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STRUCTURAL ELEMENTS OF THE LANGUAGE OF THE CROW INDIANS OF MONTANA

BY

DOROTHEA V. KASCHUBE

UNIVERSITY OF COLORADO PRESS

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PREFACE

It is with great pleasure that I acknowledge my indebtedness to the Anthropology and Linguistics faculties of Indiana University and the University of Colorado for my training both as a student and later as a teacher. In 1953 and 1954 the Indiana University Graduate School provided funds for field work at Lodgegrass, Montana, and for importing an informant to the 1953 Linguistic Institute. The University of Colorado provided subsequent clerical and typing funds.

I was fortunate to have attended two Linguistic Institute sessions on the Bloomington campus. During the first Institute in the summer of 1952, I was privileged to participate in a field methods class directed by C. F. Voegelin and H. L. Smith. A Blackfoot informant, Mr. Tom Many Guns and an Arapahoe informant, Mr. William Shakespeare, provided students of this class with unlimited training in eliciting techniques. Zdeněk Salzmann and Byron Bender were more than helpful in their roles as teaching assistants...roles which Florence Voegelin and I were to assume the following summer. Mary Williams, a Shawnee speaker from Oklahoma, provided the class with long texts, and we were able to work with her and C. F. Voegelin in the first attempts at multiple stage translation.[1] Charles Hockett supplemented our training with a course in Comparative Algonkian.

In the summer of 1953, the Linguistic Institute at Indiana University presented two Siouan speakers to the Field Methods class. My informant and friend Henrietta Pretty On Top from Lodgegrass, Montana, provided the class with Crow examples. Mrs. Margaret Haven from Elbow-Woods, North Dakota, furnished us with closely related Hidatsa utterances as elicited by F. M. Voegelin.

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[1]Voegelin, C. F., October 1954, "Multiple Stage Translation," International Journal of Amer. Linguistics (IJAL), Vol. XX:4.

The experiences furnished by both Linguistic Institutes complemented the regular curriculum offered at Indiana University. I am particularly grateful to Thomas A. Sebeok with whom I had my introduction to the field of language analysis; and to C. F. Voegelin[2] who taught me how to utilize this analysis within the scope of Anthropology—as a study of man.

Space does not permit me to thank all those fellow students and visiting participants of the Institute who were kind enough to offer advice and help in transcription and eliciting. However, special tribute should be paid to Dr. Hans Uldall, the late Danish phonetician, who gave so unselfishly of his time to me and to my fellow students, John Yegerlehner, Nancy Hickerson, Frances Ingemann and Florence Voegelin.

Most particularly, however, I am grateful to Carl and Florence Voegelin who kept encouraging me to continue with Crow despite my other commitments of an academic and domestic nature. It was through the Voegelins that I received the most encouraging word of all, from Robert H. Lowie. Dr. Lowie was pleased to have someone take another look at the Crow language and not only gave us official and delighted approval, but started an active correspondence over our transcriptions and analyses. His untimely death in 1957 prevented our having vis-à-vis discussion over the structural elements of Crow or comparing notes on friends in Lodgegrass, Montana. I would, therefore, like to dedicate this publication to the memory of Robert H. Lowie.

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[2] I also follow C. F. Voegelin's technique of numerically indexing morphemes and morpheme classes and of making distributional statements in the form of formulae using these index numbers.

CONTENTS

INTRODUCTION

During the Linguistic Institute in the summer of 1953, under the auspices of the Graduate School of Indiana University and the Linguistic Society of America, I was able to bring a Crow informant to the Indiana University campus. Miss Henrietta Pretty On Top of Lodgegrass, Montana, came with me to Bloomington, and when she was not serving the Field Methods class as informant, I was given the privilege of working with her for the remainder of each day. The material I collected formed the basis of my Ph.D. dissertation "Structural Elements of Crow" which was submitted to the Graduate School of Indiana University in June of 1960.

Dr. C. F. Voegelin directed the Field Methods class and in addition, working jointly with John Yegerlehner, Kimball Romney and F. M. Voegelin, he elicited long narrative texts from Miss Pretty On Top.

At that time several fellow students joined the eliciting sessions after class. My notes contain transcriptions by John Yegerlehner, Nancy Hickerson, Frances Ingemann and Florence Voegelin. We were all especially grateful to Dr. Hans Uldall. In daily impromptu sessions Professor Uldall gave us many hours of training in various tonal problems. Both his informal 'tone class' and the daily eliciting sessions were visited by the various participants of the Institute. Zellig Harris and Harry Hoijer were particularly helpful in providing transcriptions and encouraging sentiments.

Although two monographs[1] were previously published on the Crow Language as of 1953, I had used them only to supplement examples for sequence of affix types.

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[1]Lowie, Robert H., 1930, "A Crow Text with Grammatical Notes," University of California Publications in American Archaeology and Ethnology (UCPAAE), Vol. 29:2, and

_____, 1941, "The Crow Language, Grammatical Sketch and Analyzed Text," UCPAAE, Vol. 39.

The following analysis begins with an inventory of consonants and vowels. The distribution of each is listed in the matrix of a word. Allophones are given as part of the information on the distributional occurrence of particular phonemes. The problem of accent (tone and stress) can be stated partly in reference to contours bounded by junctures, and a previously published paper on Crow accent is summarized.

The Inventory of Affixes, Chapter Two, shows how numbers are assigned to affixes to indicate their relative position with regard to each other and to stems. The assigned numbers also serve as an index to the affixes. Affixes are arranged in positional classes, which are numbered in decade order. Numbers 10 through 140 indicate prefix decades; numbers 1000 through 1190 indicate suffixes. Affixes within a decade class are mutually exclusive, and since they may occupy more than one positional slot, double decade numbers are used.

The four types of morphophonemic changes which occur in Crow are discussed in Chapter Three, Morphophonemics. One type is the substitution of one segmental phoneme for another, the second and third types involve a substitution of tonemes and of length, and the fourth type involves allomorphs of varying lengths. The position of the morpheme in respect to particular segmental phonemes, to particular tonemes, or in respect to particular morphemes are the determining factors for the four types.

The remainder of Crow morphemes which are not affixes are stems, and are classifiable as nouns, verbs or particles on the basis of their co-occurrence with affixes. Sequences of more than one stem and of certain affixes plus stems which fill a defined positional slot are classifiable in the same manner as stems, and are called themes. Such interpretation follows closely the analysis of Hidatsa into stems and themes by F. M. Voegelin[2] and of Kutenai themes by Paul Garvin.[3] This permits us to say that noun stem plus verb stem equals a noun theme, etc. Crow morphemes thus can remain uniquely classified as

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[2]Voegelin, F. M., July 1955, "Hidatsa III: Stems and Themes," IJAL, Vol. XXI:3.

[3]Garvin, Paul, April 1951, "Kutenai IV: Word Classes," IJAL, Vol. XVII:2.

noun stem, verb stem, participle stem, prefix or suffix: in certain combinations these morphemes may be further classified into themes.

Chapter Five contains both a traditional and a multiple stage translation of a ten-minute Crow tape.

A dictionary of Crow stems[4] forms the basis of the final chapter of this analysis. A comparison is made with the word dictionary published posthumously by R. H. Lowie.[5]

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[4]This was added to the paper in 1965, and is not part of the original dissertation as submitted in 1960.

[5]Lowie, R. H., 1960, "Crow Word Lists," University of California Press.

1. INVENTORY OF PHONEMES

1.0. After the inventory of consonants (1.1) and of vowels (1.6) I list the distribution of each in the matrix of the word, and give allophones as part of the information on the distributional occurrence of particular phonemes. The one affricate consonant is included with the fricatives (1.3), as it patterns more closely with them than with the stop consonants.

The problem of accent (tone and stress) can be stated partly in reference to longer stretches (contours) bounded by junctures (1.9). I have previously published a paper on Crow accent[1] summarized below (1.8).

Inventory of Consonants

1.1. The consonant phonemes of Crow include three voiceless stops /ptk/, one affricate /č/, four fricatives /sšxh/, one semi-vowel /w/ and one liquid /r/.

Distribution of Stops

1.2. The phoneme /p/ appears in word initial and medial positions. It does not occur in word final position. It is a bilabial voiceless stop, of which I recognize two allophones. One has a fortis-like or plosive quality and occurs only in intervocalic position, as in /apá/ nose, /hupá/ shoe, /šó:pá/ four. The other has a lenis or weaker articulation and occurs in word initial position and in medial position when preceded or followed by another consonant. Some examples are: /puxxá/ beer,

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[1]Kaschube, Dorothea, "Examples of Tone in Crow," International Journal of American Linguistics (IJAL), Vol. XX, No. 1, 1954

/ahpá:xá/ cloud, /ò:wappa/ square, /huptà:ra/ moccasins, /ì:špua/ his stomach, /išpaxá/ elbow.

The phoneme /t/ occurs in all three positions of a word. It is a voiceless dental stop of which I recognize two allophones. One allophone is a fortis consonant and occurs in intervocalic position, and in word final position when preceded by a vowel. Some examples are: /ù:wata/ iron, /šó:pát/ four of them, /wahčì:ta/ my younger sister, /wáhpuata/ fly. The other allophone appears in initial position and in medial position when occurring as a member of a consonant cluster, and has a lenis quality as in /huptà:ra/ moccasins, /ù:tta/ weasel, /taššá/ grease, /cé:tpačá:/ Japanese, /tù:šširа/ elktooth dress.

The phoneme /k/ has four allophones.

Allophone [ky] is a palatalized voiceless stop occurring in the velar position, but slightly fronted. It is actualized when directly preceded by the phonemes /š-/ and /č-/. It occurs in final position after the high front vowels /i/ and /i:/ or the mid-front vowels /e/ and /e:/; and occurs in medial position when preceded by either the high front or mid-front vowels plus /h-/. It occurs in /waškà:rá/ my mother-in-law, /wuručkápik/ I pinch it, /háčka/ long, /ì:hka/ his chin, /ò:šik/ it burns.

The allophone [gy] is the voiced counterpart of the palatalized velar stop. It occurs in intervocalic position when preceded by a high-front vowel or by a mid-front vowel as in /wí:kua/ my front teeth, /awí:kò:čik/ I hang it, /šikà:ka/ boy.

Allophone [k], a voiceless velar stop, occurs in word initial position. It occurs in medial position when preceded by vowels /u/, /o/, /a/ plus /h-/. It occurs in geminate clusters and is a member of a consonant cluster, except when preceded by /š/ and /č/. It appears in word final position following vowels /a/, /u/, and /o/. The following examples illustrate the distribution of the allophone: /wirà:kša/ match, /á:kkapá:k/ it froze, /khó:tà:ra/ the same thing, /ahkà:šik/ lots, many.

The voiced allophone [g] occurs in intervocalic position except when preceded by a high-front or mid-front vowel as in /rakà:ka/ bird, /rísó:ká/ your younger sister, /wacú:ká/ my younger brother, /aká/ trigger.

Distribution of Affricate and Fricatives

1.3. The affricate /č/ occurs in word initial and medial position, and has two allophones. Allophone [č] has a lenis

quality and occurs in word initial position, in consonant clusters (hč, šč, xč, čk) and in geminates in intervocalic position. The following examples contain this allophone: /čé:ta/ wolf, /čù:ssa/ half, /čù:sa/ half dollar, /čirá:/ her husband, /ó:ččirak/ tonight, /waččà:čik/ that's good, /waščá/ my hand, /wiríčka/ pond.

The voiced allophone [ǰ] always occurs in intervocalic position, as in /wačú:ká/ my younger brother, /wačá:/ man, /í:čì:ra/ horse, /tà:čia/ glow, /čičáxà:/ circle.

The dental fricative /s/ has two allophones. The voiceless allophone [s] occurs in word initial position and in geminates which occur in intervocalic position. The phoneme does not appear in word final position. Some examples are /iaxassa/ snake, /čù:ssa/ half, /sapía/ ground, /súa/ thunder, /sà:ka/ frog, /sà:pa/ what.

A voiced allophone [z] occurs only in intervocalic position as in /wasó:ká/ my younger sister, /wasà:ka/ my father, /čì:sa/ his tail, /í:sà:/ big.

From my corpus I recognize two allophones of phoneme /š/. A voiced allophone [ž] occurs only in intervocalic position as in /wá:šúa/ my head, /ò:šik/ it burns, /wà:šo/ feather, /wíšà:/ buffalo.

An unvoiced allophone occurs in initial position, and in medial position as a member of a consonant cluster or as a geminate; and also in word final position. Some examples are /šó:pá/ four, /šò:ta/ what kind, /šúa/ his spit, /šì:pa/ intestines, /wišká:/ sap, /tù:ššira/ elk tooth dress, /ašá/ house, /šičà:/ hills, /wačé:š/ that man, /wì:iš/ that woman, /wišéš/ that blanket.

I recognize only one allophone each of /x/ and /h/. Each can occur in consonant clusters as well as in initial and intervocalic positions. Only /h/ occurs in word final position. Some examples of /h/ are /wih/ me, /kúh/ that, /hupá/ shoes, /há:kká:ša/ young, /hawáta/ one, /wasahká/ my mother, /wasahpá/ my shoes, /wihka/ fleas, /khó:tà:ra/ same thing.

Some examples of /x/ are /ahpá:xá/ cloud, /xaxúa/all, /xò:xá:ša/ corn, /xáxxa/ stripe, /xúšša/ fast, /puxxá/ beer.

Distribution of Semi-Vowel

1.4. Three allophones can be ascribed to the liquid phoneme /w/. A bilabial nasal allophone [m] occurs in word-initial

position when followed by a vowel, and in word final position when preceded by a vowel. It also occurs in medial position when followed by phoneme /r/; when preceded by phoneme /r/; when preceded by /h/, and in geminates in intervocalic position. The following are some examples of this allophone. /awwawwiré:ták/ I shall not be able to live, /wá:wrakúk/ you gave something, /wá:wwakúk/ I gave her something, /warà:/ money, /wúá/ fish, /wá:ro/ beads, /wà:šo/ feather, /awusúw/ some holes, /wišíw/ some blankets, /wíšè:w/ some buffaloes, /wá:čirì:wihwáčik/ I will be afraid.

A voiced bilabial stop [b] occurs in free variation with [m] in a word-initial position.

The allophone [w] occurs in intervocalic position only, as in /awašà:/ Gros Ventres, /hawáta/ one, /ù:wata/ iron, /awušá/ hole, cave, /awá/ ground~earth.

Distribution of Liquid

1.5. I have been able to recognize four allophones of /r/. A dental nasal [n] allophone occurs in word initial position when followed by a vowel. It occurs in word final position when preceded by a vowel. It occurs in medial position when preceded by the phonemes /w-/ and /h-/, and occurs in intervocalically situated geminates. Some examples are /í:čì:rrak/ pony, /hurrak/ legs, /wá:wrakúk/ you gave her something, /rakà:ka/ bird, /rarà:ka/ your child, /rà:wía/ three, /rakó:ta/ Sioux.

A voiced dental stop [d] occurs in free variation with initially positioned [n], and I have transcribed both sounds for the same utterance, as has Lowie (see 1.10 below).

A third allophone, [r] occurs only in intervocalic position and sometimes has a flap-like quality which corresponds closely to d and has been transcribed as such on occasion by both Lowie and myself. The following examples illustrate this allophone: /tù:ššira/ elk tooth dress, /warà:/ money, /í:rápik/ he's fat, /wirà:/ fire, /wirá/ water.

Allophone [l], a lateral, occurs in free variation with [r]. This phone, l, is apparently a recent addition to Crow phonology, as Lowie never recorded the sound. I collected the majority of texts from a female speaker, but a small part of my corpus was collected from male speakers of two generations. The male speakers never used the l phone; and so it comes from my corpus of female speech. Dr. Lowie recorded all his material from

male speakers. Early in the field I became aware of certain female-speaker distinctions. Besides the l phone, the voicing of č, š, and s in intervocalic position seems to be peculiar to women speakers. This is just a casual observation, but deserves attention for a future project.

Inventory of Vowels

1.6. The vowel phonemes of Crow include /i e u o a/ and the same series with a component of length, /i: e: u: o: a:/.[2]

Distribution of Vowels

1.7. The phoneme /i/ has two allophones. Allophone [i] is a high front unrounded vowel which occurs only in word initial and medial position and is of normal duration. Allophone [I] is also a front, unrounded vowel but is produced in a slightly lower position in the oral cavity; hence is a "lower-high" front vowel. It occurs in free variation with [i] in low tone, unstressed position. Phoneme /i/ also occurs in vowel clusters of i+a, a+i and i+o.

Phoneme /i:/ has the same articulatory features as /i/, but is of longer duration. It occurs in word initial and medial position. The following examples illustrate both phonemes: /wasahčì:ta/ my younger sister, /í:rà:ra/ car, /xáwì:k/ it's bad, /čì:sa/ his tail, /í:čì:ra/ horse, /šì:pa/ intestines, /ì:ra/ blood, /í:sá/ his face, /í:sà:/ big, /wašpí:a/ my sister (Male spkr), /iakà:ta/ small, /wirá/ water, /ihká/ egg, or star, /širíatak/ it rattles, /išči tá/ her husband's brother, /wá:ihura/ tire, /íššа/ container, /xà:pik/ it's flat, /xá:wík/ it's bushy, /čirá:/ her husband.

The vowel phoneme /a/ has four allophones. Allophone [a] is an unrounded, low front vowel and occurs in word initial, medial and final position. Allophone [ɛ] is a lower-mid front vowel, also unrounded, and occurs only after the phoneme /i/ in word initial, medial and final position. Allophone [æ] a higher low front vowel, unrounded, alternates in free variation with allophone [a] in word final position. R. H. Lowie sometimes transcribed this vowel as ɛ (see 1.10 below). A central mid unrounded vowel, [ə], seems to be an allophone occurring

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[2]Length is indicated by a colon /:/.

in free variation with [a] in unstressed, unaccented low tone syllables in non-final position.

Phoneme /a:/ has one allophone and occurs in word initial, medial and final position. It is an unrounded low front vowel and is of longer duration than phoneme /a/. The following examples include both phonemes /a/ and /a:/: /í:wá:ría/ doctor's medicine, /khà:tak/ he blows, /à:ša/ river, /rarà:ka/ your child, /há:kká:ša/ young, /ašá/ house, /wirà:/ fire, /wúá/ fish, /apák/ he's cold, /kà:rà:/ old woman, /wíšà:/ buffalo, /wará:/ money, /ò:wappa/ square, /apà:ria/ porcupine, /ahpá:xá/ cloud, /awá/ ground, earth, /waškà:rá/ my mother-in-law, /awušá/ cave, hole.

The phoneme /u/ has one allophone, and is a back, rounded high positioned vowel of normal duration. It occurs in word initial and medial position.

Phoneme /u:/ has the same characteristics of articulation as /u/, but is of a longer duration. It has only one allophone. Both phonemes appear in the following examples. /ù:xa/ deer, /ù:tta/ weasel, /čua/ other, /ušša/ daughter's husband, /čù:ssa/ half, /čù:sa/ half dollar, /súa/ thunder, /šúa/ he spit, /šù:a/ blue, /wá:wwakúk/ I gave her something, /wá:wwakù:k/ we gave her something.

Phoneme /o/ has two allophones. One allophone, [o] occurs in word medial and final position only after phoneme /i/. It is a back, rounded vowel occurring in somewhat high-mid position and is of normal duration. The other allophone [ɔ] is also a back rounded vowel, but occurs slightly more fronted and in lower-mid position from [o]. It occurs only in word final position after all phonemes except /i/.

Phoneme /o:/ has the same articulatory characteristics as phoneme /o/, plus long duration. It has one allophone, [o:], and occurs in word initial and medial position. Some examples of these phonemes are as follows: /šò:ta/ what kind, /šó:pá/ four, /ò:šik/ it burns, /wasó:ká/ my younger sister, /awò:ruk/ we wait, /xò:xá:ša/ corn, /ò:pa/ tobacco, /wašší:o/ our hair, /wašpà:šo/ my feather, /arí:šší:o/ camp ground, /wí:špuo/ our stomachs, /rì:o/ your (plural) teeth, /wáxxok/ he asks.

Phoneme /e/ is a front, unrounded vowel, occurring in mid position, articulated between the phones I and ɛ, and is of normal duration. It has one allophone and occurs in word medial position.

Phoneme /e:/ has the same articulatory characteristics as /e/, but is of longer duration. It occurs in word initial and medial positions. The following examples illustrate the distribution of these two phonemes: /aweričik/ he falls, /raxpiččð: xeš/ that pig, /wišéš/ those blankets, /wì:hérapa/ my waist, /wí:wek/ I cry, /í:čì:reš/ that horse, /pà:čirék/ he pushes, /á:kirrek/ he rides, /hiré:ttà:/ over here, /apté/ liver, /ihčikék/ he scratches himself. /taššé:k/ he greased it, /šè:šša/ don't talk, /wé:rá/ my belly, /čé:ta/ wolf, /tá:čè:ta/ sometimes, /aré:k/ it aches, /é:rá/ his belly, /wá:hússé:o/ their clothes, /rù:šše:čik/ he broke it.

Accent

1.8. I recognize three phonemic tones in Crow, a fall tone, a high tone and a low tone. Each has only one allotone, and they occur only with vowels, not with consonants. The low and high tones occur with both long and short vowels; the fall tone occurs only with long vowels. The fall and high tone syllables are always stressed; the syllables with low tone are never stressed. Each tone can occur in combinations with itself and with the other two tones. Therefore, for two-syllable words (i.e., those words containing a minimum of VCV) there are nine combinations of tones: high + high, high + low, high + fall; low + low, low + high, low + fall; fall + low, fall + high, fall + fall. The low tone will not be represented by any symbol; the high tone will be represented by (´) which indicates that the vowel is also stressed; and the fall tone will be indicated by (ˋ) indicating accompanying stress.

The above tone analysis follows the suggestion of the participants of the 1953 Linguistic Institute. Alternative analyses have been proposed by Eric P. Hamp[3] and G. W. Matthews.[4] Both authors base their interpretations on the examples published in the article "Examples of Tone in Crow."[5]

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[3]Hamp, Eric P., October, 1958, "Prosodic Notes," IJAL, Vol. XXIV:4, pp. 321-22.

[4]Matthews, G. H., April, 1959, "On Tone in Crow," IJAL, Vol. XXV:2, p. 135.

[5]Kaschube, Dorothea V., January, 1954, "Examples of Tone in Crow," IJAL, Vol. XX:1.

Junctures

1.9. There are three junctures in Crow, /+/, /‖/, and /#/. The short pause, /+/, occurs anywhere in the sentence after words ending in either vowels or consonants, with no change in tone. The double bar juncture, /‖/, follows the non-final predicative suffixes with no change in tone; and the imperative suffixes with a slight rise in tone. The double cross juncture, /#/, occurs in sentence and paragraph final position when preceded by the utterance final suffix.

Comparison with Lowie's Transcription

1.10. Robert H. Lowie's "A Crow Text with Grammatical Notes" published in 1930[6] was the first publication to appear on the Crow language. In his introduction a one-page section is devoted to "Symbols Used" in the accompanying text. Lowie distinguished nine vowels, four of which I recognize as Vowel phonemes, three as allophones, and two as Vowel phonemes with a component of length. He does not cite any high front vowel (either i or I), but uses the phone i in his text transcriptions. In Lowie's second publication "The Crow Language,"[7] published in 1941, he recognizes both the i and I sounds.

He distinguished two dipthongs, ai and au, which I recognize as vowel plus vowel.

Ten consonants are listed by Lowie. The sounds b and d, he says, "are weakly nasalized at the beginning of words, related to m,n." The phone w is not listed in the Symbols section, but he uses it in the transcription of the text, and recognized a relationship to m in his grammatical notes. (See Lowie, p. 162 as he cites na:mna as a variant form of na:wi, to go.)

In the section on grammatical notes he says that d becomes r in intervocalic position, but does not list the latter phone in his section on symbols.

Lowie's c, or my š, he says, is "approximately English 'sh', but not always easily distinguishable from s." Words containing both phones are included in the text and grammatical notes. I recognize both sounds as separate phonemes in Crow.

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[6] R. H. Lowie, 1930, pp. 155-175.

[7] R. H. Lowie, 1941, pp. 1-142.

Lowie recognized two palatalized stops, gy and ky, and in his introduction says he has often transcribed them as dy and ty in the field. k, t, p, x, and r are the remainder of the consonants of Lowie's first publication.

In addition to the segmental phonemes, Lowie had symbols for aspiration, preceding and following a consonant, which I find is often /h + C/ and /C + h/. He also records a glottal catch which he says ". . . strikes me as very weak, like the German stop before initial vowels."[8] I have not recorded or recognized either a glottal stop or a glottal catch, and find upon comparison with Lowie's corpus, that it tends often to be merely the positional function of the consonant.

The sounds h and č which I recognize as phonemes are distinguished by Lowie in the text only, the first as h and the second as ts.

In his second publication, Lowie recognizes all of the above sounds, and includes the two high front vowels mentioned above.

I recognize all the phones minus the glottal stop; and have added an additional l as the allophone of /r/; a component of voicing or fortis quality in all the consonants (except x and h) as allophonic variation, and have added phonemic tone and juncture.

[8]R. H. Lowie, 1930, p. 156.

2. INVENTORY OF AFFIXES

Introduction

2.0. Numbers are assigned to the affixes to indicate their relative position with regard to each other and to stems. The assigned numbers also serve as an index to the affixes in question.

The affixes are arranged in positional classes which are numbered in decade order. Numbers 10 through 140 indicate prefix decades; and numbers 1000 through 1190 indicate suffixes. All affixes within a decade class are mutually exclusive. Since the affixes within a decade may occupy more than one positional slot, double decade numbers are used to indicate this. Therefore, a prefix of decade 30 may occur after prefixes 10, 20, and before prefixes 40, 50, 60, 70, 90; and as a member of the decade class 30-100 may occur between prefixes of class 10-40, 20-80, 60-110, 90-120, before or after 70, and so on.[1]

The parenthetic numbers after the decimal points indicate morpheme alternants of the particular affix. Affixes 12, 22, 61, 1041, 1201, 1092, 1185 and 1186 contain alternants which are determined by phonemic environments.

