m* does not mark a subordinate clause, but a root clause.[2] The final suffix *-h*, which indicates a singular imperative in combination with other verbs, is used to indicate a dubitative future ('may, might') when combined with the future auxiliary *ii*; the verb is typically also preceded by the adverb *aaláa* 'maybe'. Note that *aaláa* can also precede a verb suffixed with *-m* or *-mma*.

(167) a. Aaláa chilaákshilak kan=née-ii-h.
maybe tomorrow already=go-fut.aux-irr
'(S)he might leave tomorrow.'

b. Aaláa waláx-ii-m.
maybe sing-fut.aux-irr
'(S)he might sing.'

[2]At this time, I do not understand what difference there is (if any) in meaning or usage between *-k* and *-m* in combination with the future auxiliaries. It may be that *-m* in this environment is a further reduction of *-mma*, and is unrelated to the subordinate complementizer *-m*. See § 120 for a list of complementizer suffixes; see Graczyk (1991) for extensive discussion of the complementizer suffixes in Crow.

5.2.1 Vowel elision and plural agreement in MAs

In the data in (164), it appears that Vowel Elision (VE, § 2.5) applies to delete the final short vowel of the stem *baláxi* 'sing' when it precedes the MA *ii*. In (165), the plural forms for the MAs in combination with the stem *baláxi* 'sing' follow the rules for plural agreement allomorphy given in § 2.10. But with some stem shapes, VE does not apply, and the plural form appears to be suppletive rather than following the plural allomorphy rules. I will state the observed distribution here without attempting an account of the irregularity. Note that these exceptions also apply to the habitual suffix, which is argued below to be a member of the same syntactic category (Aspect).

The modal auxiliaries show a different pattern of plural agreement in combination with set I marking; this is made clear in § 5.2.2. The plural forms shown below are thus true only for forms in which the modal auxiliary does not bear a set I prefix.

For stems ending in a short, non-round vowel (*a* or *i*), the short vowel is deleted.[3] For stems ending in a long high front vowel (*ii*), the long vowel of the stem coalesces with the future auxiliary *ii* into one long vowel. The plural forms in these three cases are the same: *o* is suffixed to *ii*. These three cases, which are in accord with VE and the plural allomorphy rules, are exemplified below.

(168)

stem	baláxi 'sing'	isshíi 'drink'	kootá 'be, be true'
sg.	baláxi-k	isshíi-k	kootá-k
pl.	baláx-uu-k	isshíi-o-k	koot-úu-k
fut. sg.	baláx-ii-mma	issh-íi-mma	koot-íi-mma
fut. pl.	baláx-ii-o-mma	issh-íi-o-mma	koot-íi-o-mma

For stems ending in a short /u/ or other long vowel, VE simply fails to apply when *ii* is suffixed. In plural forms, for stems ending in a short /u/ or in a long vowel other than /ii/ or /oo/, the MA stem is not suffixed with plural marking; instead, the vowel marking the plural suffix is suppletive, replacing the MA stem. This pattern is exemplified below for stems ending in /u/, /uu/, /aa/, and /ee/.

[3]Recall that in the phonemic analysis adopted here, there are no underlying short mid vowels, so /e/ is excluded.

(169)

stem	páshku 'cut'	iluú 'stand'
sg.	páshku-k	iluú-k
pl.	páshk-uu-k	iluú-oo-k
fut. sg.	páshku-ii-mma	iluú-ii-mma
fut. pl.	páshku-oo-mma	iluú-o-mma

stem	káa 'laugh'	chichée 'resemble'
sg.	káa-k	chichée-k
pl.	kúu-k	chichée-o-k
fut. sg.	káa-ii-mma	chichée-ii-mma
fut. pl.	káa-o-mma	chichée-o-mma

Finally, for stems ending in *oo* (assuming there is no underlying /o/), the future plural stem form is *u* rather than *o*, again replacing the future stem *ii*.

(170)

stem	íaxxoo 'hurt'
sg.	íaxxoo-k
pl.	íaxxoo-u-k
fut. sg.	íaxxoo-ii-mma
fut. pl.	íaxxoo-u-mma

5.2.2 A description of agreement in MAs

When a modal auxiliary is combined with a set I predicate having a first or second person subject, in most cases both the set I predicate and the auxiliary bear set I person marking. Before we consider the implications of this fact for the analysis of agreement, however, the form of the MA stems and person and number agreement with those stems must be made clear.

In future/obligative MAs, but not in the subjective modal forms, the vowel of the MA verbal stem, *ii*, is shortened when it is preceded by a set I agreement prefix. In combination with first person set I agreement, the future/obligative auxiliaries have two forms: a suppletive plural stem, *oo*, and a suffixed stem, *iiluu*. With second person set I agreement, future/obligative stems have only the suppletive plural stem (*oo*). Only the suffixed plural, *iiluu*, occurs with the subjective modal ('should'). The table in (171) shows one of the future forms (representative of the other future forms) and the subjective modal forms for the verb *káa* 'laugh'; simplex declarative forms are given for comparison.[4]

[4]The verb stem 'laugh' is hypothesized to have an underlying initial *h*; see § 2.9 and the paradigms in (48) for more discussion.

(171) *Set I agreement in modal auxiliaries*

	no aux	future *ii-mma*	'should' *ii-shtaachi*
1sg	ba-hkáa-k	ba-hkáa-w-i-k	ba-hkáa-w-ii-shtaachi-k
gloss	I laughed	I will laugh	I should laugh
1pl	ba-hkúuk	ba-hkáa-w-oo-k	ba-hkáa-w-ii-luu-shtaachi-k
1pl		ba-hkáa-w-ii-luu-k	
gloss	we laughed	we will laugh	we should laugh
2sg	dá-hkaa-k	dá-hkaa-l-i-k	dá-hkaa-l-ii-shtaachi-k
gloss	you laughed	you will laugh	you should laugh
2pl	dá-hk-uu-k	dá-hkaa-l-oo-k	dá-hkaa-l-ii-luu-shtaachi-k
gloss	you pl. laughed	you pl. will laugh	you pl. should laugh

The two first person plural forms of the future auxiliary are used differently. In the suffixed first person plural form (e.g., *bahkáawiiluuk*), 'we' is interpreted as exclusive (excluding the addressee), while in the suppletive first person plural forms (e.g., *bahkáawook*) 'we' is interpreted as inclusive (including the addressee).[5] The inclusive forms are sometimes translated with the hortative in English; thus *bahkáawook* could be 'let's laugh'. The contrast is illustrated in (172) and (173).[6]

(172) a. Día-w-aa-w-oo-k.
do-1.I-cause-1.I-fut.pl-decl
'Let's do it; we'll do it.'

b. Día-w-aa-w-ii-luu-k.
do-1.I-cause-1.I-fut.aux-pl-decl
'We'll do it.'

(173) a. B-ihchi=ákkum-m-aa-w-ii-luu-k da-lóo-lak.
1-self=ready-1.I-cause-1.I-fut.aux-pl-decl 2.I-come-cond
'We'll get ready when you come.'

b. Marcy, b-ihchi=ákkum-m-aa-w-oo-k.
Marcy, 1-self=ready-1.I-cause-1.I-fut.pl-decl
Marcy, we have to get ready.

Additional evidence that there is an inclusive/exclusive distinction comes from the fact that when the direct object is second person, only the exclusive form of the first person plural future auxiliary is used, as shown in (174a,b); the sentence in (c) is given for contrast.

[5]I am indebted to Danae Paolino for drawing this distinction to my attention.

[6]Note that the verb *día* is lexically complex, containing a causative verb stem. Person marking is prefixed to the causative stem *ee*, which has been lexicalized together with *día*. See § 2.9.5 for a discussion of agreement allomorphy in this kind of stem.

(174) a. Alice, dii=wa-hkuxshí-w-ii-luu-k.
Alice 2.II=1.I-help-1.I-fut.aux-pl-decl
'Alice, we'll help you.'

b. *Alice, dii=wa-hkuxshí-w-oo-k.
Alice 2.II=1.I-help-1.I-fut.pl-decl

c. Alice, Carolsh ba-hkuxshí-w-oo-k.
Alice Carol 1.I-help-1.I-fut.pl-decl
'Alice, let's help Carol.'

However, the characterization of the difference represented in (173a,b) as inclusive vs. exclusive is somewhat problematic. First, speakers do not seem to be consciously aware of the contrast as an inclusive/exclusive distinction, if it exists. Second, the contrast exists only in this paradigm, and nowhere else that I am aware of in first person plural forms. Third, there are problems with the generalization that in forms with *-boo*, the addressee is included as part of 'we'. If *-boo* is inclusive, it should not be possible in forms where the direct object is 'you'; however, the following example, taken from Graczyk (1991), appears to contradict this generalization.[7]

(175) hileen ammaa=wa-lá-k(u)-uua-sh
these rel=1.I-2.obj-give-pl.cit-def
ii=lii=wah-kuxshí-w-o-mmaachi-k
instr=2.II=1.I-help-1.I-fut.pl-modal-decl
'we will help you by means of these things that we have given you'
(Graczyk, 1991:355, example (126))

Notice, however, that *let's* in English (which always includes the addressee) can be used in contexts where the addressee is also the direct object, as illustrated by (176).

(176) a. Let's see if we can't help you.

b. Let's look at you.

[7]I have adapted this example only in glossing, in order to maintain consistency with my conventions. Also, recall that the verb *kuu* takes an irregular pattern of object agreement marking; see discussion preceding (140) in § 4.2.1.

More work is needed for a full understanding of the contrast illustrated in (172). It may be that the suppletive form is simply the future hortative, in which case it would be incorrect to characterize the suffixed first person plural future auxiliary (*-biiluu*) as a first person plural exclusive.

5.2.3 The category Aspect and the habitual suffix

In the analysis of clause structure and agreement proposed here, the syntactic category Aspect can be instantiated with zero (indicating completive aspect), the habitual suffix (indicating incompletive aspect), or one of the MAs (indicating incompletive aspect, future possibility (will, might), and/or subjective modality (must, should). The evidence that the habitual suffix and the MAs belong to the same syntactic category will now be presented.

Note first that the MAs do not cooccur with the habitual suffix, as exemplified in (177c); the habitual suffix is underlined. The habitual form is given in (177a); the future form is given in (177b). This fact would require additional explanation under the hypothesis that the habitual and the MAs belonged to separate categories.

(177) a. Hawátee-m bu-lutch-íi-k baap-tatchée.
one.cit-indef 1.I-catch-hab-decl day-every
'I catch one [horse] every day.'

b. Baap-tatchée hawátee-m bu-lutchí-w-i-k.
day-every one.cit-indef 1.I-catch-1.I-fut.aux-decl
'I'll catch one every day.'

c. *Baap-tatchée hawátee-m bu-lutch-<u>íi</u>-w-i-k.
day-every one.cit-indef 1.I-catch-hab-1.I-fut.aux-decl
('I'll catch one every day.')

In addition, whenever there is a complex verb containing more than one incorporating verb stem and either a modal auxiliary or habitual suffix, the MA or habitual suffix must be rightmost. This is illustrated in (178) for the future auxiliary with the desiderative, and in (179) for the future auxiliary with the benefactive. The auxiliary and its set I agreement prefix are underlined in these examples. If the modal auxiliaries were garden-variety incorporating predicates, this fact would also require an additional statement. However, if they are elements of Aspect, this follows straightforwardly, since Aspect is a functional category (an element of inflection).

(178) a. Chilaákshilak baa-waláx-bia-w-aa-w-i-k.
tomorrow 1.I-sing-desid-1.I-cause-1.I-fut.aux-decl
'Tomorrow I'll want to sing.'

b. *Chilaákshilak baa-waláx-b-i-wia-w-aa-k.
tomorrow 1.I-sing-1.I-fut.aux-desid-1.I-cause-decl

(179) a. Aprilsh baa-waláx-ba-k-b-ii-luu-k.
April 1.I-sing-1.I-give-1.I-fut.aux-pl-decl
'We'll sing for April.'

b. *Aprilsh baa-waláx-b-i-wa-k-uu-k.
April 1.I-sing-1.I-fut.aux-1.I-give-pl-decl

The hypothesis that the habitual suffix is of the same category as the MAs is further supported by an odd gap in the paradigm of the future auxiliary. The form of the habitual suffix is *ii*, and it is invariant; it is never prefixed with set I marking. The form of the future auxiliary is also *ii*; but in addition to the difference in interpretation, the future auxiliary *is* prefixed with set I person marking.

Now, as the table in (166) shows, the future auxiliary *ii* can be followed by various elements: the declarative complementizer suffix *-k*, the modal suffix *-mmaachi* plus a complementizer suffix, the modal suffix *-shtaachi* plus a complementizer suffix, or the portmanteau suffix *-mma*.

The gap in the paradigm occurs in forms where the future auxiliary *ii* is uninflected with set I person marking. In this case, it is never followed directly by the declarative complementizer suffix *-k*; it must be followed by *-mma* (which acts as a final complementizer suffix), or by *-mmaachi* plus *-k* (or some other final suffix). However, if *ii* does bear a set I prefix, it may be followed directly by *k*. These facts are represented in the paradigm of the verb *baláxi* 'sing, given below; the present habitual forms are also given. The gap in the future auxiliary paradigm is marked with underlining of the ungrammatical form.

(180) *Future and habitual forms*

	first person	second person	third person
fut. irr.	baa-waláx-b-i-mma 1.I-sing-1.I-fut.aux-irr 'I'll sing'	dáa-walax-d-i-mma 2.I-sing-2.I-fut.aux-irr 'you'll sing'	baláx-ii-mma sing-fut.aux-irr 'he/she will sing'
fut. decl.	baa-waláx-b-i-k 1.I-sing-1.I-fut.aux-decl 'I'll sing'	dáa-walax-d-i-k 2.I-sing-2.I-fut.aux-decl 'you'll sing'	*baláx-ii-k sing-fut.aux-decl 'he/she will sing'
hab. decl.	baa-waláx-ii-k 1.I-sing-hab-decl 'I sing'	dáa-walax-ii-k 2.I-sing-hab-decl 'you sing'	baláx-ii-k sing-hab-decl 'he/she sings'

The salient pieces of information to draw from this table are the following: (i) the third person future declarative form, if it existed, would be identical to the habitual declarative form; and (ii) third person future forms other than the one represented by the gap in the paradigm are available.

My hypothesis is that the future auxiliary and the habitual suffix stem historically from the same inflectional element. The future auxiliary retained (or gained) status as a set I predicate, however, while the habitual suffix did not. The third person future form in combination with the declarative suffix is impossible because of its formal identity with the habitual form; and the habitual form wins out over the future form because other endings, such as *-mma*, are available for the future auxiliary but not for the habitual suffix. When the future auxiliary bears a set I agreement prefix, however, there is no chance of interpreting it as the habitual element, so the declarative suffix is not blocked.

This explanation for the gap in the paradigm of the future auxiliary, together with the limited distribution of the future auxiliary and the habitual suffix, provide strong evidence that the future auxiliary and the habitual suffix share the same syntactic category and that this category is an inflectional one.

5.2.4 An analysis of agreement in MAs

In the analysis presented in § 4.5, subjects which do not receive Case from the verb must move to [Spec,AspP], where they receive nominative Case from Aspect. I propose that while both MAs and the habitual suffix have the syntactic category

Aspect, the future auxiliary bears a set I bracket, but the habitual element does not. Hence, agreement is realized only on the future auxiliary. The idea that set I subjects must raise to [Spec,AspP] requires the assumption that [Spec,AspP] is not theta-marked. This is supported by the fact that the modal auxiliaries, although verbs, impose no selectional restrictions on their subjects. For example, they occur with weather predicates.

(181) Chilaákshilak bíihp-ii-mma.
tomorrow snow(v)-fut.aux-irr
'Tomorrow it will snow.'

The rules for agreement in Crow which were proposed in chapter 4 are repeated here in (182).

(182) *Agreement in Crow*

a. Index Aspect with the person and number features of an argument in [Spec,AspP].

b. Index a head with any unrealized number features of a salient argument to which it assigns Case.

According to the rules in (182), nominative agreement is generated on Aspect. However, as we have seen, set I agreement appears on both the verb and the future auxiliary. How does this happen?

Recall that in § 4.5, it was necessary to specify that the MS rules realizing nominative agreement features on a lexical stem apply to every subpart of that stem which is enclosed by a set I bracket. This allowed an elegant and uniform account for the idiosyncratic infixing, doubling and apparent suffixing of set I person marking. The same mechanism can now be used to account for the multiple appearance of set I person marking in a complex predicate; it requires the assumption that the MAs are lexically specified as set I predicates. Verb incorporation creates a complex stem with more than one set I bracket. Since there are lexical stems with more than one bracket, we can suppose that it is a general property of incorporation in Crow that set I brackets are preserved. Just as with lexically complex stems, in complex

stems formed from syntactic incorporation, each set I bracket is prefixed with set I agreement when the morphosyntactic rules realizing person features are applied.

An example is given below. The stem [$_{V}$ *ee* [$_{I}$ *hchee*]] 'know' is incorporated into the future auxiliary. Application of the realization rule results in a set I prefix attaching to both set I brackets.

(183) *Representation of stem following incorporation*

[$_{Asp}$ [$_{V}$ eé [$_{I}$ hchee]] [$_{I}$ ii]]	→	eéwahcheewi + mma
[$_{Nom}$ Per: 1]		eéwahcheewimma
		'I will know it'

5.2.5 Case and agreement in set II predicates with MAs

In § 5.2.2, it was shown that when a set I verb combines with a MA, both the set I predicate and the auxiliary verb are prefixed with a set I agreement marker. Plural marking occurred only once, suffixed to Aspect (*ii*). The pattern is a little different when the verb is a set II predicate. This is shown for the future auxiliary *iimma* and the modal auxiliary *iishtaachi* in the table below.

(184)

	no aux	fut. *ii-mma*	'should' *ii-shtaachi*
1sg	bii=passhí-k	bii=passh-íi-mma	bii=passh-íi-shtaachi-k
1pl	balee=passhí-k	balee=passh-íi-mma	balee=passh-íi-shtaachi-k
2sg	dii=passhí-k	dii=passh-íi-mma	dii=passh-íi-shtaachi-k
2pl	dii=pass-úu-k	dii=passh-íi-oo-mma	dii=passh-íi-luu-shtaachi-k
3sg	passhí-k	passh-íi-mma	passh-íi-shtaachi-k
3pl	pass-úu-k	passh-íi-oo-mma	passh-íi-luu-shtaachi-k

With a set II predicate (such as *passhí* 'fall off'), the auxiliary may not bear either set I or set II person marking. As with the set I verbs, the plural suffix occurs only on the auxiliary. Note also that (just as with plural marking in simplex stems) the plural suffix is absent in words with a first person plural subject, since the set II clitic *balee* marks plural number as well as first person.

My analysis of these facts runs as follows. In clauses with no nominative Case assignment, the verb incorporates to Aspect as usual. Plural number features associated with the verb are inherited by Aspect. Since the set II subject moves to [Spec,VP] and receives Case from the verb, it is neither in a Case relationship nor in

a Spec-Head relationship with Aspect; as a result, no nominative Case is assigned, and Aspect is not indexed with the features which are realized as set I agreement prefixing.

5.2.6 Mixed-set predicates with MAs

In chapter (4), a third class of verbs, the mixed-set predicates, was introduced. These verbs, which are semantically non-volitional or stative, select set I marking but also allow first person plural forms to be marked with a set II clitic instead of set I marking. The analysis suggested there for these predicates was that they are basically unaccusative predicates which are exceptional in that they may or may not assign accusative Case to their arguments. As a result, the argument of such a predicate may move to [Spec,AspP], where nominative Case is assigned; hence the set I agreement pattern. The set II agreement pattern occurs if the verb assigns accusative Case to [Spec,VP].[8]

The following table shows the pattern of agreement in mixed-set predicates with modal auxiliaries. In this case, the representative predicate is *apásshee* 'tired'.

