Blackfoot Stem Initial Eventive Predicates:  
Shape Shifting Perfectives

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INTRODUCTION

All eventive Blackfoot predicates, when interpreted as present or habitual, carry imperfective prefix \textit{a-}. The prefix is marked by pitch accent (Dunham 2007, Frantz 1991).

(1) a. nitáî’poy  
\textit{nit-a-î’poy}  
1SG-IMP-speak  
‘I speak.’  
‘I am speaking.’  

b. nitawaanista  
\textit{nit-a-waanista}  
1SG-IMP-tell  
‘I tell.’  
‘I am telling.’  

c. nitáohpomm(a)  
\textit{nit-a-ohpomma}  
1SG-IMP-buy  
‘I buy.’  
‘I am buying.’  

d. nítomai’taki  
\textit{nit-a-omai’taki}  
SG-IMP-believe  
‘I believe.’

In contrast, eventive predicates interpreted as past lack such uniformity in marking. There is no single overt morpheme that expresses past. The placement of pitch accent is not tied to one position.

(2) a. nîtsíî’poyi  
\textit{nit-i’poyi}  
1SG-speak  
‘I spoke.’

c. nîtoh黄埔m(a)  
\textit{nit-ohpomma}  
1SG-buy  
‘I bought’

b. nítáánista  
\textit{nit-waanista}  
1SG-tell  
‘I told’

d. nîtsíîmai’taki  
\textit{nit-i-omai’taki}  
1SG-?-believe  
‘I believed.’

Papers of the Algonquian Conference, eds. Karl S. Hele & Regna Darnell  
This paper addresses the variation of stem initial predicates at the left edge as illustrated above. The general claims are (i) Blackfoot stem initial eventive predicates do not have a dedicated overt morpheme for past; (ii) Blackfoot temporal interpretations rely on aspectual morphosyntax; (iii) variation in surface forms is conditioned by the range of phonological shapes of the stems; (iv) the placement of pitch accent does not play a role in temporal interpretations.

The paper is organized as follows. First, I show how variation of stem initial predicates indicates that there is no dedicated overt past marker in Blackfoot, and the contrast of (1) and (2) is achieved by aspectual marking, where Imperfective is marked by -á-, while unmarked, bare stem initial predicates are interpreted as Perfective. Second, I demonstrate how the variation of form reflects the variation of phonological shapes of stem initial predicates. Third, I briefly discuss why the role of pitch accent in Blackfoot temporal interpretation is only epiphenomenal. Lastly, I conclude and state further questions.

BLACKFOOT: NO DEDICATED OVERT PAST MARKER

In this section, I argue that Blackfoot lacks a dedicated past marker. Frantz (1991:35-36) gives the list of means for past expressions summarized in the left column of the table below.

(3) **Blackfoot: means for past interpretation**

<table>
<thead>
<tr>
<th>Frantz 1991 (various dialects)</th>
<th>This paper (Blood dialect)</th>
</tr>
</thead>
</table>
| lack of a-
im | ✓ |
| i- or ii- stem initially | ? |
| initial change -ay- | unattested |
| prefix ná- | Unattested |

The right column of the table reflects the means used for marking past in Blood dialect. As the table reveals, the status of i- in Blood dialect requires an adequate explanation in order to arrive
at generalizations for temporal marking in Blood dialect. Based on the empirical evidence presented below, I argue that \textit{i-} is not a dedicated temporal marker, and the contrast in temporal interpretation arises due to the contrast in aspectual interpretation.

There are two main reasons to argue that insertion of \textit{i-} at the left edge is not related to expression of temporality. First, \textit{i-} occurs there it does not mark past. Second, \textit{i-} fails to show up where it is expected to occur if it were a dedicated morpheme. In what follows, I will go over data that supports the claims.

First, insertion of \textit{i-} at the left edge is not specific to marking past. For example, in (4a) we see that a s- stem initial verb \textit{-siksip-} ‘bite’ may surface without stem initial \textit{i-}, as it occurs in the imperative form of the verb. However, \textit{i-} is inserted in the other forms of the predicate, weather the interpretation of the predicate is present (4b) or past (4c)\(^3\).

\begin{table}[h]
\centering
\begin{tabular}{|l|l|l|}
\hline
& & \\
\textit{siksipis-t} & Nit-a-i-siksip-wa anna Martina & Not-i-siksip-was anna Martina \\
Bite-IMPER & ISG-IMP-?-bite-3SG DET Martina & Isg-?-bite-3SG DET Martina \\
\textit{‘Bite him!’} & ‘I am biting Martina’ & ‘I bit Martina’ \\
\textit{‘I bite Martina’} & & \\
\hline
\end{tabular}
\end{table}

