

Initial change in Blackfoot

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This paper is a preliminary description of the history of Blackfoot initial change, a peculiar modification of the verb stem found in most Algonquian languages, from Proto Central Algonquian times to the present. It begins with extensive notes on the historical phonology of Blackfoot, necessary to following the examples when discussing the history of initial change.

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1. Introduction.

The first study of initial change in Blackfoot, both synchronic and comparative, was an Algonquian Conference paper by Allan Taylor in 1967. He discussed the synchronic data in somewhat greater detail two years later in his Blackfoot grammar (Taylor 1969:120-128).

However, he found that classical initial change was a dying grammatical system in Blackfoot, limited to a few stems. His choice of examples - mainly verbs with known Algonquian cognates - suggests he was seeking inspiration from the comparative picture. However, Blackfoot phonology had not yet been treated comparatively, beyond some anecdotal details, and Proto Central Algonquian (PCA) initial change was far from fully understood.

When a quarter century later David Costa (1996) provided a synchronic summary and detailed comparative discussion of initial change for most Algonquian languages, there had been some significant contributions to Blackfoot linguistics of a general sort, notably a dictionary (Frantz and Russel 1989), and a historical phonology (Proulx 1989). However, these studies, while they were prerequisites to elucidating the history of Blackfoot initial change, made no direct contribution to it.

Consequently, Costa's treatment of Blackfoot was limited to a paraphrase of Taylor (1967), even more tentative in tone. In the main, his conclusions were that "what Taylor calls initial change is almost certainly cognate with initial change in the rest of Algonquian," and that "the insertion of ay- is an archaism" (Costa 1996:56-57). With regard to the similarities Taylor had pointed out between ablauting in Blackfoot and in some other Central Algonquian languages, Costa reserved judgment: "no safe conclusions can be drawn from any of these vowel alternations." Taylor's tentative suggestions in the 1967 paper were to remain the last word on the subject until the present time.

Any fully satisfactory diachronic account of Blackfoot initial change must necessarily rest on a good understanding of Blackfoot historical phonology in general. Although this has been somewhat better understood since my 1989 sketch, I did not then have access to Frantz and Russel's Blackfoot dictionary, published in the same year. Now, with its help, I am now able to fill many of the gaps, and give a more accurate account of some low frequency correspondences.

Even now, however, our synchronic understanding of Blackfoot vowel length and stress, and of the relationship between them, is as yet far too imperfect to permit of secure and precise diachronic statements about them. Fortunately, with a few exceptions, vowel length and stress probably contribute relatively little to contrasts of meaning in Blackfoot.

Since I will need to refer the reader to Taylor (1969) a great deal, I abbreviate to only an initial and the page number: for example, T109 means (Taylor 1969:109). Words from an early dictionary (Uhlenbeck and Van Gulik 1930) are identified, but words from Frantz and Russel's modern dictionary are quoted without reference to it.

1.1. Assumptions.

A number of topics lie beyond the purview of this paper, and will not be here discussed in detail, but must nevertheless be very briefly explained to avoid confusion. Mainly, this involves cases where my analysis or conventions differ from those the reader is most likely to have

encountered elsewhere.

First, since around 1984, I have transcribed the Algonquian languages using orthography which more nearly resembles standard Americanist usage (such as used in the Handbook of North American Indians), rather than the idiosyncratic symbols commonly used by Algonquianists. Changes intended to increase phonetic realism were PA *ɬ for *θ, and, in consonant clusters, *ʂ for cedilla, and *ɬ for *χ. Despite my aim of phonetic realism, the phonetics of the first members of consonant clusters are surely debatable, as are those of many reconstructed phonemes. This makes no difference to today's topic.

Second, my genetic grouping of Algonquian languages is not the widely accepted one, which posits a Proto Eastern Algonquian (PEA), and denies the existence of Proto Central Algonquian (PCA). I have demonstrated that there is no credible evidence for PEA (Proulx 2003, in press). Pending my demonstration that PCA does indeed exist, the label PCA may be read as "PA reconstruction supported by only Central Algonquian data." Central Algonquian languages are here defined as all nonEastern Algonquian languages (including those of the Plains). Similarly, for now Proto Lake Algonquian may be read as "PCA or PA reconstructions supported by only data from Fox- Kickapoo, Shawnee, and Miami-Illinois."

Third, although a core of grammatical terminology used by Algonquianists goes back to Leonard Bloomfield, the father of Algonquian language studies, his own usage varied somewhat over time, and gradually some new terms have been suggested, mainly for things he didn't describe. Other scholars have sometimes used terminology imported from other grammatical traditions, or invented some. Despite rumors to the contrary, my use of Algonquian terminology comes squarely from Bloomfieldian tradition. It evolved under the guidance of C.F. Hockett, who was a student of Bloomfield and edited this Menomoni and Ojibwa grammars after his death.

Fourth, contrary to persistent rumors, there is nothing unusual about my diachronic methodology, at least not to anyone familiar with both Algonquian and Indo-European comparative linguistics.¹ However, there is one case where the two traditions disagree, in that Indo-Europeanists generally require three cognates for reconstruction, while Algonquianists generally are satisfied with two.

2. New notes on Blackfoot historical phonology.

For purposes of this paper, I will discuss only those phonological points which are necessary (1) to understand initial change itself, or (2) to be convinced that Blackfoot forms compared to Proto Central Algonquian (PCA) ones are in fact related, or (3) that the forms cited in demonstrating 1

¹ I am one of the last to have learned it at a time when there were still scholars around who understood it like recent graduates do syntax. Therefore, I am not limited to the most elementary sorts reconstruction, and don't mistake typological similarity for genetic relationship. Perhaps this is what some find unusual.

and 2 are themselves related. These matters take up about half the paper. A full treatment of the phonology is clearly beyond its purview.

2.1. The main phonological changes in Blackfoot.

The most common phonological changes which set most Algonquian languages apart from each other were mergers of PA *l, *ɫ, and *ʂ, either with each other or with *n, *y, or *t, or both. Blackfoot merged *l, *ɫ, and *ʂ with *t. Thus, for example, the ubiquitous imperative singular ending PCA *-lo shows up as Blackfoot -t, cited in many examples below.

There are several other changes that give Blackfoot its characteristic phonology. Perhaps most striking characteristic is the frequency of i and of ɚ in Blackfoot, which once prompted Paul Voorhis to say in jest that "in Blackfoot, all vowels go to i, and all consonants go to ɚ." The humor in this lies not in the wrongness of the statement, but in how close to true it is. PCA *a, *ɛ, *ɛ:, *i, and *i: all did have Blackfoot i as their least conditioned reflex. Of the 8 inherited PCA vowels, this left only *a:, some instances of *a, and the somewhat rare *o: and *o which did not.

Most of the instances of Blackfoot ɚ are due to two episodes in the course of its early history, when Blackfoot evidently underwent what is sometimes called yodation (epenthesis of *y). The first came in dialectal PCA times and was shared with Cheyenne, Shawnee, and Miami-Illinois (though environments differ notably in the last two languages). In the Blackfoot case PCA *ke(:) --> *kye(:) --> *ki(:). The second episode produced Blackfoot assibilation, when pre-Blackfoot *y from all sources became Blackfoot ɚ.

There are two patterns of this assibilation, conditioned by two varieties of adjacent Blackfoot i. One pattern (A below) reflects Pre-Blackfoot *i or *i:. Pre-Blackfoot *i or *i: is from PCA *i or *i: and from episode one yodation (and some cases of analogy). Blackfoot i from this source is written |I| morphophonemically by Taylor, though its phonemic realization is simply i (T104-105). Further examples are listed in my earlier treatment of Blackfoot historical phonology (Proulx 1989:52-53). The other pattern (B below) reflects pre-Blackfoot *i from PCA *a, *ɛ and *ɛ:.

(A) for Blackfoot I, and for Blackfoot t from all sources:

(1a) *ItV --> *istV (where V = vowel or semivowel). Examples are: Blackfoot kšiistssí?wa 'she's finished' T63, from *ki:š- 'finish'; Blackfoot i-ksistokomi- 'be warm water', as if from *ki:šo:-kamy-i- 'be warm water' (with vowel harmony).

(1b) *ICt + *ICk --> *isst + *issk (where C = consonant), and the *i dropped after a single postvocalic obstruent T77. Examples are: Blackfoot -sski 'face' from PCA *-i:nkwe: 'eye, face', as in síksski- 'have a black face', Blackfoot pisst- or ipsst- 'inside'

T104-105 from PCA *pi:nt- 'into, go inside', and Blackfoot otssko 'blue, green' from PA *welitki- 'blue' (Munsee Delaware oolíhkii- 'blue').

(1c) *tI and *kI --> *tsi and *ksi (see examples under 1a above).