The three affixes of decade class 130 and affix 1187 each have alternants which are morphologically determined, based on their relative distribution with affixes of class 60.

Affixes 1071 and 1042 contain parenthetically numbered alternants which are determined in part by phonemic environment and in part by their relationship to other morphemes.

The eleven alternants of the person marker affixes of class 60-110-1010-1050-1070-1120 are determined by their relationship to stems, and their alignment into sets and paradigms (2.3 below). Two alternants are doubly marked for 61, 62 and

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[1] An exception to this is affix class 1200, which occurs immediately after affix class 1040, and before class 1060.

63. One set of alternants is phonologically determined, and the other set is determined partly by phonemic environment and partly by morphologic environment.

Sub-alternants of an affix, those which occur in free variation only, are not assigned a separate parenthetic number. Affixes 1185 and 1191 contain such sub-alternants.

List of Decade Classes of Affixes

2.1. The decade classes of the affixes are as follows:

10-40

11. ak- agentive
12. ar- (.1) ~ ara- (.2) ~ ra- (.3) place where, time when
13. à:rá: might

20-80

21. í:- instrumentive
22. kara- (.1) ~ kar (.2) past

30-100

31. wá:- (.1) ~ -aw- (.2) indefinite (subject, object, possessor)
32. wá:w- (.1) ~ waré:- (.2) something

50

51. á:- actor - orientation
52. wač- reciprocal
53. kuš- demonstrative, (towards)

60-110-1010-1050-1070-1120

61. wih- (.1), wí- (.1), wí: (.2, .3), wá:- (.4, .6), w- (.5), wa- (.7, .8), wah- (.8), -wí: (.9), -wa (.10), -wi (.11), first person
62. ríh- (.1), rí- (.1, .7), rí:- (.2, .3), ra- (.4, .8), r- (.5), rà:- (.6), ráh- (.8), -rí: (.9), -ra (.10), -ri (.11), second person

63. ih- (.1), í- (.1), -i- (.7), zero- (.2, .4, .5, .6, .8), í:- (.3), -í: (.9), -a (.10), -i (.11), third person

70

71. -š̌- (.1) ~ -s- (.2) ~ -sa- (.3) ~ -sà:- (.4) alienable

90-120

91. či- suus, reflexive

130

131. -uru- (.1) ~ -irú- (.2) ~ rù:- (.3) by hand
132. pà:- (.1) ~ -p- (.2) by force
133. rá- (.1) ~ -rà:- (.2) by teeth

140

141. reduplication of first syllable of Stem: continuative

1000

1001. -če causative

1020-1130

1021. -i durative

1030-1140

1031. -ssa negative

1040-1150

1041. -tà:ra (.1) ~ -tà:ri- (.2), truly, real
1042. -kà:ša (.1) ~ kà:ši (.2) ~ kà:š- (.3) superlative, only

1200

1201. -kša (.1) ~ -kíšša (.2) imitative, sportative
1202. -kà:ta diminutive, very, only

1060-1160

1061. -u (.1) ~ -o (.2) ~ -uo (.3) ~ -ru (.4) plural

1080-1100

1081. -h future

1090-1170

1091. -ra indefinite, then, if, either, any
1092. -ta (.1) ~ -t (.2) collectivizer
1093. -ré:tá negative
1094. -ku benefactive

1110.

1111. -wáči future
1112. -či again, back

1180-1190

1181. -k utterance final predicative
1182. -w non-final predicative, some, when
1183. -š non-final predicative, that, the
1184. -št habitual agent
1185. -a ~ -awa (.1) -zero ~ -h (.2) -zero ~ -wa (.3) imperative singular
1186. -à:ra (.1) ~ -rá: (.2) imperative plural
1187. -ká: (.1) ~ -há: (.12) future interrogative
1188. -ča approximative, like, about
1189. -a singular nominalizer
1190. -úa plural nominalizer
1191. -zero ~ -h interrogative

Affix Classes and Their Sequence Types

2.2. The following are the affix classes and the sequence types in which they occur.

Prefix Class 10-40

Prefixes of class 10-40 (11. ak- agentive; 12. ar- (.1) ~ ara- (.2) ~ ra- (.3) place where, time when; 13. à:rá:- might) occur word initially or after prefixes of class 30-100. Sequences

in which prefix 11 occurs are of the following types. (The examples include first the Crow form, followed by the English equivalent, plus the morpheme formula in parentheses. Only the first member of multiple decade numbers is used, so that 60 represents class 60-110-1010-1050-1070-1120, and 10 represents class 10-40, and so on).

11 ± 31 + S ± suffixes:

aktíšša the dancer (11+S+ 1189) (for change of r to t, see 3.4 below);
akpá:raxča sheriff (11 + 31 + S + 1189) (for change of w to p, see 3.4 below);
akpá:karača believer (11 + 31 + S + 1189),
akpá:rí:a doctor (11 + S),
akirì:aš that speaker (11 + S + 1183).

11 + 21 + S + S + 1183:

akí:araxčiwíšè:š the one who by means of it had honors (11 + 21 + S + S + 1183).

11 + 31 + 132 + S:

akpá:pà:xarua pusher (11 + 31 + 132 + S).

11 + S + S + 1189:

akpičkirí:rú:sa peyote member (= one who eats peyote) (11 + S + S + 1189).

The variation between the three alternants of prefix 12 (ar- .1, ara- .2, -ra .3) is phonemically determined. The point one alternant occurs in word initial position when followed by a morpheme beginning with a vowel, with /w/ or /r/. The point two alternant, ara-, occurs in word initial position when followed by a morpheme beginning with /č/ and /x/. The point three alternant occurs in word medial position. Prefix 12 occurs in sequences of the following types.

12 ± 31 ± 60 + S ± suffixes:

awwará woods (12 +S) (for change of r to w, see 3.4 below);
arawá:ča his chair (12 + 31 + 63.5 + S + 1189),
arð:wappa acre (12 + S),
awwá:xapa my bed (12 + 61 + S + 1189),
awwá:raxtúa jail (12 + 31 + S + 1190),
araxapa his bed (12 + 63 + S + 1189),
arríssúa dance hall (12 + S + 1190),
awwá:warú:túa blackboard (12 + 31 + S + 1190).

32 + 12 + S + suffixes:

waré:raxapa bed (32 + 12 + S + 1189),
waré:raxapkíšša toy bed (32 + 12 + S + 1201).

Prefix 13 of class 10-40, à:rá:- might, occurs in the sequence type 13 ± 31 + 60 + S ± 60 ± 1081 as follows:

à:rá:wá:čirì:wih I might be afraid (13 + 61 + S + 61 + 1081),
à:rá:xará: it might rain (13 + 63 + S),
à:rá:wá:špih I might hunt (13 + 31 + 61 + S + 61 + 1081).

Prefix Class 20-80

Prefix class 20-8- (21. í:- instrumentive, 22. kara-.1 ~ kar- .2 past) occurs in word-initial position and after prefixes of classes 10-40, 60-110, 70. It may be followed by prefixes of classes 30-100 and 60-110.

Prefix 21, í:- instrumentive, occurs word-initially or after prefixes of class 10-40, 60-110, 70. Sequences in which prefix 21 occurs are of the following types.

21 ± 31 + S ± suffixes:

í:šó:pá fourth (21 + S),
í:wá:warà:túa pencil (21 + 31 + S + 1190),
í:wá:rítúa hammer (21 + 31 + S + 1190),
í:wá:rí:a doctor's medicine (21 + S).

21 + 60 ± 132 + S ± S ± suffixes:

í:wíišišša my face paints (21 + 61 + S + S + 1189),
í:pà:xaruawóh push dance song (21 + 132 + S + S),
í:rà:rissuk you (pl) dance with them (on) (21 + 62 + S + 1061 + 1181).

60 + 70 + 21 ± 31 + S + suffixes:

wasí:wá:rí:o my medicine (61 + 71 + 21 + S + 1061),
wasí:wá:rítúa my hammer (61 + 71 + 21 + 31 + S + 1190).

21 + 130 + S + 1181:

í:rù:šší́šík it broke (21 + 131 + S + 1181),
í:rù:tà:hik it broke (21 + 131 + S + 1181).

11 + 21 + S + S + suffix:

akí:araxčiwíšè:š the one who by means of it had honors (11 + 21 + S + S + 1183).

Prefix 22, (kara- .1, ~ kar- .2, past) occurs in word-initial position and may be followed by prefixes of classes 30-100, 60-110-1010-1050-1070-1120. Alternant point two occurs

before morpheme initial /w/ and the point one alternant occurs elsewhere. Prefix 22 occurs in the sequence type 22 ± 30 ± 60 + S ± suffixes as follows:

kawwá:wá:ríššissuk we didn't dance (22 + 31 + 60 + S + 1031 + 1061 + 1181) (for change of r to w, see 3.4 below);
kawwú:suk we have eaten (22 + 61 + S + 1061 + 1181),
karakkúk he returned (22 + 63 + S + 1181),
karakó:tak it was right ~ the same thing (22 + S + 1181),
karakó:tassuk those were wrong ~ not the same things (22 + S + 1031 + 1061 + 1181).

Prefix Class 30-100

Prefixes of class 30-100 (31. wá:- .1 ~ aw- .2 indefinite, 32. wá:w- .1 ~ waré:- .2 something) occur in word initial position or after prefixes of class 10-40, 20-80, 60-110, 70, 90-120.

The variation between the two allomorphs of prefix 31 is indeterminate. Alternant point two occurs with only three stems in my corpus (plow, sit, squat). Alternant point one, wá:-, occurs elsewhere. Sequences in which prefix 31 occurs are of the following types.

± 10 + 31 ± 60 ± 130 + S ± suffixes:

akpá:karača a believer (11 + 31 + S + 1189) (for change of w to p, see 3.4 below);
wá:ihura tire (31 + S),
awwá:raxtua jail (12 + 31 + S + 1190),
arawá:ča his chair (12 + 31 + 63.5 + S + 1189),
wá:arapé:k he can kick (something) (31 + 63.5 + S + 1181),
awwá:hirissuk they're not doing their way (12 + 31 + 60 + S + 1031 + 1061 + 1181),
awá:čik he sits (31 + 60 + S + 1181),
awrà:xičik you plow (31 + 62 + S + 1181).

60 ± 70 + 31 + S ± S + suffixes:

wašpá:ihurišó:pá my table (61 + 71 + 31 + S + S).
rà:wá:ráxik you are singing (something) (60 + 31 + S + 1181).

± 60 ± 70 ± 21 + 31 + S + 1190:

wasí:wá:rítúa my hammer (61 + 71 + 21 + 31 + S + 1190),
í:wá:rítúa hammer (21 + 31 + S + 1190),
waspá:ihura my tire (61 + 71 + 31 + S).

± 10 + 31 ± 60 + S + 60 + suffixes:

à:rá:wáwá:špih I might hunt (13 + 31 + 61 + S + 61 + 1081),

wá:wá;čkuxxawak I put in order (31 + S + 61 + 1181),
awwáxpik I squat (31 + 60 + S + 60 + 1181),
wá:waríššiwihwáčik I will be afraid (of something) (31 + 61 + S + 61 + 1081 + 1111 + 1181).

60 ± 91 + 31 + S + suffixes:
wihčiwá:wará:čik I paint myself (61.1 + 91 + 31 + S + 1181),
wá:wá:ráxiiruk we used to sing (60 + 31 + S + 1021 + 1061 + 1181).

20 + 31 + 60 + S ± suffixes:
kawwá:wá:ríššissuk we didn't dance (22 + 31 + 61 + S + 1031 + 1061 + 1181).

The variation between the two allomorphs of prefix 32 is indeterminate. The point one allomorph, wá:w-, occurs with only a few stems in my corpus. The point two allomorph, waré:- occurs elsewhere. Sequences in which prefix 32 occurs are of the following types.

± 10 + 32 ± 60 + S ± S ± suffixes:
akparé:á:ššupašškuo Dakota Indians (the ones that chop off someone's head) (11 + 32 + S + S + 1061) (for change of w to p, see 3.4 below);
wá:wwá:ríčik I hit something (32 + 61 + S + 1181).

± 21 + 32 + S ± S ± suffixes:
í:waré:á:ššukuraxča comb (something to scratch someone's head) (21 + 31 + S + S + 1188),
waré:šštá it's an eye (32 + S).

32 + 12 + S:
waré:raxapa someone's bed (32 + 12 + S + 1189),
waré:raxapkíšša toy bed (32 + 12 + S + 1201).

Prefix Class 50

Prefixes of class 50 (51. á:- actor-orientation, 52. wač- reciprocal and 53. kuš- demonstrative occur in word initial position immediately preceding the person markers of class 60-110.

Prefix 51 occurs in word initial position immediately preceding the person markers in the sequence type:

51 + 60 + S + suffixes:
á:waré:k I take (51 + 61 + S + 1181),

á:rarí:uk you (pl) bring (51 + 62 + S + 1061 + 1181),
á:rússuk they didn't bring (51 + 63 + S + 1031 + 1061 + 1181).

Prefix 52, wač- reciprocal, occurs in the following sequence type.

52 ± 60 + S ± 1031 + 1061 ± suffixes:

watparú:o fight (52 + S + 1061) for change of č to p see 3.4 below);
watpá:warú:ok we fight each other (52 + 61 + S + 1061 + 1181),
wačaxpuk they got married (52 + 63 + S + 1061 + 1181),
wačaxpassuk they divorced each other (52 + 63 + S + 1031 + 1061 + 1181).

Prefix 53, kuš- demonstrative, occurs in word initial position, and is followed by prefixes of class 60-110. Prefix 53 occurs in the following sequence type.

53 ± 60 + 60 + S + suffixes:

kušté:k she's going to her (53 + 63.2 + 63 + S + 1181),
kuštirú:k you're standing (53 + 62 + S + 1181),
kušpá:xarúššik I run toward (53 + 61 + S + 1181).

Class 60-110-1010-1050-1070-1120

The prefix allomorphs of the members of class 60-110-1010-1050-1070-1120 (61. wih- (.1), wí- (.1), wí:- (.2, .3), wá:- (.4, .6), w- (.5), wa- (.7, .8), wah- (.8), first person; 62. ríh- (.1), rí- (.1, .7), rí:- (.2, .3), ra- (.4, .8), r- (.5), rà:- (.6), ráh- (.8), second person; 63. ih- (.1), í- (.1), -i- (.7), zero- (.2, .4, .5, .6, .8), í:- (.3) third person occur word initially or preceded by prefixes of classes 10-40, 20-80, 30-100, 50, 90-120.

The suffix allomorphs (61. -wí: (.9), -wa (.10), -wi (.11) first person; 62. -rí: (.9), -ra (.10), -ri (.11) second person; 63. -í: (.9), -a (.10), -i (.11) third person) occur word medially; alternants point nine occur immediately followed by suffix 1081 (-h, future) and preceded by a stem or suffix.

The distribution of the allomorphs is determined morphologically, by the occurrence of prefix 71, alienable, or suffix 1081, future, or by the theme in the sequence in which they occur.

The allomorphs are numbered on the basis of their mutual association in sets which occur in particular sequences. For

their alignment into sets and paradigms and the specific decade position of each paradigm, see 2.3 below.

The variation between the two point eight allomorphs of 61 and 62 is phonemically determined. The alternants ending in /h/ (wah-, ráh- (.8)) occur before /k/ when not followed by /h/ and before /č/.

The variation between the two point one allomorphs of 61 62 and 63 is partly phonemic and partly morphemic. The alternants ending in /-h/ occur before /k/ when not followed by /h/; and before prefix 91 (či-, reflexive).

Sequences in which class 60-110-1010-1050-1070-1120 occurs are of the following types.

± 60 + 60 ± 130 ± 140 + S + suffixes:

warápxiiruk we can bite ~ we used to bite (61 + 133 + S + 1021 + 1061 + 1181),
wurušššíššíšík I broke it (all to pieces) (63.2 + 61 + 131 + 141 + S + 1181),
wuručká:pik I pinch (61.5 + 131.1 + S + 1181),
pà:xarua he pushes (63.8 + 132.1 + S),
wí:arakák you see me (61.2 + S... + 62.8 + ...S + 1181),
wá:rasà:šik I call him (63.2 + 61.6 + 133 + S + 1181).

± 60 + S ± 1001 + 60 + 1180:

čikúčewí:k I make it sweet (63.2 + S + 1001 + 61.9 + 1181),
iští:k you drink (S + 62.9 + 1181).

13 ± 60 + 60 + S + 1080:

à:rá:awó:rappih I might find it (13 + 63.2 + S... + 61.5 + ...S + 61.11 + 1081),
à:rá:wá:čirì:wih I might be afraid (13 + 61.4 + S + 61.11 + 1081).

± 31 ± 60 + S + 60 + 1021 ± 1061 + 1181:

wá:wí:šiwwiiruk we will wash (31 + 61 + S + 61.11 + 1021 + 1061 + 1181),
wá:išpí:ik I used to drink (31 + S + 61.9 + 1021 + 1181),
hiráwiik she used to sleep (63 + S + 1021 + 1181),
wahkà:wiik I will laugh (60 + S + 61.11 + 1021 + 1181).

± 50 ± 60 + 60 + S + suffixes:

á:waré:k I take (51 + 61 + S + 1181),
wačaxpuk they got married (52 + 63 + S + 1061 + 1181),
kušté:k he's going to her (53 + 63.2 + 63 + S + 1181),
ríakuw she did it (for someone) (63.2 + 63 + S + 1094 + 1182).

13 + 60 ± 90 + S + 60 ± 1060 + 1080:

à:rá:ríhčipúarih you might jump (13 + 62.1 + 91 + S + 62.11 + 1081),

à:rá:wihčipúawoh we might jump (13 + 61 + 91 + S + 61 + 1061 + 1081).

60 ± 90 ± 31 + S ± 1061 + 1180:

wihčikewrak I haul (61.8 + 91 + S + 1181),

wihčiwá:wará:čik I paint myself (61.1 + 91 + 31 + S + 1181),

ráhčiččirí:k you whisper (62.8 + 91 + S + 1181),

wíhà:rik I finish it (61.1 + S + 1181),

hiráwik he sleeps (63.2 + S + 1181),

ríssuk they dance (63.6 + S + 1061 + 1181),

awakák I see (S... + 61.8 + ...S + 1181).

± 50 or ± (22 + 31) + 60 + S + 1031 ± suffixes:

rì:šš̆itassa don't be lazy (62 + S + 1031),

kawwá:wá:ríšš̆issuk we didn't dance (22 + 31 + 60 + S + 1031 + 1061 + 1181),

rì:rissak he can't walk (63 + S + 1031 + 1181),

wačaxpassuk they divorced each other (52 + 63 + S + 1031 + 1061 + 1181).

± 12 ± 30 + 60 + S + suffixes:

arawá:ča his chair (12 + 31 + 63.5 + S + 1189),

awwá:xapúa our beds (12 + 61 + S + 1190),

wá:arapé:k he can kick (something) (31 + 63.5 + S + 1181).

± 13 ± 30 + 60 + S ± 60 ± 1060 ± 1180 or (1080 ± 1111 + 1181):

wá:wá:špó:k we will hunt (31 + 61.6 + S + 61.9 + 1061 + 1181),

taššék he greased it (63.2 + S + 63.10 + 1181),

à:rá:wá:wá:špoh we might hunt (13 + 31 + 61 + S + 61 + 1060 + 1081),

à:rá:xará: it might rain (13 + 63 + S),

wakkúxá my ear (61 + S),

taššíwak I greased it (63.2 + S + 61.10 + 1181),

rà:rúa your (plural) arms (62. + S + 1190),

wá:wá:warú:wohwáčik we will fight (31 + 61 + S + 61.11 + 1061 + 1081 + 1111 + 1181).

+ (60 ± 71) ± 21 ± 31 + (S ± S) ± suffixes:

wasí:wá:rí:o our medicines (61.7 + 61.2 + 21 + S + 1061.2),

wí:hurá my own bone (61.2 + S),

wasí:wá:rítúa my hammer (61 + 71 + 21 + 31 + S + 1190),
waš́pá:ihurišó:púa our tables (61 + 71 + 31 + S + S + 1190),
waš́paihura my tire (61 + 71 + 31 + S),
wá:wá:ráxiiruk we used to sing (60 + 31 + S + 1021 + 1061 + 1181),
waš́púpča my ball (61.7 + 71.1 + S),
ríš́paihura your tire (62.7 + 71 + 31 + S),
wasahčì:túa our younger sisters (61.7 + 71 + S + 1190),
rakà:tak you blow (62.4 + S + 1181),
warú:k I stand (61.7 + S + 1181),
rísà:škiakà:ša your toy dog (62.7 + 71 + S + 1042),
wasaštà:ra my tipi (61 + 71 + S + 1041),
waš́pirà:kšača my candle (61.7 + 71 + S + 1201 + 1188),
wasahkérak my mother (61.7 + 71 + S + 1091 + 1181),
išpá:té:rúhpta both of his dishes (63 + 71 + S + S + 1092),
išpí:oré:ták he doesn't have any sisters (63 + 71 + S + 1061 + 1093 + 1181).

Prefix Class 70

Prefix 71 (-š́- (.1) ~ -s- (.2) ~ -sa- (.3) ~ -sà:- (.4), alienable) occurs word medially, immediately preceded by any point seven allomorph of class 60-110 and followed by another prefix or stem.

The variation between the allomorphs of prefix 71 is phonologically determined. The point one alternant (-š́-) occurs before Stems or prefixes beginning with consonants except /š́/ and before /h/ when immediately followed by a vowel. It also occurs in free variation with the point two alternant with one stem, ù:xa deer; both alternants having been recorded with this stem. The point three alternant (-sa-) occurs before /h/ when immediately followed by a consonant. The point two alternant occurs before vowel initial morphemes, and occurs in free variation with the point one alternant in sequence with one stem. The point four alternant occurs with stems or prefixes beginning with /š́-/.

The sequences in which 71 occurs are of the following types.

60.7 + 71 ± 21 + S ± suffixes:
wasahká my mother (61 + 71 + S),
išxò:xá:ša his, or her corn (62.7 + 71 + S),
išpirà:kša his match (63.7 + 71 + S + 1201),
wasaštà:ra my tipi (61.7 + 71 + S + 1041),

wasí:wá:rí:o our medicines (61.7 + 71 + 21 + S + 1061),
wasà:škia my horse (61.7 + 71 + S),
wasù:xa, or wašù:xa my deer (61.7 + 71 + S).

60.7 + 71 ± 31 + S ± S ± suffixes:
waš pá:ihura my tire (61.7 + 71 + 31 + S),
išpá:ihurisó:pá his table (63 + 71 + 31 + S + S),
išpá:xawačikúa his cake (= bread + sweet), (63 + 71 + S + S).

Prefix Class 90-120

Prefix 91, -či-, suus, reflexive, of prefix class 90-120 occurs in word medial position immediately preceded by the 60.1 and 60.8 alternants of prefix class 60-110 which end in /h/; and followed by other prefixes or stems. Sequences in which prefix 91 occurs are of the following types.

+ 60 + 91 ± 31 + S ± suffixes:
wihčiwá:warà:čik I paint myself (61.1 + 91 + 31 + S + 1181),
wihčipúawik I will jump (61 + 91 + S + 61 + 1181).

13 + 60 + 91 + S + suffixes:
à:rá:wahčipúawih I might jump (13 + 61 + 91 + S + 61 + 1081).

Prefix Class 130

Prefixes of class 130, 131. -uru- (.1) ~ -irú- (.2) ~ rù:- (.3) by hand; 132. -pà:- (.1) ~ -p- (.2) by force; 133. -rá- (.1) ~ -rà:- (.2) by teeth, occur word initially only when preceded by a zero alternant of 63, third person; elsewhere they occur word medially, preceded by prefixes 10-40, 20-80, 30-100, 60-110, and followed by stems or prefix 140 (reduplication).

The variation between the three allomorphs of 131 is morphemically determined. The point one alternant, -uru- (.1), immediately follows 61.5; the point two alternant, -irú- (.2), immediately follows second person 62.5, the point three alternant occurs elsewhere. Sequences in which prefix 131 occurs are of the following types.

60.5 + 130 ± 140 + S ± suffixes:
wuruà:čík I move (61 + 131 + S + 1181),
rù:hkapik he scratches it (63.2 + 63 + 131 + S + 1181),
rirúššè:čik you broke it (63.2 + 62 + 131 + S + 1181),
rirúššè:šše:čik you broke it (all to pieces) (63.2 + 62 + 131 + 141 + S + 1181).

21 + 130 + S + suffixes:

í:rù:šš́íšík it broke (21 + 131 + S + 1181),
í:rù:tà:hik it broke (21 + 131 + S + 1181).

The variation between the two allomorphs of prefix 132 is morphemically determined. The point two alternant, -p- (.2), occurs after 61 and 62 (first and second person actor); and the point one alternant, pà:- (.1) occurs elsewhere. The following are the sequence types in which prefix 132 occurs.

60.2 + 60 + 132 + S ± suffixes:

wapxè:čik I pierce it (63.2 + 61 + 132 + S + 1181),
rapxáruak you push (62 + 132 + S + 1181),
pà:šš́é:čik he broke it (63.2 + 63 + 132 + S + 1181).

21 + 132 + S + S:

í:pà:xaruawóh push dance song (21 + 132 + S + S).

11 + 31 + 132 + S:

akpá:pà:xarua pusher (11 + 31 + 132 + S).

The two allomorphs of prefix 133 are morphemically determined. The point one allomorph, -rá- (.1), occurs after prefixes 61 and 62; and the point two allomorph -rà:- (.2) occurs elsewhere. Prefix 133 occurs in the following:

60 ± 60 + 133 + S ± suffixes:

rà:pxik he bit him (63.2 + 63 + 133 + S + 1181),
rarápxiik you used to bite ~ you can bite (62 + 133 + S + 1021 + 1181),
warásà:suk we call him (63.2 + 61 + 133 + S + 1061 + 1181).

Prefix Class 140

Prefix 141, reduplication, of prefix class 140 occurs word medially and immediately precedes the stem and follows prefixes of classes 20-80, 60-110, 130. It denotes a continuative action and is included as a prefix rather than as an operator to facilitate statements about stems and themes. Only the first syllable of the stem is reduplicated. Prefix 141 occurs in the following sequence type.