If \textit{i-} truly were a dedicated past tense morpheme, the insertion in (4b) would be hard to explain. To abstract away from a concrete data example, one could schematize the insertion of \textit{i-} as follows: an s- initial verbal stem does not have an \textit{i-} in Imperative form, but requires insertion both for present and past interpretation.

\[ sV + \text{Imperative} \quad \text{Infl+a+i+sVstem} \quad \text{Infl+i+sVstem} \]
The second piece of evidence against \textit{i-} as dedicated temporal marker is the fact that it is neither universally nor obligatory present throughout expected positions. In (6a) we see that predicate \textit{-onataa-} ‘dig’ does not have a stem initial \textit{i-} in imperative form of the verb, which I take to mean that \textit{i-} is not a part of the underlying stem. In (6b), where a predicate is interpreted as present/habitual, \textit{i-} is not inserted either. So the fact that \textit{i-} deletes the stem initial vowel in (6c) may look like \textit{i-} could be interpreted as a genuine past tense marker.

\[(6)\]
\begin{align*}
\text{a. Onatáát!} & \quad \text{b. nitáonaat(a)} & \quad \text{c. nitsínaat(a)} \\
\text{onataa -t} & \quad \text{nit-a-onataa} & \quad \text{nit-i-onataa} \\
\text{dig-IMPER} & \quad \text{1SG-IMP-dig} & \quad \text{1SG -?-dig} \\
\text{‘Dig!’} & \quad \text{‘I am digging’} & \quad \text{‘I dug’}
\end{align*}

Schematically, it could be illustrated as follows: an o- initial stem undergoes \textit{i-} insertion when interpreted as past.

\[(7)\]
\text{\textit{oV +Imperative \quad Infl+a+\textit{oVstem \quad Infl+\textit{oVstem}} \Rightarrow \textit{iV}_{\text{stem}}}\]

However, the dedicated use of \textit{i-} in (6c) as a temporal marker does not hold, because the deletion occurs only under certain conditions, namely when the stem is bare at the left edge. As soon as after morphological elements are added at the left edge, the insertion of \textit{i-} is blocked. In (8) we see another crucial piece of counter-evidence against treating \textit{i-} as a dedicated temporal marker.

\[(8)\]
\begin{align*}
\text{a. nikáákaonaata(kih)} & \quad \text{b. nikáákoonaata(kih)} & \quad \text{c. nikaaksínaata(kih)} \\
\text{ni-kaak-a-onaata-taki} & \quad \text{ni-kaak-onaata-taki} & \quad \text{1SG -PRV-IMP-dig-T.SUF} \\
\text{1SG -PRV-IMP-dig-T.SUF} & \quad \text{1SG -just-dig-T.SUF} & \quad \text{1SG -just-dig-T.SUF} \\
\text{‘I am just digging smth’} & \quad \text{‘I just dug smth’} & \quad \text{‘I just dig smth’}
\end{align*}

If \textit{i-} were indeed a dedicated temporal marker, it would always surface in the expected slot, at the left edge of the stem. However,
as soon as one add a prefix at the left edge, as (8b) illustrates, the insertion of *i* is blocked. If *i* were a dedicated temporal marker, the expected form would be (8c), which is ungrammatical.

The third piece of evidence against treating *i* as a dedicated temporal marker is based on a subset of Blackfoot stems where *i* does not occur altogether, under any conditions. One such subset of stems is a group of stems that start with *a'p-* ‘around, about’ 4. The peculiarity of these stems is that the Imperfective *-á* is inserted between the *a'p-* and the rest of the stem (9a). So if *i* were a dedicated morpheme, we would expect it to show up as in (9c), in this case deleting the stem initial *o* similarly to (6c). However, *i* does not show up and we get a bare stem at the left edge as in (9b).