(B) for Blackfoot i from PCA *a, *e and *e:, and for Blackfoot t from all sources:

(2) *ti --> *tsi. An example is: Blackfoot ksimínihkatsisa 'call her thou by her pet nickname' from pseudo-PCA *4ki:m-inlehka:t-i 'call thou her by a secret substitute name' (combining the root PCA *4ki:m- 'stealthy, secret' with the medial in PCA *4ešinlehka:t:wa 'she calls him so').

2.1.1. Other important phonological changes in Blackfoot.

I begin with examples of the first episode of yodation (in dialectal PCA times).² Blackfoot otokssksiya 'tree bark' is from *welake:tkw- 'bark' (*ke:t --> *kye:t --> *ki:t --> *kissk --> *kssk). Without yodation, one would have had *ke:t --> *ksisk, and no way to drop the *i. For the harmonic rounding of *a, and the treatment of stem final *w, see the appropriate sections (2.5 and 2.6) below. Blackfoot íi-kahksstóókiyiwa 'she cut off his ear' is from PCA *ki:škehtawake:- 'have an ear cut off', plus initial change of *i: --> *a:. Note how dialectal PCA yodation replaced *ke by *ki, so assibilation rules work on *ka:škihtawake:-.

Another example is Blackfoot ksísskstakiwa 'beaver', from PCA *4ki:škešike:wa 'the one who cuts things through' (reshaped with the productive indefinite object ending -aki T227). This ending evidently originated when indefinite object *-ke: was added to a stem ending in *am, like *ahšam- 'feed someone', as in Blackfoot nitsíisaki 'I fed someone, people' from PCA *ahšanke:- 'feed people'.

Where none of these assibilation rules applied, (3) the first member of most PCA consonant clusters gave pre-Blackfoot *h (Taylor's x), except where rule 1b gave *ss, which precluded *h.

Across morpheme boundaries, yodation may be present or not. Taylor (1969:223) cites Blackfoot pakkixkáán 'bursting' and changed payákkixkaa?wa 'it burst', from the root PCA *pa:šk- 'burst, blow up' plus the medial -ixkaa, evidently beginning in *-e: and lacking yodation.³ Examples of the same stem from Frantz and Russel (1989) show yodation of *ke: across the morpheme boundary: pakksskaat 'burst thou', with the medial *-sskaa by rule 1b.

² Yodation was evidently blocked or leveled out across boundaries of any sort.

³ Taylor says that "the suffix -Sk- forms themes with the meaning of the state which results from the action designated by the verbal stem. The theme-closing vowel is -aa-" T222-223.

2.2. The loss of syllables.

One phonological development in Blackfoot that can make it difficult to recognize a cognate is the loss of a syllable. There are two cases: a consonantism may be lost and two adjacent vowels merge, or i may be lost and two consonantisms form a simplified cluster.

2.2.1. Postconsonantal laterals.

One reason for syllable loss is the loss of postconsonantal laterals. Least troublesome is *nl --> n, as in *inlehk- 'call by a nickname', which gives Blackfoot ín?ixk- (where the glottalization is secondary, see T109). However, in most if not all of the remaining cases, the aspiration or glottal catch preceding the l dropped as well (that is, generally *ʔl, *ʔl, *hl, *hl dropped between vowels). Such loss produced a sequence of two vowels.

When the two vowels were both i, they were optionally either separated by y, or fused into a single vowel, that might be optionally long or short T96. Taylor gave two examples with known etymologies. The first is: niyím?ssa, niím?ssa, ním?ssa 'my daughter-in-law' from PCA *ne?temwehsa 'my cross niece' (reflecting PCA cross cousin marriage, see Hockett 1964). Again the glottalization is secondary, see T109. The second example is miyísstowaan, miísstowaan, mísstowaan 'facial hair, beard' from PCA *mi:?:leton- plus nominalizing -aan. The loss of stem final *n is usual between most vowels in Blackfoot, provided the second is not a short final one, and both are either front vowels or both non-front ones.⁴ This is productive synchronically, though not fully predictable. A third example is Blackfoot apaks/ísttohks/iksisi 'lumber' (slashes added), which consists of ísttohk- 'thin and flat' inserted into PCA *4(n)apak/ehtakwa 'board'. PCA *4(n)apak- 'flat' shows the usual absence of initial *n in Blackfoot,⁵ and the final is PCA *ehtakw 'board, plank',⁶ where *4ehła --> *4eha --> *4ihi --> 4i).

When one of the two vowels is *o, the other assimilates to it. An example is medial *-4ohłe: 'walk', for example in Blackfoot ksiwoót 'walk thou' and ji-ksowóowa 'she walked' from PCA *4ki:wohłe:- 'walk about'. The same element is present in Blackfoot áaks-isskoowa 'she will walk low, crouched down' from pseudo-PCA *4esk-ohłe:wa 'she/he walks low', with PCA *4esk- 'low water' (plus *4ohłe: --> *4ohe: --> *4ohi --> oo).⁷ Finally, Blackfoot nóom?a 'my husband' is

⁴ However, the front vowels always contract to a long vowel. An example is -xpin 'lung', as in oxpín?i 'her/his lung', that loses its n in moxpíists '(someone's) lungs'. The suffix here historically is PA *-ali 'inanimate plural', and the stem PA *-hpani 'lung' (Micmac -p'n, Cree -hpan, Ojibwa -pan). This was evidently part of a more general loss of stem final consonants, Taylor (1969:174, 192) notably pointing out that stem final Blackfoot nasals and ɣ (from *y) drop in most stems before certain suffixes (beginning in i).

⁵ Munsee Delaware lost the whole initial syllable: páke:w 'it is flat' (Goddard 1982:36).

⁶ In fact, these are probably independent parallel creations in all the languages, as the PCAs didn't have saw mills. However, they illustrate the cognate meaning of the root and final well.

⁷ PA *hl is not the source of the Blackfoot ɣ in -ksíssta 'mother', as I supposed earlier (Proulx 1989:52). The correct reconstruction for 'mother' is PA *-kyahšiwá. Possibly Blackfoot -ksíssta 'mother' is a backformation from theoretical *oksísstiwa 'she/he has (her as) a mother'. Alternatively, perhaps *iw dropped between a consonant and

from a possessed nondiminutive form of **(m)e?lo:hseh_sa* 'old man' (Goddard 1973:54), minus the initial **m*. That is, it reflects pseudo-PA **n-e?lo:-m-a* (**e?lo:* --> **e?o:* --> **i?o* --> *óo*). Unami Delaware also uses **me?lo:hseh_sa* in this way, but retaining the initial **m* and one of the diminutives: *nəmihəlú:s:əm* 'my husband' (Goddard 1973:47). Compare Virginia Algonquian *numerothe quier* 'your companion' (better, 'you're my companion').

2.2.2. Blackfoot *tj* --> *ʔ*.

A syllable is lost when Blackfoot *t_si* from any source gives *ʔ* before an obstruent or obstruent cluster, and the cluster drops its first member. An example is Blackfoot *i?sít* 'dye thou it' and *i?síma* 'she/he dyed it' from PCA **atehsamwa* 'she/he dyes it, colors it, paints it'. Compare Blackfoot *a?sááni* 'paint'. The usual reflex of **a* in initial position is *a*, so *i?síma* likely incorporated initial change of **a* --> **e:*. For further examples, see Proulx (1989:58).

In a few cases, the resulting glottal catch was evidently moved back onto the last consonantism of the root: Blackfoot *sa?kap-áaatoot* 'come thou out of it' from PCA **sa:kičipahtawi-* 'run out of a place', but reshaped with the penultimate vowel modeled upon that in *áaat-* 'move in relation to', from **a:nt-* 'move, change location', or **a:nčita:wa* 'she/he changes it'.⁸ Compare Blackfoot *saaksít* 'go thou out' T261, and *isaksiwa* 'she/he went out', both without the glottal. Note that PCA **č* gives Blackfoot *t*.

2.2.3. Blackfoot *kit* --> *tt*.

A syllable is lost through the replacement of Blackfoot *kit* from all sources by *tt*. An example is Blackfoot *ipisttsi-* 'fart, break wind', as in *ii-pisttsiwa* 'she/he expelled intestinal gas', from **pi:kitiwa* 'she/he breaks wind': Micmac *pikti-*, Western Abenaki *bigidi-*. The preassibilation of Blackfoot *tt* shows the preceding vowel to have been of **i*-quality, eliminating as sources the alternate variants of this word (**po:kitiwa*, **pe:kitiwa*, and **pwe:kitiwa* 'she/he breaks wind'). For further examples, see Proulx (1989:57).

2.2.4. Blackfoot *CiN* --> *NN*.

A syllable is lost through the assimilation of an obstruent to a following nasal, after the loss of Blackfoot *ɨ* from any source. An example is (**p* --> **m*) in Blackfoot *issámmisa* 'look thou at

word final **-a* 'animate singular', e.g., in Blackfoot *nospi* 'my gall bladder' from PCA **wi:nsopyiwa* '(she/he has) gall'.