(185) *Mixed-set agreement in modal auxiliaries*

	no aux	fut. *ii-mma*
1sg	b-apásshee-k	b-apásshee-ii-mma
		b-apásshee-w-i-mma
1pl	b-apáss-uu-k	b-apásshee-o-mma
		b-apásshee-w-oo-mma
1pl	balee=apásshee-k	balee=apásshee-ii-mma
		balee=apásshee-w-oo-mma
2sg	d-ápasshee-k	d-ápasshee-ii-mma
		d-ápasshee-l-i-mma
2pl	d-ápass-uu-k	d-ápasshee-o-mma
		d-ápasshee-l-oo-mma
3sg	apásshee-k	apásshee-ii-mma
3pl	apáss-uu-k	apásshee-o-mma

This paradigm shows that the modal auxiliary may bear set I person agreement, but it never does so obligatorily, regardless of the whether the verb bears set I

[8]On this analysis, I would be forced to say that accusative Case is assigned optionally by the verb, and only if the unaccusative argument is first person plural. I have no idea why this should be.

marking or (first person plural) set II marking. If we assume that the presence of the unaccusative argument in [Spec,AspP] always results in agreement on the auxiliary, then in the forms with no agreement on the auxiliary, the argument must have remained in [Spec,VP]. But if this is so, it must be that the unaccusative argument in [Spec,VP] can receive accusative Case from V, yet have accusative Case be realized with set I marking, since there are forms with set I marking on 'tired' and no set I marking on the auxiliary (e.g., *dápassheeiimma*).

The mixed-set predicates are clearly problematic for the analysis of person and number agreement on modal auxiliaries. However, there are additional problems. Verbs which are strictly marked in either the set I or set II class (not mixed-set verbs) sometimes stray from the straight-and-narrow path of obligatory marking or non-marking of set I person agreement on the auxiliary verb. In particular, a set II verb which is interpreted agentively (*biísshi* 'lie') and set I verbs which can be interpreted non-agentively (such as *appée* 'swallow', *chilíi* 'be afraid of', *áappee* 'be possessive or jealous of') may sometimes act like mixed-set verbs, not in their own paradigms, but with respect to the presence or absence of person agreement on the modal auxiliary. Speakers' judgments do not always agree on whether person marking is optional on the modal auxiliary with a non-agentive set I predicate; however, the pattern in which no agreement appears on the future auxiliary in combination with a strict set I predicate seems to be less standard, and forms *with* agreement are always acceptable.

It seems likely to me that non-agentive set I verbs are moving into the mixed-verb class, and that the mixed-agreement phenomenon in general is symptomatic of a more general movement of semantically stative or nonvolitional set I predicates toward a specification as set II predicates.

To summarize, in this section it was argued that the future auxiliary and the habitual suffix are elements of Aspect. This explains their limited distribution as well as the gap in the paradigm of the future auxiliary. When the verb moves to Aspect, the resulting complex form may bear two set I brackets, and the agreement features from an argument which raises to [Spec,Aspect] to get Case will be realized on both of them (just as in lexically complex stems). If the verb is a set II predicate,

it assigns Case to [Spec,VP] and its argument does not move to [Spec,Aspect], hence the lack of agreement on the auxiliary in set II predicates. Mixed-set predicates are problematic for this analysis, however.

5.2.7 Continuative predicates

Crow has a number of bound and free verbs with aspectual meaning. All of these predicates are continuative, with subtle semantic variations (for example, continuous vs. intermittent activity). Two examples are given below.

(186) a. B-iikukku-waa-káhku-ii-k.
1.I-listen-1.I-continue-hab-decl
'Once in a while I listen.'

b. Baakáat-kaate aw-íassia-waa-lichi-k.
child-dimin 1.I-watch-1.I-continue-decl
'I kept on watching the kids.'

I will not provide a complete analysis or description of continuatives here; see Graczyk (1991) for extensive discussion of these verbs. Since they cooccur with modal auxiliary and habitual elements, however, it seems clear that they are not elements of inflection, but rather predicates which assign no external theta roles and take a VP complement. The embedded subject raises to [Spec,VP] of the continuative verb and moves from there to [Spec,Aspect]. Like the modal auxiliaries, the continuative verbs are raising predicates; unlike the modal auxiliaries, however, they are just verbs, rather than special functional categories.

5.3 Desideratives

Crow has two bound desiderative verbs, *bia* 'want' and *isshi* 'feel like, be ready to', as exemplified in (187). Note that *bia* is a complex stem with a lexicalized *ee* causative, thus giving the appearance of a verb which has 'suffixed' person marking. In the notation introduced in § 4.3.2, its representation would be *mia* $[_{\mathrm{I}}$ *ee]*.

(187) a. Kam=maa-lée-wia-w-aa-k.
now=1.I-go-desid-1.I-cause-decl
'I want to leave.'

b. Baa-walax-b-isshi-k.
1.I-sing-1.I-desid-decl
'I feel like singing.'

The stem *bia* actually has two lexical representations: one as a desiderative, and the other as a kind of future auxiliary verb. Under the auxiliary verb interpretation, *bia* has an inceptive meaning like 'going to, try to'. Under the desiderative interpretation, it means 'want to' or 'try to.'

In the interpretation 'going to, be about to,' *bia* cooccurs with weather predicates, a fact which supports its analysis as a raising predicate which takes a VP complement. This is shown in (188).

(188) Xaláa-wia-k.
rain-desid-decl
'It's going to rain.'

Sentences in which *bia* combines with a set I predicate are ambiguous between desiderative and inceptive denotations, as illustrated in (189).

(189) a. Tom maláx-bia-k.
Tom sing-desid-decl
'Tom wants to sing'; 'Tom is about to sing'

b. Baa-waláx-bia-w-aa-k.
1.I-sing-desid-1.I-cause-decl
'I want to sing'; I'm going to sing'

The real evidence that *bia* has a dual nature comes from sentences in which it combines with a set II predicate. Such sentences are not ambiguous, as shown in (191). *Háchka* 'be tall' is a set II (unaccusative) predicate.

(190) a. Jack háchka-lee-wia-k
Jack tall-vol.be-desid-decl
'Jack wants to be tall.' (NOT 'Jack's going to be tall.')

b. Jack háchka-wia-k
Jack tall-desid-decl
'Jack's going to be tall.' (NOT 'Jack's going to be tall.')

(191) a. Bii=háchka-wia-k.
1s.II-tall-desid-decl
'I'm going to be tall.' (NOT 'I want to be tall.')

b. Háchka-wee-wia-w-aa-k.
tall-vol.be.1.I-desid-1.I-cause-decl
'I want to be tall.' (NOT 'I'm going to be tall.)

In (190a) and (191a), *bia* has only the auxiliary verb interpretation, and it patterns exactly like the modal auxiliaries, showing no set I agreement in combination with a set II predicate. In (190b) and (191b), *bia* has only the desiderative interpretation; here, it always bears set I person marking and is immediately preceded by the predicate *dee*, which bears person marking as well. The obligatory presence of the intervening predicate *dee* in desideratives of set II predicates is discussed below.

The following sections will be devoted to the analysis of *bia* in its desiderative use, as well as the other desiderative predicate, *isshi*.

5.3.1 The analysis of desideratives

In English, the verb *want* is usually assumed to select a clausal complement headed by an infinitival Infl. The subject of the embedded clause is PRO, which occupies [Spec,IP] in the embedded clause; PRO is licensed in this position since infinitival Infl fails to govern its Specifier.

In the incorporation structures in Baker (1988), verb incorporation is assumed to apply universally from a verb phrase within an embedded CP (complementizer phrase). For languages in which the complementizer is null in root clauses and in infinitival embedded clauses, this is not an unreasonable assumption. But in Crow, complementizers in root clauses are never null, and complementizers in adjunct clauses and complements not involving verb incorporation are also never null. Moreover, it would be difficult to maintain the assumption that the embedded clause is infinitival here, because the embedded verb bears set I agreement, which would imply government of the embedded subject by Inflection.

However, there are reasons to think that the embedded phrase cannot even be an AspectP (much less a CP). Notice that elements of Aspect (the habitual suffix

or a modal auxiliary) cannot be embedded under *bia* or *isshi*. This is demonstrated in (178) and below, in (192); the habitual prefix is underlined.

(192) a. *Baa-waláx-ii-wia-w-aa-k.
1.I-sing-hab-desid-1.I-cause-decl
('I want to (habitually) sing.')

b. *B-íishiht-ii-w-isshi-k.
1.I-lazy-hab-1.I-desid-decl
('I feel like being lazy.')

If the embedded phrase were AspectP (in other words, IP) or CP, we should expect sentences like those in (192) to be acceptable.

Second, plural marking cannot occur on a predicate embedded under *bia* or *isshi*. The sentence in (189b) showed that when *bia* cooccurs with a set I predicate, set I person marking is attached to both the embedded verb and *bia*. However, the sentences below show that plural marking on the embedded verb is prohibited, whether in addition to plural marking on *bia* (as in (193a)) or instead of plural marking on *bia* (as in (193b)). In the examples in (193), the offending suffix is underlined twice; the plural suffix in its correct position is underlined once.

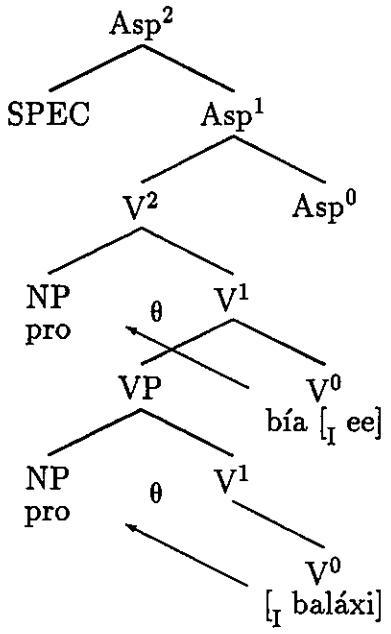
(193) a. *Baa-waláx-uu-wia-w-uu-k.
1.I-sing-pl-desid-1.I-cause.pl-decl

b. *Baa-waláx-uu-wia-w-aa-k.
1.I-sing-pl-desid-1.I-cause-decl

If the embedded clause had a Case-assigning Aspect node, it would be difficult to explain why the embedded verb can't bear plural agreement, especially since it does bear person marking.

These facts suggest very strongly that the phrase embedded under *bia* is not CP or AspP. The next logical choice is to hypothesize that the phrase embedded under the desiderative is a VP. The structure underlying (189b) would be as in (194).

(194) *Incorporation from VP*



In (194), the subject of each clause receives a theta role from its predicate, and the higher subject moves to [Spec,AspP] to get Case. But how is the lower subject pronoun identified? If it is coindexed with the higher subject, it is a pronominal anaphor, i.e. PRO. But [Spec,VP] is governed by the embedded verb, and thus not a position which can be occupied by PRO at S-structure. Yet there is no position available for PRO to move to.

Could this argument be pro, a non-anaphoric pronoun? If so, it must receive Case (or identification through Case assignment and agreement). The embedded verb does not assign Case; can it receive Case from *bia*? The evidence is that this does not happen: this position never supports an overt nominal of any kind. Given that it is possible in English (and other languages), we might expect to be able to put a different subject in the embedded subject position, and thus create a sentence like 'I want Alice to sing.' But this is impossible, as shown in (195a). There are two other ways to express this kind of sentence, one with a causative (195b) and one with a conditional (195c).

(195) a. *Alice balá́x-bia-w-aa-k.
Alice sing-desid-1.I-cause-decl
('I want Alice to sing.')

b. Alice balá́x-ba-hchee-wia-w-aa-k.
Alice sing-1.I-cause-desid-1.I-cause-decl
'I want Alice to sing,' lit. 'I want to make Alice sing.'

c. Alice balá́x-dak ítch-ii-mma.
Alice sing-cond good-fut.aux-irr
'I want Alice to sing,' lit. 'It will be good if Alice sings.'

My hypothesis is that the desiderative predicate *bia* has no accusative Case to assign. This hypothesis is supported by the fact that *bia* never selects an NP object. This cannot be attributed to the fact that *bia* is morphologically bound, because it cannot take an NP object even if the object is incorporated (thus anchoring the bound verb). Thus, the only way to say something like 'I want that car' is to say 'I want to own that car'; compare (196a) and (196b,c).

(196) a. Éehk íilaalee b-eé-wia-w-aa-k.
that car.cit 1.I-own-desid-1.I-cause-decl
'I want that car.'

b. *Éehk íilaalee bía-w-aa-k.
that car.cit want-1.I-cause-decl

c. *Éehk íilaalee-wia-w-aa-k.
that car-desid-1.I-cause-decl

To summarize, the hypothesis that the phrase embedded under *bia* is a VP cannot be maintained, because there is no principled way to resolve the identity of the lower subject. It cannot be PRO since it is in a governed position, and there is no way for it to receive Case if it is pro.

I will now present and support an analysis in which the identity of the embedded phrase is V^1 (V-bar).

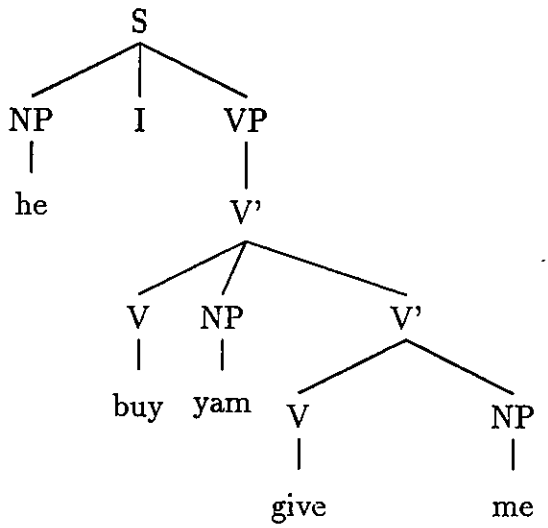
Baker (1989) proposes an intriguing account of the serial verb constructions found in many languages. The example in (197) is from Yoruba (data from Ekundayo and Akinnaso (1983)):

(197) *Yoruba, serial verb construction*

Ó ra iṣu fún mi.
he buy yam give me
'He bought a yam for me.'

The structure Baker proposes for such sentences is given in (198):

(198) *Serial verb constructions (Baker 1989)*



Baker explains how such a structure is licensed, given the 'Generalized Serialization Parameter' in (199).

(199) *Generalized Serialization Parameter*

> VPs {can/cannot} count as the projection of more than one distinct head.

The principle in (199) allows structures like (198), which would otherwise violate the Projection Principle. In (198), external theta roles from both verbs are assigned to the subject, and the theme role from both verbs is assigned to the object. Assuming (199) and a version of the theta criterion in which an argument in a single position can receive more than one theta role, both the projection principle and the theta-criterion are satisfied.

(200) (i) *Theta Criterion* (as stated in Baker (1989))

> Each argument alpha appears in a theta-chain containing a Case-marked position and a unique position P to which theta roles are assigned; each position P to which theta roles are assigned is in a theta-chain with a unique Case marked argument alpha.

(ii) *Projection Principle* (as stated in Baker (1989))

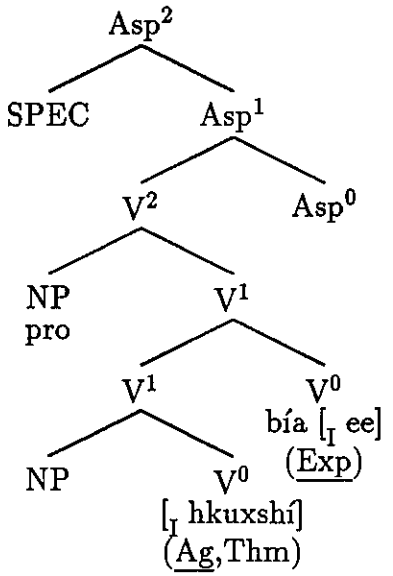
> If alpha is a lexical category and beta is an argument position,
> a. If beta is an immediate constituent of a one-bar level projection of alpha at some syntactic level, then alpha theta-marks beta in alpha prime.
> b. If alpha theta-marks beta as a lexical property then alpha theta-marks beta at all syntactic levels.

5.3.2 Desideratives of set I predicates

Baker's analysis of serial verb constructions can be extended to the desiderative construction in Crow. The proposed structure for a desiderative sentence with the embedded verb 'help' (see (201)) is given in (202).

(201) Dii=wa-hkuxshí-wia-w-aa-k.
2.II=1.I-help-desid-1.I-cause-decl
'I want to help you.'

(202) *Desiderative structure*



In this structure, both *kuxshí* and *bia* assign a theta role to the first person pronoun in [Spec,VP]. This pronoun moves to [Spec,AspP] and receives Case from Aspect. The fact that there are no NP, CP, or VP complements of *bia* is accounted for as a result of the fact that no other structure is available for *bia*, since it assigns an external theta role but no accusative Case.

The presence of a set I agreement prefix which attaches to both the embedded predicate and *bia* is explained in exactly the same way that it was for doubled agreement marking in the modal auxiliaries and in lexically complex stems. Incorporation of a set I predicate (like *kuxshí*) into the set I predicate *bia* creates a complex stem whose representation is /[$_I$ kuxshí][$_I$ mia]/. Aspect assigns Case to [Spec,AspP] and is indexed with the person and number features of the nominal in that position. These features are realized by the set of morphosyntactic rules proposed in § 4.6; the rules which realize set I person marking are specified to attach to every set I bracket within the domain of Aspect (see (161)).

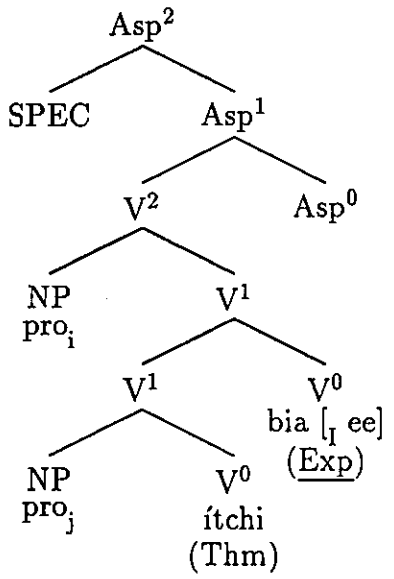
Thus, with no additional rules or stipulations, this analysis allows an account for the marking of set I agreement on both predicates, as well as for the absence of plural marking, elements of Aspect, or elements of C on the embedded predicate.

5.3.3 Desideratives of set II predicates

The analysis proposed above for desideratives is further supported by the fact that set II predicates do not occur in that structure without support from an intervening predicate. This analysis would assign the structure in (204) to a sentence containing a set II predicate (*háchka* 'tall') embedded under a desiderative (sentence (203)).

(203) *(Bii=)háchka-wia-w-aa-k.
(1s.II=)tall-desid-1.I-cause-decl
('I want to be tall.')

(204) *Desiderative: set II predicate*



In (204), *bia* assigns an external theta role to pro_i, and *ítchi* assigns an internal theta-role to pro_j. The argument in [Spec,VP], pro_i, raises to [Spec,AspP] to receive nominative Case, and Asp^0 is indexed with the person and number features of pro_i. The problem is that pro_j has no way to get Case. Normally, it would move to [Spec,VP] to get Case from the verb (this is forced by the revision of Burzio's Generalization adopted in § 4.5.3, (153)). But in this structure, [Spec,VP] is occupied by the trace of pro_i. Thus, the structure in (204) is ruled out, and sentences like (203) are correctly predicted to be ungrammatical.

5.3.4 The intervening predicate *dee*

In combination with a desiderative verb, unaccusative predicates like *apáali* 'grow' or *háchka* 'be tall' obligatorily cooccur with an intervening predicate, *dee*.[9] The sentences demonstrating this are repeated in (205).

(205) a. Jack háchka-lee-wia-k
Jack tall-vol.be-desid-decl
'Jack wants to be tall.'

b. Jack háchka-wia-k
Jack tall-desid-decl
'Jack's going to be tall.'

(206) a. Bii=háchka-wia-k.
1s.II-tall-desid-decl
'I'm going to be tall' (*not* 'I want to be tall')

b. Háchka-wee-wia-w-aa-k.
tall-vol.be.1.I-desid-1.I-cause-decl
'I want to be tall.'

I will argue here that *dee* combines with an unaccusative predicate lexically, rather than syntactically, creating a set I predicate from a set II or mixed-set predicate.

Dee takes irregular set I marking. The first person form is apparently suppletive (*bee*; see (207a)). The second and third person forms are identical (*dee*; see (207b,c)). In combination with the desiderative, *dee* has no plural forms, since it is never the rightmost stem.

(207) a. Háchka-wee-wia-w-aa-k.
tall-vol.be.1.I-desid-1.I-cause-decl
'I want to be tall.'

b. Háchka-lee-wia-l-aa-'?
tall-vol.be.2.I-desid-2.I-cause-int
'Do you want to be tall?'