(9)

<table>
<thead>
<tr>
<th></th>
<th>a. nita'pao'tak(i)</th>
<th>b. nita'po'tak(i)</th>
<th>c. * nita'pi'tak(i)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>nit-a'p-a-o'taki</td>
<td>nit-a'p-o'taki</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1SG-around-IMP-grab</td>
<td>1SG -around-grab</td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘I am working’</td>
<td>‘I worked’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘I work’</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Another subset of stems where *i* insertion does not occur are underlyingly *w*-initial stems. The underlying glide is not always present in the surface form of the stem as (10a) illustrates. However, when the Imperfective *-á* is added, as in (10b), the glide surfaces. So if *i* were a dedicated temporal morpheme, one would expect it to surface at the left edge of the stem and prompt the surfacing of the underlying glide (10d). Instead, we get a bare stem at the left edge (10c)
Thus, given the optionality and restrictions on i- insertion, I conclude that the stem initial i- is not a dedicated temporal marker. What is the role of i- is beyond the scope of this paper. Since i- has been eliminated as a dedicated temporal marker, the only remaining means that Blood dialect speaker uses to attain past interpretation of predicates is the aspectual contrast between stems bare stem at the left edge with stems marked with Imperfective –á. The table below sums up the observations on Blood dialect versus other dialects.

(11) Blackfoot means for past interpretation: aspect

<table>
<thead>
<tr>
<th>Frantz 1991</th>
<th>Blood dialect</th>
</tr>
</thead>
<tbody>
<tr>
<td>lack of (\alpha_{\text{Imp}})</td>
<td>✓</td>
</tr>
<tr>
<td>i- or (i\hat{i})- stem initially</td>
<td>non-temporal</td>
</tr>
<tr>
<td>initial change ay-</td>
<td>unattested</td>
</tr>
<tr>
<td>prefix nâ-</td>
<td>unattested</td>
</tr>
</tbody>
</table>

BLACKFOOT: ASPECT DRIVEN SYSTEM

Given that there are no dedicated overt morphemes for marking of past in Blackfoot, the next question then is how past interpretation is attained in Blackfoot. I argue that manipulation of aspectual morphology gives rise to contrast in past/present interpretation (cf. Frantz 1991, Bar-el 2005, Reis Silva & Matthewson 2007). The unmarked, bare stem initial predicates are interpreted as past because they are perfective, under the view where \(\text{Aspect}_{\text{perf}}\) views situation as a bounded whole, and
Aspect_{imperf} views situation as unbounded (van Hout et al 2005 inter alia).

(12)

<table>
<thead>
<tr>
<th>Predicate form</th>
<th>unmarked</th>
<th>a-marked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpretation</td>
<td>“past” (perfective)</td>
<td>“present” (imperfective)</td>
</tr>
</tbody>
</table>

The predicates that are marked with Imperfective –á- (Dunham 2007) are interpreted as present/habitual. Notice that we need to establish the value of the bare stem. On one hand, the bare stem could have a default perfective value, where lack of any overt marking would straightforwardly signal the value opposite to imperfective. On the other hand, the bare stem could be underspecified, and then the lack of overt marking would signal an (im)perfective ambiguity. Next, I am going to go over evidence which shows that Blackfoot eventive stem initial predicates have only perfective default value.

The first indication that bare eventive stems are perfective is the translation that the speaker tends to provide during elicitation, a typical entry provided in (13).

(13)

a. Nitáwaanista ‘Oki!’.  
   nit-a-waanista oki  
   1SG-IMP-tell  
   ‘I am telling her ‘Hello!’  
   ‘I tell her ‘Hello!’  
   *‘I told her hello.’

b. Nitáánista ‘Oki!’.  
   nit-waanista oki  
   1SG-tell  
   ‘I told her hello.’  
   *‘I am telling her ‘Hello!’  
   *‘I tell her ‘Hello!’

The positive evidence is that bare stem initial predicates are consistently translated to English as events that have occurred in the past, while the stems that are marked with Imperfective –á- are consistently translated as either ongoing or habitual events, as the table below sums up.
(14) Positive evidence

<table>
<thead>
<tr>
<th>Form</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$a_{imp}$Vstem</td>
<td>Ving/Vs; *Ved</td>
</tr>
<tr>
<td>Vstem</td>
<td>Ved; *Ving/Vs</td>
</tr>
</tbody>
</table>

The negative evidence is that the converse is not true: bare stem initial predicates are never translated to English as events that have occurred in the past, while the stems that are marked with Imperfective $\theta$ are never translated as events that have occurred in the past.

Next, I turn to aspectual tests to that highlight the unambiguous perfectivity of stem initial predicates.

First, I use habitual/iterative adverbs to show that these adverbs select only for imperfective predicates (15a,c) and are ungrammatical with perfective predicates (15b,d).