60 + 60 + 130 + 140 + S + suffixes:

wurušš́íšš́íšík I broke it (all to pieces) (63.2 + 61 + 131 + 141 + S + 1181),
rirúšš̀è:šš̀è:čik you broke it (all to pieces) (63.2 + 62 + 131 + 141 + S + 1181).

Suffix Class 1000

Suffix 1001 (-če- causative) occurs in word medial position preceded by a stem and followed by suffix classes 60-110-1010-1050-1070-1120, and 1180-1190. It occurs in the following sequence type.

S ± 60 + 1001 ± 60 + 1181:

wixxú:ačeк to cause to spill (S + 1001 + 1181),
čikúačewí:k I sweeten (S + 1001 + 61.9 + 1181),
rú:špačewí:k I'll make him eat (S + 61.10 + 1001 + 61.9 + 1181),
ré:waček I send (S + 61.10 + 1001 + 1181).

Suffix Class 1020-1130

Suffix 1021, -i- durative, of suffix class 1020-1130 occurs word medially, preceded by a stem and suffixes of class 60-110, and followed by suffixes of class 1060-1160 and 1180-1190. It occurs in the following sequence types.

± 31 ± 60 + S ± 60 + 1020 ± 1061 + 1181:

wá:wí:šiwwiiruk we will wash (31 + 60 + S + 61.11 + 1021 + 1061 + 1181),
wá:išpí:ik I used to drink (31 + S + 61.9 + 1021 + 1181),
hiráwiik she used to sleep (63 + S + 1021 + 1181),
wahkkà:wiik I will laugh (60 + S + 61.11 + 1021 + 1181),
wakpiiruk we will give (60 + S + 61.11 + 1021 + 1061 + 1181),
aráxiik it's burning (S + 1021 + 1181).

60 ± 133 + S + 1021 ± 1061 + 1181:

warápxiik I can bite ~ I used to bite (61 + 133 + S + 1021 + 1181),
wá:ríššiiruk we used to dance (60 + S + 1021 + 1181),
xarúššiik he can run (63 + S + 1021 + 1181).

60 + 31 + S + 1021 ± 1061 + 1181:

wá:wá:ráxiiruk we used to sing (60 + 31 + S + 1021 + 1061 + 1181).

Suffix Class 1030-1140

Suffix 1031, -ssa negative, can occur in word final position and in word-medial position when followed by suffixes of classes 1040-1150, 1060-1160, and 1180-1190. It is immediately preceded by suffix 1021 or by stems.

Suffix 1031 occurs in the following sequence types.

± 22 ± 31 ± 60 + S + 1031 ± 1061 + 1181:

kó:tassak it's wrong (S + 1031 + 1181),
karakó:tassuk not the same things ~ those were wrong (22 + S + 1031 + 1061 + 1181),
čikúassak it isn't sweet (S + 1031 + 1181),
kawwá:wá:ríššissuk we didn't dance (22 + 31 + 60 + S + 1031 + 1061 + 1181).

± 50 + 60 + S + 1031 ± 1061 ± 1180:

á:wó:ssak I didn't bring (51 + 61 + S + 1031 + 1181),
khà:ssatà:rua they truly didn't laugh (60 + S + 1031 + 1041 + 1190),
wačaxpassuk they divorced each other (52 + 63 + S + 1031 + 1061 + 1181),
rì:šši tassa don't be lazy (62 + S + 1031),
rì:rissak he can't walk (63 + S + 1031 + 1181),
riirì:ssa don't talk (63 + S + 1031).

Suffix Class 1040-1150

Suffix class 1040-1150, 1041. -tà:ra (.1) ~ -tà:ri- (.2) truly, real, 1042. -kà:ša (.1) ~ kà:ši- (.2) ~ kà:š- (.3) superlative, only, occurs directly after a stem plus or minus suffix class 1030-1140, and is either in word final position or followed by suffixes of classes 1200, 1090-1170, and 1180-1190.

The point one alternant of suffix 1041 occurs in word final position or before suffix 1190 (plural nominalizer). The point two alternant occurs elsewhere. Suffix 1041 occurs in the following sequence types.

± prefixes + S ± 1031 + 1041 ± 1190 or 1181:

wasahpatà:ra my moccasins (61 + 71 + S + 1041),
wíšétà:ra real buffalo (S + 1041),
wasaštà:rúa our tipis (60 + 71 + S + 1041 + 1190),
wíšétà:rik it's a real buffalo (S + 1041 + 1181),
khà:ssatà:rua they truly did not laugh (63 + S + 1031 + 1041 + 1190).

S + 1041 ± 1201 or 1202:

aštà:ra tipi (S + 1041),
aštà:rikša toy tipi (S + 1041 + 1201),
aštà:rikà:ta little tipi (S + 1041 + 1202).

S + 1041 ± (1091 + 1181):
huptà:ra moccasins (S + 1041),
huptà:rirak the moccasins (S + 1041 + 1091 + 1181).

Suffix 1042 contains three alternants. The point three alternant (-kà:š-) occurs only before suffix 1201. The point one alternant (-kà:ša) occurs only in word final position. The point two alternant (-kà:ši-) occurs elsewhere. Suffix 1042 occurs in the following sequence types.

S + 1042 ± suffixes of class 1180:
rúhpkà:šiw only two of them (S + 1042 + 1182),
rà:wíkà:šik there's only three (S + 1042 + 1181),
í:čì:rikà:ša elk (superlative horse) (S + 1042).

± (60 + 70) + S + 1042:
wiškakà:ša dog (S + 1042),
wasà:škiakà:ša my dog (60 + 71 + S + 1042).

S + 1042 + 1201:
wiškakà:škíšša toy dog (S + 1042 + 1201).

Suffix Class 1200

Suffix class 1200 (1201. -kša (.1) ~ -kíšša (.2), imitative, sportative; 1202. -kà:ta diminutive) occurs in word final position or followed by suffixes of classes 1060-1160 and 1180-1190. It occurs directly after a stem or suffix of class 1040-1150.

The point one alternant of suffix 1201 (-kša) occurs after morpheme-final vowel; and the point two alternant (-kíšša) occurs after morphemes ending in a consonant. It occurs in the following sequence types.

± prefixes + S + 1201 ± suffixes of class 1180:
wašpá:ríkša my flower (61.7 + 71 + S + 1201),
wašpirà:kšača my candle (61.7 + 71 + S + 1201 + 1188),
išpirà:ksúa their matches (63. + 71 + S + 1201 + 1190),
ašò:wappikša little tent (S + S + 1201).

± prefixes + S + 1201 ± 1061 ± suffixes:
waré:raxapkíšša toy bed (32 + 12 + S + 1201),
waré:rawá:čkíssuk they're toy chairs (32 + 12 + S + 1201 + 1061 + 1181).

S ± 1040 + 1201:

wiškíkà:škíšša toy dog (S + 1042 + 1201),
aštà:rikša toy tipi (S + 1041 + 1201),
í:čì:rikša toy horse (S + 1201),
raxpičékša toy bear (S + 1201).
wá:pà:ríkša flower (S + 1201).

Suffix 1202 indicates a diminutive meaning with some stems, and denotes only when it occurs with colors or numerals. It occurs directly after a stem or suffixes of class 1040-1150. It may occur in word final position or be followed by suffixes of classes 1060-1160, and 1180-1190. Suffix 1201 occurs in the following sequence type.

S ± 1041 + 1202 ± 1180:

híššikà:tak it's only red (S + 1202 + 1181),
šipítkà:ta only black (S + 1202),
wì:akà:ta girl (woman + little) (S + 1202),
aštà:rikà:tak little tipi (S + 1041 + 1202 + 1181),
hawátkà:tak only one (S + 1202 + 1181),
wì:akà:tuw little girls (S + 1202 + 1061 + 1182),
wì:akà:taš the little girl (S + 1202 + 1183),
šikà:kà:tuw little boys (S + 1202 + 1061 + 1182).

Suffix Class 1060-1160

The suffix of class 1060-1160 (1061. -u (.1) ~ -o (.2) ~ -uo (.3) ~ -ru (.4) plural) occurs in word final position or followed by suffixes of classes 1080-1100, 1090-1170, 1110, 1180-1190, 1200. It occurs directly after a stem or suffixes of classes 60-110-1010-1050-1070-1120, 1020-1130, 1040-1150, 1030-1140.

The variation between the allomorphs of suffix 1061 is partly phonemic, partly free and partly morphemic. The point four alternant of suffix 1061 (-ru) occurs when 1061 is immediately preceded by 1021, durative; the point three alternant (-uo) occurs in word final position. Alternants point one and point two occur elsewhere. The variation between the (.1) alternant (-u), and the (.2) alternant (-o) of suffix 1061 is partly morphemic, partly phonemic and partly free, and is treated fully under morphophonemics. (See 3.2 and 3.3 below.)

Sequences in which suffix 1061 occurs are of the following types:

± prefixes + S ± 1031 + 1061 + 1180:

wačaxpuk they got married (52 + S + 1061 + 1181),
wačaxpassuk they divorced each other (52 + S + 1031 + 1061 + 1181),
kó:tassuk they're wrong (S + 1031 + 1061 + 1181),
wì:uk they are women (S + 1061 + 1181),
wí:ów some rocks (S + 1061 + 1182),
rí:háwo will you (plural) sleep? (62 + S + 1061 + 1187),
hiráwoh are they sleeping? (63 + S + 1061 + 1191).

± prefixes + S + 1061 ± 1090 ± 1180:

wašpí:o our sisters (61 + 71 + S + 1061),
íšpí:oré:ták he doesn't have any sisters (63 + 71 + S + 1061 + 1093 + 1181),
wihčikuk we scratch self (61 + 91 + S + 1061 + 1181),
ríhčipúoká: will you (plural) jump? (62 + 90 + S + 1061 + 1187),
aríaščiruo did you all buy it? (S... +62 +...S + 1061 + 1191),
í:rà:rissuk you (plural) dance with them (on) (21 + 62 + S + 1061 + 1181),
awwá:sapío flour mill (12 + 31 + S + 1061),
waasurak my tents & tipis (61 + S + 1061 + 1091 + 1181).

± prefixes + S ± 60 ± 1020 + 1061 + 1180:

wá:wí:šiwwiiruk we will wash (31 + 60 + S + 61.11 + 1021 + 1061 + 1181),
warápxiiruk we can bite or we used to bite (61 + 133 + S + 1021 + 1061 + 1181),
ríššiiruk they used to dance (63 + S + 1021 + 1061 + 1181),
wá:wá:ráxiruk we used to sing (something) (61 + 31 + S + 1021 + 1061 + 1181),
rà:wá:raxuk you (plural) sing (something) (62 + 31 + S + 1061 + 1181),
wá:rì:wwok we will walk (61 + S + 61 + 1061 + 1181),
wá:riruká: will you (plural) work? (31 + S + 60 + 1061 + 1187).

± prefixes + S + 1200 + 1061 + 1180:

waré:rawá:čkíssuk they're toy chairs (32 + 12 + S + 1201 + 1061 + 1181),
wì:akà:tuw little girls (S + 1202 + 1061 + 1182).

± prefixes + S + 60 + 1061 ± (1081 ± 1111) ± 1181:

xápì:uk ~ xápì:ok he's lost (S + 63 + 1061 + 1181),
à:rá:wá:čirì:woh we might be afraid (13 + 61 + S + 61.11 + 1061 + 1081),

wá:wá:warú:wohwáčik we will fight (31 + 61 + S + 61.11 + 1061 + 1081 + 1111 + 1181).

Suffix Class 1080-1100

Suffix 1081, -h, future, occurs after the future person 60.11 of class 60-110-1010-1050-1070-1120, plus or minus the plural suffix 1061. It occurs in word final position or may be followed by suffixes of classes 1110, and 1180-90.

Sequences in which suffix 1081 occurs are of the type + prefixes + stems + 60 (± 1061) + 1081 ± (1111 + 1181), as follows:

wá:wá:warú:wohwáčik we will fight (31 + 61 + S + 61.11 + 1061 + 1081 + 1111 + 1181),
čirì:ihwáčik he, she will be afraid (63 + S + 63.11 + 1081 + 1111 + 1181),
raré:rihwáčik you'll be going (62 + S + 62.11 + 1081 + 1111 + 1181),
à:rá:wá:á:ší:oh they might hunt (13 + 31 + 63 + S + 63 + 1061 + 1081),
à:rá:wá:čirì:wih I might be afraid (13 + 61 + S + 61 + 1081),
à:rá:wá:čirì:woh we might be afraid (13 + 61 + S + 61.11 + 1061 + 1081),
à:rá:wá:rà:štoh you (plural) might hunt (13 + 31 + 62 + S + 62.11 + 1061 + 1081).

Suffix Class 1090-1170

Suffix class 1090-1170 (1091. -ra indefinite, 1092. -ta (.1) ~ -t (.2) collectivizer, 1093. -ré:tá negative, 1094. -ku benefactive) occurs in word-final position or followed by suffix class 1110 and 1180-1190.

Suffix 1091., -ra temporal subordination, occurs in the following sequence types:

+ prefixes + S ± other suffixes + 1091 + 1181:
waré:raxapirak a bed (32 + 12 + S + 1091 + 1181),
wasà:kerak it's my father (61 + S + 1091 + 1181),
waasú:rak my tents and tipis (61 + S + 1061 + 1091 + 1181),
wasahkérak my mother (61.7 + 71 + S + 1091 + 1181),
aštà:rirak the tipis (S + 1041 + 1091 + 1181).

S + 1091 ± 1112 + 1181:
tarráračik shiver (S + 1091 + 1112 + 1181),
ð:čirak it's tonight (S + 1091 + 1181),
raxpičérak it's a bear (S + 1091 + 1181).

The allomorphs of suffix 1092. -ta (.1) ~ -t (.2) occur in free variation with each other when occurring with stems in a word final position. In pre-final position, the point one alternant precedes suffixes beginning with a consonant, and the point two alternant takes suffixes beginning with a vowel. Suffix 1092 occurs in the sequence type ± (60 ± 71) + S ± S + 1092 ± 1180 as follows:

waš́pá:šésó:pát my four boats (61 + 71 + S + S + 1092),
išpá:šéšó:ptak if I had four boats (63 + 71 + S + S + 1092 + 1181),
išpá:té:rúhpta both of his dishes (63 + 71 + S + S + 1092),
ú:asáhpuat his seven wives (60 + S + S + 1092),
raxpičč̀ò:xtak pigs (S + 1092 + 1181).

Suffix 1093. -rétá negative, occurs after a stem, plural suffix 1061 or the suffixed person markers of class 60. It may occur in word final position or be immediately followed by suffix 1181. It appears in the following sequence types:

± (60 + 71) + S ± 1061 + 1093 ± 1181:
išštáré:tá blind (S + 1093),
išštáré:ták it's blind (S + 1093 + 1181),
išpí:oré:ták he doesn't have any sisters (60 + 71 + S + 1061 + 1093 + 1181),
wá:ré:tá no (S + 1093).

12 + 60 + S + 60 + 1093 + 1181:
awwawwí:ré:ták I shall not be able to live (12 + 61 + S + 61 + 1093 + 1181).

Suffix 1094. -ku benefactive, occurs after the stem, and is immediately followed by suffixes 1181 or 1182. It appears in sequence type 63.2 + 60 + S + 1094 + 1181 ~ 1182 as wakúkuk I give back, ríakuk she did it (for me), rù:ttakuw he gets for him.

Suffix Class 1110

Suffix class 1110 (1111. -wáči future, 1112. -či again, back) occurs in pre-final position followed by suffixes of class 1180-1190.

Suffix 1111. -wáči future, always follows the future suffix 1081, and precedes the suffix 1181. It occurs in sequence type ± prefixes + S + 60 ± 1061 + 1081 + 1111 + 1181. (See suffix 1081 above for examples.)

Suffix 1112. -či, occurs in medial position following suffixes of classes 60-110-1010-1050-1070-1120, and 1090-1170, and preceding suffixes of class 1180-1190. Suffix 1112 occurs in sequence type ± prefixes + Stems ± other suffixes + 1112 + 1181, as follows:

awò:ričik I like it (= I'm waiting for it) (S... +61 +...S + 1112 + 1181),
wá:rá:xačik insane (S + 1112 + 1181),
tarráračik shiver (S + 1091 + 1112 + 1181),
wá:hiričik she's skilled (31 + S + 63 + 1112 + 1181).

Suffix Class 1180-1190

Suffix class 1180-1190 occurs in word final position and includes the following suffixes:

1181. -k, predicative, utterance final;
1182. -w, non-final predicative, 'some'.
1183. -š, the, that, non-final predicative;
1184. -št, habitual agent;
1185. -a ~ -awa (.1) -zero ~ -h (.2) -zero ~ -wa (.3) imperative singular;
1186. -à:ra (.1) ~ -rá: (.2) imperative plural;
1187. -ká: (.1) ~ -há: (.2) future interrogative;
1188. -ča approximative, like, about;
1189. -a singular nominalizer;
1190. -úa plural nominalizer;
1191. -zero ~ -h interrogative.

Suffix 1181. -k, utterance final, predicative, occurs in word final position and may be preceded by stems, or stems plus other suffixes. It occurs in the following examples after stems:

waré:raxapik it's a bed (32 + 12 + S + 1181),
wačé:k it's a man (S + 1181),
híššik it's red (S + 1181).

(For additional examples of suffix 1181. following stems plus other suffixes, see all other decade sequences above.)

Suffix 1181. -w non-final predicative, some, occurs in the following sequence type:

± prefixes + S ± S ± other suffixes + 1182:
rúhpkà:šiw only two (S + 1042 + 1182),

awusúw some holes (S + 1061 + 1182),
wišíw a blanket (S + 1182),
šikà:kkà:tuw some boys (S + 1202 + 1061 + 1182),
wá:ihurišó:píw a table (31 + S + S + 1182).

(See other suffix decades for additional examples.)

Suffix 1183. -š the, that, non-final predicative, occurs in word-final position in the following sequence type:

± prefixes + S ± other suffixes + 1183:
wá:šéš that, the boat (S + 1183),
aktíššéš that, the dancer (11 + S + 1183),
waré:ihureš that leg (32 + S + 1183),
šipíteš the black (one) (S + 1183),
wì:akà:teš the baby girl (S + 1202 + 1183).

Suffix 1184. -št habitual agent, occurs so infrequently in our corpus that a complete distribution could not be given. It occurs in word final position in the following examples: wú: šišt I'm in the habit of eating (61 + S + 1184), and iačerušt it was smaller (qt) (S + S + 1184).

The allomorphs of suffix 1185 (-a ~ -awa (.1), zero ~ -h (.2), -zero ~ -wa (.3) imperative singular) are determined on the basis of phonemic distribution. Alternant point two occurs after stems or suffixes ending in final /-i/ when the vowel is actualized. The sub-alternants of point two occur in free variation. Alternant point three occurs after stems or suffixes ending in long vowels. The variation between the sub-alternants is free. The point one alternant occurs elsewhere, and the sub-alternants occur in free variation.

Suffix 1185 occurs after the stem. No other suffixes precede it. Since it always occurs in word final position it has been included in this decade. It appears in sequence type ± (60 ± 131) + S + 1185 as follows:

rì:rih walk! (60 + S + 1185.2),
rù:tta take it! (60 + 131 + S + 1185.1),
rù:ttawa take it! (60 + 131 + S + 1185.1),
khú you give! (60 + S + 1185.3) or you give it to him (63.2 + 62 + S + 1185.3),
rà:wa go! (S + 1185.3).

The two allomorphs of suffix 1186, -à:ra (.1), -rá: (.2), imperative plural, are phonemically determined. Alternant point

two follows morphemes ending in long, stressed, fall-tone vowels. Alternant point one occurs elsewhere.

It occurs after stems in word final position, in the following sequence type ±(60±91) + S + 1186 as follows:

warà:ra <u>you all write</u>! (S + 1186.1),
ríhčissà:ra <u>you all rest</u>! (62 + 91 + S + 1186.1),
rà:rá <u>(you all) go</u>! (S + 1186.2).

The variation between the two alternants of suffix 1187. (-ká: (.1) ~ -há: (.2), future interrogative), is in part morphemic and in part indeterminate. Alternant point two occurs after 62.1 (second person) plus stem, and after suffixed second person. It also occurs in free variation with alternant point one after 62.3 (second person) plus stem.

It occurs in word-final position in the sequence type + prefixes + Stems ± 60 ± 1061 + 1187 as follows:

íaščiriká: <u>will he buy it</u>? (63 + S + 1187.1),
rí:šširuká: <u>will you all be lazy</u>? (62.3 + S + 1061 + 1187.1),
wá:ririhá: <u>will you work</u>? (31 + S + 62 + 1187.2),
rí:čiká:čihá: <u>will you sew</u>? (62.3 + S + 1187.2).

Suffix 1188, -ča approximative, <u>like</u>, <u>about</u>, occurs in word final position after stems, or after suffixes of class 1200. It appears in the sequence type ±(60±71) + S ± 1201 + 1188 as follows:

wurúxà:ča <u>ice cream (=approximating ice)</u> (S + 1188),
wasahpáča <u>my overshoes</u> (61 + 71 + S + 1188),
išpirà:kšača <u>his candle</u> (63 + 71 + S + 1201 + 1188).

Suffix 1189, -a singular nominalizer, occurs after stems. It does not follow other suffixes, and always occurs in word-final position.

Suffix 1189 appears in the sequence type + prefixes + S + 1189 as follows:

aktíšša <u>the dancer</u> (11 + S + 1189),
akpá:raxča <u>the sheriff</u> (11 + 31 + S + 1189),
awwá:xapa <u>my bed</u> (12 + 61 + S + 1189),
waré:raxapa <u>someone's bed</u> (32 + 12 + S + 1189),
í:wíišišša <u>my face paints</u> (21 + 61 + S + S + 1189).

Suffix 1190. -úa plural nominalizer, occurs in word final position preceded by stems and suffix class 1200. It appears

in sequence type ± prefixes + S ± 1200 + 1190 as follows:

ríssúa dances (S + 1190),
awwá:raxtúa jail (12 + 31 + S + 1190),
í:wá:warárúa pencil (21 + 31 + S + 1190),
wasí:wá:rítúa my hammer (61 + 71 + 21 + 31 + S + 1190),
akkúxúa earsa(S + 1190),
wé:rúa our bellies (61 + S + 1190),
ríšpirúa your (plural) water (62 + 71 + S + 1190),
waš pá:pà:ríksúa our flowers (61 + 71 + S + 1201 + 1190).

The variation between the sub-alternants of suffix 1191. -zero ~ -h, interrogative, is free. It occurs in word final position and follows stems or suffixes of class 1060. It occurs in sequence type + 60 + S ± 1061 + 1191 as follows:

rarì:ri did you walk? (62 + S + 1191),
íaščiruo did they buy it? (63 + S + 1061 + 1191),
hiráwoh are they asleep? (60 + S + 1061 + 1191),
rí:háwih are you asleep? (62 + S + 1191),
á:rà:xúa did you hide? (S... + 62 + ...S + 1191).

Person Marker Sets

2.3. The allomorphs of the person marking morphemes of class 60-110-1010-1050-1070-1120 may be combined into sets on the basis of their occurrence with particular stems or other affixes. Each set contains one alternant of affix 61, 62, and 63 respectively. The alternants are numbered on the basis of their occurrence in the sets.

The sets are as follows:

Set Point One (.1): wí- ~ wih- (61.1), rí ~ ríh- (62.1), í- ~ ih- (63.1).
Set Point Two (.2): wí:- (61.2), rí:- (62.2), zero- (63.2).
Set Point Three (.3): wí:- (61.3), rí:- (62.3), í:- (63.3).
Set Point Four (.4): wá:- (61.4), ra- (62.4), zero- (63.4).
Set Point Five (.5): w- (61.5), r- (62.5), zero- (63.5).
Set Point Six (.6): wá:- (61.6), rà:- (62.6), zero- (63.6).
Set Point Seven (.7): wa- (61.7), rí- (62.7), i- (63.7).
Set Point Eight (.8): wa- ~ wah- (61.8), ra- ~ ráh- (62.8), zero- (63.8).
Set Point Nine (.9): -wí: (61.9), -rí: (62.9), -í: (63.9).
Set Point Ten (.10): -wa (61.10), -ra (62.10), -a (63.10).

Set Point Eleven (.11): -wi (61.11), -ri (62.11), -i (63.11).

Particular alternants of 60-110 occur in several sets as indicated by the multiple numbering of these alternants, and are summarized as follows. For 61, alternant wí:- occurs in Sets Point Two and Point Three; alternant wá:- occurs in Sets Point Four and Point Six; wa- occurs in Sets Point Seven and Point Eight, alternants w-, wah-, -wí:, -wa and -wi occur in one set each, namely Sets Point Five, Point Eight, Point Nine, Point Ten and Point Eleven respectively. Alternants wí- and wih- occur as subalternants of Set Point One.

For 62, alternant rí- occurs in Sets Point One and Point Seven; alternant rí:- occurs in Sets Point Two and Point Three; alternant ra- occurs in Sets Point Four and Point Eight. Alternants ríh-, r-, rà:-, ráh, -rí:, -ra and -ri, occur in one Set each, namely Sets Point One, Five, Six, Eight, Nine, Ten and Eleven, respectively.

For 63, alternant í- occurs in Set Point One and alternant -i- occurs in Set Point Seven, alternant zero- occurs in Sets Point Two, Point Four, Point Five, Point Six and Point Eight. Alternants ih-, í:-, -í:, -a and -i occur in one set each, namely Sets Point One, Point Three, Point Nine, Point Ten and Point Eleven, respectively.

2.3.1. Several of the above sets may be combined into a larger set or paradigm having a common meaning or constant. Each of these larger sets or paradigms is assigned a letter. A paradigm, with a letter, may contain only one set having a unique constant.

Paradigm A

Paradigm A consists of Set Point Seven when occurring with Noun Stems plus prefix 71, alienable; the meaning or constant of this paradigm is alienable possessor.