[9]This predicate is difficult to translate since it is not used as an independent predicate and since its import is largely grammatical. I often think of it as 'volitional *be/become*', since (in my analysis) it creates an unergative predicate from an unaccusative predicate; hence the gloss 'vol.be'. This characterization of *dee* may be incorrect. But note the semantic similarity between this and the doubled form *deelee*, which can be translated 'act, pretend' (see § 5.3.4.2).

c. Háchka-lee-wia-k.
tall-vol.be-desid-decl
'He/she wants to be tall.

Notice that there is no set II marking in these sentences, despite the presence of the set II predicate. This suggests that accusative Case is not assigned in this construction, a fact which may seem odd given the typical lexical specification of a set II predicate as an accusative Case assigner. However, if *dee* combines lexically with a predicate, it can be specified as an element which changes the argument structure and Case properties of the predicate to which it attaches, without a violation of the Projection Principle.

Compare the sentences in (203) and (191), repeated below as (208). These sentences show that, in combination with a set II predicate, if the desiderative predicate *bia* bears no agreement, its interpretation can only be aspectual ('going to'). If *bia* bears agreement, it has only the interpretation 'want' and it must be accompanied by the predicate *dee*, inflected for person. The parentheses in (208c) indicate that the sentence is bad whether or not *bii* is present.

(208) a. Bii=háchka-wia-k.
1s.II-tall-desid-decl
'I'm going to be tall.' (NOT 'I want to be tall.')

b. Háchka-wee-wia-w-aa-k.
tall-vol.be.1.I-desid-1.I-cause-decl
'I want to be tall.' (NOT 'I'm going to be tall.')

c. *(Bii=)háchka-wia-w-aa-k.
(1s.II=)tall-desid-1.I-cause-decl
('I want to be tall.')

Dee occurs obligatorily with most set II complements of *bia* and *isshi*. Now compare the sentences in (209).

(209) a. Hinná ba-pashkú-wia-w-aa-k.
this 1.I-cut-desid-1.I-caus-decl
'I want to cut this.'

b. *Hinná ba-pashkú-wee-wia-w-aa-k.
this 1.I-cut-vol.be.1.I-desid-1.I-caus-decl

c. B-ihám-mia-w-aa-k.
1.I-sleep-desid-1.I-cause-decl
'I want to sleep.'

d. *B-ihám-mee-wia-w-aa-k.
1.I-sleep-vol.be.1.I-desid-1.I-cause-decl

As these sentences show, *dee* may not occur with the set I predicate *páshku* 'cut' or the set I predicate *iháwi* 'sleep'. In fact, it is impossible with most set I predicates. With mixed-set predicates, on the other hand, *dee* appears to occur optionally. This is the case, for example, with the mixed-set predicates *atchía* 'be strong' and *kalaaxtá* 'forget':

(210) a. B-atchía-wee-wia-w-aa-k.
1.I-strong-vol.be.1.I-desid-1.I-cause-decl
'I want to be strong.'

b. B-atchía-wia-w-aa-k.
1.I-strong-desid-1.I-cause-decl
'I want to be strong.'

c. Ba-hkalaaxtá-w-isshi-k.
1.I-forget-1.I-desid-decl
'I'd like to forget it.'

d. Ba-hkalaaxtá-wee-w-isshi-k.
1.I-forget-vol.be.1.I-1.I-desid-decl
'I'd like to forget it.'

In an analysis where *dee* is a predicate which projects in syntax, it is not clear how we would be able to predict this pattern. In particular, assuming that *dee* is an incorporating predicate, how would we ensure incorporation of a set II predicate, allow incorporation of a mixed-set predicate, and prohibit incorporation of a set I predicate?

An additional problem with projecting *dee* in syntax is that the argument of the embedded unaccusative predicate (as in 'I want to be tall') must be interpreted coreferent with the subject of the desiderative predicate; thus, it would have to be an anaphor. But an overt (reflexive) anaphor is impossible in this structure, and there is no ungoverned position for the null pronominal anaphor PRO, since (as discussed above) the complement of 'want' is neither CP nor AspP.

Consequently, the best analysis is one in which *dee* combines lexically with unaccusative predicates to create unergative predicates. The fact that it combines optionally with mixed-set predicates supports the idea that mixed-set predicates have dual representations as unergative and unaccusative predicates.

It is difficult to say how *dee* affects the interpretation of a predicate, especially since it does not occur in my data as an independent predicate. However, *dee* does turn up in two other environments that I know of.[10] The characteristics of *dee* in these constructions seem to lend further support to the analysis proposed here.

5.3.4.1 *Dee* in imperatives

In imperative forms, *dee* attaches obligatorily to predicates which I have hypothesized are unaccusatives, but it is impossible with set I predicates. This is illustrated in (211), which compares the imperative forms for a set I predicate (*baláxi* 'sing') and a set II predicate (*ítchi* 'be good').[11]

Note that some predicates do not have a felicitous imperative form, namely, predicates for which the subject argument is understood to have no control over the property or activity. For example, (just as in English) *Háchkalah! 'Be tall!'* would be an odd directive.

(211) a. Baláxi-h!
sing-imp
'Sing!'

b. *Balax-da-h!
sing-vol.be-imp

c. Ítchi-la-h!
good-vol.be-imp
'Be good!'

d. *Ítchi-h!
good-imp

In imperative forms of mixed-set predicates, *dee* is optional:

(212) a. Kalaaxtá-ssa-h!
forget-neg-imp
'Don't forget it!'

[10]Graczyk (1991:300ff.) reports and exemplifies another use of *dee*, as a 'surprise' marker which 'alerts the addressee to the fact that the following clause will contain a surprising, unusual or unexpected development.' This context arises in narrative discourse.

[11]*Dee* is an ablauting stem, and undergoes ablaut and shortening before the imperative suffix.

b. Kalaaxtá-lee-ssa-h!
forget-vol.be-neg-imp
'Don't forget it!'

The pattern of occurrence of *dee* in imperatives is thus exactly like its pattern of occurrence in desiderative complements (modulo those predicates which do not allow an imperative form): it *must* occur with set II predicates, it *may* occur with mixed-set predicates, and it *cannot* occur with set I predicates. The role of *dee* in imperatives thus appears to be that it allows a predicate which otherwise assigns no agentive roles to be interpreted as having an agentive subject. Thus, it is consistent with the analysis I have proposed, in which it combines lexically with an unaccusative set II predicate to create an unergative set I predicate.

5.3.4.2 The 'pretend, act like' construction

The pattern of occurrence observed in desiderative and imperative structures is not observed in the 'act like' construction, the other environment in which *dee* occurs. In the 'act like' construction, *dee* is doubled to create a verb stem, *deelee*; this verb stem is usually preceded by the suffix *-aachi (-ichi)* 'like; sort of' (indicating a qualification on the part of the speaker).[12] The resulting predicate, which means something like 'pretend, act like,' may incorporate a noun, as shown in (213).

(213) Shikáak-aat-deelee-k.
boy-like-act-decl
'He/she acts like a boy.'

The incorporated noun may also be a nominalization, however: note that the incorporated predicate is often accompanied by the clitic *ak*, the generic subject of nominalizations like 'singer' (one who sings). Thus, in (214a), a literal translation might be 'I acted like one who is hurt;' (214b) is more literally 'I acted like one who didn't see it.'

[12]The distribution of the allomorphs *aachi* and *(d)ichi* is phonological. *Aachi* attaches to stems ending in a short vowel, which is deleted by Vowel Elision; *(d)ichi* attaches to stems ending in a long vowel. If a stem ends in a diphthong, there is a coalescence, producing a mid vowel. For example, *día* + *ichi* becomes *díeechi*.

(214) a. (Ak=)íaxxoo-it-beewee-k.
(ak=)hurt-qual-1.I.act-decl
'I pretended to be hurt.'

b. Awá-ka-ssaa-it-beewee-k.
1.I-see-neg-like-1.I.act-decl
'I acted like I didn't see it.'

My hypothesis regarding this construction is that the suffix *aachi/(d)ichi* is a morphologically bound postposition ('like') which obligatorily incorporates to the bound doubled predicate *deelee* 'act'. Since *aachi/(d)ichi* is morphologically bound, it must incorporate a noun or pronoun.

The use of *dee* in this construction is quite different from its use in desideratives and imperatives. For one thing, it is not limited to non-agentive predicates; in addition, it incorporates nouns as well as verbs. However, its interpretation ('act like, pretend') seems quite similar to what I have proposed is the function of *dee* in desideratives and imperatives, which is to affect the argument structure of a predicate so that it selects an agent.

5.4 Benefactives

Benefactives in Crow are expressed with of the verb *kuú* 'give'. In its use as a free predicate as well as in the benefactive construction, this verb is morphologically irregular: the recipient object may be marked with a set I prefix, instead of the usual set II clitic. Most speakers also accept the usual pattern of agreement as well, although speakers who have the irregular paradigm tend to prefer it to the regular paradigm. The sentences in (215) illustrate both patterns.[13]

[13]The full paradigms for both regular and irregular (object) inflection of this verb are given in § 4.2.1.7. Note that there is a gap in the irregular paradigm: when the subject is second person and the object is first person, only the regular form for a first person object (the set II clitic) is possible.

(215) Irregular: a. Ba-lá-ku-k.
1.I-2.obj-give-decl
'I gave it to you.'

Regular: b. Dii=wa-kú-k.
2.II=1.I-give-decl
'I gave it to you.'

Irregular: c. Baa-waláx-ba-la-ku-k.
1.I-sing-1.I-2.obj-give-decl
'I sang for you.'

Regular: d. Dii=waa-waláx-ba-ku-k.
2.II=1.I-sing-1.I-give-decl
'I sang for you.'

As with many other verbs in Crow, the long vowel of *kuú* is shortened when prefixed with a set I person marker. As a result, when it is followed by additional phonological material, the short vowel can be deleted by Vowel Elision (§ 2.5). This is illustrated in (216a). Vowel Elision is optional in this case, however (perhaps because the vowel was originally long); hence in (216b) the vowel remains. In (216c), the vowel cannot delete because of the phonotactic constraints on Vowel Elision. The stem *kuu* (with vowel shortened or shortened and deleted) is underlined in these examples.

(216) a. Éehk awaasúa Josiesh aw-íashchim-ma-k-bia-w-aa-k.
that house Josie 1.I-buy-1.I-give-desid-1.I-cause-decl
'I want to buy that house for Josie.'

b. Éehk awaasúa Josiesh aw-íashchim-ma-ku-wia-w-aa-k.
that house Josie 1.I-buy-1.I-give-desid-1.I-cause-decl
'I want to buy that house for Josie.'

b. Aw-íashchim-ma-ku-k.
1.I-buy-1.I-give-decl
'I bought it for her.'

The sentences above show that the verb 'give' incorporates another predicate to create a complex verb in which both the embedded verb and the benefactive verb bear set I person marking. In this respect, it resembles the desiderative construction; it differs, however, in that it adds an argument to the complex predicate (the recipient).

5.4.1 The analysis of benefactives

The analysis I will propose for the benefactive construction in Crow is closely analogous to the analysis of desideratives proposed in § 5.3. As with desideratives, the evidence points to a structure in which there is no embedded clause, but instead a multiply-headed VP with a single subject argument which is theta-marked by both verbs.

The arguments given in § 5.3 against an embedded CP or AspP structure hold here as well. Verbs embedded under the benefactive verb may not bear plural marking or overt elements of Aspect. This is illustrated by the examples in (218); (217) is given for comparison. The habitual suffix (an element of Aspect) and the plural agreement suffix are underlined in these examples; in (218) the misplaced suffix is doubly underlined.

(217) a. Ba-laaké baa-waláx-wa-ku-ii-k.
1-child 1.I-sing-1.I-give-hab-decl
'I sing for my kids.'

b. Pam baa-waláx-ba-k-uu-k.
Pam 1.I-sing-1.I-give-pl-decl
'We sang for Pam.'

(218) a. *Baa-waláx-ii-wa-ku-k.
1.I-sing-hab-1.I-give-decl

b. *Baa-waláx-ii-wa-ku-ii-k.
1.I-sing-hab-1.I-give-hab-decl

c. *Baa-waláx-uu-wa-ku-k.
1.I-sing-pl-1.I-give-decl

d. *Baa-waláx-uu-wa-k-uu-k.
1.I-sing-pl-1.I-give-pl-decl

The fact that the verb embedded under the benefactive verb cannot bear plural agreement or an overt element of Aspect is evidence that, as in the desiderative construction, the phrase embedded under the benefactive verb does not contain an AspP (nor a CP). The problems noted in § 5.3 for postulating that the complement of the desiderative verbs *bia* and *isshi* is a VP hold equally well here: the embedded pronoun in [Spec,VP] could not be PRO and could not receive Case if it were pro.

Therefore, as in § 5.3, the analysis proposed here for the structure of benefactives is based on Baker's analysis of serial verb constructions (Baker, 1989). Two kinds of benefactive structure are discussed in Baker's article. In one, a benefactive verb is subordinate to another predicate; in the other, a predicate is subordinate to a benefactive predicate. The first structure is proposed for a type of serial verb construction found in many languages, as exemplified in the example in (219) from Yoruba (repeated from (197).

(219) Ó ra iṣu fún mi.
he buy yam give me
'He bought a yam for me.'

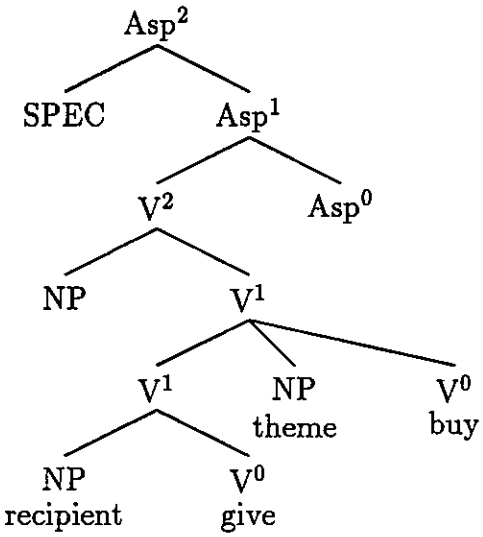
However, a different kind of benefactive is also found in Yoruba, this one employing a different verb (Baker, 1989:539, example (51)).

(220) Olú bá mi ra bàtà.
Olu act-for me buy shoes
'Olu bought shoes on my behalf.'

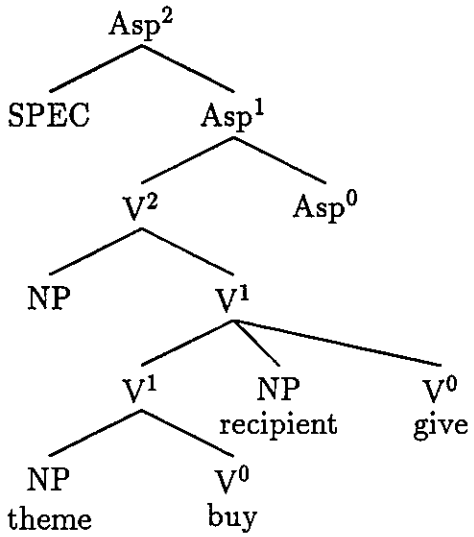
There are two structural possibilities, and the choice depends on whether the 'shared object' is the theme argument, as in (219) (roughly, 'he bought a yam:gave [it] to me') or whether it is the recipient argument (roughly, 'Olu acted for me:bought shoes'). The two candidate structures for benefactives in Crow are sketched in (221).

(221) *Benefactive structures*

a. *give* subordinate



b. *give* superordinate



I will argue here that only the structure in which 'give' is the higher predicate ((221b)) is appropriate for benefactives in Crow. In particular, I will show that Crow does not allow the serial verb structure in which an argument is assigned a theme role by both predicates.

Note first that in general, an incorporating verb stem is to the right of an incorporated verb stem in Crow. Thus, we should postulate the structure in (221a) only if the benefactive verb ('give') precedes the incorporating stem (in this case, 'buy'). This is never the case. Although the benefactive predicate can be incorporated by another predicate (such as a desiderative or causative), it is not incorporated freely into predicates like 'buy.' In fact, as far as I am aware, no incorporating predicate assigns a theme role. Hence, the verb *kuú* could not participate in the structure in (221a).

Second, note that both predicates in the structure in (221a) assign a theta role to the 'shared object,' the theme argument. Therefore, from a Yoruba sentence like 'Olu bought a yam for me', since the relevant argument structures are *buy(Olu,yam)* and *give(Olu,yam,me)*, there is an entailment that the recipient (*me*) is in possession

of the theme (*yam*). However, this entailment does not hold in benefactive sentences in Crow: consider the sentences in (222).

(222) a. Barbarash baaté aw-íisshim-ma-ku-k.
Barbara dish.cit 1.I-wash-1.I-give-decl
'I washed the dishes for Barbara.'

b. Aprilsh huupá-m Alice íashchili-kuu-htaa iílaa eé-k.
April shoe-indef Alice buy-give-but 3.agent keep-decl
'April bought shoes for Alice but kept them herself.'

There is no way to interpret (222a) so that *baaté* 'dish', the theme argument of the verb *íisshiwi* 'wash', is also assigned the theme role by the verb 'give'. In other words, it is not an entailment of (222a) that the recipient argument ('Barbara') is in possession of the theme argument ('the dishes'). And in (222b), the lack of entailment is clear. If the argument 'shoes' were an argument of 'give', this sentence would be contradictory.

Moreover, if the theme argument is the shared object, it should be impossible to combine an unergative predicate with the benefactive, since an unergative predicate assigns an Agent or Experiencer role, but no Theme role. This prediction is incorrect, since benefactives of intransitive set I predicates like *baláxi* 'sing' are fine, as shown in (217). In fact, any set I predicate (e.g. *disshí* 'dance', and *axxí* 'cough') can combine with the benefactive.

Now the structure in (221b) also carries some restrictions. Since the recipient argument is the 'shared object' in the structure, only verbs which can (optionally) assign a benefactive θ-role will be able to occur in this structure (Baker, 1989:539). The embedded predicate cannot be unaccusative, for the same reason that the embedded predicate in the desiderative structure could not: the argument of the unaccusative verb cannot be PRO and cannot receive Case, since it is unable to move to [Spec,VP].

As the sentences in (223c,d) show, unaccusative predicates do not occur in benefactive structures, although an unaccusative predicate augmented with *dee* can (as shown in (223a,b)). (The agreement pattern in (223a) reflects the use of set I person marking for the recipient argument of 'give', as discussed above and in § 4.2.1.7; (223b) reflects the regularized agreement pattern.)

(223) a. Randysh shikáak-itchi-laa-wa-ku-k.
Randy boy-good-vol.be-1.I-give-decl
'Randy was a good boy for me.'

b. Randysh bii=shikáak-itchi-laa-kuu-k.
Randy 1s.II=boy-good-vol.be-give-decl
'Randy was a good boy for me.'

c. *Randysh shikáak-itchi-wa-ku-k.
Randy boy-good-1.I-give-decl

d. *Randysh bii=shikáak-itchi-kuu-k.
Randy 1s.II=boy-good-give-decl

5.4.1.1 The lexical representation of 'give'

The hypothesis which I will maintain here is that the verb *kuú* 'give' has a dual representation in the lexicon. As a free predicate, *kuú* assigns agentive, goal, and theme roles, and it assigns accusative Case to the goal and theme arguments. As a benefactive verb, however, there are two differences: first, it obligatorily incorporates another predicate; and second, it assigns only actor and goal roles, and only one accusative Case. No argument in the structure in (221b) represents the theme role.

Since *kuú* is a free predicate with the same morphological irregularity and nearly the same syntactic and semantic properties as the benefactive predicate, it seems worthwhile to explore the possibility that these verbs do not have different lexical entries. Suppose, for example, that the verb *kuú* as it occurs in sentences like (216) has exactly the same theta-role and Case assigning properties as the free predicate. This would force an analysis in which the embedded phrase is an incorporated nominal, rather than a V^1 (or any other category).

While this is initially appealing, there are two problems with it which I believe outweigh its advantages. First, notice that noun incorporation (and incorporation in general) is obligatory only when the incorporating predicate has a lexical specification as a morphologically bound element. If the embedded verb in (216a) is a nominal, it should be able to occur freely, rather than bound to *kuú* (note that *kuú* is also a free stem). However, this is not possible. Under the assumption that

the verb *kuú* has the same lexical representation in main verb and incorporation constructions, we should be able to express (216a) as in (224).