(15) a. Nitáisiksipa anna Martina kanáiksitsikosi
    nit-a-i-siksipa anna Martina ohkana-i-ksiistsiko-istsi
    1SG-IMP-?-bite DET Martina all-?-day-IN.PL
    ‘I bite Martina every day.’

b. *Nitsíisiksipa anna Martina kanáiksitsikosi
    nit-i-siksipa anna Martina ohkana-i-ksiistsiko-istsi
    1SG-?-bite DET Martina all-?-day-IN.PL

Context: vampire plot against Martina

c. Anna Joel kaanawánisi oki, anna Martina nitsítáisiksipa
    anna Joel ohkana-waanista-si oki anna Martina nit-it-a-i-siksipa
    DET Joel all-say-3SG hello DET Martina 1SG-then-IMP-?-bite
    ‘Every time Joel says hello, I bite Martina.’

d. *Anna Joel kaanawánissi oki, anna Martina nitsísiksipa
    anna Joel ohkana-waanista-si oki anna Martina nit-i-siksipa
    DET Joel all-say-3SG hello DET Martina 1SG-?-bite

Another aspectual test that highlights the perfectivity of a predicate is the interpretation of the predicate under negation.
Negation highlights the telic, endpoint (and therefore perfective) interpretation of stem initial predicates (cf Bar-el 2005).

(16)

a. Nimáátaanista(watsiksi) oki!
   nit-maat-waanista-watsiksi oki
   1SG-NEG-tell-NON.AF  hello
   ‘I did not tell her ‘Hello!’
   *‘I do not tell her hello.’

b. #Nitáánista oki ki nimáátaanistawatsiksi oki.
   nit-waanista oki ki nit-maat-waanista-watsiksi oki
   1sg-tell  hello COMP 1SG-NEG-tell-NON.AF  hello
   Intended: ‘I told her ‘Hello!’, but I did not tell her ‘Hello!’’

In (16a), negation shows that event did not occur in the past. It is semantically unacceptable to cancel that interpretation as (16b) shows.

The third test that I used to highlight the perfective interpretation of bare stem initial predicates is the distinction provided by temporal clauses. Only imperfective predicates are felicitous in the environment of an irrealis clause, because the situation described is that of an unbounded event. In (17a), one can see that an imperfective predicate (underlined) is felicitous with an if-clause.

(17)

a. Anna Joel kámsiksipotsiniki, anna Martina nitsítáisiksipa
   anna Joel ikkam-siksip-otsiniki anna Martina nit-it-a-i-siksipa
   DET Joel if- bite- 3S>1S DET Martina 1SG-then-IMP-?-bite
   ‘If Joel bites me, that is when I bite Martina.’

b. *Anna Joel kámsiksipotsiniki, anna Martina nitsítsiksipa
   anna Joel ikkam-siksip-otsiniki anna Martina nit-it-i-siksipa
   DET Joel if- bite- 3S>1S DET Martina 1SG-then-?-bite

As can be seen in (17b), a perfective predicate (underlined) is not acceptable in the environment of an if-clause, because the
event described by the perfective predicate is viewed as bounded, while the event described by the irrealis clause is viewed as unbounded, hence the ungrammaticality. If the unmarked (i.e., lacking the imperfective a-) form of the predicate were ambiguous between the perfective and imperfective reading, the ungrammaticality of (18b) would be unexpected.

In sum, I have shown that both the speaker translations as well as aspectual tests indicate that bare stem initial eventive predicates in Blackfoot are perfective. Based on these results, I posit the following aspectual structure for Blackfoot:

(18) Blackfoot: Imperfective versus Perfective

\[
\begin{array}{c|c|c}
\text{AspP}_{\text{IMPERF}} & \text{AspP}_{\text{PERF}} \\
3 & 3 \\
a & VP & VP \\
\text{VP}^0 & \text{VP}^0 \\
\end{array}
\]

Having established the lack of overt marker of past and having argued that manipulation of aspectual morphosyntax is the source of temporal interpretations, I will now turn to the morphonological reasons of variation in form at the left edge of stem initial predicates.

MORPHOPHONOLOGY OF STEM INITIAL PREDICATES

The goal of this section is to account for variation at the left edge of stem initial predicates when these are interpreted as past, illustrated in example (2), repeated below for convenience:

(19) a. nitsii’poyi
nit-i’poyi
lSG-speak
‘I spoke’

c. nitohpomm(a)

b. nitáánista
nit-waanista
lSG-tell
‘I told’
d. nitsiimai’taki
nit-i-omai’taki
lSG -?-believe
nit-ohpomma
lSG -buy
I argue that the seeming variation in form at the left edge merely reflects the phonological diversity of the verbal stem shapes. Using Frantz and Russell 1995 dictionary as empirical tool to understand the make-up of the Blackfoot verbal stem, I have observed that the breakdown of the dictionary entries gives an insight into stem type versus category correlation as well as diversity of stem shapes\textsuperscript{7}. In other words, the stem initial sound indicates what category—verb or noun—will the entry belong to, as it is indicated by the summary in the table below\textsuperscript{8}.