The following are some examples of Stems occurring with Set Point Seven of paradigm A. waš**p**úpča my ball (61.7 + 71.1 + S), ríš**p**á:ihura my tire (62.7 + 71.1 + 31 + S), išpirà:kša his match (63.7 + 71.1 + S + 1201), wasihká my eggs (61.7 + 71.2 + S), rísihká your eggs (62.7 + 71.2 + S), wasahčì:ta my younger sister (61.7 + 71.3 + S), rísahpa your shoes (62.7 + 71.3 + S), isahpátà:ra his moccasins (63.7 + 71.3 + S + 1041), wasí:wá:rí:o our medicine (61.7 + 71.2 + 21 + S + 1061.2), waš**p**iškà: my gum (61.7 + 71.1 + S), waš**p**iška my dog (61.7 + 71.1 + S).

Paradigm B

Paradigm B consists of Sets Point One, Two, Five, Seven and Eight; for which when occurring in sequence with noun stems plus or minus other affixes, but not including prefix 71, alienable, the constant is inalienable possessor.

Examples of stems occurring with each set of paradigm B are listed below. Set Point One: wííá my teeth (61.1 + S), ríišpua his stomach (62.1 + S), wíía my mouth (61.1 + S). Set Point Two: wí:hurá my own bone (61.2 + S), rí:ráxpá your skin (62.2 + S), rà:xo his (or her) lung (63.2 + S), wí:aššó:xá my pancreas (61.2 + S). Set Point Five: wà:ra my arm (61.5 + S), wú:a my wife (61.5 + S), aráša his biceps (63.5 + S), raxúa your body (62.5 + S). Set Point Seven: wašú:ša my knee (61.7 + S), ríšpasá your thumb (62.7 + S), isó:ká his younger sister (63.7 + S), wasà:ka my father (61.7 + S), ríča your foot (62.7 + S). Set Point Eight: wará:ka my baby (61.8 + S), rarù:ra your back (62.8 + S), rá:sa his heart (63.8 + S).

Paradigm C

Paradigm C consists of Sets Point Four, Point Five, Point Six and Point Eight, for which in sequence with verb stems the constant is active actor.

Examples of stems occurring with each set of paradigm C are as follows: Set Point Four: wá:kà:tak I blow (61.4 + S + 1181), rakà:tak you blow (62.4 + S + 1181), xarúššik he runs (63.4 + S + 1181), wá:rì:rik I walk (61.4 + S + 1181), rarì:rik you walk (62.4 + S + 1181). Set Point Five: wó:k I come (61.5 + S + 1181), raró:k you come (62.5 + S + 1181), á:wó:k I bring (51 + 61.5 + S + 1181), wuručká:pik I pinch (61.5 + 131.1 + S + 1181), riričišik you tan (62.5 + 131.2 + S + 1181), rù:ččità:rik he grabs (63.5 + 131.3 + S + 1181), wurušì:k I put (61.5 + 131.1 + S + 1181). Set Point Six: wá:ríššik I dance (61.6 + S + 1181), ríssuk they dance (63.6 + S + 1061 + 1181), rà:warú:k you fight (62.6 + S + 1181), wá:xičik I plow (61.6 + S + 1181), rà:xčík you tie (62.6 + S + 1181). Set Point Eight: awakák I see (S... 61.8 + ...S + 1181), arakúk you (plural) see (S... + 62.8 + ...S + 1061 + 1181), wapxárua I push (61.8 + 132.2 + S), rapxárua you push (62.8 + 132.2 + S), pà:xarua he pushes (63.8 + 132.1 + S), wahčikewrak I haul (61.8 + 91 + S + 1181), ráhčiččirí:k you whisper (62.8 + 91 + S + 1181).

Paradigm D

Paradigm D consists of Sets Point One, Point Two, Point Three and Point Seven for which, when occurring in sequence with verb stems, the constant is stative actor.

Examples of stems occurring with each set of paradigm D are listed below. Set Point One: wihčiššik I rest (61.1 + 91 + S + 1181), ríhčikek you scratch (yourself) (62.1+91+S+1181), wíaxpáššik I'm sated (61.1+S+1181), wíhà:rik I finish it (61.1 + S + 1181), ríhà:rik you finish it (62.1 + S + 1181), íhà:rik he (or she) finishes it (63.1 + S + 1181). Set Point Two: wí:háwik I sleep (61.2 + S + 1181), rí:háwik you sleep (62.2 + S+1181), hiráwik he sleeps (63.2 + S + 1181), wí:xátí:ak I itch (61.2 + S+1181), rí:xátí:ak you itch (62.2+S+1181). Set Point Three: wí:čiká:čik I sew (61.3+S+ 1181), rí:ššitak you're lazy (62.3 + S + 1181). Set Point Seven: warú:k I stand (61.7+S+1181), rírú:k you stand (62.7 + S+1181), irú:k he or she stands (63.7 + S + 1181), warík I live (61.7 +S+1181), dírik you live (62.7 + S + 1181).

Paradigm E

Paradigm E consists of only Set Point Two for which, when in sequence with stems plus Paradigm C (active actor), Paradigm F (future actor) or Paradigm G (causative actor) or the imperative suffixes 1185 or 1186, the constant is goal. Stems which occur with Set Point Two are listed below. wí:rakúk you give me (61.2 + 62.8 + S + 1181), wí:arakák you see me (61.2 + S... + 62.8 + ...S + 1181), rí:awakák I see you (62.2+S... + 61.8 + ...S + 1181), rí:íkuk they see you (62.2 + 63.8 + S + 1061 + 1181), wá:rasà:šik I call him (63.2 + 61.6 + 133 + S + 1181), rirúsà:šik you call him (63.2 + 62.5 + 131.2+S + 1181), rí:awaxpak I marry you (62.2 + S... + 61.8 + ...S + 1181), araxpak you marry him (63.2 + S... + 62.8 + ...S + 1181), á:rà:awó:rappih I might find it (13 + 63.2 + S... + 61.5 + ...S + 61.11 + 1081), taššék he greased it (63.2+S+63.10+1181), taššíwak I greased it (63.2 + S + 61.10 + 1181).

Paradigm F

Paradigm F contains only Set Point Eleven for which, when preceded by a stem and followed by future suffix 1081, the constant is future actor. Examples of stems occurring with Set Point Eleven are as follows. à:rá:wá:čirì:wih I might be afraid (13 + 61.4 + S + 61.11 + 1081), à:rá:ríhčipúarih you might jump

(13 + 62.1 + 91 + S + 62.11 + 1081, à:rá:wíhà:wwih I might finish it (13 + 63.2 + 61.1 + S + 61.11 + 1081), račirì:rihwáčik you will be afraid (62.4 + S + 62.11 + 1081 + 1111 + 1181), wá:čirì: wohwáčik we will be afraid (61.4 + S + 61.11 + 1061 + 1081 + 1111 + 1181).

Paradigm G

Paradigm G contains Sets Point Nine and Point Ten for which, in sequence with a stem plus or minus the causative suffix 1001, the constant is causative actor.

Examples of stems occurring with each set of Paradigm G are listed below. Set Point Nine: čikúčewí:k I make it sweet (63.2 + S + 1001 + 61.9 + 1181), išpí:k I drink (S + 61.9 + 1181), iští:k you drink (S + 62.9 + 1181), wá:wá:špí:k I will hunt (31 + 61.6 + S + 61.9 + 1181). Set Point Ten: šipíwak I blacken (S + 61.10 + 1181), taššék he greased it (63.2 + S + 63.10 + 1181), taššíwak I greased it (63.2 + S + 61.10 + 1181), taššíruk you (plural) greased it (63.2 + S + 62.10 + 1061 + 1181), huppak I made a hole (S + 61.10 + 1181), hupe:k he made a hole (S + 63.10 + 1181).

The sets overlap in regard to membership in the Paradigms and may be summarized as follows. Set Point One occurs in Paradigm D, stative actor, and in Paradigm B, inalienable possessor. Set Point Two occurs in Paradigms B, D and E, inalienable possessor, stative actor and goal. Set Point Eight occurs in Paradigm C as active actor, and Paradigm B as inalienable possessor. Set Point Three occurs only as stative actor in Paradigm D. Sets Point Four and Point Six each occur in Paradigm C as active actor. Set Point Five occurs in both Paradigm C (active actor) and in Paradigm B (inalienable possessor). Set Point Seven occurs in Paradigms A, B and D (alienable and inalienable possessors and stative actor). Sets Point Nine and Point Ten occur in Paradigm G, causative actor. Set Point Eleven occurs in Paradigm F, future actor.

The Paradigms are distributed in the various decade positions or slots (60-110-1010-1050-1070-1120) assigned to the person marking morphemes as follows. Paradigms A, B and D (alienable possessor, inalienable possessor and stative actor) occur in decade position 60 or 110, before or after decades 10-40, 20-80, 30-100, 70, 90-120, 130 and 140. Paradigm C, active actor, occurs in decade position 110 when preceded by Paradigm E (goal); otherwise it occurs in decade position 60.

Paradigm E, goal, occurs in decade position 60 in sequence with Paradigm C (active actor), or in sequence with the imperative suffixes 1185 or 1186, or Paradigm F (future actor), or Paradigm G (causative actor). Paradigm F, future actor, occurs in decade position 1050, when followed by plural suffix 1061 plus future suffix 1081. It also occurs in decade position 1070 and is immediately followed by the future suffix 1081. Paradigm G occurs in decade position 1010 when it follows the causative suffixes 1001 or 1002; in decade position 1050 when followed by plural suffix 1061; and in decade position 1120 when immediately followed by the durative suffix 1121.

3. MORPHOPHONEMICS

3.0. Four types of morphophonemic changes occur in Crow. One type is the substitution of one segmental phoneme for another; the second and third types involve a substitution of tonemes and of length; the fourth type involves allomorphs of varying lengths. The position of the morphemes in respect to particular segmental phonemes, in respect to particular tonemes, or in respect to particular morphemes, are the determining factors for the four types. The same symbols which are used for phonemic orthography (see 1.1 through 1.9 above) are employed in morphophonemic writing with the same phonetic values. In addition, some capital letters and parentheses are employed for morphophonemic changes which occur in restricted sets of morphemes.

Capital Letters and Other Morphophonemic Orthography

3.1. Capital A, U and I are used for vowels /a/, /u/ and /i/ which occur in some environments but are absent in others. These morphophonemes occur only as stem final vowels and are phonemically actualized, except when followed by the imperative singular suffix (1185.1), imperative plural (1186.1), nominalizer (1189), and the suffixed person markers (causative actor 60.9, the first and second persons of 60.10, future actor, 60.11). The morphophonemes I, A and U will be referred to hereafter as weak vowels (WV).

The examples which follow will include first the alternants of the stem identifying the unstable vowel by capital letter; then followed by the form in phonemic shape with vowel phonemically constituted, and by a form where the vowel is lost. Each is followed by the English translation and the formula for morphemic constituents by index numbers in parentheses.

Examples containing weak vowel I are as follows: [háwI- ~ hiráwI-] rí:háwik you sleep (62.2 + S +1181), rí:háwà:ra you all sleep! (62.2 + S +1186.1); [-šš̀I-] ríhčiššik you rest (62.1 + 91 + 1181), ríhčissà:ra you all rest! (62.1 + 91 + S + 1186.1) (for change of šš to ss, see 3.4 below); [warά:čI-] warά:čik he writes (63.3 + S + 1181), warά:tà:ra you all write! (S+ 1186.1) (for change of č to t before WV, see 3.4 below); [-ččI-] ririúččik you take (62.5 + 131 + S + 1181), rù:ttà:ra you all take! (131 + S + 1186.1) (for change of čč to tt before WV, see 3.4 below); [-raxčÍ- ~ -xčÍ-] raxčík he ties (63.6 + S + 1181), akpά:raxca sheriff (11 + 31 + S + 1189) (for change of w to p, see 3.4 below); [xapI-] wά:xapik I lie down (61.4 +S+ 1181), awwά:xapa my bedroom (12 + 61.4 + S + 1189); [-šI-] wά:wά:šik I hunt (31 +61.6 +S+1181), wά:wά:špí:k I will hunt (31 + 61.6 + S + 61.9 + 1181), and à:rά:wά:wά:špih I might hunt (13 + 31 + 61.6 + S + 61.11 + 1081); [-rÍ-] warík I live (61.7 + S + 1181), awwawwí: ré:ták I shall not be able to live (12 + 61.7 + S + 61.9 + 1093 + 1181); [čiká:čI-] wí:čiká:čik I sew (61.3 +S+1181), wí:čiká: tpí:k I will sew (61.3 + S + 61.9 + 1181) (for change of č to t and w to p, see 3.4 below); [háwI-] wí:háwik I sleep (61.2 + S + 1181), wí:háwwó:k let us sleep (61.2 +S+61.9 +1061 +1181) (for change of i: to o:, see 3.3 below); [warά:čI-] wά:warά:čik I write (61.6 + S + 1181), wά:warά:tpí:k I will write (31 + S + 61.9 + 1181); [-rì:rI-] wά;rì:rik I walk (61.4 + S + 1181), wά: rì:wwó:k let us walk (61.4 + S +61.9 +1061 +1181); [a...šiwI- ~ siwI-] awí:šiwik I wash (S... + 61.3 + ...S + 1181), wά:wí: šiwwí:k I will wash (31 + S... + 61.3 + ...S + 61.9 + 1181); [a...ó:rapI- ~ ò:rapI-] awó:rapik I find it (63.2 + S... + 61.5 + ...S + 1181), à:rά:awó:rappih I might find it (13 + 63.2 + S... + 61.5 + ...S + 61.11 + 1081); [hà:rI-] wíhà:rik I finish it (63.2 + 61.1 + S + 1181), à:rά:wíhà:wwih I might finish it (13 + 63.2 +61.1 +S+61.11 + 1081) (for change of r to w, see 3.4 below); [a...ašč̀irI- ~ -šč̀iri- ~ -ašč̀irI-] awíašč̀irik I buy it (S... + 63.2 + 61.1 + ...S + 1181), à:rά:wíšč̀iwwih I might buy it (13 + 63.2 + 61.1 + S + 61.11 + 1081).

Examples containing weak vowel A are as follows: [-kewrA-] ráhčikewrak you haul (62.8 + 91 + S + 1181), čikewrà: ra you (pl) haul it! (63.2 + 91 + S + 1186); [-kà:tA- ~ khà:tA-] khà:tak he blows (63.4 + S + 1181), khà:ta you blow! (S + 1185.1); [hupA-] hupa hole (S), huppak I made a hole (S + 61.10 + 1181) (for change of w to p, after p ± WV, see 3.4 below); [ù:čA-] ù:ca dry (S), ù:tpak I dry (S + 61.10 + 1181) (for change of č to t, and w to p, see 3.4 below).

Only one example of weak vowel U appears in my corpus: [-kÚ- ~ khÚ-] wakúk I give (61.8 + S + 1181), wakpí:k I will give it to him (63.2 + 61.8 + S + 61.9 + 1181).

[V-non-i: + -a > E:] Stem final vowels other than /i:/ are replaced by /e/ when followed by -a- 63.10 and the /a/ is assimilated to /e/, with resultant /e:/ which is subject to different morphophonemic changes than stem final /e:/ (see 3.3 below); hence, is re-written morphophonemically as E:. Thus, the word written morphophonemically as taššE;k, phonemically as /tašše:k/ he greased it (63.2 + S + 63.10 + 1181), contains the same stem as does /tašší́wak/ I greased it (63.2 + S + 61.10 + 1181); and the word written morphophonemically as hupE:k, phonemically /hupe:k/ he made a hole (S + 63.10 + 1181) contains the stem /hupa/.

Vowels surrounded by parentheses are lost when the morpheme is immediately preceded by another morpheme; and is actualized when the morpheme is word initial or preceded by zero prefix. Some examples of parenthetic vowels are as follows: h(u)pá shoe (S), wasahpá my shoe (61.7 + 71 + S); š(i)píta black (S), wiríšpíta coffee (water + black (S + S).

Only one example of an unstable vowel in my corpus indicates some free variation to the above rule. In the following example the unstable vowel is lost when immediately preceded by person markers 60.7; but the vowel is actualized when preceded by the person markers of 60.7 plus the alienable prefix 71: x(a)pà:ria Indian medicine (S + 1189), waxpà:ria my (inalienable) Indian medicine (61.7 + S + 1189); wašxapà:ria my (alien) Indian medicine (61.7 + 71 + S + 1189).

General Rules—Assimilation of Short Vowels

3.2. General rules may be set up depicting the phonemic changes that are determined by environment. The order of presentation is first, the general rule; second, a formula enclosed in brackets; third, examples of the phonemic change explicating the bracketed formula.

Some final short vowels, except /-u/, stressed or unstressed when preceded by consonants which may or may not change morphophonemically, alternate with (1) /-u/ in pre-final position and a mora of length is lost; or (2) assimilates to /-uo/ in final position or when zero suffix follows; or (3) assimilates to /-ua/ in final position and a mora of length is lost; or may

(4) assimilate with either /-u-/ or /-o-/ in free variation in pre-final position when preceded by causative person 60.10; or (5) assimilates to /-o-/ when followed by phoneme /h/.

(1) [$-V_1 > -V_2-$] This formula and the following examples explicate the change made when a final vowel assimilates with /-u-/ in pre-final position and a mora of length is lost. The pre-final suffix in all the following examples is the plural allomorph 1061.1.

Examples where V_1 from the above bracketed formula is /-i/: wá:warà:čik I write (61.6 + S + 1181), wá:warà:tuk we write (61.6 + S + 1061.1 + 1181), (for change of č > t, see 3.4 below); xà:pik it's flat (63 + S + 1181), xà:puk they're flat (63 + S + 1061.1 + 1181); wíhà:rik I finish it (63.2 + 61.1 + S + 1181), wíhà:ruk we finish it (63.2 + 61.1 + S + 1061.1 + 1181); íaščiriká: will he buy it? (63.2 + 63.1 + S + 1187), íaščiruká: will they buy it? (63.2 + 63.1 + S + 1061 + 1187); wá:rí:šiwiká: will you wash? (31 + 62.3 + S + 1187), wá:rí:šiwuká: will you (pl) wash? (31 + 62.3 + S + 1061 + 1187); wí:háwik I sleep (61.2 + S + 1181), wí:háwuk we sleep (61.2 + S + 1061.1 + 1181); arà:čiwik you copy (S... + 62.6 + ...S + 1181), arà:čiwuk you (pl) copy (S... + 62.6 + ...S + 1061.1 + 1181); awí:kò:čik I hang (S... + 61.3 + ...S + 1181), awí:kò:tuk we hang (S... + 61.3 + ...S + 1061.1 + 1181); raxarúššiká: will you run? (62.4 + S + 1187), raxarússuká: will you (pl) run? (62.4 + S + 1061.1 + 1187); wú:šik I eat (61.5 + S + 1181), wú:suk we eat (61.5 + S + 1061.1 + 1181); wá:wá:šik I hunt (31 + 61.6 + S + 1181), wá:wá:suk we hunt (31 + 61.6 + S + 1061 + 1181); ríhčiššik you rest (62.1 + 91 + S + 1181), ríhčissuk you (pl) rest (62.1 + 91 + S + 1061.1 + 1181).

Examples where V_1 of the above bracketed formula is /e/: wihčikek I scratch (61.1 + 91 + S + 1181), wihčikuk we scratch (61.1 + 91 + S + 1061.1 + 1181); awá:kirrek I ride (S... + 61.6 + ...S + 1181), awá:kirruk we ride (S... + 61.6 + ...S + 1061.1 + 1181); wí:wek I cry (61.5 + S + 1181), wí:wuk we cry (61.5 + S + 1061.1 + 1181); waré:waxšék I win (32 + 61.8 + S + 1181), waré:waxsúk we win (32 + 61.8 + S + 1061.1 + 1181).

Examples where V_1 of the above bracketed formula is /a/: wahčikewrak I haul (61.8 + 91 + S + 1181), wahčikewruk we haul (61.8 + 91 + S + 1061.1 + 1181); khà:tak he blows (63.4 + S + 1181), khà:tuk they blow (63.4 + S + 1061.1 + 1181); wí:šitak I'm lazy (61.3 + S + 1181), wí:šituk we're lazy (61.3 + S + 1061.1 + 1181); wá:kà:ta child (S), wá:kà:tuk they are children

(S + 1061.1 + 1181); raxpičč̀ɔ́:xa pig (S), raxpičč̀ɔ́:xum some pigs (S + 1061.1 + 1182); šikà:ka boy (S), šikà:kum the boys (S + 1061.1 + 1182); rí:šš̀itaká: will you be lazy? (62.3 + S + 1187), rí:šš̀ituká: will you (pl) be lazy? (62.3 + S + 1061.1 + 1187).

The following is the only example when the value of V_1 of the above formula is /o/: wá:wáxxok I ask him (63.2 + 61.6 + S + 1181), wá:wáxxuk we ask him (63.2 + 61.6 + S + 1061.1 + 1181).

(2) $[-V_1 > -V_{2+3}]$ This formula explicates assimilation of a stem final vowel to /-uǫ/—either in word final position or before zero suffix. Plural suffix 1061.3 (-uo) is the final or pre-final suffix in all the following examples: warápáko my right side (61.7 + S), warápákuo our right sides (61.7 + S + 1061.3); waštuká my meat (61.7 + 71 + S), waštukúo our meat (61.7 + 71 + S + 1061.3); aríaščirih did you buy it? (S... + 63.2 + 62.1 + ... S + 1191), ariaščiruo did you all buy it? (S... + 63.2 + 62.1 + ... S + 1061.3 + 1191); rí:šš̀ita are you lazy? (62.3 + S + 1191), rí:šš̀ituo are you all lazy? (62.3 + S + 1061.3 + 1140).

(3) $[-V_1 > -V_{2+4}]$ This formula explicates assimilation of a stem-final vowel to /-úa/—both in final position and when a mora of length is lost. The following are examples which indicate this change, and the plural nominalizer suffix 1190 appears in each of the examples. warà:čik he writes (63.6 + S + 1181), í:wá:warà:túa pencil (21 + 31 + S + 1190); raxčík he ties (63.6 + S + 1181), awwá:raxtúa jail (12 + 31 + S + 1190) (for change of r > w, see 3.4 below); ríššik he dances (63.6 + S + 1181), ríssúa dances (S + 1190); wé:rá my belly (61.5 + S), wé:rúa our bellies (61.5 + S + 1190); warà:ká your child (62.8 + S), warà:kúa your children (62.8 + S + 1190); rí:ráxpá your skin (62.2 + S), rí:ráxpúa your (pl) skin (62.2 + S + 1190); waštakà:ka my bird (61.7 + 71 + S), waštakà:kúa our birds (61.7 + 71 + S + 1190) (for change of r > t, see 3.4 below); wačá my foot (61.7 + S), watúa our feet (61.7 + S + 1190); waš̀pà:šo my feather (61.7 + 71 + S), waspà:súa our feathers (61.7 + 71 + S + 1190); waš̀pá:ro my beads (61.7 + 71 + S), waš̀pá:rúa our beads (61.7 + 71 + S + 1190).

(4) $[-V_1 > -V_2 \sim -V_3]$ This formula explicates assimilation of a mph- final vowel to either -u- or -o-; in free variation within a narrow environment, namely in pre-final position and preceded by causative person suffix 60.10. wá:wù:ssawak I harvest (31 + S + 61.10 + 1181), wá:wù:ssawok or wá:wù:ssawuk

we harvest (31+S+61.10 + 1061 + 1181); wí:šš̌itawí:wak I will be lazy (61.3 + S + 61.9 + 61.10 + 1181), wí:šš̌itawí:wok or wí:šš̌itawí:wuk we will be lazy (61.3+S+ 61.9 + 61.10 + 1061 + 1181).

(5) [$-V_1 > V_3$ +/-h/] This formula and the following examples explicate the morphophonemic change of morpheme final vowel when followed by plural suffix allomorph 1061.2 which in turn is followed by phoneme /h/ in word final position. à:rá: wíhâwwih I might finish it (13 + 61.1 + S + 61.11 + 1081), à:rá: wíháwwoh we might finish it (13 + 61.1 + S + 61.11 + 1061 + 1081); hiráwih is he asleep? (63.2 + S + 1191), hiráwoh are they asleep? (63.2 +S + 1061 + 1191); rí:háwih are you asleep? (62.2 + S + 1191), rí:háwoh are you all asleep? (62.2 +S+1061 + 1191); wá:rí:šiwih did you wash? (31 + 62.3 + S + 1191), wá: rí:šiwoh did you all wash? (31 + 62.3 + S + 1061 + 1191).

Short stressed or unstressed /-a/ in morpheme final position, when immediately preceded by either /i-/, /i:-/ or /u-/ assimilates with /-o/ and a mora of length is lost, in word final or pre-final position. When /-a/ is preceded by /-i/, it may assimilate with either /-o/ or /-u/ in free variation in non-final position.

[$V_1V_2 > V_1+V_3$] This formula generalizes the morphophonemic change stated above. In all the examples below the final or pre-final suffix is the plural allomorph 1061.2. Examples where /u-/ is V_1 in the above formula follow: wihčipúak I jump (61.1 + 91 + S + 1181), wihčipúok we jump (61.1 +91 +S+ 1061 + 1181); wapxarúak I push (61.8 + 132 + S + 1181), wapxarúok we push (61.8 + 132 + S + 1061 +1181); á:wá:xúak I hide (S... + 61.6 + ...S + 1181), á:wá;xúok we hide (S... + 61.6 + S+ 1061 + 1181); púak it's sour (63 + S + 1181), púok they're sour (63 + S + 1061 + 1181); wì:špua my stomach (61.1 +S), wì:špuo our stomachs (61.1 + S + 1061) (for change of í + i > ì:, see 3.5 below); waš̌púá my fish (61.7 +71 +S), waš̌púó our fishes (61.7 + 71 + S + 1061) (for change of w to p, see 3.4 below).

[$V_1V_2 > V_1 + V_3 \sim V_4$] This formula and the examples below explicate two kinds of assimilation. First, the assimilation of stressed or unstressed /-a/, when immediately preceded by /i:-/ or /i-/, to /-o/ in word final position—secondly, the assimilation to either /-o-/ or /-u-/ in free variation in non-final position. The suffix allomorphs 1061.1 (-u-) and 1061.2 (-o-) appear in the examples listed as follows: sapía to grind (S), awwá:sapío flour mill (place where they grind) (12 + 31 +

S + 1061) (for change of r to w, see 3.4 below); wahkúrúšpì:ak I decorate (61.8 + S + 1181), wahkúrúšpì:ok we decorate (61.8 +S+1061+1181); wì:a woman (S), wì:om some women (S+1061 + 1182), wì:uk they are women (S +1061+1181); wí:á rock (S), wí:ów some rocks (S + 1061 + 1182).