(224) Éehk awaasúa aw-íashchile Josiesh ba-k-bía-w-aa-k.
that house 1.I-buy.cit Josie 1.I-give-desid-1.I-cause-decl
'I want to give Josie that house I bought.'
NOT 'I want to buy that house for Josie.'

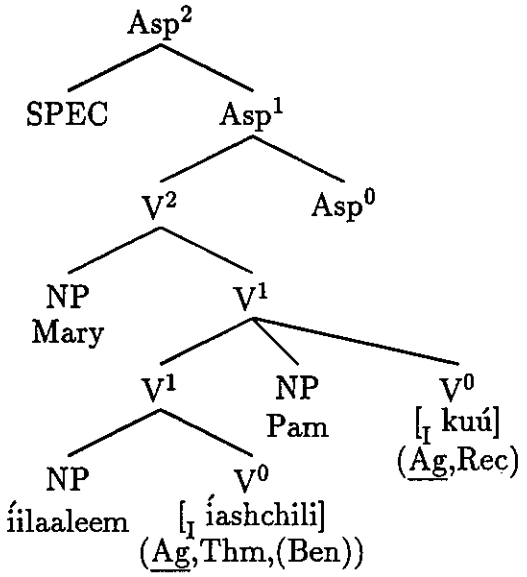
However, as the translation shows, this sentence has only a relative clause interpretation ('I want to give Josie that house I bought'); it cannot have the interpretation 'I want to buy a house for Josie'. Thus, under the noun incorporation analysis, incorporation would result in the sentence's having a different interpretation when the noun fails to incorporate.

The second problem is that if the incorporated element in sentences like those in (216) is a nominal, how would we rule out incorporation of an unaccusative predicate nominalization (sentences like (223c,d))? To a predicate incorporating a noun, the nominalization of an unaccusative predicate would look just like the nominalization of any other predicate.

Therefore, I will maintain the hypothesis that the free predicate *kuú* and the incorporating benefactive predicate *kuú* have distinct lexical representations as outlined above.

The structure for a benefactive sentence such as the one in (222b) would be as in (225). Note that the benefactive *kuú* is a set I predicate which projects one external argument (the subject) and one internal argument (the recipient).

(225) *The structure of benefactives in Crow*



Now, this structure is inconsistent with the directional parameters for Crow. Since complements and specifiers are both to the left of the head, I assume that both direct and indirect theta assignment operate right to left in Crow. In (225), it is impossible for the lower verb to assign a theta role to the benefactive NP a theta role, since it is to the left of the benefactive NP.

One solution to this problem would involve projecting the recipient argument in a VP specifier position, where it is to the left of both verbs. However, this would compromise an earlier assumption, that the specifier of VP is the 'external' thematic position for D-structure subjects. But there is a second possibility. Notice that the structure in (225) is never the surface structure for benefactive sentences in Crow; the lower verb must incorporate into the benefactive verb. Once the verb has incorporated, its theta-assigning properties are unified with the theta-assigning properties of the complex verb. This solution thus requires the assumption that indirect theta-role assignment can be satisfied following incorporation, and not necessarily only at D-structure.

5.4.2 Agreement in benefactives

My analysis of agreement in benefactives follows exactly what was proposed for agreement in complex verbs formed with desideratives. Verb incorporation creates a complex predicate, with both the embedded predicate and the benefactive verb enclosed by a set I bracket. As a result of the agreement rules and the morphosyntactic realization rules given in § 4.6, each is prefixed with set I marking; plural marking is suffixed to Aspect.

Note that the analysis of agreement proposed in chapter 4 predicts that any plural agreement features arising from a second person plural recipient must be realized on Aspect (and not on the benefactive verb) if the benefactive verb is incorporated by a desiderative verb or an overt element of Aspect. This is correct, as shown by the example in (226), where the benefactive predicate is incorporated into the desiderative predicate *bia*; and in (227), where Aspect is instantiated as the habitual suffix.

(226) a. Tom dii=waláx-kuu-wi-oo-k.
Tom 2.II=sing-give-desid-pl-decl
'Tom wants to sing for you pl.'

b. *Tom dii=waláx-kuu-o-wia-k.
Tom 2.II=sing-give-pl-desid-decl

(227) a. Jack iíshchiisee baláx-ba-ku-ii-k.
Jack before sing-1.obj-give-hab-decl
'Jack used to sing for me.'

b. *Jack iíshchiisee baláx-ii-wa-ku-k.
Jack before sing-hab-1.obj-give-decl

5.4.2.1 Irregular agreement

Because *kuú* has exceptional agreement properties, there is some potential for confusion in parsing words in which object marking mimics set I marking. Notice that a benefactive sentence with a first person recipient marked with set I marking (see § 4.2.1.7) is similar but not identical to a sentence with a first person subject. In the former instance, the embedded verb does not bear agreement. Compare the sentences in (228).

(228) a. Baláx-ba-ku-k.
sing-1.obj-give-decl
'He/she sang for me.'

b. Baa-waláx-ba-ku-k.
1.I-sing-1.I-give-decl
'I sang for him/her.'

The set I agreement indicating the recipient object never 'spreads' to the embedded verb as it does when set I agreement indicates a subject. The reason for this is clear. Since set I marking for recipients (indicated in (228a) with the gloss '1.obj') is an exceptional realization of Case marking by the verb, the domain of attachment for the set I prefix is restricted to the verb *kuú*. The morphosyntactic rule does not have access to the whole complex, and hence never sees the embedded set I bracket.

5.5 Causatives

Crow has two causative verbs, *ee* and *hchee*. These have been characterized respectively as 'direct' and 'indirect' causatives (Martin, 1991, Graczyk, 1991). The direct causative involves the causer as a direct participant, while in indirect causatives the causer may not be a direct participant and has less control over the action of the embedded clause. Many predicates occur with either causative, although predicates which assign an agentive thematic role typically do not allow the direct causative. This is true regardless of agreement class; thus, *biísshi* 'to lie' occurs only with the indirect causative, even though it is a set II predicate. The indirect causative verb can be translated with 'make' or 'cause', but can also have the interpretation 'let, allow.'

The causative verbs are morphologically bound, obligatorily incorporating another predicate. The sentences in (229a) and (229c) exemplify the direct and indirect causatives, respectively. The sentences in (229b,d) are given for comparison, employing the same embedded predicates without a causative verb attached.

(229) a. Is-ée-k.
big-cause-decl
'He/she made it bigger.'

b. Isáa-k.
big-decl
'It's big.'

c. Íilaalee balee=íisshiwi-hchee-k.
car.cit wash-cause-decl
'He made us wash the car.'

d. Íilaalee al-íisshiwi-k.
car.cit 1.I-wash-decl
'You washed the car.'

5.5.1 Characteristics of causatives

Set I marking on the *ee* causative is irregular in form. The paradigm of inflected *ee* stem forms is given in (230). Two of these forms are exemplified by the sentences in (231). (See also § 2.9.5 for a discussion of agreement and stem form alternations in *ee* causatives.)

(230) *The direct causative stem inflected for person*

	first person	second person	third person
singular	baa	daa	ee
plural	buu	duu	eeo

(231) a. B-ikkúhpe xapíi-w-aa-k.
1-hat.cit lost-1.I-cause-decl
'I lost my hat.'

b. D-íkkuhp-ua xapíi-l-uu-k.
2-hat-pl.cit lost-2.I-cause.pl-decl
'You (pl.) lost your hats.'

Neither causative verb occurs as an independent predicate. The following facts show that it is impossible to leave the causative verb in ellipsis, as is possible in English causatives. In this environment in Crow, the main verb may be repeated, or 'do' may replace it in the causative, but the causative may not appear on its own.

(232) a. Baláx-bia-ssaa-htaa baláx-ba-hchee-k.
sing-desid-neg-though sing-1.I-cause-decl
'She didn't want to sing but I made her.'

b. Baláx-bia-ssaa-htaa koot-ba-hchee-k.
sing-desid-neg-though do-1.I-cause-decl
'She didn't want to sing but I made her.'

c. *Baláx-bia-ssaa-htaa ba-hche-k.
sing-desid-neg-though 1.I-cause-decl

5.5.2 Agreement in causative predicates in Crow

The subject of the causative predicate is assigned nominative Case: set I agreement with a first or second person subject (the 'causer') is prefixed to the causative verb. A first or second person subject in the embedded clause (the 'causee')

is always marked with a set II clitic, regardless of the agreement class of the embedded predicate. The sentences in (233) show a sentence with an intransitive set I predicate and the same predicate with an indirect causative. In these examples, the causative predicate is underlined, together with any set I agreement marking prefixed to it.

(233) a. Ba-hkáa-k.
1.I-laugh-decl
'I laughed.'

b. Bii=káa-hchee-k.
1s.II=laugh-cause-decl
'He made me laugh.'

c. Ba-sahké káa-wa-hchee-k.
1-mother laugh-1.I-cause-decl
'I made my mother laugh.'

(234a) shows a sentence with a set II predicate and (234b,c) give sentences with the same predicate combined with the direct causative.

(234) a. Bii=ákkuwi-k.
1s.II=ready-decl
'I'm ready.'

b. Ba-sahkáate bii=ákkuw-ee-k.
1-older.sister 1s.II=ready-cause-decl
'My sister got me ready.'

c. Ba-sooké ákkum-m-aa-k.
1-younger.sister ready-1.I-cause-decl
'I got my sister ready.'

If the embedded verb is transitive, its object (the 'lower object'), like the causee, is marked with a set II clitic. (235a) shows a sentence with a transitive predicate; the same predicate with the indirect causative is shown in (235b,c).

(235) a. Dii=wa-hkuxshí-k.
2.II=1.I-help-decl
'I helped you.'

b. Chris dii=wii=kuxshí-hchee-k.
Chris 2.II=1s.II=help-cause-decl
'Chris made me help you.' or
'Chris made you help me.'

c. Chris dii=kuxshí-wa-hchee-k.
Chris 2.II=help-1.I-cause-decl
'I made Chris help you.' or
'I made you help Chris.'

The fact that the causative elements in Crow are prefixed with set I agreement marking provides concrete support for the analysis of these elements as verbs, as opposed to simple suffixes. These examples also show that causatives in Crow differ from morphological causatives in many other languages in the placement of person agreement affixes. Instead of being prefixed to the verbal complex as a whole, in Crow the set I person agreement prefix attaches to the causative verb which heads the complex verb.

I argued earlier that many predicates in Crow bear a lexical specification indicating which part or parts of the verb stem bear set I person agreement. In the lexical analysis proposed in chapter 4, the set I bracket allows agreement in complex predicates to be treated uniformly as prefixation (see § 2.9.5 and § 4.3.2). In the analysis in § 5.2, modal auxiliaries are treated as elements of Aspect; when a set I verb raises to Aspect, a complex stem is created in which both parts bear a set I bracket. As a result, both parts are prefixed with set I person marking, an aspect of morphosyntactic rule application which was already necessary to account for lexically complex stems which are doubly marked.

To my knowledge, this particular kind of lexical specification (in my analysis, a set I bracket), which results in the inflectional affixation of a proper subpart of a morphologically complex predicate, is limited to languages of the Americas with an active system of agreement, and perhaps to the Siouan family. The placement of set I agreement in causatives is the same in Lakhota (Dakota) (Williamson, 1984).

Comparing (234a,b), we see that the argument of an unaccusative predicate receives the same marking as it does in non-causative clauses. Is there any evidence that it is the causative verb, rather than the embedded verb, which assigns Case to this argument?

Recall that in the analysis of plural agreement in clauses headed by an unaccusative (set II) predicate, a third person plural unaccusative subject triggers plural agreement. Now, when the clause is embedded under a causative verb, if it is the embedded verb rather than the causative verb which assigns Case to this argument, we should expect the third person plural argument to trigger plural agreement. But as the sentence in (236b) shows, it does not.

(236) b. Jack=dak Tommysh=dak passhí-wa-hchee-k.
Jack=and Tommysh=and fall.off-1.I-cause-decl
'I made Jack and Tommy fall off.'

c. Jack=dak Tommysh=dak passhí-wa-hk-uu-k.
Jack=and Tommysh=and fall.off-1.I-cause-pl-decl
'We made Jack and Tommy fall off.'
NOT 'I made Jack and Tommy fall off.'

This shows that an unaccusative verb embedded under a causative does not assign Case to its subject, because if it did, we would expect the verb to be indexed with plural marking according to the agreement rule in (158), repeated here:

(237) *Plural agreement in Crow*

Index a head with any unrealized number features of a salient argument to which it assigns Case.

Third person plural subjects, but not objects, are salient arguments. A verb which assigns Case to an argument in [Spec,VP] assigns Case to a subject. But since there is no plural agreement with the third person plural causee, it must be the causative verb which assigns Case to the causee, a non-subject and hence a non-salient argument.

5.5.3 Baker's (1988) analysis of causatives

Baker (1988) proposes that morphological causatives can be given a universal characterization in syntax as instantiations of a general process of verb incorporation. Baker argues that the variations which differentiate patterns of case marking and agreement in the causatives of different languages can be attributed to differences among those languages in the lexical Case-assigning properties of heads. Drawing on the work of Gibson (1980) and Marantz (1984), Baker discusses two broadly defined patterns of surface grammatical relations which are found in transitive causative sentences in a wide variety of languages. (A transitive causative involves a causative verb whose complement is a transitive clause.) A language can be classified according to the kind of pattern it displays:

(238) (i) languages in which the lower object is treated as the surface direct object and the causee receives oblique case-marking

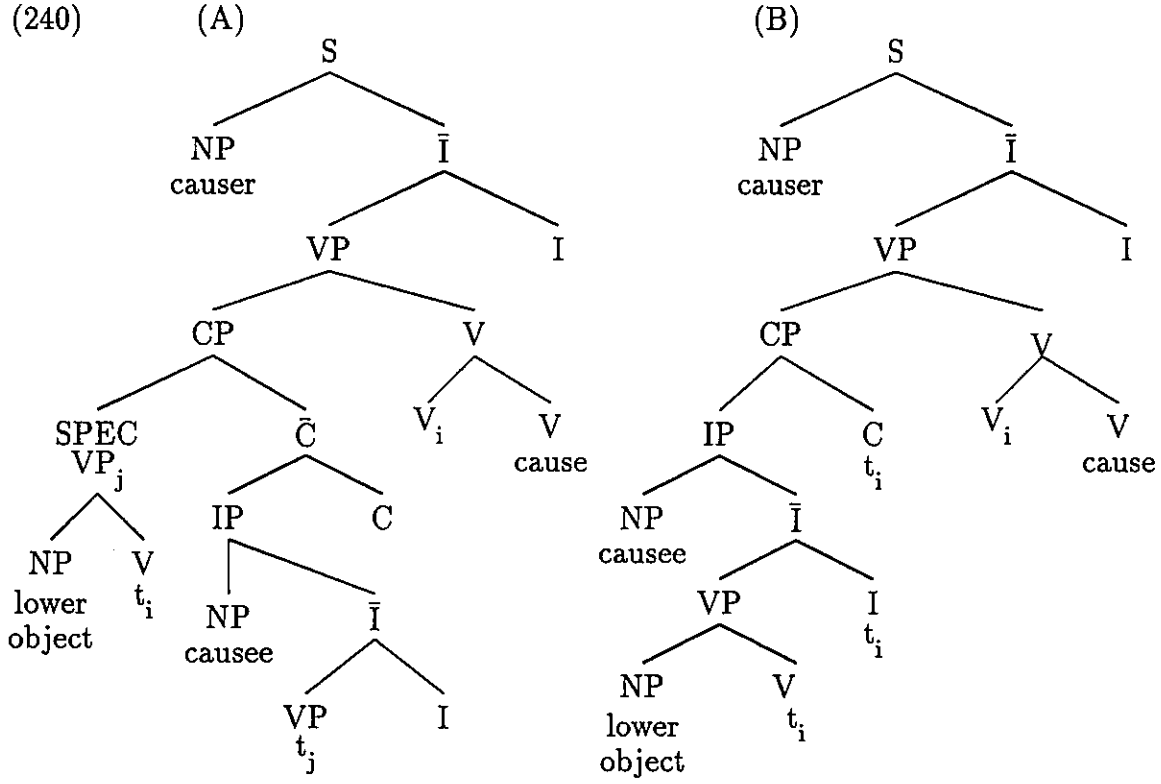
(ii) languages in which the causee is treated as the surface direct object and the lower object either receives oblique case-marking or is marked as a 'second object'

As part of a general program to reduce language specific constructions to lexical differences, Baker assumes that all languages have the same underlying bi-clausal structure for causatives: the causative verb takes a clause as its complement, including an embedded C (complementizer) and Infl (inflection) projections. The division in (238) is correlated with two derivations, (239A-B), which are sketched in (240).

(239) (A) the lower VP moves first to Spec of CP; from there, the lower verb adjoins directly to the causative verb

(B) the lower verb moves through I (Inflection) and C (Complementizer), and from there adjoins to the causative verb

(240)



Baker argues that in type (i) languages, verbs assign only one objective Case, while in type (ii) languages they may assign more than one. Only languages which allow verbs to assign objective Case to more than one NP ('double object' languages) will allow the derivation sketched in (B), because in the derived structure, there are two NPs — the causee and the lower object — which need Case. In double object languages, the complex causative verb inherits the Case-assigning properties of its constituent verbs, and is thus able to assign Case to both the causee and the lower object.[14] The lower object is not 'too far away' to receive Case because once the lower V has moved through I and C, IP and CP are no longer potential barriers to government by the causative verb complex. The derivation sketched in (B) is thus Baker's analysis for type (ii) languages.

In the (A) derivation, only the lower object can receive structural accusative Case from the complex verb; a causee can only get Case if the language allows some verbs to be lexically marked as 'exceptional' Case markers. Such verbs can assign Case to the subject of the lower clause, even though this is normally not possible when a Complementizer projection intervenes. A type (i) language which does not allow Exceptional Case Marking (ECM) or any other mechanism for assigning Case to the embedded subject (such as an inserted preposition or postposition) is predicted not to allow transitive causatives at all. Baker suggests that the derivation sketched in (A) is also available as a second strategy for type (ii) languages, as long as there is a mechanism, such as ECM, allowing the causee to receive Case.

Baker's analysis applied to causatives in Crow

Crow exhibits no oblique marking of either of the object noun phrases involved in a transitive causative. This is illustrated in (241).

(241) Káale eehk shikáake-sh bíakaate-sh
Grandma that boy.cit-def girl.cit-def
baapáalitchiksha-m kuú-hchee-k.
flower-indef give-cause-decl
'Grandma made the boy give the girl a flower.'

[14]There are a number of variations on this theme; see Baker (1988) for the full picture.

There are no object agreement or passive operations in Crow which would show that an argument is directly Case-marked. However, verbs do subcategorize strictly for the arguments to which they assign Case. The lexical specification of a predicate must indicate whether indirect arguments (instrumentals and some datives) are directly Case-marked by the verb or marked with a postposition. For example, the verb *kuu* 'give' takes direct and indirect object arguments with no additional marking; but the verb *kee* 'give away' takes only a direct object, argument, so that an indirect argument must be expressed with the postposition *kush* 'to'. This is illustrated in (242).

(242) a. Shikáake-sh iichíili-m bii=kuú-k.
boy.cit-def horse-indef 1s.II=give-decl
'The boy gave me a horse.'

b. Shikáake-sh iichíili-m bii=kush=kée-k.
boy.cit-def horse-indef 1s.II=to=give.away-decl
'The boy gave away a horse to me.'

c. *Shikáake-sh iichíili-m bii=kée-k.
boy.cit-def horse-det 1s.II=give.away-decl

We can tentatively conclude that Crow is a double-accusative, type (ii) language within Baker's theory.

5.5.4 Reflexives in causatives

Crow has reflexive clitics inflected for person which must be bound within their minimal governing domain. This domain can be defined as an X^{max} containing both the anaphor and a c-commanding antecedent. In what follows, I will be assuming that the reflexive clitics in Crow are bound pronouns rather than morphological affixes. Note that the reflexive clitics have the same distribution as the set II clitics: they are freely ordered with the other clitics and they can be attached to another VP internal head, even though they most often attach to the verb.