\begin{tabular}{|c|c|c|}
\hline
\textbf{Stem type} & \textbf{Verbal} & \textbf{Nominal} \\
\hline
glide-initial & ✓ & ✗ \\
consonant-initial & ✗ & ✓ \\
special: s-initial\textsuperscript{9} & ✓ & ✓ \\
vowel-initial & & \\
a-initial & a few & most \\
i-initial & most & a few \\
o-initial & most & a few \\
\hline
\end{tabular}

Thus, the table already excludes certain entries as candidates for verbal stem on phonological grounds: the phonological shape clearly plays a role and if that shape is not "right", the entry is not verbal. Furthermore, the dictionary break up provides the subtypes of the verbal stem shapes, as the following table illustrates.
Already the schematic illustration of the verbal stem subtypes, introduced above, allows for a prediction that if bare verbal stems were used for some default interpretation, the said variation in form of the bare stems would be associated with whatever function the bare verbal stem is chosen to play. I argue that this is indeed the case of Blackfoot perfective forms: bare stems are interpreted as perfective, and the variation in form falls out as a result of their phonological shape. In other words, the perfective forms would reflect the underived predicate type while the imperfective forms would reflect the derived predicate type, as summed up below.

(22) Stem shape versus predicate correlation

<table>
<thead>
<tr>
<th>predicate type</th>
<th>Imperfective</th>
<th>Perfective</th>
</tr>
</thead>
<tbody>
<tr>
<td>predicate form</td>
<td>unaffected by stem shape</td>
<td>determined by stem shape</td>
</tr>
<tr>
<td>derived, uniform</td>
<td>transformed, idiosyncratic</td>
<td>underived, idiosyncratic</td>
</tr>
</tbody>
</table>

The empirical data that supports the generalization can be condensed as follows.
For the reasons of space, empirical fieldwork data illustrating each subset of the given patterns is in Appendix B.

**PITCH ACCENT: SUBJECT TO GENERAL RULES OF BLACKFOOT PHONOLOGY**

Lastly, I need to address the role of pitch accent in temporal interpretation, as the placement of the pitch accent often appears to coincide with the elements of temporal marking, e.g., imperfective marker *a*-11 I have two reasons to argue that Blackfoot pitch accent is not a dedicated temporal marker. On one hand, I have observed that long vowels attract pitch accent, as seen in (24). When there is a sequence of two long vowel syllables, the leftward syllable wins.

(24)

a. ni.tao.naa.t(a)  
   nit-a-onataa  
   1SG-IMP-dig  
   ‘I am digging.’  
   ‘I dig.’

b. ni.káa.kao.naa.ta(kih)  
   ni-kaak-a-onaata-taki  
   1SG-PRV-IMP-dig-T.SUF  
   ‘I am just digging smth.’  
   ‘I just dig smth.’
In (24a) long syllable with Imperfective marker a- attracts pitch accent. If the placement of pitch accent were related to temporality and therefore tied to one position, we would not expect (24b), where the pitch accent is moved leftward once a preverb kaak- ‘just’ with a long vowel is added. Thus, pitch accent can not be viewed as temporal marker. (25) exemplifies the same pattern with a different preverb, maat-, used for negation.

The second reason why pitch accent is an unlikely candidate for a temporal marker is that it appears to shift leftwards for phonological reasons unrelated to vowel length. In (26a,c) pitch accent fall on the syllable with imperfective marker a-. However, when the Imperfective marker is not present, the same syllable can no longer support pitch accent and is shifted to the left (26b,d).

Although I have not established either the pattern or range of this leftward shift of pitch accent, I have at least shown that it cannot be related to temporality.
CONCLUSION & FURTHER QUESTIONS

In this paper, I have argued that Blackfoot (Blood dialect) stem initial eventive predicates do not have a dedicated overt morpheme for past. I have shown how the past temporal interpretations rely on aspectual morphosyntax. I have reasoned that the variation in surface forms of the eventive stem initial predicates is conditioned by the range of phonological shapes of these stems. Finally, I demonstrated that the placement of pitch accent does not play a role in temporal interpretations.