Another example may be Blackfoot *nóótoyisá* 'my navel' from a-grade PA **n-i:ɬawi:-?siyi* 'my navel', where evidently gender changed and semivowels aligned on the following vowel early, giving **n-i:ɬayi:-?siwa*, and **iw* dropped. With the insertion of body part *-oo-*, the remaining reflexes are regular (**n-o:-ɬayi:-?sa* --> **n-o:-ɬoyi:-?sa* --> **n-oo-toyi:-?sa*).

PA **n-i:[(e)wi:-?siyi* e-grade 'my navel': Fox *ki:nwi:ɬiki* 'at thy navel', compounded with PCA **-?siyi* and with locative **-enki*, Massachusetts *menwee* 'a navel', Arapaho *méš* 'a navel', Illinois *niri* 'my navel', *aširimaš* 'the navel', Micmac *wili* 'her/his navel'. PCA **net-e-?siyi* 'my navel': Cree *nitisiy*, Ojibwa *indis*, Menominee *netɛ:ʔseh* 'at my navel'.

⁸ Possibly the long *áaa* reflects iterative reduplication (**a:ya:nt-*).

her/him' from PCA *ḥa:pami 'look thou thus or thither at her/him'. Note that pre-Blackfoot *t from all sources merges with *ḡ as the first consonant of a word. For further examples, see Proulx (1989:57).

2.3. Consonant absence in word initial position.

A great number of Blackfoot words lack an initial consonant, as compared to their PCA sources as normally reconstructed.⁹ It is impossible to specify an environment for initial consonant dropping in Blackfoot, assuming that an initial PCA consonant had always been present in these cases. However, initial consonant absence is also seen in Munsee Delaware.

Reduplicated Munsee Delaware stems beginning in a consonant had two allomorphs: the full stem after a prefix and in the changed conjunct, but minus its initial consonant in word initial position in the absence of initial change, e.g., the stem |mamangahkíihee-| gives nəmamangahkíihe 'I plant many things' and the conjunct participle meemangahkíihet 'she/he who plants many things', but imperative amangahkíiheel 'plant thou many things' and independent indicative amangahkíiheew 'she/he plants many things'.

In Munsee, this is the usual treatment of reduplicated stems, and, although it has been leveled out of most words in most of the languages, survivals suggest that something of the sort was present in PA.¹⁰ Moreover, a tenuous clue suggests a pre-PA origin. Garrett (2001) argued for Yurok that initial change, of at least the infix variant of it, originated as a reduplicator prefix added to vowel initial stems. If the same thing is true of the Algonquian infix, and initial consonant dropping came before its originating reduplicator prefix was transformed into an infix (in pre-PA or pre-Proto Algic times), then the original distribution of initial consonants was simple and straightforward: they dropped in absolute initial position, but were retained after prefixes, including the reduplicator syllables of reduplicated stems. Later, when the reduplicator syllable turned into an infix, the stem initial consonant was still retained in infixed forms, as if they were still prefixed.

This suggests that initial consonant dropping may date back to pre-PA times, and that the lack of it usually reconstructed for PA and PCA may be the reflection of later leveling in most of the daughter languages. If so, the Blackfoot situation may be explained as leveling that often removed initial consonants from simple (unreduplicated unchanged) stems with reduplicated

⁹ In other cases, traces of initial consonant deletion can be explained as resulting from analogy with medials, which lack the initial consonant. For example, Micmac astek and Miami assande:ki '(when there is) sunshine' look like conjunct order verbs, compared with Cree sa:ka:ste:w 'it is sunrise' (with *sa:k- 'emerge') and Menominee sahka:ʔtew 'it is in the bright sunlight'. All of these attest PA *-a:ʔt- 'sunlight', beside the *wa:ʔt- with initial *w found in such words as Fox wa:se:ya:wí 'daylight' and wa:sa:panwí 'it is bright dawn', and Menominee wa:ʔnwapan 'it is daybreak'.

¹⁰ For example, PA *ava:pe:wa 'buck (deer)' beside *na:pe:wa 'male' may attest preservation of initial *n after a possessive prefix in often possessed forms like *ne:na:pe:wema 'my male, husband', beside its loss in initial position in rarely possessed *ava:pe:wa 'buck (deer)'.

counterparts, rather than generalizing them. Impressionistically, Algonquian words beginning in a nasal or in *k are the ones most likely to be reduplicated, followed by those in *p. In Blackfoot, these are just the consonants most likely to be missing in initial position.

An example where Blackfoot leveled out an initial nasal from an unreduplicated stem is óxtsita 'hear thou it', nitóxtsii?pa 'I heard it', and changed ayóxtsimay 'she/he heard it', all from PA *no:ntam- 'hear', and not from the medial *-eht 'hear'.¹¹ Other stems show the additional loss of a secondarily initial following *ε, and the simplification of a following consonant cluster if any. Examples are: Blackfoot sik- 'black or dark' beside Munsee Delaware nzək- 'black' and changed néesk-, suggesting PA *nesek- 'black'; Blackfoot kóónookita 'find thou me' T85 from PA *mełkaw- 'find'.¹²

However, Blackfoot often retained or restored the initial consonant of stems that were or LOOKED changed or reduplicated (a pattern approximately the inverse of the Munsee one). Instances with initial change often involve numbers (section 3.7) or the optional prefix nii- (section 3.4). Examples of changed stems are: Blackfoot niisit 'five', from *nya:łanwi 'five', with initial change by the lengthening of a short epenthetic *i; Blackfoot náátsikim?siway, niistsikím?siway, and iistsikím?siway 'she melted him (metal)', changed forms of niistsikím?sisa 'melt thou him' from PCA *łenk- 'melt' and prefixed nii-. An example with reduplication is Blackfoot paapá- 'dream' from reduplicated *a:hpaw- 'dream' (unreduplicated *paw-). In other cases, unetymological initial *n was falsely restored in nouns, as well as in verbs: Blackfoot naamóowa 'bee' from PA *a:mo:wa 'bee'.

2.3.1. Blackfoot reflexes of secondarily initial vowels and first consonants.

The absence of a word initial consonant comes very early in Blackfoot phonological history, in that the first vowel and first consonant following them behave just as if they had been in these positions in PCA.

Blackfoot isstssíma 'she/he lit it (fire)', from PCA *me:tesamwa 'she/he burns it all up', suggests that an initial long *ε: closed to *i: in pre-Blackfoot word initial position, just as short *ε closed to *i in that position. Otherwise, the following ss (by rule 1b above) could not be explained.

¹¹ A more complex example is Blackfoot nitáó?ssi 'I'm picking berries' T103 (with Blackfoot preverb -aa 'durative aspect' T319 added after the prefix) from *mawinswi- 'gather berries'. The glottal catch is presumably the PCA *-h- of external sandhi, which intrudes between a preverb ending in a vowel and a stem beginning in one (*mawinswi- --> *aa-h-awinswi-). *awi gives *owi then *oi, then *i drops between a vowel and a following ss (Taylor 1969:77-81). Glottal catch then undergoes metathesis with a following short vowel (Taylor 1969:106), and aa shortens before a vowel (*aa-?-awissi- --> *aa-?-oissi- --> *aa-?-ossi- --> *aa-o?ssi- --> *a-o?ssi-). The other changes are all regular.

¹² Blackfoot iixkóónowaa?wa 'we (inc.) found her' T286 probably reflects the same stem having incorporated an early version of initial change (*ε --> *ε:). Otherwise, there is no plausible explanation for the length of its initial vowel.

Blackfoot issinó?toosa 'catch thou her/him', from the root *meš- of PCA *mešen- 'catch' plus Blackfoot o?to- 'take', shows *š giving Blackfoot ss as it would in first consonant position, rather than the t it would have given later in a word. Blackfoot nits/iss/itoawa 'I shot her/him' (slashes added), from PCA *mešw- 'hit with a missile' plus an unknown ending, shows the same thing.

2.4. Strong vowels in Blackfoot and pre-Blackfoot.

In general terms, my evidence suggests that what we may call a STRONG vowel in pre-Blackfoot was from (1) a PCA long vowel, and (2) the second of two short ones. The latter probably continued a PCA rule of vowel prominence, as it is a position in which a Menominee short vowel was lengthened (Bloomfield 1962), in which an Ojibwa short vowel was NOT reduced to schwa (Bloomfield 1957:5), and in which Miami-Illinois kept PA *e as e, rather than merging it with *i as it did in odd numbered short syllables (Costa 1991:387, fn.97).

I mentioned above that in a few instances *a remained as Blackfoot a, rather than going to i. This happened in word initial and word final positions, and evidently, though the examples are few, in strong position in a root or stem where there was no long vowel. An example in wordfinal position is Blackfoot óo?kaxtoka 'green pine tree' T141 from *ošk- 'new, green' plus *-antakwa 'evergreen'.