In Baker's theory of causatives, the possibilities for reflexives in the derivations sketched in (240) differ. In the derivation sketched in (B), a reflexive lower object can be coreferent with the causee, and a reflexive causee can be coreferent with the causer (the CP ceases to be a barrier as a result of verb incorporation).

However, the lower object cannot be coreferent with the causer, because the presence of the causee as a potential antecedent blocks coreference with the more distant antecedent, the causer (Baker, 1988:210f.). In the derivation sketched in (A), a reflexive lower object can only be anteceded by the causer, since the VP moves to [Spec,CP] and is no longer c-commanded by the causee. Assuming that the reflexive object in Crow is a pronominal anaphor, and thus subject to the Binding Theory conditions, how do reflexive anaphors in Crow fit in?

5.5.4.1 Causee coreferent with lower object

In a transitive causative, when the causee and lower object are coreferent, a reflexive clitic obligatorily appears to the left of the verbal complex. Regular set II marking indicating the causee is also cliticized to the complex predicate.

(243) B-ihchi=wii=lichí-hchee-k.
1-self=1s.II=hit-cause-decl
'He made me hit myself.'

These facts serve to confirm that within Baker's theory, Crow must be a type (ii) language, employing the derivation in (B). The derivation in (A) could not derive sentences like (243) because in (A), the causee does not c-command the lower object, and is thus not available as the antecedent of the reflexive anaphor.

5.5.4.2 Causer coreferent with causee

In causative sentences where the causer and causee are coreferent, a reflexive clitic appears as well, again obligatorily. Thus, in the sentence in (244a), the subject of the embedded set II predicate is coreferent with the subject of the causative verb.

Now note that if the causer and causee are coreferent and the embedded clause is a transitive set I predicate (as in 'I made myself look at it'), the result is usually unacceptable in Crow. An example is given in (244c). However, I will argue here that sentences like (244c), though unacceptable, are not ungrammatical.

(244) a. B-ihchi=iláp-b-aa-k.
1-self=fat-1.I-cause-decl
'I fattened myself.'

b. B-ihchi=axxí-wa-hchee-k.
1-self=cough-1.I-cause-decl
'I made myself cough.'

c. *B-ihchi=íkaa-wa-hche-k.[15]
1-self=1.I-see-1.I-cause-decl
'I made myself look at it.'

Within Baker's theory, a language which employs the derivation in (B) is predicted to allow reflexive pronoun binding between a causer and causee, because after incorporation the causee is c-commanded by the causer within its minimal binding domain. Since the facts in (243) argue that Crow does employ the derivation in (B), the unacceptable sentence in (244c) is predicted to be grammatical. I believe, however, that it is not the presence of the reflexive anaphor which makes the sentence in (244c) unacceptable; rather, it is the fact that the coreferent causee is agentive.

In English, sentences like 'she made herself sing' or 'he made himself look at it' carry extra meaning resulting from the expression of these sentences as causatives. Truth-conditionally, 'she made herself sing' is equivalent to 'she sang'. The use of the causative in this case implies something else, perhaps that the action expressed is not something normally done, or that it is not something that the subject wants to do. Notice that this is not true if the lower verb selects a non-agentive subject. Thus, a sentence like 'Pat made herself resemble Sam' does not have this extra implication.

The verb 'laugh' in English ambiguously selects either an agentive or a non-agentive subject. Hence, a causative sentence like 'he made himself laugh' is also ambiguous. Under the reading where the causee is agentive, it means something like 'he forced himself to laugh' (e.g., at something that was not funny). Under the reading where the causee is non-agentive, it means that something he did struck him as funny. The implication that laughing is not something the causee would normally do, or want to do, is only present under the 'forced' reading. Now in Crow, this is also the case: thus, (245) is acceptable. A corresponding case with a verb whose subject is always agentive, however, is not possible; see (244c).

[15]My consultant remarked that this sentence could be interpreted 'I made him/her look at me' — exactly analogous to (246a).

(245) B-ihchi=káa-wa-hchee-k.
1-self=laugh-1.I-cause-decl
'I made myself laugh.'

It may be that the Crow causative verb simply does not allow any such extra semantic implications for coreferent subject and causee in causatives of verbs which select an agentive subject.[16] Therefore, I will adopt the position that sentences like like (244c) are not ungrammatical, but semantically unacceptable.

5.5.4.3 Causer coreferent with lower object

The final case to consider is the one in which the causative subject is coreferent with the object of the embedded predicate. This configuration is only possible under the derivation in (A), since the subject is not within the minimal governing domain with a possible antecedent for the lower object in (B). The examples below show that in Crow, a reflexive clitic, a non-reflexive set II clitic, or *both* may occur.

(246) a. B-ihchi=kuxshí-wa-hche-k.
1-self=help-1.I-cause-decl
'I made him help me.'

b. Bii=kuxshí-wa-hche-k.
1s.II=help-1.I-cause-decl
'I made him help me.'

c. B-ihchi=wii=kuxshí-wa-hche-k.
1-self=1s.II=help-1.I-cause-decl
'I made him help me.'

The fact that both (243) and (246) are possible can only be explained in Baker's theory if both derivations (A) and (B) are possible (see (240)). In addition, the causative verb must be able to assign Case to the embedded subject.

Sentences like (246c) cannot be dismissed as marginal; it is clear from work with several speakers that they are perfectly robust. Moreover, they do not appear to differ substantially in interpretation from the (246a,b). Especially, note that a sentence in which there is special emphasis on the subject as the instigator of the activity does not employ a reflexive form, but rather a separate pronoun form, as in (247).

[16]Thanks to Pamela Munro for pointing out the peculiar properties of these sentences.

(247) a. Biílaa b-ihchi=wii=kuxshí-wa-hche-k.
1.agt 1-self=1s.II=help-1.I-cause-decl
'I made him help me, myself.'

b. Biílaa día-w-aa-k.
1.agt do-1.I-cause-decl
'I did it myself.'

However, the occurrence of *both* the reflexive and regular pronominal clitic could be derived by independent means, namely, the doubling process that produces focused (singular) object pronouns. Consider the following:

(248) a. Jack dii=lichí-k.
Jack 2.II=hit-decl
'Jack hit you.'

b. Jack diilií lichí-k.
Jack 2.focus hit-decl
'You're the one that Jack hit.'

c. Diilií Jack dichí-k.
2.focus Jack hit-decl
'You're the one that Jack hit.'

The focus pronouns *diilii* and *biiwii* are separate words, as shown by their ability to move to a post-verbal or pre-subject position within the clause. However, if the focus pronoun moves from argument position, a (resumptive) clitic often appears on the verb as well, although this does not appear to be obligatory:

(249) a. Jack dii=lichí-k diilií.
Jack 2.II=hit-decl 2.II.focus
'You're the one that Jack hit.'

b. Jack dichí-k diilií.
Jack hit-decl 2.II.focus

It seems reasonable to suppose that the focus rule which derives the doubled form of the set II pronominals also derives the sequence of set II clitic plus reflexive clitic in (246c).

5.5.4.4 Multiple reflexives

Inherent in Baker's analysis is the claim that there are two derivations associated with the causative in a language like Crow, which allows reflexive binding between causer and causee, causee and lower object, or causer and lower object.

Assuming that both derivations could not be involved in a single structure, it follows that it should be impossible to have two distinct reflexive anaphors in the lower clause, one anteceded by the causative subject, and one anteceded by the causee. However, such sentences have been judged grammatical, if somewhat difficult to produce. The examples below illustrate.

(250) a. Eloise ihchi=wii=chiweé-k.
Eloise self=1s.II=tell-decl
'Eloise told me about herself.

b. Eloise ihchi=wii=chiweé-wa-hchee-k.
Eloise self=1s.II=tell-1.I-cause-decl
'I let Eloise tell me about herself.'

c. Eloise ihchi=w-ihchi=chiweé-wa-hchee-k.
Eloise self=1-self=tell-1.I=cause-decl
'I let Eloise tell me about herself.'

As these examples show, although a non-reflexive set II clitic is possible in the lower object slot (and seems to be preferred), a reflexive clitic can be used to reference the lower object when it is coreferent with the causative subject. The dual-derivation analysis allows the possibility of *either* reflexive pronoun, but not of *both* within the same sentence.

If the facts are correct, the analysis required must allow either just the lower clause or the entire clause to serve as the binding domain of the lower object. If the lower clause is the binding domain, the set II clitic surfaces; if it is the entire clause, the reflexive clitic surfaces.

5.5.5 Li 1989

Li (1990) makes two interesting observations about verb incorporation based on analyses and data in Baker (1988) and Marantz (1984) (and others). First, only some of the verbs which select a clausal complement allow verb incorporation, even

though all other aspects of the structural description are met. Second, (at least in the languages studied by Baker and Marantz) the embedded verb in verb incorporation constructions never seems to bear inflection. Li notes that these are facts which remain unexplained in Baker's theory of incorporation, and proposes that causative constructions (more generally, all verb incorporation) universally involves a bare VP complement. Li proposes a revision of the binding theory which forces this, defining first the notions of 'T-position' (theta-related position) and '$\bar{\text{T}}$-position' as follows (Li, 1990:407, (18)):

> A T-position is a D-structure position to *or from* which a θ-role can in principle be assigned.

T-positions include X^{o} categories as well as X^{max} categories, and specifically include those X^{o} categories which are θ-role assigners, namely N, V, A, and sometimes P. $\bar{\text{T}}$-positions include X^{o} categories which never assign θ-roles, namely Complementizer, Determiner, and Inflection. The Binding Theory is then redefined, with the notions 'T-bound' and 'T-free' replacing those of 'A-bound' and 'A-free'.

(251) *Li's Revision of the Binding Theory*

A. An anaphor is locally T-bound.

B. A pronominal is locally T-free.

C. A variable is T-free (in the domain of the head of its maximal chain).

Under the new Binding Theory, head movement from a $\bar{\text{T}}$-position to a T-position is blocked, just as movement from an $\bar{\text{A}}$-position to an A-position was blocked in the old Binding Theory. The result of such a movement would be a trace which is both T-bound and $\bar{\text{T}}$-bound, which would violate Condition C. This means that in Li's theory, a head can never move through Inflection and Complementizer and on up to a higher V. Thus, the observation that incorporated elements do not bear inflectional material is predicted, and in fact required.

In order to account for the same facts that Baker's theory handled, Li makes several additional assumptions regarding the Case assigning properties of heads, as follows (slightly condensed from Li (1990:409)).

(252) *Case theory (Li, 1990)*

A. Lexical items which can assign Case are marked [+C]; lexical items which cannot assign Case are marked [-C]; lexical items which are unmarked for the feature [C] can inherit a plus or minus value and then behave accordingly.

B. A [+C] verb V Case-marks its argument only if V^{max} is governed by Infl or another [+C] constituent.

C. An argument NP not Case-marked in D-structure cannot be assigned an oblique Case.

To account for the differences between type (i) and type (ii) languages, Li suggests that causative verbs in type (ii) languages have the specification [+C], while causative verbs in type (i) languages have no specification for C. Consequently, the analysis for type (ii) languages is fairly straightforward, but in his analysis of type (i) languages, the embedded subject is generated as a D-structure adjunct, and the lower object moves to subject position within the embedded clause and receives Case from the causative verb, which inherits [+C] from the lower verb when it is incorporated. Thus, Li's theory (like Baker's) involves different derivations for the two types of language. This does not seem appropriate for Crow, which appears to be a type (ii) language but which also has characteristics of type (i) languages with respect to reflexives in causatives. Instead, the binding domain for the lower object must be freely interpretable as either the embedded clause or the root clause.

5.5.6 The analysis of Crow causatives

Causatives in Crow differ from complex predicates formed with modal auxiliaries and desideratives, in the following ways: (i) A predicate embedded under a causative verb selects arguments independently of the causative verb. (In desiderative and benefactive sentences, the subject of both verbs is always the same.) (ii) The subject of a set I predicate embedded under a causative verb is referenced with set II marking, and there is evidence that the causee always receives Case from the

causative verb, even if the embedded predicate would normally assign it accusative Case (see (236)).

There is additional evidence supporting a bare VP analysis of causatives in Crow. Recall first that (unlike what is found in many languages) the complementizer suffix is never null in Crow. As a result, if the V to C to V theory of causative incorporation were correct, we would have real reason to expect an overt complementizer on the embedded verb, as well as on the causative verb. In fact, however, the verb complex as a whole is obligatorily suffixed with a single complementizer suffix, and a complementizer suffix never intervenes between the embedded stem and the causative verb.

Moreover, no (overt) element of Aspect (a modal auxiliary or the habitual suffix) can intervene between the embedded verb and the causative verb, as shown in (253).

(253) a. Aprilsh dissh-íi-k.
April dance-hab-decl
'April dances.'

b. *Aprilsh dissh-íi-wa-hchee-k.
Aprilsh dance-hab-1.I-cause-decl
('I let April dance.')

c. Aprilsh disshí-wa-hchee-ii-k.
Aprilsh dance-1.I-cause-hab-decl
'I let April dance.'

Finally, note that (just as in the other incorporation constructions considered) any plural agreement features generated on the embedded verb percolate up to attach to the higher verb; the plural suffix never appears on the embedded verb. This is illustrated by the sentences in (254).

(254) a. Éehk Chris Jack dii=alapé-hk-uu-k.
that Chris Jack 2.II=kick-cause-pl-decl
'Chris made Jack kick you (pl).'

b. *Éehk Chris Jack dii=alapíio-hchee-k.
that Chris Jack 2.II=kick-pl-cause-decl

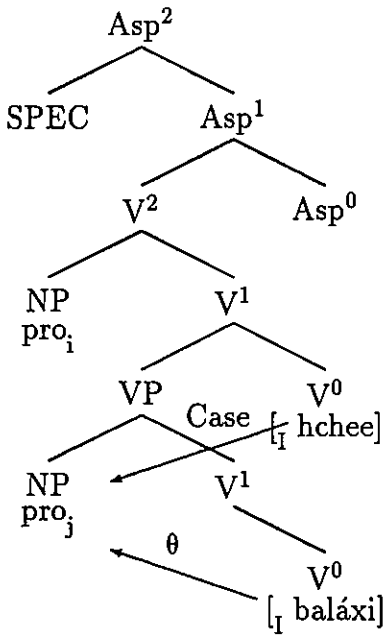
In the analysis of agreement developed in § 4.5, it was proposed that external subjects in Crow are generated in [Spec,VP] and move to [Spec,AspP] to receive Case from Aspect. V assigns Case directly to objects (under sisterhood), but a revision of Burzio's Generalization forces the argument of an unaccusative predicate to move to [Spec,VP] to receive Case from V.

Under the bare VP analysis of causatives proposed by Li (1990), however, the argument in [Spec,VP] embedded under a causative verb always receives Case from the causative. Therefore, if the lower predicate projects an external argument in [Spec,VP], we should expect that argument to surface with accusative marking, even if it would surface with nominative marking in a non-causative clause. As we have seen, it does (compare (233a,b)).

In the analysis of a sentence like (255), then, the embedded phrase is a VP, and the embedded subject receives Case from the causative verb, *hchee*. The structure is sketched in (256).

(255) Dii=waláx-ba-hchee-k.
2.II=sing-1.I-caus
'I made you sing.'

(256) *Structure for causatives*



A final question regarding the analysis of agreement in causative sentences involves the realization of nominative agreement features. The morphosyntactic realization rules proposed in chapter 4 (actually, each rule an abstraction of a set of rules) are repeated here:

(257) *Morphological realization*

a. $[_{\text{Per}}$ 1]: prefix /ma/ to $[_{\text{I}}$

b. $[_{\text{Per}}$ 2]: prefix /na/ to $[_{\text{I}}$

c. $[_{\text{Num}}$ pl]: suffix /uu/ to Aspect

As I have argued in previous sections, the rules realizing person agreement must be understood to attach to every set I bracket within the domain of Aspect. This allows an elegant account of the multiple occurrences of set I agreement in lexically complex stems such as *isítchee* 'like' (lexically, $[_{\text{I}}$ isitchi] $[_{\text{I}}$ ee]), as well as in complex stems formed from verb incorporation in the modal auxiliary, desiderative, and benefactive constructions.

However, we have seen that in a complex stem formed from causative verb incorporation, the incorporated set I verb is not prefixed with set I marking. This is illustrated in (255). Notice that the embedded predicate, which is lexically specified with a set I bracket, nevertheless does not bear set I marking. Intuitively, the reason for this seems clear: the subject of the embedded verb is different from the subject of the causative verb. In every other case of verb incorporation in Crow, the subjects of embedded and incorporating verb are the same. In the benefactive and desiderative constructions, the embedded verb and incorporating verb both assign a theta role to the same structural argument; the subject of a verb embedded under an aspectual verb undergoes raising to Aspect.

Nevertheless, since set I brackets are not destroyed in incorporation, my analysis predicts wrongly that both verbs should bear set I marking.

One solution to this problem is simply to stipulate this difference between causatives and other incorporating predicates. The Case-assigning properties of the causative predicate differentiate it from other incorporating predicates. When the

causative verb assigns accusative Case to an embedded subject, the set I bracket — which is inherently related to the realization of nominative Case assignment to its subject — is erased as a result.

Another possible solution to this problem, which I will simply outline here, is to use the notion of theta-indexing to ensure that only verbs which assign a theta role to the argument which receives nominative Case from Aspect will have a visible set I bracket when agreement is realized. Suppose that each predicate has a lexically specified theta-grid (Stowell, 1981), and that when a theta-role is assigned to an argument by the predicate, the predicate receives a theta-index corresponding to that argument. In the analysis of agreement proposed in chapter 4, the result of Case assignment by Aspect is that Aspect receives person and number features corresponding to the argument in [Spec,Aspect]. Suppose that Aspect is actually given the referential index of that argument, and not just the person and number features. Now the rules which specify how the agreement features on Aspect are realized can be further specified to look for a set I bracket and a theta-index matching the Case index on Aspect. When a set I verb is embedded under a causative predicate, the indices won't match, so the set I bracket will be inert for agreement. If the causee or lower object argument is coreferent with the causative subject, the theta-indices on the embedded verb will match the indices on Aspect, but no set I agreement appears; this appears to be a problem for this approach.

To summarize: in this section, a bare-VP analysis for Crow causatives is proposed. Complex verbs formed by incorporation of a predicate by a causative verb are like the other complex verb constructions in Crow, in that the plural agreement suffix and aspectual elements never occur on the embedded verb. However, they are different from the benefactive, desiderative, and modal auxiliary constructions in that the subject of the embedded verb always receives Case from the causative verb; the embedded verb never bears set I (nominative) agreement.

5.6 Existentials

5.6.1 Introduction

Crow has two incorporating predicates of opposite polarity, *bishi* 'exist' and *deeta* 'not exist.' Like many of the other incorporating verbs, these are morphologically bound stems which do not surface unless some category is incorporated. The existential predicates never bear set I person marking; however, when they combine with a set I verb, they have an interesting effect on the agreement properties of the resulting complex predicate.

The existential predicates differ dramatically from the desiderative and benefactive predicates, since the category of the phrase embedded under them can be shown to be AspP, rather than VP or V^1.

I will begin by presenting three different constructions in which the existentials are used. Only one of these, the perfective construction, involves set I verbs. The pattern of agreement on a modal auxiliary in combination with the perfective will then be examined.

The perfective construction is exemplified in (258a,b). The existential predicate can combine with either a set I or set II predicate. In these sentences, it combines with the set I verb *áakinnee* 'ride'. The result is a complex predicate with the meaning 'to have ridden (before)' or 'not to have ridden (before/yet)'.

(258) a. Aw-áakinnee-wishi-k.
1.I-ride-exist-decl
'I've ridden before.'

b. Aw-áakinee-leeta-k.
1.I-ride-not.exist-decl
'I haven't ridden before.'

The possessive construction is illustrated in (259a,b). The existential predicate combined with a noun bearing possessive marking (such as *basíilaalee* 'my car') derives a predicate meaning 'I have a car' or 'I don't have a car'; a more literal translation would be 'my car exists' or 'my car doesn't exist.'

(259) a. Ba-s-íilaalee-wishi-k.
1-aposs-car-exist-decl
'I have a car.

b. B-ish-kília-leeta-k.
1-aposs-cat-not.exist-decl
'I don't have a cat.'

The third construction is like the possessive construction, except that the existence of an indefinite NP, rather than a possessive NP, is predicated, much like the existential 'there' construction in English. In (260b), the negative existential predicate combined with the noun *bilé* 'water' derives a complex predicate meaning 'there is no water'.