However, there are still many questions that need to be answered. This paper addressed only the eventive predicates. The next step would be to look at the stative predicates and establish whether the generalizations made on eventive data would also hold for stative predicates. For example, there is an indication that stative predicate preverb *iik-* ‘very’ in many cases is merely a dummy place holder and may be used for some well-formedness concerns (akin to the use of *i-* on eventive predicates) rather than as an intensifier (27)-(28). If *iik-* were only an intensifier, its deletion would not cause ungrammaticality.

(27)a. Omi naitahtaan *iiksimmi.
    omi niitahta iik-immi
    DET river INT-deep
    ‘That river is deep.’

    b.*Omi naitahtaan immi
       omi niitahta immi
       DET river deep
       Intended: ‘That river is deep.’

(28)a. Omi naitahtaan aaksiiksimmim
    omi niitahta yaak-iik-immi
    DET river FUT-INT-deep
    ‘That river will be deep.’

    b.*Omi naitahtaan aaksimmi
       omi niitahta yaak-immim
       DET river FUT-deep
       Intended: That river will be deep.

Context: When spring comes and all the snow melts.

Another urgent issue to be addressed adequately is affixation at the right and the left edge of the lexical and its role in temporal interpretation. In other words, I would like to systematically follow
through how prefixes and suffixes (bolded below) interact with
different subsets of bare stem initial eventive predicates and how
does the affixation affect the temporal interpretation.

(29)  [Person [Preverb \textit{stem}][Initial (\textit{Medial}) \textit{Final} \textit{stem} Theme Person Num]]

Last but not least the generalizations on temporality at VP
level need to be verified and tested in regard to higher syntactic
domains, namely Tense Phrase and Complementizer Phrase, so
that one could get a complete picture of expressions and
implementation range of temporality in Blackfoot.

\textit{Abbreviations}
1SG- first person singular, 3SG – third person singular, 3SG>1SG – third person
acting on first person, COMP – complementizer, DET – determiner, FUT- future,
IMP-imperfective, IMPER – imperative, INF- inflection, IN.PL – inanimate plural,
INT – intensifier, NEG- negation, NON.AF – non affirmative suffix, PERF –
perfective, PRV- preverb, T.SUFF – transitive suffix.
APPENDIX A

Verbal stem shapes: a dictionary based description

I have used Russell & Frantz 1995 dictionary as a research tool for understanding the morphosyntax of stem initial verbs in Blackfoot. The lexical entries in the dictionary are defined by their morphosyntactic properties and selectional patterns (Russell & Frantz 1995:xix). I specifically focus on the eventive verb stems which are given bare at the left edge. I went through the dictionary entry by entry and arrived at the following generalizations.

(30) **Vowel initial stems**

<table>
<thead>
<tr>
<th></th>
<th>a-section</th>
<th>i-section</th>
<th>o-section</th>
</tr>
</thead>
<tbody>
<tr>
<td>number of pages</td>
<td>20</td>
<td>89</td>
<td>24</td>
</tr>
<tr>
<td>total entries</td>
<td>403</td>
<td>1348</td>
<td>739</td>
</tr>
<tr>
<td>verb</td>
<td>50</td>
<td>835</td>
<td>461</td>
</tr>
<tr>
<td>noun</td>
<td>310*</td>
<td>340**</td>
<td>196***</td>
</tr>
</tbody>
</table>

*high number of nominalizations with prefix a-  
** high number of nouns with (non-detachable?) iht-‘instrument’, it-‘place’  
** high number of nouns with (non-detachable?) omahk- ‘big, great’

Note that a-stem entries are difficult to interpret because of the high number of nominalizations with a-. I-stem and o-stem initial shape is favored by verbs.

(31) **Glide initial stems**

<table>
<thead>
<tr>
<th></th>
<th>w-section</th>
<th>y-section</th>
</tr>
</thead>
<tbody>
<tr>
<td>number of pages</td>
<td>21</td>
<td>13</td>
</tr>
<tr>
<td>total entries</td>
<td>265</td>
<td>164</td>
</tr>
<tr>
<td>verb</td>
<td>235</td>
<td>149</td>
</tr>
<tr>
<td>noun</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

As the table above indicates, verbs favor glide initial stems, while nouns favor consonant initial stems. The case of s is particularly interesting, because it constitutes a split between noun and verb entries. This is consistent with the recent work on Blackfoot s by Derrick (2006), where he argues that s exhibits both consonant and vowel qualities.
(32) **Consonant initial stems**