Examples of *a in word internal strong position are: Blackfoot ómahk-/ ímahk- 'big, old' from reduplicated PA *(m)amank- 'big', Blackfoot apak- 'wide and flat' from PCA *4(n)apak- 'flat', Blackfoot nitsíísaki 'I fed someone, people' from PCA *ahšanke:- 'feed people', and Blackfoot apahkísi 'hide, skin' (inanimate) from PCA *4apahkwaya 'thatch, reed lodge mat, tenting' (animate). The Blackfoots covered their homes with hides, not reed mats, accounting for the change in meaning and perhaps for the change in gender.

After a long vowel which takes primary stress, *a was weak even when in the second of two short vowel syllables: káxtstim 'she/he bites it off', from a changed variant of *ki:škantamwa 'she/he bites it off'.

2.5. Long vowels in word internal strong position.

Taylor (1969:71) gives the positions where Blackfoot vowels of variable synchronic length are long as (1) in an initial syllable, and (2) after a vowel or semivowel. Diachronic data tend to confirm this, but show a strong tendency toward leveling.

A PCA long vowel remained long in Blackfoot in the first syllable of a word, if the syllable was open prior to assibilation and addition of automatic glottal catch: Blackfoot míín?i 'berry' from PA *mi:na, Blackfoot miistsísa 'tree' from PA *mi:twiya 'poplar', Blackfoot koona 'frozen water, ice' and kóónsskoyi 'snow, snow covered area' from PA *ko:na 'snow'. Contrast Blackfoot miníyi 'island', from PCA *men- 'island'.

It shortened outside a first syllable, except after a vowel or semivowel. Examples of noninitial shortening in Blackfoot verbs are: i-saksíwa 'she/he went out' beside saaksít 'go thou out' T261

from PCA *sa:ki- 'go out, emerge'; nitsi/ksistssi 'I'm finished' T61 from *ki:š- 'finish' beside ksiistssi?wa 'she's finished' T63); the second vowel in náánisoyi 'eight', an ablauted reduplicated form of niisó(yi) 'four'; nitáaaks/ipow/ᑳᑳ 'I will get up, arise' beside makúy/iipow/ᑳᑳxsin 'Rising Wolf' after a semivowel, and beside niipoyíwa 'she stops, stands still' from PCA *ni:pawiwa 'she/he stands'; ii-ponóókiwa 'she lost her animal' beside poon-otá?sit 'sell thou thy horse' (see Taylor 1969:101, 1967:154).

Though a vowel usually shortens in a later syllable, often as well it does not. For example, it remains long in Blackfoot ómahksiiistsisa 'big tree', with PCA *mank- 'big', beside Blackfoot miistsísa 'tree' from PA *mi:twiya 'poplar'. Probably shortening is an old rule, sometimes ignored in favor of simpler, more mechanical analogy.

Conversely, elements that rarely occur in initial position tend to level out length. For example, Frantz and Russell write pon-otá?sit 'sell thou livestock' with a short vowel. This is frequent with verbs, which tend to be preceded by preverbs and prefixes, but less common in nouns (nominalized verbs). I have no examples of nouns of this sort with long PCA vowels, but I do have some with length from secondary initial change: ikahk- 'sever, cut' has a nominalized counterpart kaahk-, as in kaahksikawa 'moon (severed leg)', and ipahtsi- 'false, mistaken, erroneous, imitation' has a nominalized counterpart paahtsi- 'false', as in paahtsíísipisttowa 'long eared owl (imitation or false owl)' beside sipistoowa 'owl (night announcer)'.

Similarly, Blackfoot kaanaisskiinaawa 'mouse' evidently consists of the initial kaana-, the medial -sski 'face' and final -inaawa 'person'. Judging by the western Indian stories about how the mouse got its "sharp face", the antecedent of the initial is probably PCA *ki:nyaye- 'is sharp' with initial change.

Finally, some Blackfoot stems with unchanged *i: simply have no known changed counterparts. These tend to have shortened vowels, but not always. For example, there is Blackfoot pisst- or ipsst- 'inside' T104-105 from PCA *pi:nt- 'into, inside', Blackfoot ksiistssi?wa 'she's finished' T63 and noninitial nitsi/ksistssi 'I'm finished' T61 from *ki:š- 'finish', Blackfoot iksistokomi- 'be warm water', as if from pseudo-PA *ki:šo:-kamy-i- 'be warm water', and Blackfoot ksimínihkatsisa 'call her thou by her pet nickname' from pseudo-PCA *4ki:m-inlehka:t-i 'call her by a secret substitute name' (PCA *4ki:m- 'stealthy, secret', PCA *4ešinlehka:t:ewa 'she calls him so'). Evidently, the changed stems have been leveled out in most cases.

2.5.1. Early shortening of *a:.

In a few cases we find unexplained Blackfoot i from long PCA *a:. The first is in kitsími 'door' and in the medial -oxkitsím- 'door' (sík/oxkitsím/istsi 'black doors') from PCA *4eškwa:nte:mi 'door'. The second is Blackfoot niisit 'five', from *nya:tanwi 'five'. In this case, the ii: is secondary, where initial change lengthened a short epenthetic *i in strong position, and it

remained long (*nya:ʔanwi --> *niya:ʔanwi --> *ne:ya:ʔanwi --> *ne:ya:ʔ- --> *niiyit- --> *niisit-). The third is Blackfoot isstsíkahkoyi 'dip, depression in the land', from *wa:ʔakw- 'hollow' plus *-a:tkyiwi 'land'. The fourth is Blackfoot ihtsisóót 'go thou to town, to where there are people', from pseudo-PCA *e:nta:-y-ohʔe:- 'walk to winter camp'.

These words are rare in having had two long pre-Blackfoot vowels in the same stem or word. All have an unstressed *a:, and an *e: or a second *a: that maintained its length. Evidently the unstressed *a: in such sequences shortened early to *a (that later regularly gave i). But without further examples, there is no way of specifying the conditioning environment for this *a: weakening more precisely.

2.6. Harmonic rounding.

Blackfoot had vowel harmony of *a(:) and *e with *o. In most examples, it worked from left to right in adjacent syllables, as in Blackfoot iksistokomi- 'be warm water', as if from *ki:šo:-kamy-i- 'be warm water', beside ómahksíkimiistsi 'lakes', as if from *manki-kamy-ali 'big waters'. There is also Blackfoot otokssksi 'tree bark' from nonspecific PCA *olake:ʔkwi: 'some bark'.

In other cases, it worked from right to left: Blackfoot somóʔsit 'fetch thou water' beside simít 'drink thou' from medial PA *-semi- 'drink', as in PA *wesa:mi-semi- 'drink too much': Munsee Delaware wsaamíi-səməw 'she/he drinks too much', and Western Abenaki wzôməsmid 'the one who drinks too much').

Another example is Blackfoot somóʔtoosa 'touch thou her/him lightly' from the root *sa:m- of *sa:men- 'touch', plus oʔt- 'with the hand, take'. Blackfoot often uses the verb oʔt- 'with the hand, take' as the final element in a verb stem, often replacing PCA *-en 'do with the hand' (Taylor 1969:242-243). Transitive animate Blackfoot oʔto- 'take' is from PCA *ketahw- 'take something animate by tool', as in *ketahwe:wa 'she takes him out (by tool)', where PCA *h was likely a glottal stop that migrated left into the last consonantism of the stem (see sec. 2.2.2).

2.7. Pre-Blackfoot stem final *yi and *wi.

In a word final syllable, PCA *w gave pre-Blackfoot *y before *i(:) from all sources, and this *y like all others prefixed epenthetic *i, and later gave Blackfoot *s wherever *iyV contraction failed to take place, notably when *iyi was in word final position (*Cwi --> *Cyi --> *Ciyi --> *Cisi, and with assibilation, --> *Csisi). The best examples are from dependent nouns. One with *yi is Blackfoot moʔtsísi 'someone's arm/hand' from PCA *meʔenčyi 'someone's hand' (čyi --> tyi --> tiyi --> tisi, and with assibilation, --> *tsisi). Notice also *tSiSt --> ʔt (Proulx 1989:58), and the insertion of the *-o:- common in possessed nouns in Blackfoot.

An example with *w is Blackfoot mosstoksísi 'someone's face' from PA *meški:nšekwi 'her/his face or eye' via pre-Blackfoot *messi:nšekwi, a form shared by several languages: Montagnais ussishik^u '(son) oeil', Micmac nsi:skw 'my face', Eastern Abenaki 8sizeg8 'son visage', Western Abenaki osizəgw 'her/his eye, face'. Blackfoot rounded *e before *kw (pre-Blackfoot

*mossi:nšekwi --> *mossi:nšokwi --> *mossi:Stokyi --> *mossitokiyi --> *mossistoksisi --> and by haplology, *mosstoksisi).