(260) a. Puxxá-wishi-'?
beer-exist-int
'Is there any beer?'

b. Hileetteé bín-neeta-k.
here water-not.exist-decl
'There's no water here.'

The stem *-mishi-* is also used as a morphologically free verb stem, 'to be born', selecting an animate subject and set II agreement. There is no free verb predicate that I know of which corresponds to *-neeta-*. However, it does combines with the proclitic *baa* to form the words *baaleeták* and *baaleetáa* 'no'.

5.6.2 Agreement in the perfective construction

In their perfective use, as illustrated in (258a,b), the existential verbs incorporate a verb stem. They impose no selectional restrictions on the subject of the clause, and in this respect, the existential verbs are like the modal auxiliaries. However, unlike the modal auxiliaries, the existential predicates never bear set I person marking. This is illustrated by the sentences in (258).

In sections 5.3 and 222, I argued that the phrase embedded under a desiderative or benefactive predicate could not be CP or AspP based on the fact that these predicates never incorporate a verb bearing aspectual marking (such as a future auxiliary or habitual suffix) or plural agreement marking, which is specified by the rules in § 4.6 to attach to Aspect. These same tests demonstrate that the phrase embedded under the existential verb *is* AspP. As the examples in (261) show, the embedded predicates (*íkaa* 'see' and *baluú* 'fight') bear the plural suffix. The plural suffix is underlined in these examples.

(261) a. Bii=ík-uu-leeta-k.
1s.II-see-pl-not.exist-decl
'They haven't seen me.'

b. Bat=baluú-o-wishi-k.
recip=fight-pl-exist-decl
'They've fought each other before.'

c. Baa=ík-uu-leeta-k.
indef.obj-see-pl-not.exist-decl
'They haven't seen anything.'

Interestingly, the plural agreement suffix can be attached to the existential predicate instead of on the embedded predicate, as demonstrated by the examples in (262a,b). In addition, the plural suffix can attach to *both* the embedded predicate and the existential predicate, as shown in (262c).

(262) a. Iichíin=al-aakinnee-wis-uu-m xíassaa-k.
horse=2.I-ride-exist-pl-comp clear-decl
'It's clear that you (pl.) have ridden before.'

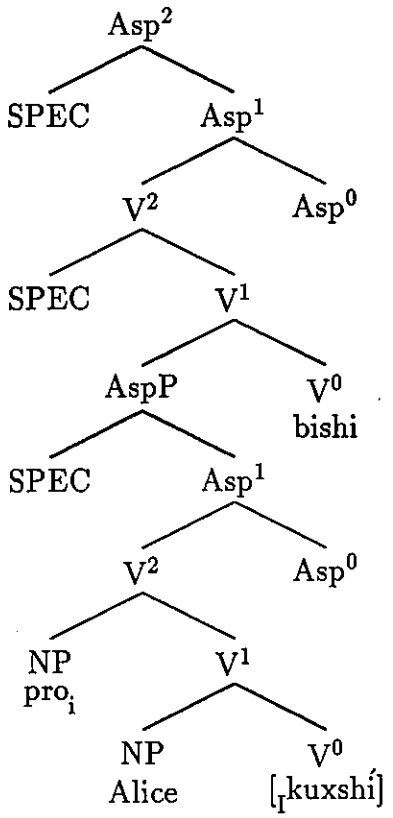
b. Baa=ík-deet-uu-k.
indef.obj=see-not.exist-pl-decl
'They haven't seen anything.'

c. Baa=ík-uu-leet-uu-k.
indef.obj=see-pl-not.exist-pl-decl
'They haven't seen anything.'

The sentences in (261) exemplify a far more common ordering of the plural suffix with the existential predicate than the sentences in (262); however, all of them are acceptable. Thus, since plural marking is attached to Aspect in the analysis proposed in chapter 4, the analysis needed here is one in which the phrase embedded under the existential predicate is an AspP. The structure for the sentence in (263) would be as in (264).

(263) Alice ba-hkuxs-úu-wishi-k.
Alice 1.I-help-pl-exist-decl
'We have helped Alice.'

(264) *The structure of existentials*



We have seen that plural agreement can occur on the embedded Aspect, on the root Aspect, or on both. We must either allow plural features to percolate, or else we must allow the embedded subject to raise to [Spec,AspP] in the root clause. Evidence for the raising analysis comes from sentences in which the higher Aspect node is instantiated with a future tense auxiliary.

5.6.3 Agreement on modal aux in perfectives

The pattern of person and number agreement marking in complex predicates consisting of a main verb and a modal auxiliary is discussed in some detail in section 5.2. This pattern can be summarized as follows: if the embedded verb selects set I person marking for subjects, then set I person marking on the modal auxiliary is obligatory; if the main verb selects set II person marking for subjects,

then (any) person marking on the modal auxiliary is impossible; and if the main verb is a mixed-class predicate (a semantically stative or non-volitional set I verb which allows set II marking in first person plural forms), then person marking on the modal auxiliary is optional.

Complex predicates of the perfective type discussed above, formed by combining an existential with a main verb, can be further incorporated into a modal auxiliary. A set I verb which is suffixed with an existential behaves like a mixed-set verb for purposes of person agreement marking on the modal auxiliary. Thus, in the sentence in (265), the person marking on the future auxiliary is optional.

(265) a. Arizona kush=baa-lée-wish-b-i-mma.
Arizona to=1.I-go-exist-1.I-fut.aux-irr
'I'll go to Arizona (someday).'

b. Arizona kush=baa-lée-wish-ii-mma.
Arizona to=1.I-go-exist-fut.aux-irr
'I'll go to Arizona (someday).'

Set I person marking would normally be obligatory on the modal auxiliary with the verbs 'go' and 'drink'. The sentences in (266) show that the existential predicate has no effect on agreement if the main verb is a set II predicate; set I marking on the future auxiliary is still not possible.

(266) a. Bii=háchka-leet-ii-mma.
1s.II=tall-not.exist-fut.aux-irr
'I'll never be tall.'

b. *Bii=háchka-leet-b-i-mma.
1s.II=tall-not.exist-1.I-fut.aux-irr

The pattern of agreement becomes more complex when we consider plural marking as well. As we saw in section 5.6.2, number agreement may precede or follow the existential predicate. What happens if we have a plural subject with set I main verb, followed by an existential predicate, followed by a modal auxiliary?

We would predict that plural agreement could occur either on the verb stem preceding the existential, or on the modal auxiliary following it, or both. We know that plural marking could not occur the existential itself, since (as we have seen) the modal auxiliaries do not allow incorporation of a predicate marked with the plural

suffix. Moreover, the sentences of (265) show that person marking on the modal auxiliary is optional if the predicate has a perfective existential.

This leaves three ways to vary agreement toggles for a set I verb with a plural subject. A schematic representation is provided in (267).

(267)

Main V	Exist	Modal V
+ per	no marking	± per
± num		± num

In combination, then, there are eight possibilities. Of these, two can be eliminated, because they would have no plural marking at all, and could therefore only be used with a singular subject. Of the remaining six possibilities, not all are grammatical. Consider the following sentences; all are translated 'We should help Alice sometime.'[17] Note that in the modal auxiliary *ii-shtaachi* 'should', plural marking is always suffixed to the future auxiliary verb *ii* rather than to the subjective modal suffix *-shtaachi* (see § 5.2).

The grammaticality judgments are as follows:[18]

(268) a. Alice ba-hkuxs-úu-wish-b-ii-luu-shtaachi-k.
Alice 1.I-help-pl-exist-1.I-fut.aux-pl-modal-decl

b. *Alice ba-hkuxs-úu-wish-ii-luu-shtaachi-k.
Alice 1.I-help-pl-exist-fut.aux-pl-modal-decl

c. Alice ba-hkuxs-úu-wish-b-ii-shtaachi-k.
Alice 1.I-help-pl-exist-1.I-fut.aux-modal-decl

d. Alice ba-hkuxs-úu-wish-ii-shtaachi-k.
Alice 1.I-help-pl-exist-fut.aux-modal-decl

e. Alice ba-hkuxshí-wish-b-ii-luu-shtaachi-k.
Alice 1.I-help-exist-1.I-fut.aux-pl-modal-decl

f. Alice ba-hkuxshí-wish-ii-luu-shtaachi-k.
Alice 1.I-help-exist-fut.aux-pl-modal-decl

The following chart summarizes the pattern shown in these sentences.

[17]The contribution of the existential predicate here is subtle. A more literal translation would perhaps be something like 'It should exist that we help Alice.'

[18]The sentences in (268c,f) were judged unacceptable sometimes, but acceptable other times. I will assume here that they are acceptable.

(269)

		V: ±Num	Aux: ±Per	Aux: ±Num
a.	good	+	+	+
b.	bad	+	−	+
c.	good	+	+	−
d.	good	+	−	−
e.	good	−	+	+
f.	good	−	−	+

This pattern requires an explanation. Given the preceding discussion of the optionality of person marking on a modal following a set I verb with an existential predicate (example (265)), and the possibility of having number agreement either precede or follow the existential predicate (section 5.6.2), we might expect all of these configurations to be acceptable. Why is (268b) unacceptable?

I will assume that the appearance of set I agreement on the root Aspect (the modal auxiliary) is an indication that the embedded subject has raised to [Spec,AspP] of the root clause from [Spec,AspP] of the embedded clause. Conversely, if set I agreement does not appear on the root Aspect, I will assume this means that the embedded subject does not raise. Raising must be considered a free process, not motivated by a need for Case.

Thus, raising applies in the sentences in (268a,c,e) and not in (268b,d,f). Agreement is triggered by the Spec-Head agreement relation on both Aspect positions in (268a). In (268c), plural features are realized only on the embedded Aspect, whereas in (268e), they are realized only on the root Aspect. It seems that the plural feature realization rule applies the plural suffix freely to any Aspect within the domain of those features.

Raising does not apply in (268b,d,f). Hence, the auxiliary verb does not bear person agreement marking. Both person and plural features are realized only on the embedded Aspect node in (268d). But in (268f), plural marking occurs not on the embedded Aspect, but on the root Aspect; and (268b) shows us that it cannot occur in *both* places. Suppose that in (268f), the plural features associated with the lower AspectP percolate to the higher Aspect. This is not an unreasonable assumption, given that plural features elsewhere must be assumed to percolate. However, if

features percolate from the lower clause, they cannot also be realized there; hence the unacceptability of (268b).

5.6.4 Existentials: summary and discussion

In this section, an analysis was proposed for existential sentences involving the incorporation of an inflected verb into the existential predicate. Unlike the other verb incorporation structures examined here, the embedded verb in this construction can bear plural agreement marking, which suggests that the embedded phrase is AspectP. But more work is needed to establish whether this analysis is correct. This analysis predicts, for example, that we should be able to get a predicate bearing a habitual suffix, an existential predicate, and a future auxiliary or habitual suffix (in that order). I do not know what the facts are, in this case. Note that if we assume that the existential predicates are verbs (rather than functional elements), this construction is a potential counterexample to the Binding Theory of Li (1990), since the structure sketched in (264) involves movement of a head from a T-bar position (the lower Aspect) to a T-position (the existential verb).

Chapter 6

Conclusion

Complex verbs in Crow provide a rich field of investigation for the study of incorporation and agreement, especially with respect to the ways that these processes interact. In chapter 4, I proposed an analysis of Crow clause structure and agreement marking which makes use of the hypothesis that unaccusative predicates in Crow assign accusative Case to their arguments. Set I agreement marking arises as a result of nominative Case assignment by Aspect, and set II marking arises as a result of accusative Case assignment by V. In addition, I argued that the class of set I predicates in Crow have a structured lexical representation which allows a simple and elegant account of patterns of set I marking in which the agreement element appears to be infixed, suffixed, or doubled.

In chapter 5, the patterning of agreement marking within complex verbs arising from verb incorporation constructions was explored. The embedded phrase in verb incorporation structures was found to range from V^1 (in benefactives and desideratives) to VP (causatives and raising predicates) to AspectP (existentials). I argued that modal auxiliaries and the habitual suffix are instantiations of the inflectional category Aspect; the continuative verbs, however, are raising predicates which take a VP complement.

It seems to me that theories which allow a range of complement types for incorporating verbs must be preferred to those which claim that the phrasal category of the embedded phrase is invariant across languages and incorporation structures. However, perhaps the processes which are involved (head movement, NP raising, agreement) *can* be generalized.

My analysis of verb incorporation in Crow, for the most part, supports the revision of the Binding Theory proposed by Li (1990). Li observed that in most languages, where there is noun or verb incorporation, there are no inflectional markers embedded within incorporation compounds. The revised Binding Theory accounts for this by prohibiting movement of an X^0 from a non-thematic position (such as Determiner, Complementizer, or Inflection) to a thematic position (such as Noun or Verb). On the surface, the facts of agreement in complex verbs in Crow appear to contradict the observation. With no more than a a shallow understanding of the facts and the structures involved, it might seem that the appearance of agreement marking on the embedded verbs in a sentence like (270) is a counterexample to the claim that elements bearing inflection are never incorporated.

(270) Pam maa-waláx-ba-k-b-iss-uu-k.
Pam 1.I-sing-1.I-give-1.I-desid-pl-decl
'We felt like singing for Pam.'

However, in the analysis I proposed for sentences like this, there are no embedded inflectional nodes. As in the treatment of serial verb constructions proposed in Baker (1989), a sentence like this involves a multiply-headed VP, with every predicate assigning an external theta-role to the first person pronoun argument in [Spec,VP]. The recurrence of agreement is derived in the same way as doubled agreement in lexically complex stems: the lexically specified set I bracket is preserved in incorporation, and the rule which gives the phonological realization of set I agreement features is specified to attach a prefix to every set I bracket within its domain. The fact that no other inflectional element (such as the habitual or plural suffix) can appear on the embedded verb(s) follows straightforwardly from this account.

This analysis of agreement in complex verbs is the simplest and least stipulative of the alternatives I considered, and it allows an explanation of the fact that person marking, but not plural marking or other inflection, occurs on the embedded verb stem. Thus, instead of contradicting Li's proposal, these verb incorporation data support it.

However, the existential construction may pose a problem for Li's theory, since it involves a structure in which the verb moves from Aspect in a lower clause, to

the existential verb, to Aspect in a higher clause. The existential construction lends further support for my analysis of incorporation in desideratives and benefactives, since it involves the incorporation of verbs which plural marking *does* appear on the embedded verb.

These facts can only be consistent with Li's theory if the existential predicate is regarded as non-thematic, a kind of functional category rather than simply a verb. But more research is needed to find evidence which either supports or contradicts this idea.

APPENDIX

Thunder Medicine

Told by Francis Stewart[1]

1. Kahée, hilaakée, hinné waleiichiweé, aléewahche, bacheé waaisáate aliichiwáu
now here this story as I know it man old as they told it

shíisshiahe ahúk. 2. Aliichiweé koottáahile, koottáahilik heetua iíwahkoote
different ones were many story truth is true is said to be the way it is

iichiweéiluuk. 3. Akbaleiichiweé ittákke kuh, iíwahkootak kúh. 4. Hem hinné
it is told this way story now also is the way it is also and this

waleiichiweé baatcháachik heetuuk.
story great it is said

5. Apsáalooke milaxpáako wassée hawashdúatak, hawashdaawák dúxxilau
Crow people before moved around went places going to war

kammaaliilúuk huuk. 6. Kaliíwahkootesh kalakoó iiwilisshíissaannaak
they always did it it is said the way it was then they fasted and

ammaasáapbishdeewiook. 7. Kaliishchiwaaaliísheek, áahkuataa, hileén iisáakshe
they tried to become someone he put himself into it going along these young men

ammaa-áu. 8. Aalaaxchíiwisuash kooté díiwiak
everything they have medicine get he wants to do it and

aliishchiwaatcheeshíak. 9. Bilisshíissaannaak áahkuataa kooták. 10.
he wears himself out he goes to fast and along the way it happens

Iíwahkootuuk. Koótdeewiok. 11. Hem maalúuk waatcháat, koók kootáa.
it is how they were it is what they wanted to be and difficult extremely it was indeed

12. Ammacheéo kalakoó iilíak iíwahkootuuk. 13. Alaalaaxchíiwisuulak
as men then they used it that is how they were as the medicine

kooteélak maatcháatuuk.
when they got it they were powerful

[1]This is the text of a traditional story from Crow culture, told by Francis Stewart and recorded in 1989. Thanks to Cerise Stewart, Francis Stewart, Kerry Stewart, Adrian Medicine Horse, and Betty Blackrock for their help in transcription and translation.

14. Aliichiweé shío iíwahkootak. 15. Hem hilaakée, hinné iiwalaáhe aléewahche
story said that is how it is and here this as I tell it as I know it

waa-isáate waleiichiweé kalashíak. 16. Baleechiwaák, iichiweéiluuk. 17. Hem
old ones story long ago they told it to us and they told it this way and

hinné waleiichiweé Apsáalooke dúxxia heetuuk. Iichiweéiluuk. 18. Hem hinné
this story Crow war it is said they told it this way and this

shíisshiahe ahák baatcháach iíwahkootak kam hilaakée hinné
different ones are many and great that is how it is now here this

iiwiichiweewíawee.
what I'm going to tell

19. Balelúxxileek isáawualak batdíak. 20. "Díah! Beéwook.
going to war several they gathered together do it let's go

Dúxxiweewook," haak. bachílitdaak iilúhpaapilak huuk. 21.
let's go to war they said and they gathered and they were twenty it is said

Iilúhpaapilak huulak bacheeítdaak huulak hawátdak dúxxiwacheetcheek
there were twenty it is said they were being men it is said one of them was war chief

huuk. 22. Bassée, dúxxee wachéetchee akbaalakaalicheé kóok. 23.
it is said before war chief the one who pulls them was

Akbaahéelichee koóhcheeluuk. 24. Hem íipche kulaák. 25. Kaliíwahkootak
the one who commands was and pipe he carried it that is how it is

ishdáalaatuash dúttak kalakoón kandéeluuk huuk. 26. Hem ítche
his followers they took it and then they went it is said and good

akkáun, kalakoon kannáuhcheeluuk. 27. Kannáaliituuk kala ishkoochíitua kala
they got ready then they went as they went now their enemy now

shóoluuk chichíiluuk. 28. Kooté áahkuataa koó óolapiiluuk. 29.
wherever they were they looked for them it happens along the way them they find

Shóoluuluuk chichíiluuk, iíwahkootuuk. 30. Dúxxiilaak kala dáalaaliok
wherever they were they looked for them that is what they did going to war now as they went

kala shíak huuk.
now it took a long time it is said

31. Biliítaachee-iiwishkaashit awalakáatuuk. 32. Kannáalaalio aá,
it took many months they were on foot they went a long way as far as

itbaaíkuleetak. 33. Ishkoochíitua itíkuleetak. 34. Kannáalaaliok
they hadn't seen anything yet their enemy they hadn't seen yet they went long way

kala hawateeláauchicheek. 35. Kaliíwahkootak kala xakáalaaliok. 36.
now it seems they went far that is the way it was now they kept moving along slowly

"Kalashóotaachim, hawateewúok, baawaleekoosaáhtaleetak," haak. 37. Kam
how can it be we have come far no one is close to us he said now

ishkoochíitua alakoolúushoolua alaaxtúuk. 38. Hem kalakoón chichíiluuk.
their enemy where they were they didn't know and so then they looked

39. Kannáalaalio aá, áassheelaatdak kushdúalak
they went a long way as far as a small hill as they moved toward

heéloolak, koón éek buluxsée éek. 40. Hileén, éek dáakkom maalitua,
they noticed with surprise there that turtle that here that a turtle what we

biiluuk alasheewúa "dáakko isáate," kooteé hawisáatuuk huuk, heehtaa hinné
say as for us when we say turtle a big one true some are big it is said but this

sáapdak waatcháachik huuk. 41. Isáakaashik huuk dáakko kalakootdák,
something great it is said it was really big it is said turtle if it is

isáakaashdak. 42. Kalakoón kan deétuash deélaa díok huuk. 43.
a really big one then now as they went along they went and they met it it is said

Dakshípeetak déek.
moving slowly it went

44. Kalakoón isáakshesh áakashihchipuolak baakoón maáikeetaatsaak
then the young men when they jumped up on top not a bit it didn't mind

huuk. 45. Kalakoón áakashihchipuolaa iílaa "Ítchik." 46. "Baaliíluum
it is said then they jumped up on top and they it's good from our walking

baleewaalísheek. Éek isshíshdeechicheek biíluuk koo kushbáauk," haak.
we aren't feeling well that is probably going up as for us it we are going toward they said