Short, stressed and unstressed /-u/ before the plural does not assimilate, and adds either allomorph 1061.1 /-u-/ or allomorph 1061.2 /-o-/. When 1061 is added to a high-tone vowel, the two are actualized as /-ù:/ with no loss of mora, and the tone becomes a fall tone. rarà:kkuk you return (62.8+S+1181), rarà:kkù:k you (pl) return (62.8 + S + 1061 + 1181); rakúk you give (62.8 + S + 1181), rakù:k you (pl) give (62.8 + S + 1061 + 1181); khúk he gives (63.8+S + 1181), khúok they give (63.8+ S + 1061 + 1181).

General Rules—Assimilation of Long Vowels

3.3. Some morpheme-final long vowels assimilate to another short vowel before adding /-u/ or /-o/; and a mora of length is lost. All long vowels except /u:/ make this change.

[$V:_1 > V_2 + V_3$] This formula and the following examples explicate the change made when $V:_1$ has the value of /-i:/. Then $V:_1$ assimilates to /-a/ before adding /u-/ in either word final or non-final position; and a mora of length is lost. The plural suffix allomorph 1061.1 appears in all the following examples. wahčiččirí:k I whisper (61.8 + 91 +S +1181), wahčiččiráuk we whisper (61.8 + 91 + S + 1061+1181); wačirì:k I'm afraid (61.8 + S + 1181), wačiràuk we're afraid (61.8 + S + 1061 + 1181); irì:k he speaks (63.7 + S + 1181), iràuk they speak (63.7 + S + 1061 + 1181); rù:šì:k he puts (63.5 + 131 + S + 1181), rù:sàuk they put (63.5 + 131 + S + 1061 + 1181).

But in the same [$V:_1 > V_2 + V_3$], $V:_1$ may have the value of /-e:/. Then $V:_1$ assimilates to /-a/ before adding the plural suffix 1061.1 (-u). Some examples of this change are listed as follows: á:waré:k I take them (41 + 61.8 + S + 1181), á:waráuk we take them (41 + 61.8 + S +1061 +1181); ráhkuré:k you carry (62.8 + S +1181), ráhkuráuk you (plural) carry (62.8 + S + 1061 + 1181); ré:k he goes (63.8 + S + 1181), ráuk they go (63.8 + S + 1061 + 1181).

[$V:_1 > V_2 + V_1$] This formula and the following examples explicate the change made when morpheme final /-o:/ assimilates to /-u/ before adding the plural allomorph 1061.2, /o/.

wó:k I come (61.5 + S + 1181), wúok we come (61.5 + S + 1061 + 1181); raró:k you come (62.5 + S + 1181), rarúok you (plural) come (62.5 + S + 1061 + 1181).

[$V:_1 > V_2$ + suffixes] explicates the change made when $V:_1$ has the value of /-a:/, and it assimilates to /-e/ before adding suffixes 1041, 1181, 1183, 1091, plural suffix 1061 and before other stems in compounds. The preceding consonant does not change to another consonant phoneme. The following examples all contain the plural suffix 1061.2 (-o-) in final or non-final positions. wá:šà: boat (S), wášéom some boats (S + 1061 + 1182); wačá: man (S), wačéom some men (S + 1061 + 1182); wašpačá: my brother (61.7 + 71 + S), wašpačéo our brothers (61.7 + 71 + S + 1061) (for change of w to p, see 3.4 below); raxpičá: bear (S), raxpičéo the bears (S + 1061); wí:ttaštá: my dress (61.3 + S), wí:ttaštéo our dresses (61.3 + S + 1061); warákpačá: my son (61.8 + S + S), warákpačéo our sons (61.8 + S + S + 1061); wašpíšà: my buffalo (61.7 + 71 + S), wašpíšéo our buffaloes (61.7 + 71 + S + 1061) (for change of w to p, see 3.4 below).

The following examples show assimilation of /a:/ to /e/ before the other suffixes mentioned above. wačá: man (S), wačék it's the man (predicative, utterance final (S + 1181), wačéš the man (S + 1183), wačérak the man (indefinite) (S + 1091 + 1181), wačékà:ta little man (S + 1202); wá:šà: boat (S), wá:šéš that boat (S + 1183), wá:šérak boat (indefinite) (S + 1091 + 1181), wá:šék the boat (S + 1181); wíšà: buffalo (S), wíšéš that buffalo (S + 1183), wíšétà:ra real buffalo (S + 1041), wíšékša toy buffalo (S + 1201); raxpicá: bear (S), raxpičék it's a bear (S + 1181), raxpičékša toy bear (S + 1201), raxpičékà:ta little bear (S + 1202).

[$V:_1 > V_2 + V_3 \sim V_4$] This formula explicates the change made when $V:_1$ has the value of /E:/[1] and it assimilates to /-i/ before adding either /-u-/ or /-o-/ in free variation, and a mora of length is lost. The plural allomorphs 1061.1 (-u-) and 1061.2 (-o-) appear in the following examples. taššÉ:k he greased it (63.2 + S + 63.10 + 1181), taššíuk they greased it (63.2 + S + 63.10 + 1061 + 1181); čù:hkE:k he flattens it out (63.2 + S + 63.10 + 1181), čù:hkiok ~ cù:hkiuk they flatten it out (63.2 + S + 63.10 + 1061 + 1181); wá:wù:ssE:k he harvests (31 + S + 63.10

[1]See 3.1 above for assimilation of stem final -a or -i plus third person causative actor suffix to E:.

+ 1181), wá:wù:ssiuk they harvest (31 + S + 63.10 + 1061 + 1181); hawassÉ:k he takes care (S + 63.10 + 1181), hawassíuk they take care (S + 63.10 + 1061 + 1181); awúrE:k he rides (S + 63.10 + 1181), awúriok they ride (S + 63.10 + 1061 + 1181).

[60.9V́:$_1$ > V́:$_3$] When the allomorphs of person markers 60.9 (-wí:, -rí:, -í:) precede the plural suffix, the vowel assimilates to /-o-/ (1061.2), a mora of length is added, and the tone remains high. The following examples indicate this kind of assimilation. wahčipúawí:k I will jump (61.1 + 91 + S + 61.9 + 1181), wahčipúawó:k we will jump (61.1 + 91 + S + 61.9 + 1061 + 1181); wí:čiká:tpí:k I will sew (61.3 + S + 61.9 + 1181), wí:čiká:tpó:k let's sew (61.3 + S + 61.9 + 1061 + 1181); wá:rì:wwí:k I will walk (61.4 + S + 61.9 + 1181), wá:rì:wwó:k we will walk (61.4 + S + 61.9 + 1061 + 1181). In only one stem which could fit the above formula, no assimilation takes place, and the plural suffix 1061.1 (-u-) or 1061.2 (-o-) is added in free variation. (išpí:k I drink (S + 61.9 + 1181), išpí:ok ~ išpí:uk we drink (S + 61.9 + 1061 + 1181).)

Some long stressed vowels occurring before the plural suffix remain the same and the allomorphs /-o-/ or /-u-/ are added. The following examples contain only the plural form plus the translation followed by the morphemic formula in parenthesis. wá:wá:warú:ok we are fighting (31 + 61.6 + S + 1061 + 1181); í:wá:šší:ok we camp (S... + 61.6 + ...S + 1061 + 1181); wí:rarašté:ok you all were nice to me (61.2 + 62.8 + S + 1061 + 1181); wí:uk we go (61.5 + S + 1061 + 1181); rarí:uk you (plural) go (62.5 + S + 1061 + 1181); wasahpáxá:u our socks (61.7 + 71 + S + 1061); isá:u their arrows (63.7 + S + 1061); wašpará:u our money (61.7 + 71 + S + 1061); ríšpirà:u your (plural) fire (62.7 + 71 + S + 1061); rí:tárrá:uk you (plural) shiver (62.2 + S + 1061 + 1181).

General Rules—Consonant Changes

3.4. Some consonant phonemes occurring in pre-final position followed by (1) a weak vowel not phonemically actualized (see 3.1 above), or (2) a stem final vowel (except /a:/ and /E:/) which has assimilated to another vowel (see 3.2 above), change to other consonant phonemes before suffixes 1061 (plural), 1190 (plural nominalizer), 1185.1 (imperative singular) and 1186 (imperative plural). The consonants which make this change are /č/ and /š/ and also the geminates /čč/ and /šš/. They change

respectively to /t/, /s/, /tt/ and /ss/. In the examples below the stem is first given in brackets, then a form with the original consonant phonemes, followed by a form or forms in which the morphophonemic change is made.

The following list shows the change of [č ~ čč > t ~ tt + WV]: [-ččI-] rirúččik you take (62.5 + 131 + S + 1181), rúttà:ra you (plural) take! (131 + S + 1186.1), and rútta ~ rúttawa you take it! (63.2 + 131 + S + 1185.1); [wará:čI-] warà:čik he writes (63.6 + S + 1181), warà:tà:ra you (plural) write! (S + 1186.1).

Examples which follow show the change [č > t + V assimilation]. The suffixes 1061 (plural) and/or 1190 (plural nominalizer) appear in all the examples. [warà:či-] wà:warà:čik I write (61.6 + S + 1181), wà:warà:tuk we write (61.6 + S + 1061.1 + 1181) or, í:wà:warà:túa pencil (21 + 31 + S + 1190); [a...kò:či- ~ -kò:či-] awí:kò:čik I hang (S... + 61.3 + ...S + 1181), awí:kò:tuk we hang (S... + 61.3 + ...S + 1061.1 + 1181); [-raxčí- ~ xčí-] raxčík he ties (63.6 + S + 1181), awwà:raxtúa jail (place where they tie) (12 + 31 + S + 1190); [-čà-] wačà my foot (61.7 + S), watúa our feet (61.7 + S + 1190).

The following examples illustrate [š, šš > s, ss + WV, + Ass.V] when followed by suffixes 1061, 1185.1, 1186.1 or 1190. [-ššI-] ríhčiššik you rest (62.1 + 91 + 1181), ríhčissà:ra you (plural) rest! (62.1 + 91 + S + 1186.1); [-ši-] wà:wà:šik I hunt (31 + 61.6 + S + 1181), wà:wá;suk we hunt (31 + 61.6 + S + 1061.1 + 1181); [xarúššI-] raxarúššiká: will you run? (62.4 + S + 1187), raxarússuká: will you (plural) run? (62.4 + S + 1061.1 + 1187); [-ú:ši-] wú:šik I eat (61.5 + S + 1181), wú:suk we eat (61.5 + S + 1061.1 + 1181); [-ššI-] ríhčiššik you rest (62.1 + 91 + S + 1181), ríhčissuk you (plural) rest (62.1 + 91 + S + 1061.1 + 1181); [-xšé-] waré:waxšék I win (32 + 61.8 + S + 1181), waré:waxsúk we win (32 + 61.8 + S + 1061.1 + 1181); [-ríššI-] ríššik he dances (63.6 + S + 1181), ríssúa dance (S + 1190); [-wà:šo-] wašpà:šo my feather (61.7 + 71 + S), waspà:súa our feathers (61.7 + 71 + S + 1190) (for change of w to p, see 3.4 below): [-šì:-] rù:šì:k he puts (63.5 + 131 + S + 1181), rù:sàuk they put (63.5 + 131 + S + 1061 + 1181), or rù:sa you put it down! (63.2 + 131 + S + 1185).

Morpheme final /r/, or pre-final where final vowel is lost, changes to /w/ before morpheme initial /w/. [r + w > w + w]. Examples containing prefix 12.1 (ar- place where, time when) follow: awwà:xapa my bedroom (12 + 61.4 + S + 1189); awwawwí: ré:tak I shall not be able to live (12 + 61.7 + S (-rI- live) + 61.9

+ S + 1181); awwá:raxtúa jail (12 + 31 + S + 1190); awwá:sapío flour mill (12 + 31 + S + 1061).

Examples with stems containing /r > w/ follow with the stem in unaltered form included within the parenthetic formula. wá:rì:wwó:k let us walk (61.4 + S (rì:rI-) + 61.9 + 1061 + 1181); à:rá:wíhà:wwih I might finish it (13 + 63.2 + 61.1 + S (hà:rI-) + 61.11 + 1081); à:rá:wíščiwwih I might buy it (13 + 63.2 + 61.1 + S (-ščirI-) + 61.11 + 1081).

Morpheme final /č/, or pre-final when final vowel is lost, changes to /t/ before morpheme initial /w/ or morpheme initial /r/. [č > t + w,r]. The following example contains prefix 52 (wač- reciprocal): watparú:ok they are fighting (each other) (52 + 63.2 + S + 1061 + 1181).

The examples listed as follows contain the unaltered stem within the parenthetic formula. wí:čiká:tpí:k I will sew (61.3 + S (čiká:čI-) + 61.9 + 1181) (for change of w to p, see below); rí:čiká:ttí:k you will sew (62.3 + S (čiká:čI-) + 62.9 + 1181) (for change of r to t, see below); wá:warâ:tpí:k I will write (31 + S (warâ:čI-) + 61.9 + 1181) (for change of w to p, see below); ù:tpak I dry (S (ù:čA-) + 61.10 + 1181) (for change of w to p see below).

Morpheme initial /w/ changes to /p/ after morpheme final voiceless consonant, except /r/ and /w/. [Vcls C + w > Vcls C + p]. The following examples contain prefix 31 (wá:- indefinite (object, subject, possessor)): akpá:raxča sheriff (11 + 31 + S + 1189); waŝpá:ihúrá my tire (61.7 + 71 + 31 + S); akpá:karača the believer (11 + 31 + S + 1189).

The following examples contain the first person allomorphs (61.9 -wí:-, 61.10 -wa-, 61.11 -wi-) of suffix class 60-110-1010-1050-1070-1120 (causative actor 60.9 and 60.10, future actor 60.11). wá:wá:špí:k I will hunt (31 + 61.6 + S + 61.9 + 1181); wá:warâ:tpí:k I will write (31 + S + 61.9 + 1181); wí:čiká:tpí:k I will sew (61.3 + S + 61.9 + 1181); à:rá:awó:rappih I might find it (13 + 63.2 + S... + 61.5 + ...S + 61.11 + 1081); à:rá:wá:wá:špih I might hunt (13 + 31 + 61.6 + S + 61.11 + 1081); huppak I made a hole (S + 61.10 + 1181); ù:tpak I dry (S + 61.10 + 1181); wakpí:k I will give it to him (63.2 + 61.8 + S + 61.9 + 1181).

The following examples contain the unaltered stem within the parenthetic formula: waŝpà:šo my feather (61.7 + 71 + S (wà:šo)); waŝpá:ro my beads (61.7 + 71 + S (wá:ro)); waŝpačá: my brother (61.7 + 71 + S (wačá:)); waŝpíšà: my buffalo (61.7 + 71 + S (wíšà:)).

Morpheme initial /r/ changes to /t/ after morpheme final voiceless consonant, except /r/ and /w/. [Vcls C + r > Vcls C + t]. The following examples contain allomorphs 62.9 (-rí:-), 62.10 (-ra-), 62.11 (-ri-) of suffix class 60-110 (60.9 and 60.10 = causative actor, 60.11 = future actor). iští:k you drink (S + 62.9 + 1181), wá:rà:ští:k you will hunt (31 + 62.6 + S + 62.9 + 1181), rí:čiká:ttí:k you will sew (62.3 + S + 62.9 + 1181), wá: warà:ttí:k you will write (31 + S + 62.9 + 1181), raktí:k you will give it to him (63.2 + 62.8 + S + 62.9 + 1181), ù:ttak you dry (S + 62.10 + 1181), ò:štak you cook (S + 62.10 + 1181), à:rá: wá:rà:štih you might hunt (13 + 31 + 62.6 + S + 62.11 + 1081), à:rá:aró:raptoh you (plural) might find it (13 + 63.2 + S... + 62.5 + ...S + 62.11 + 1061 + 1081).

The following examples illustrate /r > t/ for stems, with the unaltered form included within the parenthetic formula. waštuká my meat (61.7 + 71 + S (-ruká-)), waštakà:ka my bird (61.7 + 71 + S (rakà:ka)), aktappáxá the one who cuts (11 + 63.6 + S (-rappáxí-)).

Substitution of Tones

3.5. When stems with initial /i-/ with low tone follow the person marker allomorphs of 60.1 (wí-, rí-, í-), the two vowels elide and become /i:/ and the tone becomes a fall tone. [60.1 -í + i- > ì:]. The following examples illustrate this change. [-ihka] chin, wì:hka my chin (61.1 + S); [-išpua] stomach, rì:špua your stomach (62.1 + S); [-iraxpa] lip, ì:raxpa his, her lip (63.1 + S), rì:raxpa your lip (62.1 + S), wì:raxpa my lip (61.1 + S).

The tones of stems following allomorphs 61.7 (wa- first person) and 63.7 (i- third person) do not change. Following allomorph 62.7 (rí- second person), plus or minus alienable prefix 71, all high tones become low. Fall and low tones following 62.7 ± 71 remain the same. [62.7 ± 71 V́ > 62.7 ± 71 + V]. The preceding bracketed formula and the following examples illustrate this change. [-čá] wačá my foot (61.7 + S), ríča your foot (62.7 + S); [-rí-] warík I live (61.7 + S), rírik you live (62.7 + S); [-wíšà:] išpíšà: his buffalo (63.7 + 71 + S), ríšpišà: your buffalo (62.7 + 71 + S); [-wúá] wašpúá my fish (61.7 + 71 + S), ríšpua your fish (62.7 + 71 + S).

When a short vowel (except -u-) assimilates to another short vowel, the tone of the first vowel is carried over to the

assimilated vowel regardless of which of the three tones are involved. (See under 3.2 above for all examples.) However, when a vowel assimilates to suffix 1190, -úa-, then the tone of the vowel which assimilates is disregarded and the suffix 1190 always has tone pattern high plus low.

[-ú + u > ù:]. When short /-u-/ with a high tone assimilates to /-u-/ with a low tone, the two vowels become long -ù:, and the tone becomes a fall tone. (See 3.2 above for example.)

When a long vowel (except à:) assimilates to a short vowel (see 3.3 above), the tone of the first vowel is carried over to the short vowel.

Where /à:/ has a fall tone and assimilates to /e/ before other suffixes, the fall tone assimilates to a high tone. [à:>é]. (See 3.3 above for examples.)

Discontinuous Stems

3.6. Discontinuous Stems in Crow occur with either one, two or three morpheme alternants. The first part of the stem is followed by three dots and the second part of the stem is preceded by the three dots to indicate that prefixes can occur between. The discontinuous stems, within brackets, are listed below, followed by an example, its translation and the morphemic formula in parenthesis. [a...xpa-] marry, awaxpak I marry (S... +61.8+...S+1181); [í:...šši:-] camp, i:wá:šši:k I camp (S... + 61.6 + ...S + 1181); [a...ò:ri-] wait, arò:rik you wait for him (63.2 +S... +62.5+...S+1181); [a...pašši-] compete, wačawá:passuk we are competing (52 + S... +61.6 + ...S + 1061 + 1181).

The following discontinuous stem list contains two allomorphs. One allomorph occurs with prefixes 62 and 61 (except 61.2 and 62.2 as goal); the second allomorph occurs elsewhere. Both allomorphs are included within brackets and followed by an example of each form, plus its translation and the morphemic formula. [á:...xúa- ~ á:xúa] á:wá:xúak I hide (S... + 61.6 + ...S+1181), á:xúak he hides (63.6 + S + 1181); [a...waxpi- ~ -waxpi-] descend, go down, arí:waxpik you go down (S... + 62.3 + ...S + 1181), í:waxpik he goes down (63.3 + S + 1181); [a...ká- ~ -íka-] see, awakák I see (S... + 61.8 + ...S + 1181), íkuk they see (63.8 + S + 1061 + 1181) (for assimilation to plural 1061, see 3.2 above); [a...čiwi- ~ á:čiwi-] awá:čiwik I copy (S... + 61.6 + ...S + 1181), á:čiwik he copies

(63.6 + S + 1181); [a...čissa- ~ čissa-] love, rí:awačissuk we love you (62.2 + S... + 61.8 + ... S + 1061 + 1181), wí:čissak she loves me (61.2 + 63.8 + S + 1181); [a...ó:rapi- ~ ò:rapi-] awó:rapik I find it (63.2 + S... + 61.5 + ... S + 1181), ò:rapik he finds it (63.2 + 63.5 + S + 1181); [a...kirre- ~ á:kirre-] awá:kirrek I ride (S... + 61.6 + ... S + 1181), à:kirrek he rides (63.6 + S + 1181); [a...kò:či- ~ -kò:či-] hang, arí:kò:čik you hang (S... + 62.3 + ... S + 1181), í:kò:čik he hangs (63.3 + S + 1181).

Only one example in my corpus has three allomorphs, the first one of which occurs as a discontinuous stem with prefixes 61 and 62 when not preceded by prefix 13; the second alternant occurs after prefix 13 (à:rá: might) except when followed by prefix 63, and the third alternant occurs elsewhere. [a...aščirI- ~ -ščiri- ~ -aščirI-] buy, awíaščirik I buy (S... + 61.1 + ... S + 1181), à:rá:ríščirrih you might buy it (13 + 63.2 + 62.1 + S + 62.11 + 1081), à:rá:íaščirioh they might buy it (13 + 63.2 + 63.1 + S + 63.11 + 1061 + 1081).

Multiple Alternants of Same Length

3.7. Stems in Crow may have allomorphs of varying length in respect to the segmental phonemes; or allomorphs of the same length. Each allomorph is dependent on its morphological distribution. Two and three allomorphs of the same length may occur for some stems. The following lists the distribution of such allomorphs, followed by the stem allomorphs in brackets and one example of each alternant.

3.7.1. The following examples contain one allomorph (.1), occurring after prefixes 61 and 62; the second allomorph (.2) occurs elsewhere.

[(.1) -ráxpá- ~ (.2) raxpá] skin, (.1) wí:ráxpá my skin (61.2 + S), (.2) raxpá his skin (63.2 + S);

[(.1) -xè:či- ~ (.2) -xé:či-] pierce, wapxè:čik I pierce it (63.2 + 61.8 + 132 + S + 1181), (.2) pà:xé:čik he pierces it (63.2 + 63.8 + 132 + S + 1181);

[(.1) -pášší- (.2) pašší-] fall, wí:pássík I fall (61.2 + S + 1181), (.2) pašší́k he falls (63.2 + S + 1181);

[(.1) -šše:či- ~ (.2) -šše:či-] break, (.1) wurušše:čik I break it (63.2 + 61.5 + 131 + S + 1181), (.2) rù:šše:čik he breaks it (63.2 + 63.5 + 131 + S + 1181).

The following stems contain an allomorph (.1) which can be followed by suffixes or other stems; and an allomorph (.2) which occurs in word final position.

[(.1) -xáxxi- ~ (.2) -xáxxa] stripe, (.1) xáxxišpíta black pinto (stripes + black) (S + S), (.2) wúáxáxxa trout (striped fish) (S + S);

[(.1) -ihúrí- ~ (.2) -ihúrá] leg, (.1) wá:ihúríšó:pá table (something with four legs) (31 + S + S), wì:húrá my leg (61.1+ S);

[(.1) -waré: ~ (.2) -warà:] money, waré:čiaxxo five dollars (S + S), wašpará: my money (61.7 + 71 + S);

[(.1) xò:xá:ši- ~ (.2) xò:xá:ša] corn, xò:xá:šik corns (S + 1181), wašxò:xá:ša my corn (61.7 + 71 + S);

[(.1) -ò:wappi- ~ (.2) ò:wappa] square, ašò:wappikša toy tent (S + S + 1201), arò:wappa acre (12 + S).

The following two-alternant stems contain one allomorph, (.1), after prefix 62 (second person actor, possessor); and the (.2) allomorph occurs elsewhere.

[(.1) -ápa- ~ (.2) -apá-] nose, rápa your nose (62.5 + S), apá his nose (63.5 + S);

[(.1) -áxxi- ~ (.2) -axxí-] cough, ráxxik you cough (62.5 + S + 1181), waxxúk we cough (61.5 + S + 1061 + 1181);

[(.1) -ákú:a ~ (.2) -akú:a-] rákú:a your husband's sister (62.5 + S), akú:a her husband's sister (63.5 + S);

[(.1) -úšša- ~ (.2) -ušší-] rússúa your (plural) daughter's husband (62.5 + S + 1190), ussúa their daughter's husband (63.5 + S + 1190).

The examples below have one alternant of the stem (.1) before the plural suffix 1061, and the second alternant, (.2), occurs elsewhere.

[(.1) -x(a)pà:ra- ~ (.2) x(a)pà:ri-] Indian medicine, (.1) wašx(a)pà:rau our Indian medicine (61.7 + 71 + S + 1061), (.2) wašx(a)pà:ria my Indian medicine (61.7 + S + 1189);

[(.1) -wítta- ~ (.2) -wíčči-] knife, (.1) waspíttau our knives (61.7 + 71 + S + 1061), (.2) wašpíččia my knife (61.7 + 71 + S + 1189);

[(.1) -rakú- ~ (.2) rakà:-] drive, (.1) čirakù:k they drive (63.8 + 91 + S + 1061 + 1181) (for change of ú + u to ù:, see 3.2 above), (.2) cirakà:k he drives (63.8 + 91 + S + 1181);

[(.1) -karú- ~ (.2) -karà:-] run away, (.1) rakarù:k you (plural) run away (62.4 + S + 1061 + 1181), (.2) rakará:k you run away (62.4 + S + 1181).

The following two-alternant stems have one alternant, (.1) occurring after prefix 61, and a (.2) alternant occurring elsewhere.