Another example with *w is Blackfoot oksísi 'her/his awl' from pre-Blackfoot *okwi 'her/his awl' (animate, dependent, and nondiminutive) from independent PCA *mekohsi 'awl'. Blackfoot regularly shifted the rounding in the sequence *eko one syllable to the left giving *okwe, here and elsewhere, and dropped what appeared to be a diminutive *-ehs (*mekohsi --> *mokwehsi --> *mokwi). The final sequence underwent the phonetic developments described above (kwi --> kyi --> kiyi --> kisi, and with assibilation, --> *ksisi), and at some point the noun took on animate gender: Blackfoot moksísa 'someone's awl'.

Similar is Blackfoot mótookisi 'someone's kidney' from PCA *meteh̄tekoḥsa (Plains Cree nitih̄tikos 'my kidney'). Here too rounding shifted, the diminutive dropped, and the *o lengthened to compensate for haplology (*meteh̄tekoḥsa --> *meteh̄tokweḥsa --> *meteh̄tokwa --> *metookwa). At some point, the word became inanimate, and the ending was then reshaped as above (kwi --> kyi --> kiyi --> kisi, and with assibilation, --> *ksisi).

Animate dependent nouns generally ended in PCA *a, and PCA *w generally dropped between a consonant and *a in Blackfoot, as in Blackfoot óo?kaxtoka 'green pine tree' T141 from *ošk- 'new, green' plus *-a:ntakwa 'evergreen'. In such cases, no sis was produced.

However, some animate nouns whose stems ended in C plus *w, like PCA *meketekwa 'someone's knee', were reshaped on their third person singular form, that always ended in the Blackfoot -i of the Blackfoot obviative singular, that replaced PCA *-ali (see Frantz 1991:72-73). An example is Blackfoot ottoksísi 'her/his knee' from pre-Blackfoot *oketekwi 'her knee'. Notice also *ket --> tt (Proulx 1989:57). This reshaped form of the stem was then extended to its other inflected forms, such as Blackfoot mottoksísa 'someone's knee'.

It remains to explain Blackfoot otokssksiya 'tree bark', which is unexpected from either animate PCA *olake:ɬkwa or inanimate *olake:ɬkwi 'bark'. PCA *olake:ɬkwa 'bark' would have given Blackfoot *otoksska, and *olake:ɬkwi would have given Blackfoot *otoksskísi. The attested Blackfoot siy needs explanation, and that explanation is that the Blackfoot word is analogical from nonspecific pre-Blackfoot or PCA *welake:ɬkwi: 'some bark', which presumably gave later pre-Blackfoot *otokssksii, whence analogically, animate singular otokssksiya (*welake:ɬkwi: --> with yodation *olakye:ɬkwi: --> *olaki:ɬkwi: --> *olaki:ɬkyi: --> *olaki:ɬkiyi: --> *olaki:ɬksiyi: --> otokssksiya).

Nonspecific PCA *-i: is reconstructed for animate nouns on the basis of Blackfoot data, and relic data from Fox. There are some animate nouns in Fox, that in the plural are inflected as what Goddard (2002:212-213) called "inanimate collectives" in -i. For example, Fox owi:ya:sa 'a piece of meat' vs owi:ya:si '(some) meat', and anake:hkwa 'a piece of bark for use as a lodge covering' vs

anake:hkwi '(some) bark', mi:čipe:ha 'a game animal' vs mi:čipe:hi '(some) game'. In meaning, these nonspecifics or collectives often somewhat resemble the mass nouns of English, of which one asks 'how much (meat, bark, game)?' rather than 'how many?'

Donald Frantz (1991:10-11, 13) describes the use of such an -i in Blackfoot, which he calls "non-referring" or "non-particular." He shows that morphophonemically it is distinct from inanimate singular *-i, in that it conditions the same losses of immediately preceding consonants as do the plural suffixes (which inanimate singular *-i doesn't). Allan Taylor (1969:192, fn.1), who calls it "non-specific," gives its plural form as -ii. It seems to me that these endings are likely cognate with the Fox -i used on animate nouns. Since the shortening of the final long vowels of PA and PCA is widespread and is found in Fox, the best reconstruction for nonspecific inflection is PCA *-i:.

Another example of siy from *w is Blackfoot piikohksiksiyi 'small pieces of rotting wood' via pre-Blackfoot *4pi:kohkye:hłakwi: from PCA *4pi:kočye:hłakwi: 'some pieces of decayed wood used for kindling', with distant assimilation of pre-Blackfoot *t from *č to the k of the following syllable, as in unglossed piksíksiina for pitsíksiina (Taylor 1969:114). Presumably, the first h in pre-Blackfoot is by anticipatory assimilation to the second. In the Blackfoot dialects attested in the dictionary, the final syllable evidently developed as follows: *kwi: --> *kyi: --> *kiyi: --> *ksiyi: --> *ksiyi.

2.8. Consonant gemination in root final position.

Usually when one finds consonant gemination, one can either prove the assimilation of two consonants after vowel loss, or one may at least suspect it. However, this is not true of consonant gemination in roots with known etymologies, where a PCA consonant cluster in root final position gives a geminate in Blackfoot, rather than its expected reflex.

An example with the root PCA *pa:šk- 'burst, blow up' is Blackfoot pakkapíniisa 'rupture thou her/his eyeball', from dialectal PCA *pa:ška:pi- 'she/he is one eyed (has a burst eyeball)', with *-a:pi- 'look'; and ii-pákkowayí/kioohsiwa '(the duckling) broke out of its shell', the first part from PA *pa:ška:we:/ho:wa 'she/he burst out of a shell', with *-a:we: 'egg'.

Another example of a cluster in *k giving kk is Blackfoot inikk- 'angry, sulking', from PA *lełk- 'anger': Munsee Delaware laxksəw 'she/he is angry', Menominee nehke:me:w 'she angers him by speech', or Proto Lake *lešk- in *leškime:wa 'she scolds, makes him angry by words'.¹³ Compare Blackfoot ómahksi-níkkssapiwa 'she gave a sulking glance' (ómahksi- 'big'), Menominee nehkuapew 'she/he sulks', and Ojibwa niška:pi 'she/he casts angry looks' (all with *-a:pi 'look'). Another yet is Blackfoot sikk- in sikkohsít 'melt thou it', ii-síkkohsima 'she/he melted it', and the like, from PCA *lenk- 'melt'.

¹³ The initial *l is confirmed for Central Algonquian by Illinois niiskima 'I speak with her/him angrily', and Innu lishkatisiu 'rage, fury'.

A final example of a cluster in *k giving kk is Blackfoot opókksíniisa 'smash and dent it thou' from the root PCA *pootkw- 'break', and perhaps the stem *pootkonam- 'break it by hand' and early dissimilation of the *o to *e after a syllable with a rounded vowel.

Another geminate cluster, this one in tt, is seen in Blackfoot ksistt[oksi]- 'nail together', as in kaayísttoksiit 'nail thou it together' and nitsíi-ksisttoksii?pa 'I nailed it together', cf. Old Innu kist[ahigan] 'I pierce things' (Silvy 1974).¹⁴ Blackfoot kaayísttoksiit is unique in having initial change in -aay- (with a long vowel). However, it's still an example of gemination within a root. Judging by four of these five examples, Blackfoot kk for hk at the end of a verb root was limited to verbs of violent behavior, be it mainly physical or be it mainly emotional. It is not clear why 'melting' underwent the same process.

2.9. Glottal catch plus consonant in root final position.

A few stems have a cluster of glottal catch plus obstruent where *ʔ plus obstruent or a simple obstruent would be expected. At least some of these result from the incorporation of the transitive final PCA *-ah 'by tool' into the stem. Note that PA *h was a glottal catch. The best example is Blackfoot i-sí?kima 'she/he covered it' from PCA *lekwahamwa 'she/he covers it with earth or snow'. Evidently, the intervocalic glottal catch was anticipated a syllable early (migrated leftwards, in the written word) and placed before an obstruent. Or perhaps the intervening vowel dropped, and the consonants metastasized (*lekwahamwa --> *seka?amwa --> *sek?amwa --> *se?kamwa --> *si?kima). Note that, as the first consonant of a stem, *l gave Blackfoot ʔ (not the t it would have given later in the word).

Usually, once a verb root plus *-ah 'by tool' fused, that glottalized root then analogically replaced the simple one in other combinations like si?kít 'cover thou it', where the origin of the glottal catch is totally obscure. A more complex example of this is Blackfoot kaxko?kit- in nitsíkaxko?kita?wa 'I cut off her head' T241. PCA had *ki:škahamwa 'she/he cuts it down, through, or off', *ki:škešamwa 'she/he cuts or slices it through or off', and *ki:škikwe:šwe:wa 'she cuts his throat, cuts off his head'. This last is a perfect cognate of Blackfoot kaxko?kit- in nitsíkaxko?kita?wa 'I cut off her head' T241, except that the glottal catch is intrusive from *ki:škahamwa.¹⁵

¹⁴ The root here would be dialectal PCA *ki:ʔt- 'pierce'. Proto Cree had *či:st- 'pierce': Plains Cree chestuwāo 'pierce' (Faries and Watkins), Naskapi chiist/aasam/aaw 'pierce holes in snowshoe frame' (-aasam 'snowshoe'). Therefore, if these roots are related, the Blackfoot word is evidently an early loan from an Innu dialect that had *k before *i: (where others had *č), and sometimes extended it back to words in PCA *či: (by hypercorrection).