<table>
<thead>
<tr>
<th></th>
<th>h-section</th>
<th>k-section</th>
<th>m-section</th>
<th>n-section</th>
<th>p-section</th>
<th>s-section</th>
<th>t-section</th>
</tr>
</thead>
<tbody>
<tr>
<td>number of pages</td>
<td>1/2</td>
<td>8 1/2</td>
<td>10</td>
<td>6 1/2</td>
<td>6</td>
<td>39</td>
<td>1 1/2</td>
</tr>
<tr>
<td>total entries</td>
<td>7</td>
<td>192</td>
<td>237</td>
<td>136</td>
<td>137</td>
<td>713</td>
<td>23</td>
</tr>
<tr>
<td>verb</td>
<td>0</td>
<td>5</td>
<td>12</td>
<td>9</td>
<td>2</td>
<td>424</td>
<td>1</td>
</tr>
<tr>
<td>noun</td>
<td>0</td>
<td>153</td>
<td>192</td>
<td>97</td>
<td>116</td>
<td>174*,**,</td>
<td>9</td>
</tr>
</tbody>
</table>

*NB: a high number of nouns with (non-detachable?) *sik-* ‘black’ prefix

**NB: esp. low number of nouns with stem initial *ss-*
Fieldwork data collected to illustrate the variety of stem initial phonological shapes

(33) Data sample set up

<table>
<thead>
<tr>
<th>Form</th>
<th>Example of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imperative</td>
<td>minimal stem</td>
</tr>
<tr>
<td>Imperfective</td>
<td>derived stem at left edge</td>
</tr>
<tr>
<td>Perfective</td>
<td>underived stem at left edge</td>
</tr>
</tbody>
</table>

(34) IV\textsubscript{stem}

<table>
<thead>
<tr>
<th>Imperative</th>
<th>Imperfective</th>
<th>Perfective</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. I’póyi!</td>
<td>a. nitái’poyi</td>
<td>c. nitsí’poyi</td>
</tr>
<tr>
<td>i’poyoi-t</td>
<td>nit-a-i’poyi</td>
<td>nit-i’poyi</td>
</tr>
<tr>
<td>speak-IMPER</td>
<td>lSG-IMP-speak</td>
<td>lSG-speak</td>
</tr>
<tr>
<td>‘Talk!’</td>
<td>‘I am speaking’</td>
<td>‘I spoke’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(35) a’pV\textsubscript{stem}

<table>
<thead>
<tr>
<th>Imperative</th>
<th>Imperfective</th>
<th>Perfective</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. a’pó’takit!</td>
<td>b. nitá’pao’tak(i)</td>
<td>c. nitsí’a’p’o’taki</td>
</tr>
<tr>
<td>a’p-o’taki-t</td>
<td>nit-a’p-a-o’taki</td>
<td>lSG-IMP-grasp</td>
</tr>
<tr>
<td>around-grasp-IMP</td>
<td>lSG-around-IMP-grasp</td>
<td>lSG-around-grasp</td>
</tr>
<tr>
<td>‘Work!’</td>
<td>‘I am working’</td>
<td>‘I worked’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(36) oV\textsubscript{stem}

<table>
<thead>
<tr>
<th>Imperative</th>
<th>Imperfective</th>
<th>Perfective</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. omá’takit!</td>
<td>b. nitáoma’i’taki</td>
<td>c. nitsí’a’omai’taki</td>
</tr>
<tr>
<td>omá’taki-t</td>
<td>nit-a-omai’taki</td>
<td>nit-omai’taki</td>
</tr>
<tr>
<td>believe- IMPER</td>
<td>lSG-IMP-oVstem</td>
<td>lSG-IMP-oVstem</td>
</tr>
<tr>
<td>‘Believe!’</td>
<td>‘I believe’</td>
<td>‘I believed’</td>
</tr>
</tbody>
</table>
(37) $ohV_{stem}$

**Imperative**

a. Pommatot!  
   pommaatoo-t  
   Buy-IMPER  
   'Buy it!'

**Imperfective**

b. nitáohpomm(a)  
   nit-a-ohpommaa  
   1SG-IMP-buy  
   'I am buying/buy'

**Perfective**

c. nitohpomm(a)  
   nit-ohpommaa  
   1SG-buy  
   'I bought'

(38) $sV_{stem}$

**Imperative**

a. Sik sipis! Bite her!  
   siksip-s  
   bite-IMPER  
   'Bite her!'

**Imperfective**

b. *Isiksipis!

c. nitaisiksipa  
   nit-a-i-siksipa  
   1SG-lMP-?-bite  
   'I am biting/bite'

**Perfective**

d. nitsíisiksipa  
   nit-i-siksipa  
   1SG-?-bite  
   'I bit'

(39) $ssV_{stem}$

**Imperative**

a. (i)ssinnit!  
   ssinn-t  
   break/whand-IMPER  
   'Break it!'