[(.1) -čkápi- ~ (.2) -čkapi-] pinch, (.1) wuručkápik I pinch (61.5 + 131 + S + 1181), (.2) rù:čkapik he pinches (63.5 + 131 + S + 1181);

[(.1) -číši- ~ (.2) -čiši-] tan, (.1) wuručísuk we tan (61.5 + 131 + S + 1061 + 1181), (.2) rirúčisuk you (pl) tan (62.5 + 131 + S + 1061 + 1181);

[(.1) -číre- ~ (.2) -čiré-] push, (.1) wapčírek I push (61.8 + 132 + S + 1181), (.2) pà:čirék he pushes (63.8 + 132 + S + 1181);

[(.1) -hkápi- ~ (.2) -hkapi-] scratch, (.1) wuruhkápik I scratch (61.5 + 131 + S + 1181), (.2) rù:hkapik he scratches (63.5 + 131 + S + 1181).

Only one example in my corpus of two-alternant stems of the same length has one alternant which occurs before suffix 1183, and other stems, and the second alternant (.2), which occurs elsewhere.

[(.1) -wire: ~ (.2) wirà:] fire, (.1) wirè:š the fire (S + 1183), (.2) ispirà:kša his match (63.7 + 71 + S + 1201).

Only one example, [(.1) -hké- ~ (.2) -hká-] mother, has an alternant (.1) before suffix 1091, and the other alternant, (.2), occurs elsewhere. (.1) wasahkérak my mother (61.7 + 71 + S + 1091 + 1181), (.2) wasahkátà:ra my real mother (61.7 + 71 + S + 1041).

Only one example in my corpus [(.1) wì:i- ~ (.2) wì:à-] woman has a point one alternant which occurs before suffixes 1181 and 1183 and a point two alternant which occurs elsewhere. (.1) wì:iš that woman (S + 1183), (.2) wì:arak the woman (S + 1091 + 1181).

3.7.2. The following examples contain one allomorph (.1) before suffix 1181, one allomorph (.2) before suffix 1183 and stems, and a third allomorph (.3) occurs elsewhere.

[(.1) -hurí- ~ (.2) -huré- ~ (.3) -hurá-] bone, (.1) hurík it's a bone (S + 1181), (.2) huréš the, that bone (S + 1183), (.3) hurá bone (S);

[(.1) -à:ši- ~ (.2) -à:še- ~ (.3) -à:ša] river, (.1) à:šik rivers (S + 1181), (.2) à:šeaka on top of the river (S + S), (.3) à:ša river (S).

Only two examples in my corpus have a (.1) alternant occurring before some stems, varying with a (.2) alternant which

also occurs before other stems; and a (.3) alternant which occurs elsewhere.

[(.1) -rù:ri- ~ (.2) -rù:re ~ (.3) -rù:ra] back, (.1) wá:rù:rixiššа camel (something with a bump on its back), (31+S+ S), (.2) rù:reará: does his back ache? (63.8+S+S+1191), (.3) rù:ra his back (63.8 + S);

[(.1) -ihkí- ~ (.2) -ihké- ~ (.3) -ihká] egg, star, (.1) arihkírú: súa Easter (time when they eat the eggs) (12 + S + 63.5 + S + 1090), (.2) ihkésà:tuk big eggs (S+S+1092+1061+1181), (.3) ihká egg (S).

Only one example [(.1) wá:pà:ré- ~ (.2) wá:pà:rí- ~ (.3) wá:pà:rá-] plant has a (.1) alternant before stems, a (.2) alternant before suffix 1201, and a (.3) alternant which occurs elsewhere. (.1) wá:pà:résá big plant (S + S), (.2) wá:pà:ríkša flower (S + 1201), (.3) wá:pà:rá plant (S).

One stem, dance, has a point one alternant occurring after prefix 62, when not followed by suffix 1183, a point two alternant occurs before suffix 1183 when stem is not preceded by prefix 62, and a point three alternant occurs elsewhere.

[(.1) -rišši-] rà:rišši̇k you dance (62.6 + S + 1181),

[(.2) -ríšší-] aktíšší̇š that dancer (S + 1183),

[(.3) -ríššI-] wá:ríššik I dance (61.6 + S + 1181).

Multiple Alternants of Varying Length

3.8. Stems in Crow may have allomorphs of varying lengths, each dependent upon morphological distribution. There may be two, three, and four, and in one example six, alternants of varying lengths of a stem.

3.8.1. The following stems contain one alternant (.1) after prefixes 61 and 62, and the second alternant (.2) occurs elsewhere. (For other examples which also fit this pattern, see 3.6 above, for discontinuous stems).

[(.1) -háwi- ~ (.2) -hiráwi-] sleep, (.1) wí:háwik I sleep (61.2 + S + 1181), (.2) hiráwik he sleeps (63.2 + S + 1181);

[(.1) -ši- ~ (.2) -á:ši-] hunt, (.1) wá:wá:šik I hunt (31 + 61.6 + S + 1181), (.2) wá:á:šik he hunts (31 + 63.6 + S + 1181);

[(.1) -kà:ta ~ (.2) khà:ta-] blow, (.1) wá:kà:tak I blow (61.4 + S + 1181), (.2) khà:tak he blows (63.4 + S + 1181);

[(.1) -xčí- ~ (.2) raxčí-] tie, (.1) rà:xčík you tie (62.6 + S + 1181), (.2) raxčík he ties (63.6 + S + 1181);

[(.1) -kŮ- ~ (.2) -khú-] give, (.1) wakúk I give it to him (63.2 + 61.8 + S + 1181), (.2) khúk he gives it to him (63.2 + 63.8 + S + 1181);

[(.1) -ppaxí- ~ (.2) rappáxí-] cut, (.1) rà:ppaxík you cut (62.6 + S + 1181), (.2) aktappáxá the one who cuts (11 + S + 1189).

The following two-alternant stems have one allomorph (.1) before suffixes 1091 or 1181, and the second allomorph (.2) occurs elsewhere.

[(.1) awaší:- ~ (.2) -awaší:a] fog, (.1) awaší:k it's foggy (S + 1181), (.2) awaší:a fog (S);

[(.1) -ò:či- ~ (.2) ò:čia] night, (.1) ò:čirak tonight (S + 1091 + 1181), (.2) ò:čia night (S).

[(.1) apà:ri- ~ (.2) apà:ria] porcupine, (.1) apà:rik it's a porcupine (S + 1181), (.2) wasapà:ria my porcupine (61.7 + 71 + S);

[(.1) wà:š- ~ (.2) wà:šo] feather, (.1) wà:štak a feather (S + 1091 + 1181), (.2) wà:šo feather (S).

The following single example has a (.1) alternant before stems and a (.2) alternant elsewhere. [(.1) warà:č- ~ warà:cI-] write (.1) wà:warà;tpàxpa Bible (book + holy) (31 + S + S), (.2) wà:warà:čik I write (61.6 + S + 1181).

The stem alternants of return [(.1) -rà:kku- ~ (.2) -kkú-] occur in the following examples with the (.1) alternant occurring after prefix 62 and the (.2) alternant occurring elsewhere. (.1) rarà:kkuk you return (62.8 + S + .1181), (.2) wakkúk I return (61.8 + S + 1181).

The alternants of stem, boy [(.1) šikà:k- ~ (.2) šikà:ka-] are listed in the following examples, with the point one alternant occurring only before suffix 1202, and the point two alternant occurring elsewhere. (.1) šikà:kkà:ta little boy (S + 1202), (.2) šikà:kak it's a boy (S + 1181).

Examples of the alternants of stem grandmother, [(.1) kà:ra ~ (.2) -hkà:ra] are listed below, with the point one alternant occurring in word initial position, and the point two alternant occurring elsewhere. (.1) kà:ra grandmother (S), (.2) wasahkà:ra my grandmother (61.7 + 71 + S).

The alternants of the stem, shoes, [(.1) hup- ~ (.2) h(u)pá-] are listed in the following examples, with the point one alternant occurring before stems and in word initial position when followed by suffix 1041. The point two alternant occurs elsewhere. (.1) huptà:ra moccasins real shoes (S + 1041), (.2) hupá shoes (S), (see 3.1 above for parenthetic vowels).

3.8.2. The following single example has one alternant which occurs after prefix 63 when followed by plural suffix 1061; a second alternant (.2) occurs after prefix 63 when not followed by the plural; and a (.3) alternant occurs elsewhere.
[(.1) -hú- ~(.2) hé:- ~(.3) -á-] say, (.1) hù:k they say (63.5 + S + 1061 + 1181), (.2) hé:k he says (63.5 + S + 1181), (.3) wák I say (61.5 + S + 1181).

The alternants of the stem, eat [(.1) -ú:ši- ~(.2) -irú:ši- ~(.3) -rú:ši-] are listed below with the point one alternant occurring after prefix 61, the point two alternant occurs after prefix 62, and the point three alternant occurs elsewhere. (.1) wú:šik I eat (61.5 + S + 1181), (.2) rirú:šik you eat (62.5 + S + 1181), (.3) rú:suk they eat (63.5 + S + 1061 + 1181).

The following stems each have three alternants. One alternant occurs with suffix 1183 and may or may not also occur with suffix 1091; the point two alternant occurs with suffix 1181 and may or may not occur also with suffix 1091; the point three alternant occurs elsewhere.
[(.1) raxpiččò:xe- ~(.2) raxpiččò:x- ~(.3) raxpiččò:xa pig, bacon, (.1) raxpiččò:xeš that pig (S+1183), (.2) raxpiččò:xtak a pig (S + 1091 + 1181), (.3) raxpiččò:xa pig, bacon (S).
[(.1) wí:í- ~(.2) wí:- ~(.3) wí:á] rock, (.1) wí:íš that rock (S + 1183), (.2) wí:k it's a rock (S + 1181), (.3) wí:á rock (S).
[(.1) waré- ~ (.2) war- ~ (.3) warà] tree, (.1) waréš that tree (S + 1183), (.2) warrak tree (S + 1091 + 1181), (.3) warà tree (S).

3.8.3. The four alternants of the stem laugh are listed as follows.
Alt. (.1) [-kkú-] occurs after prefixes 61 and 62 when the stem is followed by suffix 1061, wakkù:k we laugh (61.8 + S + 1061 + 1181);
Alt. (.2) [-kkà:-] occurs after prefixes 61 and 62 when the stem is not followed by suffix 1061, rakkà:k you laugh (62.8 + S + 1181);
Alt. (.3) [-khú-] occurs after prefix 63 when followed by suffix 1061, khù:k they laugh (63.8 + S + 1061 + 1181);
Alt. (.4) [-khà:-] occurs after prefix 63 when stem is not followed by suffix 1061, khà:k he laughs (63.8 + S + 1181).

The four alternants of the stem come are listed below, with an example of each alternant following its distributional statement.

Alt. (.1) [-rú-] is preceded by prefix 63 and followed by suffix 1061, rúok they come (63.5 + S + 1061 + 1181);
Alt. (.2) [-aró:-] occurs after prefix 62, raró:k you come (62.5 + S + 1181);
Alt. (.3) [-ó:-] occurs after prefix 61, wó:k I come (61.5 + S + 1181);
Alt. (.4) [-hu-] occurs elsewhere, huk he comes (63.5 + S + 1181).

The following stems each have a point one alternant which occurs before suffix 1183 and may or may not occur with other suffixes and other stems. The point two alternant occurs with suffix 1181 and may or may not occur with other suffixes. The distribution of the point three and point four allomorphs is sufficiently varied to treat each stem separately rather than as following a single pattern. Further eliciting in the field, of ancillary forms, could probably reduce the uniqueness of each to one - or at most two - patterns. Listed below are the four alternants of the stems, their morphological distribution and an example of each alternant. Each stem is treated separately.

blanket: Alt. (1) [wišé-] occurs before suffix 1183 and some stems. wišéš that blanket (S + 1183); Alt. (.2) [wiší-] occurs before suffixes 1181, 1182, 1091 and 1060. wisík it's a blanket (S + 1181); Alt. (.3) [wiš-] occurs before some stems, wišxáxxa striped blanket (S + S); Alt. (.4) [wišá] occurs elsewhere, wišá blanket (S).

water: Alt. (.1) [wiré-] occurs before suffix 1183, wirés that water (S + 1183); Alt. (.2) [wirí-] occurs before suffixes 1181, 1182 and 1091 and some stems, wiríšpíta coffee (water + black) (S + S); Alt. (.3) [wir-] occurs before some stems. wiwwapík I bathe (S [wir-] + 61.5 + S + 1181) (for change of r to w before -w, see 3.4 above); Alt. (.4) [wirá-] occurs elsewhere in word final position or when followed by plural 1061, wirá water (S).

cave ~ hole: Alt. (.1) [awušé-] occurs before suffix 1183, awušéš the hole (S + 1183); Alt. (.2) [awuší-] occurs before suffixes 1181 and 1182, awušík it's a hole (S + 1181); Alt. (.3) [awuš-] occurs before suffix 1090, awuštak a hole (S + 1090 + 1181); Alt. (.4) [awušá] occurs elsewhere, awušá hole (S).

3.8.4. Only a single stem in my corpus can be analyzed as having six allomorphs. The alternants of the stem, go, are as follows:
Alt. (.1) [-í:-] occurs after prefix 61.5 when the stem is followed by suffix 1061, wí:uk we go (61.5 + S + 1061 + 1181);

Alt. (.2) [-arí:-] occurs after prefix 62.5 when followed by suffix 1061, rarí:uk you (plural) go (62.5 + S + 1061 + 1181); Alt. (.3) [rí:-] occurs after prefix 63.5 when the stem is followed by the plural suffix 1061, rí:uk they go (63.5 + S + 1061 + 1181); Alt. (.4) [-á:-] occurs after prefix 61.5 when not followed by plural suffix 1061, wá:k I go (61.5 + S + 1181); Alt. (.5) [-ará:-] occurs after prefix 62.5 when not followed by plural suffix 1061, rará:k you go (62.5 + S + 1181); Alt. (.6) [hí:-] occurs after prefix 63.5 when not followed by plural suffix 1061, hí:k he goes (63.5 + S + 1181).

4. STEMS AND THEMES

4.0. The remainder of the Crow morphemes which are not affixes are stems, and are classifiable as nouns, verbs or particles on the basis of their co-occurrence with affixes. Sequences of more than one stem and of certain affixes plus stems which fill a positional slot defined below are classifiable in the same manner as stems. Such sequences are called themes. This permits us to say that noun stem plus a verb stem equals a noun theme. So also, that a verb stem preceded by certain prefixes is a noun theme. Crow morphemes thus can remain uniquely classified as noun stem, verb stem, particle stem, prefix or suffix. In certain combinations, these morphemes may be further classified into themes.

Constituents of Themes

4.1. The theme may be identified in terms of what precedes[1] or what follows the theme; that is, by certain morphemes or phonemes which precede or follow the theme within the positional slot of the utterance. A theme may be preceded by the person marker prefixes of class 60 plus or minus the alienable prefix 71, or for those which do not occur with 60 by a juncture phoneme. The theme is followed by suffixes or juncture phonemes. Suffixes are never included in themes. Those prefixes which occur after the person marker plus or minus prefix class 70 (alienable) and before the stem are said to be part of the theme.

In the sequences # prefix + prefix #, the constituent parts of the theme are the prefix plus prefix and can be rewritten now

[1]Where the stems are discontinuous, then the prefixes which interrupt the stem, namely the person markers, are regarded as preceding the stem. For a list of discontinuous stems, see 3.6 above.

as # theme #. In the sequence # prefix + prefix + suffix #, the theme constituents are prefix + prefix, and the sequence can be rewritten as # theme + suffix #. Themes which contain only prefixes are called minor themes, such as /wihči/ myself (61 + 91).

Themes which contain stems are called major themes, and include the following combinatorial types: (1) a single stem, such as /wirá/ water (Stem); (2) two stems as in /ašši̍čí/ big house (Stem ašá house + Stem šičí thick); (3) a stem preceded by one or two prefixes as in /í:wá:rí:a/ medicine (21 + Stem wá:rí:a doctor) and /čiwá:warà:či/ paint self (91 + 31 + Stem warà:či paint); and (4) two stems preceded by one prefix as in /wá:ihurišó:pá/ table (31 + Stem ihura leg + Stem šó:pá four).

All prefixes other than those of classes 10, 60 and 70 may occur in major themes. Prefixes of classes 90 and 130 are always theme-included. Prefixes of classes 20, 30 and 50 are theme-included only when they follow the person markers; and are not considered part of the theme if they precede prefix class 60.

Classification of Stems

4.2. Stems are classified according to their distribution with prefixes of class 60 and suffixes 1021 (durative), 1185 (imperative singular) and 1186 (imperative plural). Stems which occur with all the affixes listed above are verbs, as /ríšši-/ in /wá:ríššiik/ I used to dance (61 + V + 1021 + 1181); /rì:ri-/ in /rì:rih/ walk! (S + 1185); /-čči-/ in /rù:tta/ you take! (181 + V + 1185); and /-háwi-/ in /rí:háwà:ra/ you (pl) sleep! (60 + S + 1186).

The remainder of the stems which can occur with prefixes of class 60, but which do not occur with the suffixes listed above are nouns, such as /-šča-/ in /waščá/ my hand (61 + n).

Stems which do not occur with the person markers (class 60) are considered to be particles, such as /í:rak/ that (P).

In addition to the affixes listed above, a number of other affixes also occur exclusively with certain verbs in the corpus. Some of these affixes appear in sequence with a restricted group of verbs, so that they are related to the definition of subclasses of verbs. Some appear so infrequently as to leave doubt as to what stem class associations might be found if the Crow corpus were expanded. These other verb affixes are: 11

(agentive), 13 (might), 22 (past), 50 (actor orientation), 91 (reflexive), 130 (instrumentals), 141 (continuative), 1001 (causative), 1094 (benefactive), 1111 (future probability), 1184 (habitual agent), 1187 (future interrogative), 1189 (singular nominalizer), 1190 (plural nominalizer), 1191 (interrogative).

For nouns, prefix 71 (alienable) occurs only with nouns—but not with all nouns. It is therefore relevant to the definition of a sub-class of nouns and not to the definition of the class of all nouns. Suffix 1201 (imitative) also occurs with only a limited number of nouns.

4.2.1. Stem-class associations of those affixes which occur with more than one stem class are given below.

Affixes which occur with nouns, verbs and particles are: 1031 (negative), 1061 (plural), 1202 (diminutive), 1092 (collectivizer), 1181 (utterance final predicative), and 1183 (non-final predicative).

Affixes which occur with nouns and verbs are: 12 (place where, time when), 31 (indefinite), 32 (something, someone), 1091 (temporal subordination), 1093 (without), and 1188 (approximative).

Three suffixes, 1041 (truly), 1042 (superlative), and 1182 (non-final predicative) occur with nouns and particles.

Suffix 1112 (again, back), occurs with verbs and particles.

4.2.2. Verb stems may be divided into four sub-classes, depending upon which person marking paradigm they occur with.

Verb stems which occur with Paradigm D (stative actor) are stative verbs, such as /-šši̇ta/ in /wí:šši̇tak/ I'm lazy (61.3 + S + 1181). Stative verb stems occur also with person markers of Paradigm F (future actor) and Paradigm G (causative actor).

Verb stems which occur with Paradigm C (active actor) are considered to be active verb stems. Thus, /kkú/ in /wakkúk/ I return (61.8 + S + 1181). Active verb stems occur also with Paradigm E (goal), Paradigm F (future actor) and Paradigm G (causative actor).

An overlapping sub-class is composed of those stems which may occur with both Paradigm C (active actor) and Paradigm D (stative actor), as /ke-/ in /ráhčikek/ you scratch it (63.2 + 62.8 + 91 + S + 1181), and /ríhčikek/ you scratch (62.1 + 91 + S + 1181).

A fourth sub-class includes those few indeterminate verb stems which occur only with Paradigm G (causative) plus or minus Paradigm F (future), such as /iš-/ in /išpí:wok/ let us drink (S + 61.9 + 61.11 + 1181). These verb stems I have designated as indeterminate due to their non-distinction in regard to the active-stative division. A very few verb stems, occurring only with a third person zero affix, are also assigned to this sub-class, such as /xará:k/ it's raining (63. + V + 1181).

Active and stative verbs may be further sub-classified on the basis of the particular set of the person marking paradigm with which they occur, since each of these paradigms is composed of four sets of alternants for the three person marking prefixes.

A sub-class of stative verbs which occur with person markers of Set Point One (wih- ~ wí-, ríh- ~ rí-, ih- ~ í-), is distinguished from those occurring with Set Point Two (wí:-, rí:-, #), or with Set Point Three (wí:-, rí:-, í:-), or with Set Point Seven (wa-, rí-, i-).

A sub-class of active verbs which occur with Set Point Four (wá:-, ra-, #), is distinguished from those occurring with Set Point Five (w-, r-, #), or Set Point Six (wá:-, rà:, #), or Set Point Eight (wa- ~wah-, ráh- ~ra-, #). Active verb stems which occur with Set Point Five and Set Point Eight may be further sub-classified into those which occur after the instrumental prefixes 131, 132 and 133; and those which do not occur with these prefixes. Stems which occur with class 130 are bound, as they cannot occur without the instrumental prefixes.

4.2.3. Noun stems may be divided into three sub-classes depending upon their distribution with the person marking paradigms.

Noun stems which occur with Paradigm B (inalienable possessor) are inalienable noun stems, as/-ča/ in /wača/ my foot (61.7 + S).

Noun stems which occur with Paradigm A (alienable possessor) are alienable noun stems, as /-wišká/ in /wašpišká/ my dog (61.7 + 71 + N).

A third sub-class includes those few noun stems which can occur with both the inalienable possessor, Paradigm B and the alienable possessor, Paradigm A, such as /x(a)pà:ria/ in /wašxapà:ria/ my (alienable) medicine (61.7 + 71 + N), and in

/waxpà:ria/ my (inalienable) medicine (61.7 + N). The other nouns in this sub-class are body parts which might also be used to designate parts of an animal used in slaughtering game for food, etc., such as /hurá/ bone, /aššó:xá/ pancreas.

Inalienable nouns can be further sub-classified on the basis of the particular set of person markers of Paradigm B with which they occur. Those stems which occur with Set Point One (wih- ~ wí-, rîh- ~ rí-, ih- ~ í), may be distinguished from those which occur with Set Point Two (wí:-, rí:-, #) or Set Point Five (w-, r-) or Set Point Seven (wa-, rí-, i-), or with Set Point Eight (wa-, ra-, #).

Alienable nouns cannot thus be further subdivided, as Paradigm A contains only one set (Set Point Seven).

Theme Classes

4.3. Noun, verb, and particle theme classes are distinguished in the same way as the stem classes, that is on the basis of distribution with the affixes listed above in 4.2.

A monomorphemic theme—i.e., one which contains only a stem—belongs to the class of that stem. Hence, a single noun stem is reclassified as a noun theme, a single verb stem as a verb theme, and a single particle stem as a particle theme.

A theme consisting of stem plus stem belongs to the class of the first stem. Therefore a noun stem plus a verb stem becomes a noun theme, as in /wá:tò:wappa/ cake pan (dish + square). A noun stem plus a particle stem becomes a noun theme, as in /wíččirúhpá/ scissors (Noun knife + Particle two). A noun stem plus a noun stem is classified as a noun theme, as in /wíšè:ráxpá/ leather (buffalo + skin). A particle stem plus a verb stem becomes a particle theme, as in /pirakí:sà:/ one hundred (ten + big); and a particle stem plus a particle stem is classified as a particle theme as in /šó:pápiraká/ forty (four + ten).

Themes that are composed of prefixes plus stems are noun themes when the prefixes 21, 22, 31 or 32 are the initial constituents. Thus, /í:wà:rítúa/ hammer (21 + 31 + Verb hit), /wá:ihura/ tire (31 + Noun leg), and /wá:ihurišó:pá/ table (31 + Noun leg + Particle four).

Themes that are composed of prefixes plus stems are verb themes when the prefixes 50, 90 or 130 are the initial constituents.

Themes which are composed of two prefixes pose a special problem. The inventory of these can be given by a very

brief list, /wihči/ myself (61 + 91), /rihči/ yourself (62 + 91), /ihči/ herself ~ himself ~ itself (63 + 91). Like themes which include a stem, these non-stem themes serve as a base for further affixation. Hence they are classified as particle themes.

Examples of Themes

4.4. The following are examples from the classes and sub-classes of themes discussed above. The examples were selected from a sample of the corpus of 12 hours of Crow tapes of which four hours were transcribed. In addition ancillary forms were elicited and transcribed from informants. Due to the nature of the texts the total corpus included stems which contained too few inflectional forms to enable classification into the classes and sub-classes. The examples listed below are those for which sufficient information was given to make selection possible for inclusion in the lists. Hence the resulting sample is, in a sense, a random one.

Only the allomorph which occurs with third person singular is given in the examples.

4.4.1. Verb Themes.

4.4.1.1. Stative verb themes are listed below with the person marking set of Paradigm D with which they occur.

Set Point One: -kewwá:či- to celebrate, -irápi- to be fat, -hà:ri- to finish, -šši- to rest, -čiššì- to rest self, axpáššito be full, -púa- jump, -čipúa- to jump oneself, -warά:či- to paint, -čiwarά:či- to paint self, -čiwά:warà:či- to paint something oneself.

Set Point Two: -xáwì:- to be bad, -hiráwi- to sleep, -šiči- to be busy, wά:šiči- to be busy with something, -tarrάto shiver, -axsú:- to lose, -áwwiči- to fall down, -apά:- to be cold, -paššί- to fall, -xátί:a- to itch, awericči- to fall.

Set Point Three: -kò:či- to hang, -šiwi- to wash, -šši ta- to be lazy, -čiká:či- to sew, -waxpi- descend.

Set Point Seven: -rί:ahi- to breathe, -rί- to live, -rì: to speak, -rú:- stand, -riššì- to be afraid.

4.4.1.2. Active Verb Themes are listed below with the person marking set of Paradigm C with which they occur.

Set Point Four: -karά: run away, -rì:ri- walk, khà:ta to blow, -čirì: to be afraid, -xapi- lie down, -xarúššì- to run.