¹⁵ The only difference between *ki:šk/ah/amwa and *ki:šk/eš/amwa is that the former specifies cutting off by tool, the latter by 'cutting blade'. Evidently in pre-Blackfoot *-ikw 'neck' could be incorporated between the root and either final. Presumably, it picked up the glottal catch from the former and retained it when incorporated into the latter as well.

The incorporated glottal catch is also found in suffixes. For example, Blackfoot sometimes uses the verb o?t- 'with the hand, take' as the final element in a verb stem, often replacing PCA *-en 'do with the hand' (Taylor 1969:242-243). This Blackfoot o?t- 'take' is from PCA *ketah- 'take out by tool' (with the loss of the initial consonant, see section 2.3 above). Evidently vowel harmony produced rounding.

A final example of glottal incorporation is Blackfoot sa?kssísa 'burn thou her', essentially from PCA *satkaham- 'set fire to it'. However, the Blackfoot root is evidently a blend of sa?k from *satkah, plus perhaps *-es 'by heat' as in Eastern Abenaki nesakkesemen 'I light it' (*satkah+es- --> *sa?k+es- --> by yodation *sa?kis- --> *sa?kss-).

A possible example of the same thing, except that the glottal catch is from another source, is Blackfoot ki?sómma 'sun' (obscure ending added). This word is from PA *ki:šo?łwa, but there was dissimilation of the *o to *e because of the following *w in Proto Lake and Blackfoot, giving *ki:še?łwa (see Haas 1967:61). Later, Miami-Illinois, Ojibwa-Potawatomi, and Blackfoot depalatalized the *š. The result was *ł in Miami-Illinois (Miami kil?swa, Illinois kiris8a), and *s in Ojibwa-Potawatomi (Ojibwa ki:siss, Potawatomi kisəss) and in Blackfoot (*ki:łe?łwa --> *ki:se?łwa). One of the alternate reflexes of *ł in Blackfoot is ʔ, and with the loss of the preceding vowel, it would have metathesized with the preceding obstruent (*ki:se?łwa --> *ki:se?wa --> *ki:s?wa --> *ki:ʔswa --> Blackfoot ki?sómma 'sun').

I have just one possible example of glottal catch moving in this way, where the next preceding consonant is a sonorant. This is Blackfoot i?nitsísa 'kill thou her/him', possibly from *ne?ł- 'kill', reshaped with a productive transitive final. If so, the initial *n was kept, and the glottal catch reflex of *ł migrated back onto it. Blackfoot i?níwa 'she/he died' would then be a backformation. However, without more and longer examples, it isn't possible to conclude anything from this one case.

3. Initial change in Blackfoot.

Blackfoot initial change is a system, and to understand any part of it one needs to understand the whole. Blackfoot initial change usually is associated with actual as opposed to hypothetical action, in the manner of initial change in the PA conjunct order, but is common in independent order verbs as well. Arapahoan (Atsina) influence may explain this. Arapahoan uses the old conjunct participle, that has initial change, as the main verb of affirmative sentences.

Since initial change originated in the conjunct order, and migrated to indicative verbs of the independent order from there, one would naturally expect it to have first been added to those independent verbs which like the conjunct were without prefixes, mainly third person forms. Since it was associated with actual as opposed to hypothetical action, one would expect it to be found primarily in descriptions of past time. In fact, these conditions are found in most examples of it in Blackfoot. In contrast, as it became optional and spread to other environments, the last it

would access would be imperative order verbs. Hence, the contrasts cited below are typically third person past vs imperative.

Most of the attention to initial change in Blackfoot has been to what one may call its obvious manifestations, the places where it transparently resembles Menominee or Ojibwa initial change. These do merit scrutiny. Yet, equally interesting are something Algonquianists call the aorist, as well as a few irregular forms leftover from earlier stages in the development from the PCA to Blackfoot systems of initial change.

3.1. The changed preverb *(y)e:-.

One of the more common changed conjunct modes in the Central languages is what Algonquianists call the aorist mode, signaled by using the changed preverb PCA *e:- at the beginning of the verb phrase.¹⁶ Costa (1996:41, 42, 43, 45, 49 and 67) mentions its use in Ottawa (Ojibwa), Northern Ojibwa, Potawatomi, Fox-Kickapoo, and in Cree-Montagnais. Alternative pseudo-PCA *ye:- shows up in Shawnee, Cheyenne, and perhaps Arapahoan (Costa 1996:46, 53 and 59, 67-68). These preverbs were presumably joined to a stem beginning in a vowel with the PCA *-h- inserted between vowels at word boundaries, though it has been incorporated into the preverb itself in some languages, and leveled out in others.

As used in most of these languages, this aorist preverb conveys little or no meaning of its own. Its widespread use (notably in Northern Ojibwa and Plains Cree; Shawnee and Cheyenne) is perhaps a sign of language simplification, as it is much easier to mechanically prefix a preverb to a stem than to use regular initial change (Costa 1996:41, 67). Texts (and perhaps speakers) vary in how frequently they use the aorist construction, but in two randomly selected pages of Northern Ojibwa texts I counted 20 occurrences (Sugarhead 1996). Since initial change of the stem itself is a dying grammatical feature in Blackfoot, optional and limited to less than 100 stems identified by Taylor, it is not surprising to find a proliferation of the aorist.

The aorist has never been identified as such in Blackfoot, and quite likely the best synchronic analysis makes it part of a stem. However this may be, diachronically it is quite clearly a separate preverbal element. For example, Taylor (1967:153-154) gives ii-pótsimatsiiway 'she poisoned him' beside infixed payótsimatsiiway 'she poisoned him', ii-poonixkaawa 'it is broken' beside payoonixkaawa 'it is broken', ii-ponóókiwa 'she lost her animal' beside ablauted páánookatsiiwa 'she lost her animal'.

Although the Blackfoot they recorded contains many fewer cases of initial change within the stem than were recorded by Taylor from the South Piegans, Frantz and Russell (1989) provide many instances of what I take to be the aorist preverb. Examples are: i-kímmapiiyipitsiwa 'she/he was a compassionate person' beside kímmapiiyipitsit 'be thou compassionate, kind' from root

¹⁶ Its unchanged counterpart *a- is seldom attested.

*ketem- 'miserable, pity'; ii-pákkowayí/kioohsiwa '(the duckling) broke out of its shell', the root shared with PA *pa:ška:we:/ho:wa 'she/he burst out of a shell'; i-ksá?siwa 'she/he hid' beside ksa?sí 'hide thou thyself', cf. PA *kya:sowa 'she/he hides'; i-ksísto?simma 'she/he had a fever' beside ksistó?sit 'have thou a fever' from root *ki:šwaw- 'warm'; and ii-ksowóowa 'she walked' beside ksiwóot 'walk thou' from PCA *4ki:wohte:- 'walk about'.

When the aorist i- has been incorporated into the stem, as it sometimes is, a further preverbal i- may reinforce it where initial change is appropriate: i-ipsstsisstotsiwa 'she/he moved in' beside ipsstsisstotsit 'move thou in' from root *pi:nt- 'into an enclosed space', i-iksísatooma 'she/he hid it' beside iksísatoot 'hide thou it' from *kya:taw- 'hide it'. In other cases, however, such as with 'burst' and 'walk' above, long or double ii- is required without any such motivation.

3.1.1. The durative preverb aa-.

Blackfoot has a durative preverb aa-, that "means either that the action of the verb is actually in progress (the commonest meaning), or that the action occurs generally" T300. In origin, this may have been an ablauted form of aorist i- (or ii-). It has the shape ε- before i, and εi optionally contracts to εε.

3.2. The patterns described by Taylor.

Apart from the aorist, initial change is applied to the root of a verb or nominalized verb, provided it is not preceded by a preverb or prefix. Taylor (1969:120) found Blackfoot initial change in less than 100 verbal stems. He identified three main synchronic patterns of initial change, and PCA antecedents can be found for each:

(I) Infixing *-ay-. In some verbs, Blackfoot inserts *-ay- before the first vowel of the unchanged stem. The erstwhile first vowel (now following the *-ay-) receives primary stress. Examples are: Blackfoot payákkixkaa?wa 'it burst' beside pakkixkáán 'bursting', from the root PA *pa:šk- 'burst, blow up'; Blackfoot payíim?a beside píim?a 'she/he entered';¹⁷ Blackfoot ayíístsi?wa 'she packed something on her back' beside íístamisa 'carry thou her/him on thy back' from dependent *-i:wał 'packsack';¹⁸ Blackfoot ayóxtsimay 'she/he heard it' beside óxtsita 'hear thou it' and nitóxtsii?pa 'I heard it', from the root PA *no:ntam- 'hear it', with the usual loss of initial *n; Blackfoot kayóo?pum?ma 'she/he was afraid' beside nitsikóo?pu 'I'm afraid', from PCA *kočpan- 'fear' (see Pentland 1979:383, and see Taylor 1969:122-123 for the Blackfoot examples). The PCA sources of the unchanged vowels are *a:, *o:, *o, and perhaps *i: in the cases where their identities are known with certainty.