47. Kalakoón dúolak hinné dúxxia wacheétchesh "Aalakxawíik.
then when they reached him this war chief it is bad

Aalakxawíissaak, diíkuxpuukawe." 48. "Éek baaliiháak," heek. 49.
it is not bad please get off that strange he said

"Bimmummaakoolé chiláachik. Díikuxpaalah, xawíik," heek. 50.
that which lives under the water is dangerous get off it's bad he said

"Chiláachik. Xawíik," heek. 51. "Díikuxpaalawah" heelak.
dangerous bad he said please get off he said

52. "Baaleeták! Baalíilissuum ítchik. Alammáu aashóon iiháshdeelak biíluuk
no that we're not walking is good where we go wherever if it turns as for us

kalakoón miikuxpúuk," heetuuk.
then we get off they said

53. "Baaleeták, xawíik," haak. 54. Kalakoón kala aliiláshtawaachik huuk. 55.
no it is bad he said then now he scolded them it is said

Itshúa dáalawak éek ittáchkaat awúassaak. 56. Hileén haweéseesh
alongside he kept going along that he alone was not in it these group

úak áakeeluuk.
stepped on and were on top

57. Kalakoón kannaálaalio daálaalio aán shitaatéesh úok huuk. 58.
then they went along they went along as far as the small hill they climbed it is said

Uák heéloolak, ii-iílak ammúan bilichkisaákaashtaannak
they climbed and noticed with surprise way over yonder down a great big lake

koolák huuk. 59. Koowíash koó kushdéechicheek hinné. 60. Kalakoón kala
was there it is said all along it must be going toward this then now

xakáalawak xakáalawak heelak koosátdaalawik.
moved along and moved along and and getting close

61. "Díikuxpaalak xawíik," heek. 62. Hem koon iikuxpíhcheewialak
get off it's bad he said and there when he tried to make them get off

alíinneetak. Díassuuk. Xachiíssaak.
he couldn't do it they didn't do it they didn't move

63. "Alahiitáannak biikuxpíwiiluuk" haak.
when it gets close we'll get off they said

64. "Aa itchiláachik. Xawíik. Díikuxpaalawah," heelak.
it is dangerous it is bad please get off he said

65. Kaláakee heelak hawa awáatak, ilúak. 66. Hinné waaluúichesh,
on top and some sat and stood this what they stood upon

kalaxakáalawe xakáalawe, "kammaleekoosáhtalak." 67. Kalakoón
it kept moving it kept moving now we're getting close then

kaliikuxpiwialoolak ishchaliilúuleetak huuk. 68. Kiláxpaatuum,
when they wanted to get off they couldn't help themselves it is said they were stuck to it

kilíssatuuk. 69. Ammakássihchipuawiak itúa kiláxpaatak kalakoon kala
they were stuck tight they wanted to jump off and their feet stuck then now

ishchiliilúuleetak. 70. Háaksesh hinné lúxxiiwacheetchesh iihéet áaleeliak
they were helpless finally this war chief different he took arms and

dakaák, heeleet alíinneetak.
he pulled but he couldn't do it

71. "Ahá, sheewéesh. Éek kootíihmaachit" haak, "baláawaakesh kan dalíiok.
what I said that when it will happen he said what I kept on saying now you're there

Baaxawíilialuuk," heek. "Anníikuxpualeetak."
you messed up he said where you can't get off

72. Kalaalée aakammilé koosáhtualak kala
it took them with them where the water was when they got close now

ishchilúuleetak. 73. Akawáache kuh úusua kaláxpak kilíssaatak
they couldn't help themselves those who sat also their bottoms stuck stuck tight

kalakoó ishchiliilúuleetak. 74. Háaksesh kala íiwuuk huush. bilawaatcháat
then they couldn't help themselves finally now they cried great lake

kussóok. 75. Kalakoón bilinnáaske díolak heelak kalakoón nakshípeeta
they approached then edge of the water they reached and then slowly

wilé aá kalakoón aaléek huuk. 76. Bilé kalakoón aáken
water as far as then it took them it is said water then on top

aakdéek. 77. Iiiílak, kammaleeshtalahaaweé, akhawatee aaláak,
it went with them way out there as far as the eye can see far it took them and

kalakoón, kalakoón, aakammimmúshdeek huuk. 78. Ammimmúshdeelak
and then and then it sank into the water with them it is said it sank and

áake wilé iixuáheetuuk.
on top water covered them

79. Kalakoón dúxxiwacheetchesh kalishchalíinneetak. 80. Koón iíwaak
and then the war chief couldn't do anything there he cried and

minnaáskeetaa kalakoón aawishchissáak. 81. Koolé waapeé shoopák huuk. 82.
water's edge then paced back and forth there day four it is said

Maawiísh iilíahtaatkaattaak "aaláa dúushiilitdak chilappíaxxaatak
chance he wished maybe if it lets go they might come to the surface and

iikushchiío," hiliatak. 83. Baawiísh iilìahtaatdeek baaleetàk. 84.
they might appear he thought chance he wished he could do something no

Kalakoón kalii-iilúxpaak kalakoón kalii-íkdeetak.
then they never appeared again and then they were never seen again

85. Kalakoón maapeé shoopeésh kalakoón kaliishchilíinneetak. 86. Kalakoón
then day four then he couldn't do anything then

hinné annúuosh kuhtáa kalakoón chisshíik huuk. 87. Hawassiixuatawaaták
this where they went the place then he returned it is said he was hiding around

kúk, "kalaaláash baa-ihée mii-iilíak biilappíioh," hiliatak. 88. Ítchik hinné
as for him maybe others spot me and might kill me he thought better this one

kaláxpe kúk kala kalaxapíik.
his companions as for them now he lost them

89. Kalakoón kalitsáalawe itsáalawe aá, ashishíkooleetua hileén
then he still kept going and still kept going as far as those at home these

dúxxiiliash kalashíok sáapam. 90. "Kannappíak haawíosshoo.
the war party they took a long time what killed and probably destroyed

Kannaákkussuuk shíak," haak, bilítaachiwishkaashik. 91. Kalakoón
they didn't come home it is a long time said it was many months then

oo-oòlak kuúk huuk. 92. Huúlaa ashammisaaté hiák chiwéek
at a distance he returned they say he came and camp he arrived and he told them

huuk.
it is said

93. Bacheétchee chiwaáulak, akooliilíitak áahkootak. 94. Ishbilaxpáakua íiwuuk
chief when they told they talked what happened their people cried

huusht. 95. Chiweelák bacheétche wakáak, "baleeaakoosáhtaa isshilák, iílaa
it is said when he told them chief begged and close if we camp there

waleeshchilíinneetdak binnáaske kootdáawaak koommakáahaatbiiluuk" huuk.
even if we can't do anything water's edge we'll stay there we'll stay there a while they said

96. "Ée, díawaawiiluuk biíluuk" heek huuk. 97. "Aaláa chilappíxxaatak
yes we'll do it as for us he said it is said maybe they'll come to the surface and

iikushchíom, maalawasáxchiih it ba" haak.
they'll appear we might still see something still you know he said

98. Kalakoón aák dúatak, hinné bilím aleelapáleeliituash aák kushdúatak. 99.
then with they moved this water where the danger was with he moved there

Binnáaskashiatdaatta koolaakisshiak, kalakoón aák koón náachik huuk. 100.
close to the water's edge he camped there then with there he stayed it is said

Heelak baawilishdáaskeetaaittaa waaíkaawisaatbiak, iisáakshe iihéelitta
and close to the water's edge he wanted to see something young men slowly

waachichíilishtakaatcheek heehtaa baaleeták.
he was looking for something but no

101. Kalakoón hawátdak "hinnawaleehéelen" heelak "baleeheelen baám koolák."
then one here among us he said among us someone is

102. "Dáawakiiluulak aaláa niikuxsúuwishiih." 103. "Bacheelák dáashe
if you beg him maybe he might help you a man his name

'Suaxbáalia' huuk huuk." 104. Suaxpáalia hua kammaahéelennak.
'Thunder Medicine' called it is said Thunder Medicine called was among them

"Dáawakaak, óoppiilahkaak baalákuulak aaláa niikuxsúuwishiilak."
[if] you beg and [if] you give him smoke and if you give him things maybe he might help you

105. Kalakoón néelaa baa-iiláak baaluushíhcheelak bakáauk
then they went and they asked him to come they fed him and they begged him

huuk.
it is said

106. Óoppiihcheek. Bakáak ilíissaalaachian; "Kootak," heek huush. 107.
they gave him smoke they begged and he kept silent all right he said it is said

"Kooták ée, anniiwahkuxsaátbishbiawaawiiluuk," haak. 108. Baakoók ítchiak
all right yes I'll try to help you in some way he said things they gave

íiwahkootualak íipche koó awuuheetaalák óoppii kuulak díak huuk. 109.
the way they were pipe it they put inside smoke they gave it and he did it it is said

"Kooták baalámbik" heek huuk.
all right I'll go ahead he said it is said

110. "Chilaákshilak asheé dáhchilaxkaasaat ítchilua kook" heelak "baaláak
morning lodge when you tighten [the stakes] done well it is he said I'll go and

awákaawik" heek huuk. 111. Kalakoon "chilaákshilak bii-áxxeessaalah heelak
I'll see he said it is said and then morning don't come near me he said

bilé láaskewaak baawahchawakít biilummasaatak baalámbik," heelak. 112.
water I approach and when I pray I'll make a sign I'll go ahead he said

Kalakoón "íkaakaalah, baachawakáattaachian koowíak. 113. Kalakoottak
and then watch when I pray what will happen and then

kulushíak, ishbaámneetaattaak kalakoón hinné biléesh áakeetaa léek huush,
he undressed with nothing on then this the water along the top he went it is said

áakeetaa líilik.
on top he walked

114. "Kalashoóttaakaashe koó kammilia aawuússaalee?" heelak, iilakahtee
exactly where it water did it take them inside? he said way over there

koók. 115. "Baaléek. Biipattéelak kaléek kuhtee ammimmuúshdee
it is I'm going when I look back that the place where it went down into the water

kuhtée koótdaak!" 116. "Díaxxossaatualak kalakoón kammaalaxpíiwik," heek
the place you do it when you wave then I'll go in he said

huuk.
it is said

117. Kalakoón milé áakeen daak dáalawe óocheekipatchik,
then water on top he went and he kept going along he stopped to look back

"baaleeták" huuk. 118. Kannáalawik. Baapáattaak. 119. Kannáalawee aá
no they said he kept going along they made a sign he kept going as far as

kal-hinné ammimmuússaaleesh kalakuhtaaicheé kalalíkua kalahíik
here where it took them into the water at the exact place where they saw it he arrived

huuk. 120. "Ilílak kalakoón éek kuhteé koók" heek. 121. Baapáatcheetak huuk.
it is said there then that the place is he said he signalled it is said

Kalakoón mimmuúshdeek huuk. 122. Mimmuússee déek huuk.
then he went into the water it is said into the water he went it is said

123. Mimmuúshdaak kalakoón ammuá híik huuk. 124. Ammuá hiilak
he went into the water and then bottom he arrived it is said bottom he arrived

ammuá asuúlak koolúuk huuk. 125. Bilaxpáako koolúuk. 126.
bottom some lodges were there it is said people were there

Bimmummaakoóm milaxpáakook. 127. Hinné ashéesh hámmishik huuk. 128.
underwater they were people this lodge there were some it is said

Hakáalawik, huúlaa híileelak.
he went along slowly he came and he arrived

129. Hileén milaxpáakesh, bilaxpáake alakootá kootaátsuuk. 130.
these people people the way they are they weren't the same

Aashúa isáataatak, axúo púmmaatak, áalua shitchítaatak, ihulúulak
their heads bigger their bodies shorter their arms thicker their legs

kooták. 131. Bimmummaakoóm milaxpáakook. 132. Huúlaa heelak "Éek
too underwater they were people he came and he said that

baawahchichíilak boók," heelak.
I'm searching I come he said

133. Ishbacheéttaatua "Ée, aalóok. 134. Aalúak, heetteé aalíok,
their chief yes they were brought they brought them here they arrived

heehtáa akkaalé, ammaleeiichiwaáu, akkaalé
but the one who asked for them as we were told the one who asked for them

iílak, ashé akúksahke." 135. Ashé kuluúiche shoopák huuk. 136.
way over there lodge the last one lodge group four it is said

"Akúksahke koón kaalúuhcheiluuk. 137. "Hem hilaakée dakóoxixxoo shoótdak.
the last one there they asked for them and here if you catch up it could be

138. Baawiish dakoóxdak kalakoók."
by chance if you catch up then

139. Éek chiwaáulak kalakoón kannéek huuk. 140. Dáak piisheelée ashé
that when they told him then he went it is said he went and next lodge

alakaluulicheé híik huuk.
crowd he arrived it is said

141. "Híilak éek koón aaláuk. 142. Aaláuk. Ashiilúupe kussaaláuk.
here that it they were taken they were taken next lodge they were taken to it

143. Ilíaa dakóoxaachik shóotdak," huuk. 144. Kalakoón née dée aá,
over there you catch up it could be they said then he went he went as far as

hinne asheé hawátesh iiláawia híik huuk.
this house the one third he arrived it is said

145. Hiílak heeleélak "éek diishóochkaaten kalaaláauk," huuk.
when he arrived when he was here that just in front of you they were brought they said

"Aaláauk. 146. Baawiish dakoóxbialaalak koók. 147. Baaláawakiitdak aaláa
they were brought by chance if you try to catch up it is if you beg them maybe

dii-kúkuuoh." 148. Kalakoón kandéek huuk.
they might give them back to you then he left it is said

149. Dáalawe ashé iiháakaache hiilák kala ii-axaxuataáhilia
he went along lodge the last one when he arrived now all of them

kammaa-ihkammáataatak baa-ahaatdíituuchicheek. 150. Baaluusúuk huuk.
they were contented and they were doing different things they were eating it is said

151. Heelak hileén iisáaksesh aaléesh, ishbacheettuuwishdak koón, koón
and these young men he had taken their leader it was it was

kaalík huuk. 152. Kaannák kalakoón kala chilishíok
he asked for them it is said when they had asked for them then now they ate them

huuk. 153. Chilishíak huulé kala kuluúkkuuk huuk. 154. Kooté hém
it is said they ate them and bone now they piled them up it is said it was and

milaxisáaksesh huulé kuluúkkuuk. 155. Kalalaxúa ilúkaache appúuk huuk.
young men bone they piled them up. their bodies flesh eaten up it is said

156. Kalakoón kala waa-ihkammáataatak, kala iílam maaheelaatúuwishdak
then now they were contented now they whatever they did

díak iíwahkootaatuuk.
they did it that is how it was

157. Heelak hinné Suaxpáalia kalakoón hiilák, "Shóotaachii!" éek
and this Thunder Medicine then when he arrived hello that

bacheétchem.
chief

158. "Éek iisáakshem aalúosh koó, baawiísh ammahchikaaitbishbíawaak
that young men that were brought it is by chance I want to get them back

koo hiiwoók," heek.
it is I came here he said

159. "Baaleetdák, shisaattaa baleelakóoxaatdak alakoótbishiihmaatak kam
if only sooner if you had reached us it might have been possible now

kammaahaámmuuk. Iiwaawihkammáatuuk. 160. Kalahaámmuum, hulé éek koo,"
we've finished them off we celebrated with them we finished them off bone that it is

aaleélaa kuluúkkaak íkahkuuk.
they took them and piled them up and they showed him

161. "Kootdák baa-axchiílitaatuuxxo, baa-áapiiooxxo, axuá
if there are bracelets necklaces body

ammaakookóoliiooxxo, hawaawaaléeiwaak. 162. Ishbilaxpáako waalísheekaattuuk.
anything there I want to take it their people are worried

163. Aawaaláak íkaawashcheetdak, iílaa íiweeichkaattaak, iíwahkootua
I'll take it and if I let them see it they will mourn the way it is

kalakoóiishtaachik. 164. Koó iiwoók heelak kooták," haak.
they have to do it it why I came and it is he said

165. Axchiílituak axpúatua ammaakoo kóoliitualak hawakulutták, huleé,
bracelet earring anything they were wearing he got some back bone

áapiolak kooteélak. 166. Huleéhtaa ahnútchik huuk. 167. Ishdúalaxaawee
some necklaces also even bones he got some it is said their fingers

huulikáate kooteelak ahnúttak, shíisshiahaattaa lúttak.
little bones also he took some each one he took

168. Kalakoón kulaák, "Iílaa koótdak kammihchammeéleetak,
then he carried them they if it is I can't do anything more

bahchisshíiwik," haak. 169. Kalakoón chisshíik huuk.
I'll go back he said then he returned it is said

170. Heelak "Bikkammiikushcheekuttaatáahilia wik
and when I'm going out as for me

kammiialíimmisaatbiiommaachik," hiliatak. 171. Kúk kala ishchiíasseechik.
they'll try to do something to me he thought that now he watched himself

Kalachissáak. 172. Aá hinné ammimmúshdesh kalakoón hiák. 173.
he returned as far as this where he went into the water then he reached

Kalakoón máakussiikúshchik huuk.
then he appeared moving upward it is said

174. Hinné wiliám mimmúshdesh, kalakoón máakussiikushtak,
this water he that went into the water then he appeared moving upward

kalakoón iiluúk huuk.
then he stood up it is said

175. Iiluukén ashéesh íkuuk huuk. 176. "Éek kalahúuk." Kalakoón
those the lodge they saw him it is said that he's coming then

iikushták, kalakoón wilé hinné wilíash, xachíik huuk.
he emerged and then water this water was shaking it is said

177. Bimmummaakoolé xaxúa xatáuk. 178. Hinné wilíash kala iháatak huuk.
underwater all were moving this water now strange it is said

Bilé xatáakelak, kalakoón xalússhik huuk. 179. Biláakeetaa xalússhik huuk.
water moved and then he ran it is said on top of the water he ran it is said

180. Aliilúxche dúxche dúxche aá kammilé kala kammaatchaáchik xachíik
he ran and ran and ran and as far as water now it was powerful it moved

huuk. 181. Bilé kan bimmummaakoolé kannéet daassheetúuk. 182. Kalakoón
it is said water now underwater when he went they were angry then

bilé kalawasxatáake ilúxche dúxche. 183. Dáaske kooleek hinné éek dáaske
water moving he ran and he ran edge there this one that edge

hiissáa, ilúpxe kuk kalahuúk, hinné Suaxpáalia.
not arrived his father it was he was coming this Thunder Medicine

184. Káakaat ahpáaxe shipíteelak kilíashchia heelak kalakoón huúlak heelak
great cloud black lightning and then he came and

dúxche dúxche, binnáaske hiák, ashé ishkawúak.
he ran and he ran and shore he reached it and lodge jumped inside

185. "Dáashua wilíchiilak, xachíissaalah!" heek huuk. 186. "Éek bilúpxe
your lodges go back inside and don't move! he said it is said that my father

laassheewíak," heek. 187. Kalakoón húuk huush hinné ahpaaxéesh
is getting angry he said then they say it is said this cloud

shookhinnawilésh. 188. Káakaat kilíshche kootáak kalaheeteek sáxxaalatcheetee
at the water great lightning was there and then it thundered and

sáxxaalatcheetee aá koowíik. 189. Kalakoón néek.
it thundered and until it stopped then it went

190. Kalakoón "awákaawook," haak, iikushták heeloolak
then let's go see they said and they came out and they noticed with surprise

haawéechicheek. 191. "Awákaawook," haak iikushták
it looked destroyed let's go see they said and they came out and

bileéheelook bileé kootáa íiliik huuk. 192. Bilé íile kalakoón íishiak.
they noticed the water water truly was bloody it is said water blood then mixed

193. Kalakoón heelak "Haawéek. 194. Bilúpxe haawéek. Baa-iilahpashíik,"
then and he killed them off. my father destroyed them he got his revenge

heek huuk. 195. "Haawéek," heek huuk. 196. "Bimmummaakooleé éek
he said it is said he destroyed them he said it is said the underwater creatures that

dísisaakshua akduushé xaxúa haawéetaahilik. 197. Hilóok
your young men who ate them all he destroyed them completely here they are

baa-aawoó" haak kalakoón kukuúk. 198. "Aliishchilíinneetak hileén
what I brought he said and then he gave them back there was no other way these

maakuleeichkaatua kóom maa-aawoók," haak kukuúk huuk.
what they carried there I brought he said and he gave them back it is said

199. Hem maleiichiweé táahilik huuk, iíwak. 200. Suaxpáalia hua koók. 201.
and story true it is said this one Thunder Medicine called he was

Heelak hinné kookoottalé alashío koo wilaxpáake bilé akáaken níilik. 202.
and this at that time as they said that person water on top he walked

Kookoottalé koó kuttáchkaatak huuk. 203. Akbilé áaken díile, iihée
at that time he was the only one it is said water on top one who has walked other

koótdeetak huuk.
haven't done it it is said

English translation

1. Now, the way I know this story is the way it was told by the old men, many different ones. 2. It is said to be a true story. That's the way they tell it. 3. That's the way it is told now. 4. And this story is great.