Set Point Five: -í:we- to cry, -hkapi- to scratch, rù:hkapi- to scratch by hand, -rú:ši- to eat, -á:či- to sit, -šči- to take, -rù:šči- to take by hand, aššíší- break, rù:ššíší- break by hand, -šše:či- to break, rù:šše:či- break by hand, pà:šše:či- break by force, -ši: to put, rù:ši: to put, -hu~ó:- come, ò:rapi- find, a...ò:ri- to wait, -axxí- to cough, -hé:- to say, -hí:- to go, -áx- to squat, -čiši- to drop, -rù:čiši- to drop by hand, -ččità:ri- to grab, -rù:ččità:ri- to grab by hand, -čkapi- to pinch, rù:čkapi- to pinch by hand, -čči- to take, -rù:čči- to take by hand, -čiši- to tan, -rù:čiši- to tan by hand, -à:čí- to move, -rù:à:čí- to move by hand.

Set Point Six: -á:kirre- to ride, -ríššì- to dance, -ráxi- to sing, -wá:ráxi- to sing something, -í: ...šši:- to camp, -á:ši- to hunt, -rappáxi- to cut, -pá:- to shout, -á:...čiwi- to copy, -á:xúa- to hide, -raxíči- to plow, -raxčí- to tie, -warú: to fight, -wáxxo- to ask, -warà:či to write, wá:warà:či- to write something = (letter), -čiwarà:či- to write self, í:wá:warà:či- pencil = (to write with something).

Set Point Eight: -kewra- to haul, čikewra- to haul self, -ré:- to go, -kkú- return, -kuré:- to carry, -kurušpì:a- to decorate, -rà:skawi- to be mad, -rakà:- to drive, čirakà:- to drive self, -rašté:- to be nice, -khà:- to laugh, -íka- to see, -khú- to give, -šši- to paint, -šška- to cut, -ssáči- to pinch, -ará:xta- don't know, -pxi- bite, rà:pxi- to bite with teeth, -čiwwí- to count, -sà:ši- to call, -čissa- to love, -čiré- to push, -pà:čiré- to push with force, čiččirí:- to whisper, -xšé- to win, -xè:či- to pierce, pà:xè:či- to pierce with force, a...xpa to marry, -xarua- to push, pà:xarua to push with force.

4.4.1.3. The following verb themes are those which are indeterminate in regard to the Active-Stative sub-classes. They occur only with Paradigm G, causative; plus or minus Paradigm F, future.

Set Point Nine: -iš- to drink, čikúa- to sweeten;

Set Point Ten: -ría- to make, -wù:ssa- to harvest, wixxwá- to spill, wá:čkuxxa- to put in order, -xápì:- to be lost, -čù:hka- to smoothen, wá:čù:hka- to flatten something, awú:ra to ride, aráxi- to burn, tašší to grease, šipí- to blacken, -hiri- to work, wá:hiri- to work at something, -ù:ča- to dry.

The verb /xará:/ to rain is included in this sub-class as it appears only with third person zero actor.

4.4.1.4. Themes of the overlapping sub-class of verbs are /-ke-/ to scratch, /-čike-/ to scratch self, /-čipúa-/ to jump, which are active with Set Point Eight and stative with Set Point One.

4.4.2. Noun Themes.

4.4.2.1. Inalienable noun themes occur with person marking sets of Paradigm B, as follows.

Set Point One: -iraxpa- lip, -ihérapa- waist, -isá- face, -ihka- chin, -ika elder brother, -ihura leg, waré:iraxpa somebody's lip, waré:ihérapa somebody's waist, waré:ihura somebody's leg, -ttaštá: dress, waré:ttaštá: someone's dress, -išpua stomach, -ía mouth, -íá teeth.

Set Point Two: -raxpá skin, -rà:xo lung.

Set Point Five: -akú:a husband's sister, -á:šš́úa head, -ahpá ear, apá nose, -axí:a forehead, -araxá hip, -ú:áka brother's wife, -ušš́á daughter's husband (Fem. Speaker), -é:rá belly, -aráša biceps, -axúa body, -à:ra arm, -á:sú:a house, -akkúxá ear.

Set Point Seven: -šč́á hand, -špaxá elbow, -šš́í:a hair, -šš́tá eyes, waré:šš́tá somebody's eye, -šú:ša knee, -špasá thumb, -só:ká younger sister, -sà:ka father, -č́ú:ká younger brother, -č́á foot, -rašpa shoulder.

Set Point Eight: -rà:ka offspring, rà:kpač́á: son (offspring + man), rà:kpía daughter (offspring + sister), -rù:ra back, -rá:sa heart, -waré:rá:sa it's a heart, -rà:ta calf of leg, -ráhč́awa arm pit, -rù:sa rib, -rú:ré:pa jaw.

4.4.2.2. Alienable noun themes occur with the single person marking set, Set Point Seven, of Paradigm A, as follows: wì:akaríšta daughter-in-law, wí:a sister, wirišš́á corpse, wikà grass, wá:xawa bread, ašá house, wíč́čia knife, wá:ppčia wagon, wáhpuata fly, wúá fish, wà:šo feather, wá:šà: boat, wišá blanket, wará tree, wá:tá: dish, tù:šš́ira elk tooth dress, -á:ra elder brother, ahpá:xá: cloud, apà:ria porcupine, wá:ihura tire, wá:ihurišó:pá table, púpča ball, pá:xia father's sister, čitá husband's brother, xò:xá:ša corn, wá:rí:a doctor, í:wá:rí:a doctor's medicine, warà: money, wirá water, wá:pà:rá plant, wíšà: buffalo, wiškà: sap, wiškà dog, wirà: fire, wá:ro beads, wač́á: man, ruká meat, rakà:ka bird, raxpič́á: bear, kà:rá mother-in-law, í:č́ì:ra horse, ihká egg, star, ù:tta weasel, hkà:ra grandmother, kà:rà: old woman, ù:xa deer, ù:wata clay, hpaxá: socks,

hpá:ca overshoes, hčì:ta younger sister, hupá shoes, hká mother, hkà:ta elder sister, wiraxpà:ka people.

4.4.2.3. Noun themes classified as both alienable and inalienable are: -šì:pa intestines, -hurá bone, čiwussá: brains, and -aššó:xá pancreas, which are inalienable with Set Point Two and alienable with Set Point Seven; xapà:ria Indian medicine which is inalienable with Set Point Seven and alienable with Set Point Seven plus prefix 71; and -wá:hússá: clothes is alienable with Set Point Seven and inalienable with Set Point Eight.

4.4.3. Particle Themes.

4.4.3.1. Minor particle themes composed only of prefixes are: wihči myself (prefix 61 + prefix 91), rihči yourself (62 + 91), ihči himself ~ herself ~ itself (63 + 91).

5. ANALYSIS AND TRANSLATION OF A TEXT

5.0. The following text (5.3) constitutes about a ten minute tape elicited and recorded by C. F. and F. M. Voegelin at the Linguistic Institute held at Indiana University in 1953, and was subsequently transcribed by me. My methods of translation closely follow the paper "Multiple Stage Translation" published in IJAL by C. F. Voegelin.[1] A traditional translation (5.1) with appropriate English punctuation which is the end-result of the multiple stage translation begins this chapter. It is given first to show how very well it reflects Crow culture. However, the traditional translation actually masks the Crow morphemic sequences and other linguistic phenomena. Therefore we include the actual multiple stage translation (see 5.2). The stems used in the text are listed in alphabetic order (5.4) so that they can readily be checked.

Traditional Translation

5.1. The following is the traditional translation of the Crow text in 5.3 below. Each contour comes directly from the parenthetic translation. Commas and semi-colons appear after each contour which has a double bar juncture (//) following the non-final predicative suffixes 1182 (/-w/) and 1183 (/-š/). A period is used to indicate a double-cross juncture, preceded by utterance-final suffix 1181 (/-k/). Those contours which end in suffix 1181, but cannot in themselves constitute an English sentence, are marked with a dash (—).

Five months after they gave me presents, it was my mother's turn to give presents for her son-in-law. She didn't have any tents and tipis to give. To my husband they gave a saddle. All the horse's belongings they made. She made his buckskin

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[1] Voegelin, C. F. "Multiple Stage Translation" in IJAL, Vol. XX, No. 4, October 1954.

clothes. She did all the beaded things. The buckskin dresses—the elktooth dresses—the person I gave them to brought a horse. Quilts—moccasins—buckskins—those are the gifts they returned. My husband's relatives who helped him, they all came. My own relatives, the ones I gave presents to, they all brought things. We gave presents to everyone. When they gave me the presents I did a lot for my mother. I told her to take all the things she wanted. In return for her son-in-law, she worked hard. She beaded. She did his belt. She did his gloves herself. The looking glass case—she made that also. She beaded one side of his buckskin pants. She didn't have time for the other side, so she took it to one of my sisters, and asked her to do it. She gave her twenty dollars. She did it for her then. She told my aunt, the one I gave my tipi to—to do his vest: and she made it. And my father was looking for money. He got a good horse. He bought a saddle which was never used. He bought the bridle. And then three of my brothers got those clothes that should be bought. My younger brother got his boots, and the oldest got his hat for him. The middle one had no time, so he bought a horse.

Multiple Stage Translation

5.2. After the text was transcribed the tape was played back to the informant and each contour, or span of utterances from juncture to juncture, was re-recorded on a second tape-machine, a free translation was given by the informant, and as many segments as possible within the contour were elicited separately. Each contour span is numbered in consecutive order. The Crow forms of each contour are given within brackets as they appear on the first tape. Following it is the informant's free translation enclosed by apostrophes. Within brackets, each affix is numbered according to its index number (see 2.1 above), and the stems are assigned a number from the dictionary (see 5.4 below). A morpheme by morpheme translation is given in brackets, and each segment which could be elicited separately is indicated by three dots (...) both before and after the word.

Within parenthesis a translation of the contour span is given, following closely the morpheme by morpheme translation, but re-arranged in appropriate English style. Words added to the parenthetic translation are doubly underlined. Words in the bracketed translation which are omitted from the parenthetic

one are given a single underline. Utterances which require a slight alteration such as from present tense in Crow to past tense in English are given a dotted underline (...) in both the bracketed and parenthetic translations to indicate that they are virtually equivalent.

Circumlocutions are surrounded by braces within the brackets, such as [{house...real} = tipi]; and the utterances within the braces are not transferred within the parentheses.

A contour span which is transferred to another is indicated by arrows (see contours 29 and 30).

Crow Text

5.3. 1. [wí:wá:ihirúa + wirítà:čia + čiaxxúw] 'when they gave me the presents five months' [61.2 + 31 + 63.7 + S-19 + 1190 ... S-78 ... S-59 ... S-7 + 1061 + 1182] [to me they presented + {water ... glow} = moon} = month + five] (five months after they gave me presents >)

2. [pí:šči:se + wirítà:čia + čiaxxúw] 'after five months' [S-42 ... S-78 ... S-59 + S-7 + 1061 + 1182] [< after + {water ... glow} = moon} = month + five]

3. [wasahké + kúkarúššiwá:khúk] 'my mother she gave the presents back' [61.7 + 70 + S-21 ... 63 + S-31 ... S-65 + 31 + 63 + S-34 + 1181] [my mother ... in return ... for her son-in-law ... she gives something] (It was my mother's turn to give presents for her son-in-law).

4. [khúkhirerrek + aštà:rirak + ašírak + ríassutak] 'they don't have tipis, tents, they didn't' [63 + S-34 + S-18 + 1091 + 1181 ... S-3 + 1041 + 1091 + 1181 ... S-3 + 1091 + 1181 ... S-63 + S-49 + 1031 + 1061 + 1092 + 1181] [she gives these... {tent...real} = tipi tent...they don't do] (She didn't have any tents and tipis to give)

5. [akčirík + arrà:korak] 'they gave him a saddle' [11 + S-9 + 1181 ... S-2 + 1091 + 1181] [the one who's a husband ...saddle] (to my husband they gave a saddle)

6. [í:čì:re + awwá:rá:kusseš + xaxúa + ríuk] 'anything on the horse they did' [S-27 ... 12 + 31 + S-46 + 1183 ... S-79 ... 63 + S-48 + 1061 + 1181] [horse...his things...all...they're doing it] (All the horse's belongings they made)

7. [wá:hússé:ù:xerì:k] 'his buckskin clothes they did' [63.8 + S-73 ... S-67 + 63 + S-48 + 1021 + 1181] [clothes... {deer} = buckskin...she did] (She made his buckskin clothes)

8. [wá:wà:wwišše + akkúittahirí:k] 'anything beaded they did them all' [31 + S-75 ... 63 + S-1 ... 1092 + 63 + S-20 + 1181] [beaded things...it's complete...she did it] (She did all the beaded things)

9. [hew + hirer + waré:ttašté:ù:xerak] 'these buckskin dresses' [S-17 + S-18 ... 32 + S-62 ... S-67 + 1091 + 1181] [then these dresses... {deer} = buckskin] (the buckskin dresses)

10. [waré:tù:šširirak] 'elktooth dresses' [32 + S-64 + 1091 + 1181] [elk tooth dresses] (the elk tooth dresses)

11. [awwačé:š + awwá:wakú + kúhí:čì:ri + á:rúok] 'the ones I gave away the person I gave them to, the horses they brought' [12 + S-68 + 1183 ... 12 + 31 + 61 + S-34 ... S-35 ... S-27 ... 63 + 51 + S-53 + 1181] [the man...the one I gave things...that horse...they {go...with} = brought] (the person I gave them to brought a horse)

12. [ú:wačirak] 'quilt' [S-66 + 1091 + 1181] [quilts >]

13. [hupárak] 'moccasins' [S-23 + 1091 + 1181] [moccasins >]

14. [wá:wwaxí:rak] 'buckskin' [32 + S-72 + 1091 + 1181] [{something...tanned} = buckskins] (< quilts — moccasins — buckskins —)

15. [kúh + karakó: + išpaíwisatturašiw] 'that's them that's the gifts they return' [S-35 ... 22 + 63 + S-28 ... 63 + 71 + S-38 + 1092 + 63 + S-63 + 1182] [that...they have given ...the gifts...they return] (those are the gifts they returned)

16. [wá:čiré: + išpiraxpà:ka + akkuxšéš] 'my husband his relatives the ones that helped him' [61.4 + S-9 ... 63.7 + 71 ... S-77 ... 11 + 63.2 + 63 + S-33 + 1183] [my husband... his relatives...the ones who helped him] (my husband's relatives who helped him)

17. [í:xaxúa + tà:hiriarúow] 'everyone of them they came' [21 + S-79 ... S-60 ... 63 + S-53 + 1061 + 1182] [everyone ...all of them...they come] (they all came)

18. [wihwašpiraxpà:keš] 'my relatives' [61.1 + 61.7 + 71 + S-77 + 1183] [my own my relatives] (my own relatives)

19. [awwá:wakò:š] 'the ones that I gave presents' [12 + 31 + 63.2 + 61 + S-28 + 1061 + 1183] [the ones I gave] (the ones I gave presents to)

20. [í:xaxúa + wá:á:rúow] 'all of them brought things' [21 + S-79 ... 31 + 51 + 63 + S-53 + 1061 + 1182] [all of them ...they came with things] (they all brought things)

21. [xaxúa + wá:wakù:k] 'all we gave them presents' [S-79 ... 31 + 63.2 + 61 + S-34 + 1061+1181] [all...we give things] (we gave presents to everyone)

22. [wasahké + wí:wá:ihirúa...] 'my mother when they gave me the presents' [61.7 + 71 + S-21 ... 61.2 + 31 + 63.7 + S-19 + 1190] [my mother...to me they present] (when they gave me the presents)

23. [wasahké+rì:waíččikà:špak] 'I did lot of good things for her' [61.7 + 71 + S-21 ... S-48 +1021+61.10+S-24+ 1042 + 61.10 + 1181] [my mother...I did much good I did] (I did a lot for my mother)

24. [wà:ré:wia+xaxúa+è:wahčiw] 'the things she wanted I told her to take them all' [31 + S-47+ S-76 ... S-79 ... 63 + S-12 + 61 + S-15 + 1182] [things she goes to want...all...I tell her to take] (I told her to take all the things she wanted)

25. [úššiwá:kutpia + wá:wačá:č kà:štak] 'in return for her son-in-law she had a hard time' [S-65 + 63 +31 + S-32 ... 31 + S-69 + 1042 + 1092 + 1181] [her son-in-law in return... she did great things] (in return for her son-in-law she worked hard)

26. [wà:rraštak] 'she beaded' [63 + S-74 + 1092 +1181] [she beads] (she beaded)

27. [ipaxpá:če+í:rà:ríak] 'his belt she did herself' [63.7 + S-39 ... + 21 + 63 + S-44 + S-49 + 63.10 + 1181] [his belt ...she goes to do] (she did his belt)

28. [išuxše + kúhí:rà:ríak] 'his gloves she did that herself' [63.7 + S-57 ... S-35 ... 21 + 63 + S-44 + S-49 +63.10 + 1181] [his gloves... that...she goes to do] (she did his gloves herself)

29. [isí:waré:čičikáiššek] 'the looking glass case' [63 + 71 + 21 + 32 + S-8 + S-26 + 1181] [the looking glass case>]

30. [kúhí:rà:ríak] 'she did that herself also [S-35 +21 + 63 + S-44 + S-49 + 63.10 + 1181] [that she goes to do] (< the looking glass case — she made that also)

31. [í:šší:šší:xe + čua + rík] 'his buckskin pants the other side' [63.3+S-56+S-67...S-11...63+S-48+ 1181] [his pants {deer} = buckskin...the other side...she did] (she beaded one side of his buckskin pants)

32. [čua+karihččà:kissaw] 'she didn't have time' [S-11 ...22 + 63 + S-6 + 1031 + 1182] [the other side...she had no time] (she didn't have any time for the other side)

33. [á:ré:ra + wasahkà:te + hawátaw] 'she took it to one of my sisters' [51 + 63 + S-47 + 1091...61.7 + 71 + S 21 + 1202 ...S-13 + 1182] [she {goes with} = took...my {little mother} = elder sister...one of them] (so she took it to one of my sisters)

34. [ríxkak] 'she told her to do it' [63.2 + 63 + S-51 + 1181] [she tells her do it] (and asked her to do it)

35. [waré:rúhpá:pirakáw + khúk] 'twenty dollars' [S-71 ...S-54...S-41 + 1182...63.1 + 63 + S-34 + 1181] [money... {two...tens} = twenty...she give her] (she gave her twenty dollars)

36. [hewríakuk] 'she did it for her' [S-17 + 63.2 + 63 + S-49 + 1094 + 1181] [then...she did it for her] (she did it for her then)

37. [isarixsà:xparé:ta] 'his vest' [63.7 + 71 + S-52] [his vest >]

38. [waš pá:xia + wasaštà:re + wakúkpeš] 'my aunt my tipi the one I gave' [61 + 71 + S-40...61 + 71 + S-3 + 1041... 61 + S-36 + 1183] [my aunt...my {tent + real} = tipi...the one I gave her >]

39. [kúhkoríhčiw] 'she told her to do it' [S-35 + S-35 + 63 + S-48 + 63 + S-15 + 1182] [that...she tells her to do >]

40. [kúhkohríak] 'she did that' [S-35 + S-35 + S-49 + 63.10 + 1181] [that...she make] (< she told my aunt—the one I gave my tipi to, to do his vest; and she made it)

41. [hewwasà:ke + warà:čì:rik] 'and my father he looked for money' [S-17 + 61.7 + S-55...S-71...63 + S-10 + 1181] [and...my father...money...he looks for] (and my father was looking for money)

42. [í:čì:ra + íččikà:siw] 'a good horse' [S-27...S-24 + 1042 + 1182] [horse...a good one]

43. [rù:ttak] 'he got it' [63.2 + 63 + 131 + S-61 + 1181] [he got it] (< he got a good horse)

44. [arrà:ko + ... + í:tarí:rì:oré:ta + hiriw] 'a saddle, a brand new one' [S-2...21 + S-58 + 1093 + 63 + S-19 + 1182] [saddle...never used...his present >]

45. [íaščirak] 'he bought it' [63.2 + 63.1 + S-4 + 1181] [he buys it] (<he bought a saddle which was never used)

46. [iaxčù:watarak] 'the bridle' [S-23 + 1091 + 1181] [bridle >]

47. [kuhríak] 'he did that also' [S-35 + S-49 + 63.10 + 1181] [that he did] (<he bought the bridle)

48. [hewhirer + waščačé:š] 'and my brothers' [S-17 + S-18...61.7 + 71 + S-68 + 1183] [and then...my brothers>]

49. [í:rà:wít] 'three of them' [21 + S-45 + 1092] [three of them] (<and then three of my brothers)

50. [kúhwá:hússé: + arí:aščiri + iruštà:če + kúhríwiuk] 'his clothes the ones that should be bought, they're going to do that' [S-35 + S-73...S-4...62...S-4+S-25+ S-35 + 63 + S-50 +1061+1181] [those clothes...you buy should...that they do] (got those clothes that should be bought)

51. [waščačé:+há:kká:še+isapí:špisà:če+kohrù:ttakuw] 'my brother the youngest he bought that for him' [61+71 + S-68 ...S-14...63.7 + 71 + S-43...S-35 + 63 + 131 + S-61 +1094 + 1182] [my brother ... younger ... his boots ... that he gets for him] (my younger brother got his boots)

52. [hé:ré:waisé+ikúppe+kohrù:ttakuk] 'the oldest one his hat he got for him' [S-16...S-70...63 + S-37...S-35 + 63 + 131 + S-61 + 1094 + 1181] [and...elder...his hat...that he gets for him] (and the oldest got his hat for him)

53. [hew + kuará:čire + karihččà:karičissiw] 'and the middle one he didn't have any time' [S-17...S-30...22 + 63 + S-5 + 1031+1182] [and...middle...he has no time] (the middle one had no time)

54. [í:čì:riw] 'a horse' [S-27 + 1182] [horse>]

55. [kó:ok] 'he brought it' [63 + S-29 + 1061 + 1181] [they bring it] (<so he brought a horse)

Stem List

5.4. The following is the list of stems which appear in the text. They are listed in alphabetic order, and are numbered consecutively. The parenthetic numbers after the stem indicate the contour span or spans in which it occurs.

1. akkuit it's full, complete (8)
2. arrà:ko saddle (5, 44)
3. aša tent (4, 38)
4. a...ašči- to buy (45, 50)
5. čča:kariči- have time (53)
6. čča:ki- have time (32)
7. čiaxxó give (1, 2)
8. čičiká mirror (29)

9. čirá: husband (5, 16)
10. čì:ri look for (41)
11. čua other side (31, 32)
12. è to want (24)
13. hawáta one (33)
14. há:kká:ša young (51)
15. hči- to tell, request (24, 39)
16. hé:ré: and (52)
17. hew and, then (9, 36, 41, 48, 53)
18. hirer these (4, 9, 48)
19. hirí- to present (1, 22, 44)
20. hirí: to work, do (8)
21. hká mother (3, 22, 23, 33)
22. hupá shoe (13)
23. iaxčù:wata bridle (46)
24. íčči good (23, 42)
25. iruštà:ča should (50)
26. íšša case, container (29)
27. í:čì:ra horse (6, 11, 42, 54)
28. kó: to give (15, 19)
29. kó:o to bring (55)
30. kuará:čira middle one (53)
31. kukara in return (3)
32. kutpia in return (25)
33. kuxší- help (16)
34. kú- khú give (3, 4, 11, 21, 35)
35. kúh koh that, those (11, 15, 28, 30, 39, 40, 47, 50 51, 52)
36. kúkpa to give, donate (38)
37. kúppa hat (52)
38. paíwisa gift (15)
39. paxpá:ča belt (27)
40. pá:xia aunt (38)
41. piraká ten (35)
42. pí:ščì:sa afterwards (2)
43. pí:špisà:ča boots (51)
44. rà: to go (27, 28, 30)
45. rà:wí three (49)
46. rá:kussa horse's belongings (6)
47. ré: to go (24, 33)
48. rí to do (6, 7, 23, 31, 39)
49. ría to make (4, 27, 28, 30, 36, 40, 47)

50. ríwi to do (50)
51. ríxka to request (34)
52. rixsà:xparé:ta vest (37)
53. rú to come (11, 17, 20)
54. rúhpá two (35)
55. sà:ka father (41)
56. šší:šša pants (31)
57. šúxša gloves (28)
58. tarí:rì:o to be used (44)
59. tà:čia glow (1, 2)
60. tà:hiria all of them (17)
61. -tta- to get (43)
62. ttaštá: dress (9)
63. turaši- to return (15)
64. tù:ššira elk tooth dress (10)
65. úšša son in law (3, 25)
66. ú:wača quilt (12)
67. ù:xa deer (7, 9, 31)
68. wačá: brother, man (11, 48, 51)
69. wačá:č have to do (25)
70. waisá old (52)
71. wará: money (35, 41)
72. waxí: to tan (14)
73. wá:hússá: clothes (7, 50)
74. wà:rraš- to bead (26)
75. wà:wwišša beaded (8)
76. wía to want (24)
77. wiraxpà:ka relatives (16, 18)
78. wirá water (1, 2)
79. xaxúa all (6, 17, 20, 21, 24)

6. STEM DICTIONARY

6.0. The Crow stems which appear in Chapters I through IV make up the following dictionary. The stems which appear in the text of Chapter V are not included. The dictionary is organized into a Crow-English section (6.1.) and an English-Crow section (6.2.). A more comprehensive dictionary, one that will include both stems and themes, will be published some time in the future.

The Crow-English section contains monomorphemic stems alphabetized under the initial phoneme. Multi-morphemic stems, with varying initial phonemes, are cross-indexed. Discontinuous stems are also cross-indexed, appearing under the initial phoneme of each part of the discontinuous stem: so that stem /$V_1 \ldots C_1 V_2 C_2$/ is alphabetized under both V_1 and C_1.

Section 6.2. contains the English-Crow stem dictionary. A Crow stem having two English translations will be cross referenced: so that /wačá: ~ wačí-/ man, brother will appear primarily under M man. The stems were compared with the word list of R. H. Lowie published in 1960.[1] Since his entries are not phonemic we made the comparison only with the English-Crow section. Most, although not all, of our 290 entries are contained in his list. Those items which do not appear in his list include kinship terms where the speaker is female, certain items of acculturation vocabulary, and verb stems which appear in compounds to form noun themes.

[1] R. H. Lowie, 1960.