(II) Short vowel lengthening. In six stems whose first syllable is open, Blackfoot lengthens the i or o of the unchanged stem, but keeps it unstressed: siiksipá?wa 'she/he was bitten' (a changed

¹⁷ Goddard (1974:188) relates this word to PA *pi:mwa 'she/he takes a sweatbath', but this is doubtful.

¹⁸ Or possibly from PA *awał- 'carry off', if *awa gives Blackfoot ii rather than oo here for some reason, or from changed PA *e:wał- 'haul away in more than one trip', if *e:wa --> *e:ya --> *iyi --> *ii).

form of PCA *sakipwa:wa 'someone bit her/him') beside siksipísa 'bite thou her/him' from PCA *sakipwi; Blackfoot siimí?wa 'she/he drank' beside simíta 'drink thou' (cf. medial PA *semi- 'drink');¹⁹ and sookiníway 'she doctored him' beside sokinísa 'doctor thou him' of unknown origin (Taylor 1969:74, 76, 126; 1967:155).²⁰ The unchanged vowel of such a stem reflects a PCA short vowel in the cases where its identity is known with certainty.

(III) Ablaut to aa. Blackfoot generally ablauts ii and oo (and rarely i and o) to stressed áá as the first vowel of an unchanged stem. Rarely, ii alternatively gives changed ái as well as changed áá. Examples are: Blackfoot páán-ota?siwa 'she sold her horse' beside poon-otá?sit 'sell thou thy horse' from the preverb PA *po:n- 'stop, cease' plus the Blackfoot stem ota?si- 'own a horse'; páásatsistotowawa 'she put a spell on him' beside pisátsistotooka 'she put a spell on me'; Blackfoot náátsikim?siway 'she melted him (metal)' beside niistsikím?sisá 'melt thou him' from PCA *tenk- 'melt' and a prefixed nii-; and Blackfoot náápoiwiwa 'she stopped, stood still' beside niipoyít 'stop thou' and niipoyíwa 'she stops, stands still' from PCA *ni:pawiwa 'she/he stands' (see Taylor 1967:154, 1969:124). The PCA sources of the unchanged vowels are *o: and *i: in the cases where their identities are known with certainty.

3.3. Reinforced initial change.

When a type of initial change had become too obscure due to sound change, or its ablaut had become incorporated into the base form of a verb, speakers often applied a more productive type of change to the new base form. This is not limited to Blackfoot, but examples are particularly common in this language due to the rapidity of its phonological evolution. It is notable as well that ablaut of *i: --> aa was not limited to open syllables in these examples, as it tends to be synchronically.

(1) The aorist preverb was the last type of initial change to become popular and to be used to reinforce another, usually *i: --> aa. The aa then shortened, as it was no longer macroword initial: íi-kahksstóókiyiiwa 'she cut off his ear', cf. unchanged PCA *ki:škehtawake:- 'have an ear cut off' (the stem vowel *i: --> *aa --> *a). Note how dialectal PCA yodation replaced *ke by *ki, so assimilation rules work on *ka:škihtawake:-.²¹

(2) Short PCA *ε lengthened to *e: by initial change, and this must have given an early pre-

¹⁹ As in PA *wesa:mi-semi- 'drink too much': Munsee Delaware wsaamíi-səməw 'she/he drinks too much', and Western Abanaki wzóməsmid 'the one who drinks too much'.

²⁰ While PCA *a generally gives Blackfoot i, it remains as a in word initial position, e.g., Blackfoot apííta 'sit thou' from PCA *apilo. In such cases, the changed form of the stem may have ii (or alternatively oo). For example, compare Blackfoot apííta 'sit thou', but changed iiipí?wa and ooopí?wa 'she sat' (Taylor 1969:132). However, the changed forms are by far the more common than their unchanged counterparts, and may be regarded as the base forms, relative to which the imperatives are simply irregularities.

²¹ Blackfoot iká?kstsit 'bite thou it off', kaksaakina 'ax' and kaahksikawa 'moon', lit. 'severed head' may be related forms with this type of initial change, though I can't explain the origin of the differences in their first syllables.

Blackfoot rule $*i \rightarrow *i:$. However, the changed stem in $*i:$ was almost always eventually taken as the base form of these verbs (which is why so few cases survive of rule II above). Then, the ablaut $*i: \rightarrow aa$ was adopted for initial change. Later still, this changed form in turn could become the new base form, and the aorist preverb be added for initial change.

An example is unchanged PCA $*pe?t-$ 'by error, accidentally', and changed PCA $*pe:?t-$, that must have respectively produced pre-Blackfoot $*pi:t-$ and changed $*pi:?t-$. However, the latter became the new base and underwent a further initial change of $*i: \rightarrow aa$, as in paahtsá?piiwa 'it was a mistake' (the base vowel $*e \rightarrow *e: \rightarrow *i: \rightarrow *aa$). To this an aorist preverb was optionally added, as in í-pahtso?tsima 'she/he took it by mistake', with -o?tsim 'take it'. Notice how pre-Blackfoot $*i:$ from PCA $*e:$ didn't cause preassibilation (by rule 1b above), as PCA $*i:$ would have.

Similarly, unchanged PCA $*kemote-$ 'steal' gave changed PCA $*ke:mote-$. The latter would have given pre-Blackfoot $*ki:moti-$, but it underwent a further initial change of $*i: \rightarrow *áá$, producing the base form attested in Blackfoot kaamó?sit 'steal thou', and thence a changed aorist ii-kamó?siwa 'she/he stole' (the base vowel $*e \rightarrow *e: \rightarrow *ii \rightarrow *aa$).

3.4. Blackfoot nii- in initial change.

Four Blackfoot verbs optionally prefixed nii- to their inherited stem for reasons unknown. The ii of nii- causes preassibilation as if inherited from PCA $*i:$, and the changed forms of the initial syllable nii- are náá and nái.

Blackfoot náátsikim?siway 'she melted him (metal)' is a changed form of niistsikim?sisá 'melt thou him' from PCA $*tenk-$ 'melt' and prefixed nii-. Other variants of this stem are niistsikim?siway and even iiistsikim?siway 'she melted him (metal)'. Those with ii show the preassibilation of a following Blackfoot t. An old unablauted form of the same root (PCA $*tenk-$ 'melt') is sikk- in sikkohsít 'melt thou it', ii-síkkohsima 'she/he melted it', and the like. Note that in words with known etymologies pre-Blackfoot $*t$ from all sources gives s as the first consonant of a stem. The reason for gemination of the $*k$ in one stem and not the other is unknown.

Blackfoot náápotsimatsiiway 'she poisoned him' is the changed form of niipotsímatsisa 'poison thou him'.²² A shorter stem without nii- is attested as well. For example, Taylor (1967) gives

²² Perhaps from the root PA $*nepw-$ / $*nepo-$ 'die', as in Fox nepo:we:neme:wa 'she thinks him dead', Saguenay Innu ninip8chk8rau 'I kill her/him with overeating' (with medial $*-ešk$ 'whole body'), and Illinois ninip8ra 'I poison her/him' (see Taylor 1967:154, 1969:124). Where a shift of $*ai \rightarrow *aa$ apparently failed to take place, more likely $*naa-$ was prefixed to a form of the stem beginning in $*i$, and the $*aa$ was then shortened (Taylor 1969:86). There is independent historical evidence that pre-Blackfoot $*ai \rightarrow aa$. Blackfoot sínaakit 'write thou, draw, make images' beside isínaakiwa 'she/he drew' is from $*mesinahike-$ 'write, take or give things on credit' ($*ai \rightarrow aa$). As well, Blackfoot (n) inaawa 'man' is from PCA $*-inawe:wa$ 'man', as in Blackfoot saahkínaawa 'young man' with root $*la:nk-$ 'light weight, young', and as in Proto Lake $*oškinawe:wa$ 'young person, youth' with $*oški-$ 'young, new'. Evidently,

payótsimatsiiway beside equivalent náápotsimatsiiway 'she poisoned him', and Frantz and Russel (1989) give a new base form ipótsimatsísa 'poison thou him' and ipótsimatsiiwa 'she poisoned him' (with the aorist preverb incorporated into the stem). Other examples of prefixation to a stem are: Blackfoot náípiim?a beside equivalent payíim?a and piim?a 'she/he entered', and niipóókakit 'wake thou up' beside payóókakiwa 'she/he woke up'.

The origin of prefixed nii- is unknown, but Costa (1996:67) says "the nih- preverb of AGV [Arapaho-Atsina], which is used as a sort of narrative past tense, seems to have the same function as the *e:(h)- aorist of languages such as Fox-Kickapoo and Potawatomi." It could be a loan.