**Imperfective**

b. nitáissinip  
   nit-a-i-ssinip  
   1SG-IMP-?-break/whand  
   'I am breaking it'  
   'I break it (with a hand)'

**Perfective**

c. nitssinip  
   nit-ssinip  
   1SG-break/whand  
   'I broke (with a hand)'
(40) wVstem

<table>
<thead>
<tr>
<th>Imperative</th>
<th>Imperfective</th>
<th>Perfective</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Aanistsís! waanistsi-s tell-IMPER</td>
<td>b. nitáwaanist(a) nit-a-waanista 1SG-IMP-tell</td>
<td>c. nitáánist(a) nit-waanista 1SG-tell</td>
</tr>
<tr>
<td>‘Tell him!’</td>
<td>‘I am telling’</td>
<td>‘I told’</td>
</tr>
</tbody>
</table>

(41) yVstem

<table>
<thead>
<tr>
<th>Imperative</th>
<th>Imperfective</th>
<th>Perfective</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ohtsiit! yoohsi-t hear-IMPER</td>
<td>b. nitayooht(a) nit-a-yoohto-wa 1SG-IMP-hear-3sg</td>
<td>c. nitsiyoohtoa nit-i-yoohto-wa 1SG-?-hear-3sg</td>
</tr>
<tr>
<td>‘Hear it!’</td>
<td>‘I am hearing her’</td>
<td>‘I heard her’</td>
</tr>
</tbody>
</table>

ENDNOTES

1 Thanks to Beatrice Bullshields for sharing Blackfoot. Nitsikohtohsitaki. Blackfoot data comes from fieldwork notes unless indicated otherwise; when fieldwork data diverges from entries available in the dictionary (Frantz 1991/1995), the priority is given to the fieldwork data. This discussion has benefited from comments of UBC Linguistics department faculty and students as well as dr. Frantz. Fieldwork on Blackfoot was supported by Jacobs fund grant awarded to the author. All the mistakes are mine.

2 See Ritter & Bliss 2007 for discussion on nd- in Siksika dialect.

3 Another possible interpretation of (4c) would be to say that the length of i- indicates past tense. However, it is unclear wheather PA plays a role in the lengthening of the vowel. See more on the role of pitch accent in temporal marking in the section on pitch accent.

4 Here a’p- is a part of secondary initial that has been derived putting together two initials, in the sense of Goddard 1990:450.

5 The question is what is i-, if it is non-temporal? Hypothesis; i- is needed for stem well-formadness. The problem is that i- often forms a part of stem, yet that i- still gets lengthened. In other words, even a well-formed stem may undergo i-insertion assuming that lengthening signals the presence of additional i-.
a. i'póyít talk!
   i'poyi -t
   speak-IMPER
   ‘Speak!’

b. nitái’poyi
   nit-a-i’poy
   1SG-IMP-speak
   ‘I am speaking’

   nit-i-i’poyi
   1SG-?-speak
   ‘I spoke’

c. nitsii’poyi

Hypothesis 2: i- is an indicator of morpheme boundary (Elfner 2005:54, also cf. Berman 2006). The problem is that i- is not always obligatory, as shown in (6) – (9) above and plenty of morpheme edges elsewhere.

Hypothesis 3: i-/a- is a case of productive initial change in Blackfoot (Muehlbauer, p.c.). This hypothesis needs to be explored further, but it does not change the observations on temporality in this paper.

6 It remains to be seen whether perfective is a null morpheme or a default interpretation of a bare stem. At the current stage of research, nothing hinges on the possibility that perfective may or may not be a null morpheme.

7 See Appendix A for a more detailed overview of the breakdown for dictionary entries.

8 Adjuncts have been excluded from this breakdown.

9 On the special status of s in Blackfoot see Derrick 2006.

10 The list of stem types covers the main types and some subtypes, but is not exhaustive.

11 It is still debatable, whether the phonological prominence in Blackfoot should be defined as tone or as pitch accent (see Elfner 2005, Kaneko 1999, Stacey 2004, Van der Mark 2003). The choice, important as it may be, does not bear on the analysis of temporal issues at hand.

REFERENCES


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Blackfoot dictionary of stems, roots, and affixes. Toronto: University of Toronto Press.


Tertiary Grammaticalizing information status in Siksika Blackfoot: A tenseless analysis. University of Lethbridge