6.1. Crow-English Stem Dictionary.

/a/

-á- ~ -hú- ~ hé:- . . . . . to say
a...ašč̌iri- ~ -šč̌iri- ~ -ašč̌iri- . . . . . to buy
a...č̌issa- ~ č̌issa . . . . . to love
-ahpá- ~ -áhpa- . . . . . ear
ahpá:xá . . . . . cloud
aká . . . . . (a) trigger
-a...ká- ~ -íka- . . . . . to see
-akkúxá ~ ákkuxa ~ akkux- . . . . . ear
a...kǫ̀:č̌i- ~ -kǫ̀:č̌i- . . . . . to hang
-ákú:a ~ -akú:a- . . . . . husband's sister
a...ó:rapi- ~ ǫ̀:rapi- . . . . . to find
a...ǫ̀:ri- . . . . . to wait
-apá- ~ -ápa- . . . . . nose
a...paššì- . . . . . to compete
-apá:- . . . . . to be cold
apà:ri- ~ apà:ria . . . . . porcupine
apté . . . . . liver
-arapé:- . . . . . to kick
-aráša . . . . . biceps } sound symb.
-araxá . . . . . hip
aráxi- . . . . . to burn
-ará:xta- . . . . . don't know
aré:- . . . . . to ache
-arí:- ~ rí:- ~ -á:- ~ ará:- ~ hí:- ~ -í:- . . . to go
-aró:- ~ -rú- ~ -ó:- ~ -hu- . . . . . to come
ašá ~ -aš- ~ aší- . . . . . house
a...šiwi- ~ šiwi- . . . . . to wash
-ašš̌ó:xá . . . . . pancreas

awaši:- ~ -awaši:a . . . . . fog
a...waxpi- ~ -waxpi- . . . . . to descend, go down
aweriči . . . . . to fall down
awú:ra . . . . . to ride
awuš-~awušé-~awuší-~awušá . . . . cave, hole
-áwwiči- . . . . . to fall down
awá- . . . . . earth
-áx- . . . . . to squat
-axí:a . . . . . forehead
a...xpa- . . . . . to marry
-axpášši- ~ -xpášši- . . . . . to be sated, full
-axsú:- . . . . . to lose
-axúa . . . . . body
-axxí- ~ -áxxi- . . . . . to cough

/a:/

-á:-~-í:-~-arí:-~rí:-~-ará:-~hí:- . . to go
á:č- ~ á:či- ~ áče- . . . . . to sit
-à:čí- . . . . . to move
-á:...čiwi- ~ á:čiwi- . . . . . to copy
-á:kirre- ~ a...kirre- . . . . . to ride
-á:ra . . . . . elder brother(Fem.Sp.)
-à:ra . . . . . arm
-á:sú:a . . . . . house
-à:ša ~ -à:še- ~ -à:ši- . . . . . river
-á:ši- ~ -ši- . . . . . to hunt
-á:šší:a- ~ à:šší:a ~ á:šší:- . . . . . head
á:...xúa ~ -á:xúa- . . . . . to hide

/č/

-čá- . . . . . foot
-čči- . . . . . to take
-ččirí:- . . . . . to whisper
-ččità:ri- . . . . . to grab
čé:t- . . . . . wolf
čiaxxo . . . . . five
čičáxà: . . . . . circle
-čiká:či- . . . . . to sew
čikúa- . . . . . sweet
-čirá: . . . . . husband

-čiré- ~ -číre- . . . . . to push
-čirì: . . . . . to be afraid
-čissa- ~ a...čissa . . . . . to love
-čiši- . . . . . to drop
-čiši- ~ -číši- . . . . . to tan
-čitá . . . . . husband's brother
a...čiwi- ~ á:čiwi- . . . . . to copy
-čiwussá: . . . . . brains
-čiwwí- . . . . . to count
čì:sa . . . . . tail
-čká:pi- ~ -čkapi- . . . . . to pinch
čua . . . . . other
-čù:hka- . . . . . to smoothen, flatten out
-čù:ká . . . . . younger brother
čù:sa . . . . . half-dollar
čù:ssa . . . . . half

/e:/

-é:rá- . . . . . belly

/h/

háčka . . . . . long
hawát- ~ haváta . . . . . one
-hawassá- . . . . . to take care
-háwi- ~ -hiráwi- . . . . . to sleep
há:kká:ša . . . . . young
-hà:ri- . . . . . to finish
hčì:ta . . . . . younger sister (M. Sp.)
-hé:- ~ -hú- ~ -á- . . . . . to say
hiré- . . . . . here
-hiri- ~ -ri- . . . . . to work, to be skilled
híššši- . . . . . red
hí:- ~ -í:- ~ -arí:- ~ rí:- ~ -á:- ~ ará:- . . to go
-hkapi- ~ -hkápi- . . . . . to scratch
-hkà:ra ~ kà:ra . . . . . grandmother
hkà:ta . . . . . elder sister
-hké- ~ -hká- . . . . . mother
-hpaxá:- . . . . . socks
-hpá:ča . . . . . overshoes
-hú- ~ -hé:- ~ -á- . . . . . to say

-hu- ~ -rú- ~ aró:- ~ -ó:- . . . . to come
hupa- . . . . . a hole
-hupá- ~ hup- . . . . . shoe
-hurá- ~ -huré- ~ -hurí- . . . . . bone

/i/

-ia- . . . . . small
-íá . . . . . teeth
-ía . . . . . mouth
iaxassa . . . . . snake
-ihérapa- . . . . . waist
-ihka- . . . . . chin
-ihká ~ -ihké- ~ -ihkí- . . . . . egg, star
-ihúrá ~ -ihúrí- . . . . . leg
-íka- ~ a...ká . . . . . to see
-ika- . . . . . elder brother, Mo.El.Br, (M. Sp.)

-irápi- . . . . . to be fat
-iraxpa- . . . . . lip
-irì:- ~ -rì . . . . . to speak
-irú:ši- ~ -ú:ši- ~ -rú:ši- . . . . to eat
-isá- . . . . . face
-iš- . . . . . to drink
-išpua . . . . . stomach
íšša . . . . . container

/i:/

-í:-~ -arí:- ~ rí: ~-á:-~-ará:-~hí:- . to go
í:čì:ra~í:čì:ri- ~í:čì:r- ~í:čì:re- . . horse
ì:ra . . . . . blood
-í:rak- . . . . . throat
-í:...šši:- . . . . . to camp
-í:we- . . . . . to cry
í:rak . . . . . that

/k/

-a...ká- ~ -íka- . . . . . to see
-kará:- ~ -karú- . . . . . to run (away)
-karač- . . . . . to believe

kà:ra ~ -hkà:ra . . . . . grandmother
kà:rá . . . . . mother-in-law
kà:rà . . . . . old woman
-ke- . . . . . to scratch
kewra- . . . . . to haul
-kewwá:či- . . . . . to celebrate
khà:ta- ~ -kà:ta . . . . . to blow
khó:- . . . . . same
-khú- ~ -kú- . . . . . to give
a...kirre- ~ á:kirre- . . . . . to ride
-kkà:- ~ -kkú- ~ -khà:- ~ -khú . . . . . to laugh
-kkú- ~ -rà:kku- . . . . . to return
-kò:či- ~ a...kò:či- . . . . . to hang
kó:ta . . . . . to be right
kúh . . . . . that
-kuré:- . . . . . to carry
-kuruš pì:a- . . . . . to decorate

/o:/

-ó:- . . . . . to bring
-ó:- ~ -rú- ~ -aró:- ~ -hu- . . . . . to come
-ò:či- ~ ò:čia . . . . . night
a...ò:ri- . . . . . to wait
ò:pa . . . . . tobacco
ò:rapi- ~ a...ó:rapi- . . . . . to find
ò:š- . . . . . to cook, burn
-ò:wappi- ~ ò:wappa . . . . . square

/p/

a...paššì- . . . . . to compete
pašší- ~ -pášší- . . . . . to fall
-pá:- . . . . . to shout
-pá:xia . . . . . Fa Si, Mo Si
-piraká- . . . . . ten
-ppaxí- ~ rappáxí- . . . . . to cut
-púa- . . . . . to be sour
-púa- . . . . . to jump
púpča . . . . . ball
puxxá . . . . . beer
-pxi- . . . . . to bite

-ráhčawa	armpit
-rakà:- ~ -rakú-	to drive
-rakà:ka ~ -rakà:ke-	bird
-rápáko	right side
-rappáxí- ~ -ppaxí-	to cut
-rašpa	shoulder
-rašté:-	to be nice
-raxčí- ~ -xčí-	to tie
ráxi- ~ raxi-	to sing
-raxíči- ~ -xiči-	to plow
ráxpá ~ raxpá	(a) skin, leather
raxpičá:	(a) bear
raxpiččò:x-~raxpiččò:xe-~raxpiččò:xa	pig, bacon
-rá:ka- ~ rà:ka ~ rà:ke-	offspring
-rà:kku- ~ -kkú-	to return
-rá:sa	heart
-rà:skawi-~ -ráskawi-	to be mad
-rà:ta	calf of leg
-rà:wí-	three
-rà:xo	lung
-ré:-	to go with
-ri- ~ -hiri-	to work, to be skilled
-rí-	to live
-ría-	to make, to do
-ríči-	to hit
-ríššì- ~ rišši- ~ ríšší-	dance
-ríššì-	to be afraid
-rí:-~ -í:- ~ -arí:- ~ -á- ~ ará:- ~ hí:-	to go
-rì:- ~ -irì:-	to speak
-rí:ahi-	to breathe
-rì:ri-	to walk
-rú- ~ -aró:- ~ -ó:- ~ hu-	to come
rúhp- ~ rúhpá:-	two
-ruká-	meat
-rú:-	to stand
rù:ra ~ -rù:ri- ~ -rù:re-	(a) back
-rú:ré:pa	jaw
-rù:sa	rib
-rú:ši- ~ -ú:ši- ~ -irú:ši-	to eat

/s/

sáhpua	seven
-sapía	to grind
-sá:-	arrow
-sà:	big
sà:ka	frog
-sà:ka- ~ sak-	father (F. Sp.)
sà:pa	what
-sà:ši-	to call
-só:ká	younger sister (F.Sp.)
-ssáči-	to pinch
súa	thunder

/š/

-ščá	hand
-ščí-	to take
-ščiri- ~ -aščiri- ~ a...ščiri-	to buy
-ši- ~ -á:ši-	to hunt
šičà:	hills
-šiči-	to be busy
šičí-	thick, to thicken
šikà:ka- ~ šikà:k-	boy
šipíta	black, to blacken
-širía-	rattles
-šiwi- ~ a...šiwi-	to wash
-šì:-	to put (down)
-šì:pa	intestines
-škia-	horse, dog
-šó:pá	four
šò:ta	what kind
-špasá	thumb
-špaxá	elbow
-šše:či- ~ -šše:či-	to break
-šši-	to rest
-šši-	to paint
-ššíší- ~ -ššiši-	to break
-ššita-	to be lazy, lazy
í:...šši:-	to camp
-ššíːa	hair
-ššku-	to cut

-šštá . . . . . eye
šúa . . . . . spit
šù:a . . . . . blue
-šú:ša . . . . . knee

/t/

-tarrá- ~ tárrá:- . . . . . to shiver
tašší- ~ -tašša . . . . . grease, to grease
tà:čia . . . . . glow
-tà:hi- . . . . . to break
-ttaštá: . . . . . dress
tù:šširа . . . . . elk tooth dress

/u/

-ušša- ~ -úšša- . . . . . daughter's husband (Fem. Sp.)

/u:/

ú:a- . . . . . wife
ù:ča- . . . . . to dry, dry
-ú:ši- ~ -irú:ši- ~ -rú:ši- . . . . . to eat
ù:tta . . . . . weasel
ù:wa- . . . . . clay
-ù:xa . . . . . deer

/w/

wačá: ~ wačí- . . . . . man, brother
-wáhpuata- . . . . . (a) fly
-warа́:- ~ -waré:- . . . . . money
warа́ ~ waré- ~ war- . . . . . tree
-warа́:či- ~ warа́:č- . . . . . to write, to paint
-warú:- . . . . . to fight
-waxpi- ~ a...waxpi- . . . . . to descend, go down
-wáxxo- . . . . . to ask
wá:čkuxxa- . . . . . to put in order
-wá:hússá: . . . . . clothes
wá:kà:ta- . . . . . child
wá:pà:rá ~ wá:pà:ré- ~ wá:pà:rí- . . . (a) plant

wá:ppčia- . . . . . wagon
wà:ra . . . . . winter
wá:rá:xa ~ wá:rá:xi- . . . . . insane
-wá:rí:a . . . . . medicine, cure
wá:ro . . . . . beads
-wá:šà: . . . . . boat
wà:šo ~ wà:š- . . . . . feather
wá:tá:- ~ wá:t- ~ wati- . . . . . dish
-wá:xawa- . . . . . bread
-wíčči- ~ -wítta- . . . . . (a) knife
wičkirí:- . . . . . peyote
wihka . . . . . fleas
wikà ~ wikè- . . . . . grass
wirá- ~ wir- ~ wirí- ~ wiré . . . . . water
wiraxpà:ka . . . . . people
wirà:- ~ -wirè:- . . . . . fire
wirišša . . . . . corpse
wišá ~ wiš- ~ wiší- ~ wišé- . . . . . blanket
wíšà: . . . . . buffalo
wiška . . . . . dog
wiškakà:ša . . . . . dog
wiškà: . . . . . sap, gum
wixxwá- ~ wixxú:a- . . . . . to spill
wí:- ~ wí:á ~ wí:í- . . . . . (a) rock
wí:a . . . . . sister (M. Sp.)
wí:a- ~ wí:i- . . . . . woman
wúá . . . . . (a) fish
wurúxà:- . . . . . ice
-wù:ssa- . . . . . harvest

/x/

-xap- ~ xapi- ~ xape- . . . . . to lie down
xáp- ~ xápì:- . . . . . to be lost
xapà:ri- ~ -xapà:ra- . . . . . Indian medicine
-xará:- . . . . . to rain
-xarúa- ~ -xarua- . . . . . to push
-xarúšši- . . . . . to run
-xátí:- ~ -xátí:a- . . . . . to itch
-xáwì:- . . . . . to be bad
xaxúa . . . . . all
-xáxxa ~ -xáxxi- . . . . . stripe

-xà:pi-	to be flat, thin
xá:wí-	to be bushy
-xčí- ~ -raxčí-	to tie
-xè:či- ~ -xé:či-	to pierce
-xiššа	bump, lump
-xiči- ~ raxíči	to plow
xò:xá:ši- ~ xò:xá:šа	corn
a...xpá	to marry
-xšé-	to win
á:...xúa ~ -á:xúa-	to hide
xúššа	to be fast

6.2. English-Crow Stem Dictionary.

A

to ache	aré:-
to be afraid	-čirì:, -ríššì-
all	xaxúa
arm	-à:ra
armpit	-ráhčawa
arrow	-sá:-
to ask	-wáxxo-

B

(a) back	rù:ra~-rù:ri-~-rù:re-
bacon	see pig
to be bad	-xáwì:-
ball	púpča
beads	wá:ro
(a) bear	raxpičá:
beer	puxxá
to believe	-karač-
belly	-é:rá-
biceps	-aráša
big	-sà:
bird	-rakà:ka~-rakà:ke-
to bite	-pxi-
black, to blacken	šipíta
blanket	wišá~wiš-~wiší-~wišé-
blood	ì:ra
to blow	khà:ta-~-kà:ta
blue	šù:a
boat	-wá:šà:

body . . . . . -axúa
bone . . . . . -hurá-~-huré-~-hurí-
boy . . . . . šikà:ka-~šikà:k-
brains . . . . . -čiwussá:
bread . . . . . -wá:xawa-
to break . . . . . -šše:ši-~-šše:či-; šší:ší-~-šši:ši-; -tà:hi-
to breathe . . . . . -rí:ahi-
to bring . . . . . -ó:-
brother . . . . . see man
buffalo . . . . . wíšà:
bump, lump . . . . . -xiššа
to burn . . . . . aráxi-; and see to cook
to be bushy . . . . . xá:wí-
to be busy . . . . . -šiči-
to buy . . . . . a...ašči:ri-~-šči:ri-~ašči:ri-

C

calf of leg . . . . . -rà:ta
to call . . . . . -sà:ši-
to camp . . . . . -í:...šši:-
to carry . . . . . -kuré:-
cave, hole . . . . . awuš-~awušé-~awuší-~awušá
to celebrate . . . . . -kewwá:či-
child . . . . . wá:kà:ta-
chin . . . . . -ihka-
circle . . . . . čičáxà:
clay . . . . . ù:wa-
clothes . . . . . -wá:hússá:
cloud . . . . . ahpá:xá
to be cold . . . . . -apá:-
to come . . . . . -aró:-~-rú-~-ó:-~-hu-
to compete . . . . . a...pašši-
container . . . . . íššа
to cook, burn . . . . . ò:š-
to copy . . . . . -á:...čiwi-~á:čiwi-
corn . . . . . xò:xá:ši-~xò:xá:ša
corpse . . . . . wirišší
to cough . . . . . -axxí-~-áxxi-
to count . . . . . -čiwwí-
to cry . . . . . -í:we-

cure	see medicine
to cut	-ppaxí-~rappáxí-, -šškú-

D

dance	-ríššì-~rišši-~ríššé-
daughter's husband (Fem.Sp.).	-ušša-~-úšša-
to decorate	kurušpì:a-
deer	-ù:xa
to descend, go down	a...waxpi-~-waxpi-
dish	wá:tá:-~wá:t-~wati-
to do	see to make
to do one's way	see to work
dog	wiská; wičkakà:ša; see also horse
don't know	-ará:xta-
dress	-ttaštá:
to drink	-iš-
to drive	-rakà:-~-rakú-
to drop	-čiši-
dry, to dry	ù:ča-

E

ear	-ahpá-~-áhpa-; akkúxá~ákkuxa~akkux-
earth	awá
to eat	-irú:ši-~-ú:ši-~-rú:ši-
egg, star	-ihká-~-ihké-~-ihkí-
elbow	-špaxá
elder brother, Mo El Br, (F. Sp.).	-á:ru
elder brother, Mo El Br, (M.Sp.).	-ika-
elder sister	hkà:ta
elk tooth dress	tù:ššira
eye	-šštá

F

face	-isá-
to fall	paššì-~-pášší-
to fall down	awerič̀i, -áwwič̀i-
to be fast	xúšša

to be fat . . . . . -irápi-
father (Fem. Sp.) . . . . . -sà:ka-~sak-
father's sister; mother's sister . -pá:xia
feather . . . . . wà:šo~wà:š-
to fight . . . . . -warú:-
to find . . . . . a...ó:rapi-~ò:rapi-
to finish . . . . . -hà:ri-
fire . . . . . wirà:-~-wirè:-
(a) fish . . . . . wúá
five . . . . . čiaxxo
to be flat, thin . . . . . -xà:pi-
to flatten out . . . . . see to smoothen
fleas . . . . . wihka
(a) fly . . . . . -wáhpuata-
fog . . . . . awaší:-~-awašíːa
foot . . . . . -čá-
forehead . . . . . -axíːa
four . . . . . -šó:pá
frog . . . . . sà:ka
to be full . . . . . see to be sated

G

to give . . . . . -khú-~-kú-
glow . . . . . tà:čia
to go . . . . . -arí:-~rí:-~-á:-~ará:-~hí:-~-í:-
to go down . . . . . see to descend
to go with . . . . . -ré:-
to grab . . . . . -ččità:ri-
grandmother . . . . . -hkà:ra~kà:ra
grass . . . . . wikà~wikè-
grease, to grease . . . . . tašší-~-tašša
to grind . . . . . -sapía
gum . . . . . see sap

H

hair . . . . . -šší:a
half . . . . . čù:ssa
half-dollar . . . . . čù:sa
hand . . . . . -šča
to hang . . . . . a...kò:či-~-kò:či-

harvest . . . . . -wù:ssa-
to haul . . . . . kewra-
head . . . . . -á:šš́úa-~à:šš́ua~á:šš́u-
heart . . . . . -rá:sa
here . . . . . hiré-
to hide . . . . . á:...xúa~-á:xua-
hills . . . . . šičà:
hip . . . . . -araxá
to hit . . . . . -ríči-
hole . . . . . hupa-; see also cave
horse . . . . . í:čì:ra~í:čì:ri-~í:čì:r-~í:čì:re-
horse, dog . . . . . -škia-
house . . . . . ašá~-aš-~aší-, -á:sú:a
to hunt . . . . . -á:ši-~-ši-
husband . . . . . -čirá:
husband's brother . . . . . -čitá
husband's sister . . . . . -ákú:a~-akú:a-

I

ice . . . . . wurúxà:-
insane . . . . . wá:rá:xa~wá:rá:xi-
intestines . . . . . -šì:pa
to itch . . . . . -xátí:-~-xátí:a-

J

jaw . . . . . -rú:ré:pa
to jump . . . . . -púa-

K

to kick . . . . . -arapé:-
knee . . . . . -šú:ša
(a) knife . . . . . -wíčči-~-wítta-
don't know . . . . . -ará:xta-

L

to laugh . . . . . -kkà:-~-kkú-~-khà:-~-khú
lazy, to be lazy . . . . . -šš́ita-
leather . . . . . see skin

leg	-ihúrá~-ihúrí-
to lie down	-xap-~xapi-~xape-
lip	-iraxpa-
to live	-rí-
liver	apté
long	háčka
to lose	-axsú:-
to be lost	-xáp-~xápì:-
to love	a...čissa-~čissa
lump	see bump
lung	-rà:xo

M

to be mad	-rà:skawi-~-ráskawi-
to make, to do	-ría-
man, brother	wačá:~wačí-
to marry	a...xpa-
meat	-ruká
medicine, cure	-wá:rí:a
medicine (Indian)	xapà:ri-~-xapà:ra-
money	-wará:-~waré:-
mother	-hké-~-hká-
mother-in-law	kà:rá:
mother's sister	see father's sister
mouth	-ía
to move	-à:čí-

N

to be nice	-rašté:-
night	-ò:či-~ò:čia
nose	-apá-~-ápa-

O

offspring	-rá:ka-~rà:ka~rà:ke-
old woman	kà:rà:
one	hawát-~hawáta
other	čua
overshoes	-hpá:ča

P

to paint . . . . . -šši-; warà:či-
pancreas . . . . . -aššó:xá
people . . . . . wiraxpà:ka
peyote . . . . . wičkirí:-
pig, bacon . . . . . raxpiččò:x-~raxpiččò:xe-~ raxpiččò:xa
to pierce . . . . . -xè:či-~-xé:či-
to pinch . . . . . -čkà:pi-~-čkapi-; -ssáči-
(a) plant . . . . . wá:pà:rá~wá:pà:ré:-~wá:pà:rí-
to plow . . . . . -raxíči-~-xiči-
porcupine . . . . . apà:ri-~apà:ria
to push . . . . . -čiré-~-číre-; -xarúa-~-xarua-
to put (down) . . . . . -šì:-
to put in order . . . . . wá:čkuxxa-

R

to rain . . . . . -xará:-
rattles . . . . . -širía-
red . . . . . híššši-
to rest . . . . . -šši-
to return . . . . . -kkú-~-rà:kku-
rib . . . . . -rù:sa
to ride . . . . . awú:ra; a...kirre-~á:kirre-
to be right . . . . . kó:ta
right side . . . . . -rápáko
river . . . . . -à:ša-~-à:še-~-á:ši-
(a) rock . . . . . wí:-~wí:á~wí:í-
to run . . . . . -xarúššši-
to run (away) . . . . . -karáː-~-karú-

S

same . . . . . khó:-
sap, gum . . . . . wiškà:
to be sated, full . . . . . -axpáššši-~-xpáššši-
to say . . . . . -á-~-hú-~hé:-
to scratch . . . . . -hkapi-~-hkápi-; -ke-
to see . . . . . -a...ká-~-íka-
seven . . . . . sáhpua

to sew	-čiká:či-
to shiver	-tarrá-~tárrá:-
shoe	-hupá-~hup-
shoulder	-rašpa
to shout	-pá:-
to sing	ráxi-~raxi-
sister (M. Sp.)	wí:a
to sit	á:č-~á:či-~áče-
to be skilled	see to work
(a) skin, leather	ráxpá~raxpá
to sleep	-háwi-~-hiráwi-
small	-ia-
to smoothen, flatten out	-čù:hka-
snake	iaxassa
socks	-hpaxá:-
to be sour	-púa-
to speak	-irì:-~-rì
to spill	wixxwá-~wixxú:a-
spit	šúa
square	-ò:wappi-~ò:wappa
to squat	-áx-
star	see egg
to stand	-rú:-
stomach	-išpua
stripe	-xáxxa~-xáxxi
sweet	čikúa-

T

tail	čì:sa
to take	-čči-; -ščí-
to take care	-hawassá-
to tan	-čiši-~-číši-
teeth	-íá
ten	-piraká-
that	kúh; í:rak
thick, to thicken	šičí-
to be thin	see to be flat
three	-rà:wí-
throat	-í:rak-
thumb	-špasá
thunder	súa

to tie . . . . . -raxčí-~-xcí-
tobacco . . . . . ò:pa
tree . . . . . warán~waré-~war-
(a) trigger . . . . . aká
two . . . . . rúhp-~rúhpá:-

W

wagon . . . . . wá:ppčia-
to wait . . . . . a...ò:ri-
waist . . . . . -ihérapa-
to walk . . . . . -rì:ri-
to wash . . . . . a...šiwi-~šiwi-
water . . . . . wirá-~wir-~wirí-~wiré
weasel . . . . . ù:tta
what . . . . . sà:pa
what kind . . . . . šò:ta
to whisper . . . . . -ččirí:-
wife . . . . . ú:a
to win . . . . . -xšé-
winter . . . . . wà:ra
wolf . . . . . čé:t-
woman . . . . . wì:a-~wì:i-
to work, to be skilled . . . . . -hiri-~-ri-
to write . . . . . -warán:či-~warán:č-

Y

young . . . . . há:kká:ša
younger brother . . . . . -čù:ká
younger sister (Fem. Sp.) . . . . . -só:ká
younger sister (M. Sp.) . . . . . hčì:ta

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