5. The Crow people used to move around and go places, and they were always at war. 6. The way it was then, people fasted, in order to become someone. 7. These young men would put all their effort into it, as they went along, with everything they had. 8. He wears himself out to get the medicine. 9. He goes to fast, and as he goes along, he gets what he wanted. 10. That's what they did. That's what

they wanted to be. 11. And it was extremely difficult. 12. As men, they used it. 13. When they got the medicine they were powerful.

14. That is how the story is said. 15. Now, the way I'm telling the story is the way I know it from the old people, long ago. 16. They told it to us, and they told it this way. 17. And this story is about the Crow at war. They told it this way. 18. And there are many different stories, but the one I'm going to tell is the greatest.

19. Several men gathered to go to war. 20. "Do it! Let's go. Let's go to war," they said, and there were twenty that gathered together. 21. It is said that there were twenty that gathered together and one of them was the war chief. 22. Long ago, the war chief was the one who pulled the rest. 23. He was in command. 24. And he carried the pipe. 25. That's the way it was, his followers took it and then they went. 26. They got ready, and then they went. 27. As they went, wherever they were, they looked for their enemy. 28. Sometimes they find them. 29. They looked for them wherever they went. 30. They went to war, and as they went, it took a long time.

31. It took many months since they were on foot. 32. They went a long way without seeing anything. 33. They hadn't seen their enemy yet. 34. They went a long way. 35. They kept moving along slowly. 36. "How can it be that we have come so far, and no one is close to us?" he said. 37. They didn't know where their enemy was. 38. So they were looking for them.

39. They went a long way, and as they moved toward a small hill, they realized with surprise that it was a turtle. 40. Here that was a turtle, and when we say 'a big turtle', well, some are pretty big, but this one was something powerful. 41. It was a *really* big turtle. 42. And as they were going along, they met it. 43. It was poking along, moving very slowly.

44. When the young men jumped up on top, it didn't mind a bit. 45. Then they jumped up and said "This is good." W6. "With all that walking, we aren't feeling well. It's probably going up that hill. We're going that way too," they said.

47. Then, when they reached him, this war chief said, "It's bad. It's not so bad, please get off." 48. "That thing is strange," he said. 49. "Creatures living under the water are dangerous. Get off, it's bad," he said. 50. "It's dangerous. It's bad," he repeated. 51. "Please get off!" he said.

52. "No! It's good that we aren't walking. If it turns from the way we're going, then we'll get off," they said.

53. "No, it's bad," he said. 54. And he scolded them. 55. He walked alongside them. He alone was not in it. 56. The rest of the group had stepped on top of it.

57. They kept going and kept going, until they stepped to the top of the small hill. 58. They stepped up, and noticed with surprise, way down there was a great big lake. 59. This turtle must have been going towards it all along. 60. Then it kept moving along slowly, and it was getting close.

61. "Get off, it's bad," he said. 62. But when he tried to make them get off, he couldn't. They didn't do it. They didn't move.

63. "When it gets close, we'll get off," they said.

64. "It's dangerous. It's bad. Please get off," he said.

65. On top, some were sitting and some were standing. 66. This thing they were standing on just kept moving and kept moving until "now we're getting close," someone said. 67. But then, when they wanted to get off, they were helpless. 68. They were stuck tight to it. 69. They wanted to jump off but their feet were stuck so they were helpless. 70. Finally, this war chief grabbed different arms and he pulled, but he couldn't do it.

71. "It is as I said. I knew that would happen, what I kept on saying, and now you're there. You messed up," he said. "Now you can't get off."

72. It kept going, and they got closer to the water, but they couldn't do anything to help themselves. 73. Those who sat, their bottoms were stuck to it, and they

couldn't do anything to help themselves. 74. Finally, they cried as they approached the great lake. 75. And then, when they reached the water's edge, it slowly went up to the water, taking them along. 76. And it took them along the top of the water. 77. It took them way out, as far as the eye can see. And then it sank into the water with them. 78. It sank, and they were covered with water.

79. The war chief couldn't do anything about it. 80. He cried, and paced back and forth at the edge of the lake. 81. He was there for four days. 82. He wished he could do something. "Maybe, if it lets go, they might come to the surface, and they might show up," he thought. 83. He wished, but nothing happened. 84. And they were never seen again.

85. Four days passed, and he couldn't do anything. 86. Then he went back the way they had come. 87. This time, he was hiding around, thinking, "if the enemy spots me they might kill me." 88. He had lost his companions.

89. So he kept on going back, while those at home wondered what was taking the war party so long. 90. "They must have been killed off. They haven't come home for a long time," they said. It had been many months. 91. Then at a distance [they saw] he was returning. 92. He came, and arriving at the camp, he told them.

93. When they told the chief, they talked about what had happened. 94. Their people cried. 95. When he told them, they begged the chief, saying "Even if we can't do anything, we want to stay there at the water's edge for a while."

96. "Yes, we'll do this," he said. 97. "Maybe they'll come to the surface and appear. We still might see something, you know," he said.

98. So he moved to the lake, where that danger was. 99. He camped close to the water's edge, and stayed there. 100. And he was close to the water's edge, trying to see something, he was slowly looking around for those young men, but no.

101. And then someone said, "There is one living among us." 102. "If you beg him, he might help you." 103. "This man's name is 'Thunder Medicine.' " 104.

Thunder Medicine was among them. "If you beg and give him the pipe to smoke and if you give him things, maybe he might help you." 105. Then they went, and asked him to come; they gave him food and they begged him.

106. They gave him smoke. They begged him, and he kept quiet for a while; then he said, "All right." 107. "All right, I'll try to help you in some way," he said. 108. They gave him things, and they put their own smoke in the pipe and gave it to him. 109. "All right, I'll go ahead with this," he said.

110. "In the morning, when you tighten your stakes down do it well and I'll go and see," he said. 111. "In the morning, don't come near me; I'll go near the water and I'll say my own prayers. I'll make a sign, and I'll go ahead." 112. "Then watch what will happen when I pray." 113. He undressed, and without anything on, he went along the top of the water, he walked on the top of it.

114. "Exactly where did it take them down into the water?" he said, and they pointed, way over there. 115. "I'm going. When I look back, at the place where he went down into the water, make signs!" 116. "When you wave, then I'll go in," he said.

117. Then he walked on top of the water, and he kept going along, and then he stopped to look back. They said "no." 118. So he kept going and they made a sign. 119. He kept going a long way until he arrived at the point where it had taken them into the water. 120. "That is where it was," he said. 121. They signalled to him. So he dove into the water. 122. He went into the water.

123. He went into the water and then he reached the bottom. 124. At the bottom there were some lodges. 125. There were people there. 126. They were underwater people. 127. There were some lodges. 128. He went along until he arrived there.

129. These people weren't like people. 130. Their heads were bigger, their bodies were shorter, and their arms and legs were thicker. 131. They were the underwater people. 132. He came and said "I've come searching."

133. And their leader replied, "Yes, they were brought. 134. They brought them, they arrived here, but the one who asked for them, as we were told, the one who asked for them is way over there, in the last lodge." 135. There were four groups of lodges. 136. "Those in the last one asked for them. 137. Maybe you can catch up with them. 138. Perhaps you can catch up with them."

139. When they told him this, he went. 140. He went, and soon he arrived at a crowd at the next group of lodges.

141. "They were taken through here. 142. They were taken to the next lodge. 143. Maybe you can catch up with them, over there," they said. 144. So he kept on going a long way, until he reached the third lodge.

145. When he got there, they said, "They were brought, just ahead of you." 146. "If you try, you can probably catch up with them. 147. If you beg them, they might give them back to you." 148. So then he left.

149. He went along and when he arrived at the last lodge, all of them were happy and contented and doing different things. 150. They were eating. 151. And the one who took these young men, it was their leader, and he was the one that had asked for them. 152. They asked for them and then they ate them. 153. They ate them and piled up the bones. 154. They piled up the bones of the young men. 155. And their flesh was eaten up. 156. So they were happy and contented there, doing whatever they normally did.

157. And when Thunder Medicine arrived, that chief said "Hello!"

158. "Those young men that were brought, I've come here in hopes of getting them back," he said.

159. "If only you had reached us sooner, it might have been possible, but now we've finished them off. We celebrated with them. 160. We finished them off, there are the bones," and they piled them up and showed them to him.

161. "If there's a bracelet or a necklace or anything from their bodies, I want to take it. 162. Their people are worried. 163. I'll take it and I'll let them see it, so that they can mourn, that's all they can do." 164. That is all I have come for," he said.

165. He got some things back, bracelets, earrings, bones, some necklaces and so on. 166. He even got some of the bones. 167. He even took some of the little bones of the fingers, each one.

168. He carried them out and said, "Well, if there's nothing else I can do, I'll go back." 169. Then he started back.

170. And then he thought, "When I'm going out, they'll try to do something to me." 171. So he watched out for himself as he went back. 172. Then he reached the place where he went into the water. 173. Then he came up.

174. This one, who had gone into the water, now he came back up and then he stood up.

175. Those in the lodges saw him. 176. "He's coming." Then he emerged, and the water was shaking.

177. The underwater creatures were all shaking. 178. Something strange was happening to the water. The water was moving, so then he ran. 179. He ran on top of the water. 180. He ran and ran and ran, and now the water was really moving powerfully. 181. The underwater creatures were angry when he left. 182. And the water was moving, and he ran and ran. 183. It was just before he reached the shore, and Thunder Medicine's father was coming.

184. Something big was happening! There were dark clouds, and lightning everywhere as he came running and he reached the shore and jumped into the lodge. 185. "Go back inside your lodges and don't move!" he said. 186. "My father is getting angry," he said. 187. Then the clouds were at the water. 188.

There was great lightning and it thundered and thundered, and then it stopped. 189. And [the storm] left.

190. Then they said "Let's go see," and they came out and they noticed with surprise that everything looked destroyed. 191. "Let's go see," they said, and they came out and they noticed that the water was bloody. 192. Water and blood were mixed.

193. Then he said "He killed them off. 194. My father destroyed them. He got his revenge," he said. 195. "He wiped them out. 196. He completely destroyed the underwater creatures who ate your young men. 197. Here are the things I brought back," he said, and he gave them back to them. 198. "There was no other way. I brought back what they carried," he said, and he gave them back.

199. And this story is true. 200. He was called Thunder Medicine. 201. And this person was said to have walked on the water. 202. He was the only one at that time who did. 203. No others have walked on water.

BIBLIOGRAPHY

Anderson, Stephen R. (1982). Where's morphology? *Linguistic Inquiry* 13: 571–612.

Anderson, Stephen R. (1983). Rules as 'morphemes' in a theory of inflection. *In* David S. Rood (ed.), *Proceedings of the 1983 Mid-America Linguistics Conference*, Dept. of Linguistics, Univ. of Colorado, pp. 3–21.

Anderson, Stephen R. (1988). Inflection. *In* Michael Hammond and Michael Noonan (eds), *Theoretical Morphology: Approaches in Modern Linguistics*, Academic Press, San Diego, pp. 23–44.

Baker, Mark (1988). *Incorporation: A Theory of Grammatical Function Changing.* University of Chicago Press, Chicago.

Baker, Mark (1989). Object sharing and projection in serial verb constructions. *Linguistic Inquiry* 20:4: 513–553.

Boas, Franz, and Ella C. Deloria (1941). Dakota Grammar. *Memoirs of the National Academy of Sciences* 2: part 2.

Bradshaw, Deanna (1989). The scope of negatives in Crow. *Southwest Journal of Linguistics* 9: 19–28.

Broadwell, George Aaron (1990). Optional projection of functional categories: A point of view morpheme in Santa Ana del Valle Zapotec. Paper presented at AAA/SSILA, New Orleans.

Burzio, Luigi (1981). *Intransitive Verbs and Italian Auxiliaries.* PhD thesis, MIT.

Carstens, Vicki, and Kasangati K. W. Kinyalolo (1989). On IP structure: Tense, aspect and agreement. Ms., UCLA.

Chomsky, Noam (1965). *Aspects of the Theory of Syntax.* M.I.T. Press, Cambridge, MA.

Chomsky, Noam (1981). *Lectures on Government and Binding.* Foris, Dordrecht, Holland.

Chomsky, Noam (1986a). *Barriers.* MIT Press, Cambridge, MA.

Chomsky, Noam (1986b). *Knowledge of Language: Its Nature, Origin, and Use.* Praeger, New York.

Chomsky, Noam (1989). Some notes on economy of derivation and representation. *In* Itziar Laka and Anoop Mahajan (eds), *MIT Working Papers in Linguistics: Functional Heads and Clause Structure*, Vol. 10, Department of Linguistics and Philosophy, MIT, pp. 43–74.

Cornell, Tom (1988). *Ala* nominals. Ms., UCLA.

Crain, Laurie (1989). The Crow aspect system. Ms., UCLA.

Davies, William D. (1986). *Choctaw Verb Agreement and Universal Grammar.* D. Reidel, Dordrecht, Holland.

Di Sciullo, Anna-Maria, and Edwin Williams (1987). *On the Definition of Word.* M. I. T. Press, Cambridge, MA.

Durie, Mark (1985). *A Grammar of Acehnese: On the Basis of a Dialect of North Aceh.* Foris, Dordrecht, Holland.

Ekundayo, S.A. and F.N. Akinnaso (1983). Yoruba serial verb string commutability constraints. *Lingua* 60: 115–133.

Ferguson, Charles A., and Michael Barlow (1988). Introduction. *In* Michael Barlow and Charles A. Ferguson (eds), *Agreement in Natural Language*, CSLI, Stanford.

Gibson, Jeanne (1980). *Clause Union in Chamorro and in Universal Grammar.* PhD thesis, University of California, San Diego.

Gordon, Lynn (1986). The development of evidentials in Maricopa. *In* Wallace Chafe and Johanna Nichols (eds), *Evidentiality: The Linguistic Coding of Epistemology*, Vol. 20 of *Advances in Discourse Processes*, Ablex, Norwood, New Jersey, pp. 75–88.

Gordon, Raymond G. (1972). Pitch accent in Crow. *International Journal of American Linguistics* 38: 191–200.

Graczyk, Randolph (1991). *Incorporation and Cliticization in Crow Morphosyntax.* PhD thesis, University of Chicago.

Inkelas, Sharon (1989). *Prosodic Constituency in the Lexicon.* PhD thesis, Stanford University.

Johnson, Kyle (1990). The syntax of inflectional paradigms. Ms., University of Wisconsin.

Kaschube, Dorothea V. (1954). Examples of tone in Crow. *International Journal of American Linguistics* 20: 34–36.

Kaschube, Dorothea V. (1967). *Structural Elements of the Language of the Crow Indians of Montana.* University of Colorado Press, Boulder, Colorado.

Kates, Edith C., and Hu Matthews (1986). *Crow Language Learning Guide.* Bilingual Materials Development Center, Crow Agency, Montana.

Kinyalolo, K. K. W. (1991). *Syntactic Dependencies and the* SPEC*-head Agreement Hypothesis in KiLega.* PhD thesis, UCLA.

Kitagawa, Yoshihisa (1986). *Subjects in Japanese and English.* PhD thesis, University of Massachusetts, Amherst.

Klavans, Judith L. (1985). The independence of syntax and phonology in cliticization. *Language* 61: 95–120.

Koopman, Hilda (1984). *The Syntax of Verbs.* Foris, Amsterdam.

Koopman, Hilda, and Dominique Sportiche (1988). Subjects. Ms., UCLA.

Kuroda, S.Ỹ. (1988). Whether we agree or not. *In* William Poser (ed.), *Papers from the Second International Workshop on Japanese Syntax*, CSLI, Stanford University, pp. 103–143.

Laka, Itziar (1989). Constraints on sentence negation: The case of Basque. *In* Itziar Laka and Anoop Mahajan (eds), *MIT Working Papers in Linguistics: Functional Heads and Clause Structure*, Vol. 10, Department of Linguistics and Philosophy, MIT, pp. 199–216.

Levin, Beth (1983). *On the Nature of Ergativity.* PhD thesis, M.I.T.

Levin, Beth (1989). The Basque verbal inventory and configurationality. *In* László Marácz and Pieter Muysken (eds), *Configurationality: The Typology of Asymmetries*, Vol. 34 of *Studies in Generative Grammar*, Foris, Dordrecht, Holland, pp. 39–62.

Li, Yafei (1990). X° binding and verb incorporation. *Linguistic Inquiry* 21: 399–426.

Lieber, Rochelle (1983). *On the Organization of the Lexicon.* PhD thesis, M.I.T. Published by Indiana University Linguistics Club.

Lowie, Robert H. (1941). *The Crow Language, Grammatical Sketch and Analyzed Text.* University of California Publications in American Archaeology and Ethnology, Berkeley.

Lowie, Robert H. (1960a). *Crow Texts.* University of California Press, Berkeley.

Lowie, Robert H. (1960b). *Crow Word Lists.* University of California Press, Berkeley.

Marantz, Alec (1984). *On the Nature of Grammatical Relations.* M. I. T. Press, Cambridge, MA.

Martin, Jack (1988a). Excerpts from a Crow phonology. Ms., UCLA.

Martin, Jack (1988b). Underlying nasals in Crow, Hidatsa, and Proto-Missouri River (Siouan). *Kansas Working Papers in Linguistics* 00: 000–000.

Martin, Jack (1991). *The Determination of Grammatical Relations in Syntax.* PhD thesis, UCLA.

Matthews, G. H. (1959). On tone in Crow. *International Journal of American Linguistics* 25: 135–136.

Matthews, G. Hubert (1965). *Hidatsa Syntax.* Mouton, The Hague.

Matthews, G. Hubert (1981). *Introduction to the Crow Language, 3rd Revised Edition.* Center for Bilingual/Multicultural Education, Bozeman, Montana.

Medicine Horse, Mary Helen (1987). *A Dictionary of Everyday Crow.* BMDC, Crow Agency, Montana.

Mithun, Marianne (1991). Active/agentive case marking and its motivations. *Language* 67: 510–546.

Munro, Pamela, and Hannah Fixico (1989). *Ten Lessons in Lakhota.* Linguistics Department, UCLA, Los Angeles, California.

Munro, Pamela, and Lynn Gordon (1982). Syntactic relations in Western Muskogean: A typological perspective. *Language* 58: 81–115.

Old Horn, Dale (1974). *Crow complementation.* Master's thesis, M. I. T.

Perlmutter, David (1978). Impersonal passives and the unaccusative hypothesis. *Proceedings of the Berkeley Linguistics Society* 4: 157–189.

Pollock, Jean-Yves (1989). Verb movement, universal grammar, and the structure of IP. *Linguistic Inquiry* 20: 365–424.

Sadock, Jerrold (1985). Autolexical syntax: A proposal for the treatment of noun incorporation and similar phenomena. *Natural Language and Linguistic Theory* 3: 379–439.

Shaw, Patricia A. (1980). *Theoretical Issues in Dakota Phonology and Morphology.* Garland Press, New York.

Speas, Margaret J. (1990). Functional heads and the mirror principle. First Mid-America Conference on Formal Linguistics.

Sportiche, Dominique (1990). Movement, agreement and case. Ms., UCLA.

Stowell, Timothy (1981). *Origins of Phrase Structure.* PhD thesis, MIT.

Travis, Lisa (1984). *Parameters and Effects of Word Order Variation.* PhD thesis, MIT.

Williamson, Janis S. (1984). *Studies in Lakhota Grammar.* PhD thesis, UCSD.