Another two of the seven verbs that Taylor (1967:154, table IIIa-b) listed as beginning in nii and having a changed form in náá look reduplicated, and Blackfoot often restored the initial consonant of stems that were or LOOKED reduplicated, such as Blackfoot paapá- 'dream' from reduplicated *a:hpaw- 'dream' (unreduplicated *paw-).

PA *ne:naw-, the changed counterpart of apparently reduplicated PA *nenaw- 'recognize (an animate being)', gave such forms as Blackfoot iinoyíway 'she saw or recognized him' with the regular loss of its initial *n. Later, optionally restoring the initial consonant produced such base forms as Blackfoot niinóósa 'recognize thou her/him' and, with further initial change, this last stem results in the alternates náánoyiiway and náinoyiiway 'she saw or recognized him'.

Apparently reduplicated Blackfoot nín?ixkatoomay 'she named it' T124 and nín?ixkàtsis 'name thou her' T109 have an optional prefix n, missing from ín?ixkátot 'name thou it'. These stems reflect noninitial *-inlehk- 'call by a nickname', as in PCA *4ešinlehkɑ:ʔe:wa 'she calls him so', and Blackfoot ksimínihkatsisa 'call her thou by her pet nickname', with the root PCA *4ki:m- 'stealthy, secret'. PCA *n is the most common initial consonant lost in medials, which is what gave this items its apparently reduplicated status, and PCA *i: in a first syllable most commonly corresponds to *i in a later one. Thus, analogy probably accounts for the Blackfoot níí. A changed form of the root with initial n is Blackfoot náánixkatawa 'she called him'.

The last of Taylor's stems beginning in nii began in PA *ni: (and thus isn't reshaped at all). Thus, náápoiwa 'she stopped, stood still' is simply the changed form of niipoyíwa 'she stops, stands still', from PCA *ni:pawiwa 'she/he stands' (see Taylor 1967:154, 1969:124).

3.5. Preassibilation and initial change of *i: --> *e:.

An isolated case attesting initial change of *i: --> *e: involves a nominalized verb, Blackfoot ksísskstakiwa 'beaver', from PCA *4ki:škešike:wa 'the one who cuts things through' (reshaped as if *4ki:škešanke:wa, with the indefinite inanimate object ending -aki T227). As a noun, this stem became separated from its underlying verb, and developed its own kind of initial change in its verbalized forms, as in kaiíkstaki-papàukau 'he had had a beaver-dream' (Uhlenbeck and Van Gulik

PCA *awe: --> *awi --> *avi --> *ai --> aa.

1930), where **-ay-* has obviously been infixes.²³

Note how the changed form lacks assibilation of the second *k* (cf. the *ss* of the noun). This shows that it cannot simply reflect **kayi:šk...*. Rather, it is analogical from the pre-Blackfoot antecedent of unchanged *k̄si:ssk...*, where the assibilation was taken as the automatic product of **ī:* and dropped, after it had masked the **h* expected from PCA **š̄*. It was dropped because the vowel of the changed form at that time was one that would later give Blackfoot *ī*, but that did NOT cause preassibilation. This makes it **ā*, **ē*, or **ē:*, and the only one of these that can be a product of initial change is **ē:*. Thus, the changed form must have been pre-Blackfoot **kaye:k...*, and, prior to infixing, **ke:k...*. Initial change of **ī:* --> **ē:* is attested in Miami-Illinois and in Island Massachusetts, and what we have here is evidence of it in early Blackfoot as well.

3.6. The distribution of the main types of Blackfoot initial change.

As a general rule, in stems whose first syllable is closed, or whose first syllable peak is *aa* or a sequence of two unlike vowels, Blackfoot inserts **-ay-* before the first vowel of the unchanged stem to produce a changed one. Generally as well, in what would have been an open syllable prior to assibilation, Blackfoot initial change ablauts a stem vowel *ii* or *oo* (and rarely *ī* and *ō*) to stressed *áá*.

There are six exceptions to this open vs closed syllable distribution, out of 40 stems given by Taylor (1967:152-154). One shows ablaut in a closed syllable. This is Blackfoot *kááxp̄iwa* 'it is swollen', and a changed imperative *kááxp̄iyit* 'swell thou', beside *áí-koxp̄iwa* 'she/he swells up' (Taylor 1967:154), cf. PA **ketp[ak]* 'thick'.

Five show infixing before a long vowel plus CV, and have no sure Algonquian etymologies. Three of them add an initial syllable *n̄ii-* (changed *náá* or *nái*) as an alternative to the infix: Blackfoot *náápot̄simats̄iiway* beside equivalent *payótsimats̄iiway* 'she poisoned him', *náípiim̄?a* beside equivalent *payíim̄?a* (and *piim̄?a*) 'she/he entered', and *n̄ipóókakit* 'wake thou up' beside *payóókakiwa* 'she/he woke up'. This leaves *payóónixkaawa* 'it is broken' beside *poonixkáási* 'if it is broken', and *sayóótomakiwa* 'she/he snorted' beside *áísootomakiwa* 'she/he snorts'.

All things considered, probably at one time ablaut to **ā:* was used for long closed vowels (**ī:*, **ō:*), while **-ay-* was used before long open ones (**ā:* and **ē:*). When PCA **ī:* and **ē:* merged to *ii*, it put the two patterns in competition. Perhaps because the infix and aorist preverb avoid this uncertainty and have the advantage of preserving information about the vowel of the unchanged stem, they began to slowly replace the ablauting of **ī:*, confining it mainly to a few common preverbs and to verbs with the initial syllable *n̄ii*. Blackfoot *kááxp̄iwa* 'it is swollen' may be the only case of active ablaut left in a closed syllable, and it is ablaut from unchanged **ō:*, not of **ī:*. However, there are survivals of earlier ablaut in that position, as we have seen, such as *íí-*

²³ The corresponding verb ultimately adopted a changed form in ablauted *áá* as its base, and went on to use the aorist form of change: *íí-kahksstóókiyüwa* 'she cut off his ear' from PCA **ki:škehtawake:-* 'have an ear cut off'.

kahksstóókiyiwa 'she cut off his ear', cf. unchanged PCA *ki:škehtawake:- 'have an ear cut off', showing that stem ablaut was once more widespread.

3.7. Ablaut in numbers.

Numerals occur mainly as verbs in Algonquian languages. They are commonly subject to initial change, and retain or restore stem initial *n. In Blackfoot, repeated initial change of numbers has made them hard to recognize as cognates.

The root ni?t- of Blackfoot ni?tókskaamma 'there is one' is from *nekwet- 'one', with the loss of the second vowel, and with *kw --> ʔ. However, the usual rhythmic pronunciation of PCA sequences of short vowels stressed even numbered ones, so loss of the second vowel in *nekwet- 'one' is anomalous unless the first vowel had been lengthened by initial change (*ne:kwet- 'one'). In a changed form, the second vowel is the first short one, and therefore weak. The root of nááto?k 'two' is an ablated form of that of niistsikáp- 'both, double', reflecting the root *ni:šwi 'two'.²⁴

A different use of ablaut is for the doubling of a number, as in the root náóó- of náóóyaawa 'they are six in number', an ablated form of the root nioó- of nioókska 'three' (both reflecting the root *ne?twi 'three'). Similarly, náánisoyi 'eight' is prefixed with nii- and ablated relative to niisó(yi) 'four', both from *nye:wi 'four'. The root of niisó(yi) 'four' shows regular epenthetic i before *y, initial change by lengthening of that short vowel (rule II, sec. 3.2), and regular *y --> s after i or ii (*ny --> niy --> niiy --> niis).

Initial change by the lengthening of a short epenthetic *i is also present in niisit 'five', from *nya:ʔanwi 'five'. It may have been present in nioókska 'three', but ii shortens between n and a following back vowel across morpheme boundaries (Taylor 1969:91), and probably historically in the absence of a boundary as well. Notice how expected áá is short in náóóyaawa 'they are six in number', a similar environment.

Notice that *ny --> niy --> niiy --> niis is not simply the regular treatment of word initial *ny before a vowel. In the absence of lengthening by initial change, the regular treatment is the loss of initial *n, and no epenthetic *i, as in Blackfoot sip- 'night' from *nyip- 'night' (*ny --> y --> s). As in most other words, an initial *n that is not reinforced by initial change or reduplication is generally lost before *y.

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²⁴ The antecedent root is often cited as *nyi:šwi 'two' in the literature to account for the irregular vowel raising in Menominee. However, the rules of vowel raising in Menominee are complex, and irregular forms are not uncommon. The correct antecedent is PA *ni:šwi 'two', as suggested by the Wiyot cognate, dít- 'two'. Compare PA *nye:w- 'four' and its cognate Wiyot divá?w- 'four', which attest the treatment of initial *ny in the two languages.

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