

Noun Incorporation in Blackfoot

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April 7, 2009

Noun incorporation (NI) has long interested linguists due to the fact that it lies at the interface of word formation (morphology) and phrase formation (syntax). Blackfoot, an Algonquian language spoken in Alberta and Montana, has been cited numerous times in the literature as having noun incorporation constructions (Frantz (1971); Mithun (1984); Gerdts (1998); Gerdts (2003)). The present paper provides new empirical data on noun incorporation in Blackfoot,¹ focussing on two constructions that fit the bill. These are discussed in the context of two recent $\sqrt{\text{ROOT}}$ -incorporation approaches to NI: Wiltschko (2007) and Johns (2007). I argue that the data are compatible with but by no means necessitate a $\sqrt{\text{ROOT}}$ -incorporation analysis. Furthermore, assuming the classification argued for by Rosen (1989), Blackfoot shows that a single language can have both classifier and compound NI. Finally, I point to evidence which suggests that the NI constructions of Blackfoot do not result from syntactic movement as argued for by Baker (1988).

1 Blackfoot noun incorporation and $\sqrt{\text{ROOT}}$ analyses

The two Blackfoot constructions examined in this paper share the property of having nominal-like elements contained within a single morphologically complex verb. Throughout I use the term “noun incorporation (NI)” to refer to these constructions without meaning to presume that the incorporated elements are categorially nouns. The possibility that they are category-less bare roots ($\sqrt{\text{ROOT}}$ s) is, of course, a notion entertained and examined throughout this paper.

The $\sqrt{\text{ROOT}}$ -incorporation analyses of Johns (2007) and Wiltschko (2007) are discussed in detail. Both papers argue that certain NI-like constructions, in Inuktitut and Halkomelem respectively, result from the incorporation of a lexical item lacking the structure that is assumed to endow it with category. In the following two sections, I

¹Many thanks to my Blackfoot consultant Beatrice Bullshields who works tirelessly to teach me her language. I would also like to thank Mike Barrie, Martina Wiltschko, Lisa Matthewson, Hotze Rullmann and Solveiga Armoskaite (among others) for taking the time to think about the ideas in this paper and offer feedback. Finally, I gratefully acknowledge the funding that made this research possible: SSHRC Standard Research Grant 410-2006-2166 (awarded to Martina Wiltschko) and SSHRC Fellowship 767-07-1968.

present two Blackfoot NI constructions and examine the extent to which the $\sqrt{\text{ROOT}}$ analyses are supported in this language.

2 Halkomelem lexical suffixes and Blackfoot medials

Blackfoot has a construction (with analogues across the Algonquian language family) where a nominal-like² element, called a *medial* (MED), forms part of a complex verb. Form (1) contains such a verb: the morpheme *ika* ‘foot’ is the medial.³

- (1) *átssiikaawaatsimii*
 á-ssi-ika-atsi-m-yii
 IMPF-wipe-foot-FIN-TA-DIR
 ‘she is washing his feet.’ (*adapted from BB; 16582*)⁴

Complex verbs in Halkomelem (and other Salish languages) can contain nominal-like morphemes called *lexical suffixes*. Algonquian medials and Salish lexical suffixes perform similar functions and occur in similar positions within the complex verb. Compare *xál* ‘foot’ in (2) with *ika* ‘foot’ in (1). In both constructions, the incorporated nominal element functions as a notional theme (the direct object is translated as an English possessor), is preceded by a morpheme that specifies the event denoted by the verb (*th'exw* ‘wash’, *ssi* ‘wipe’) and is followed by a morpheme that indicates transitivity (*t* ‘trans’, *atsi-m* ‘FIN-TA’).

- (2) *th'exw-xál-t-es te Strang te Konrad*
 wash-foot-trans-3s det Strang det Konrad
 ‘Strang washed Konrad’s foot/feet’ (*Wiltschko (2007); Halkomelem*)

The parallels between lexical suffixes and medials will be discussed in greater detail below. First, however, I summarize some important properties of Blackfoot medial-containing constructions.

²Medials are noun-like in their semantics. If intransitive verbs, adjectives and nouns are all of type <e,t>, then does this really mean anything? Intuitively, medials in Blackfoot denote things that are referred to by nouns in English: e.g., body parts, i.e., objects, entities ...

³Guide to abbreviations: 1=first-person; 2=second-person; 3=third-person; 4=obviative third-person; 21=first-person plural inclusive; SG=singular; PL=plural; AN=animate; IN=inanimate; IMPF=imperfective (previously DUR=durative); PAST=past; DEM=demonstrative; CONJ=conjunctive; NEG=negation; PRO=‘attached pronoun’; NONAFF=nonaffirmative suffix; NONPAR=nonparticular; INT=intensifier; PAST.HAB=past habitual; INCH=inchoative; INV=inverse; DIR=direct; (vai)=animate intransitive verb; (vii)=inanimate intransitive verb; (vta)=transitive animate verb; (vti)=transitive inanimate verb. The Blackfoot orthography as used in Frantz and Russell (1995) is used throughout the present paper and is for the most part transparent in terms of character-to-phoneme mappings. The following tips will help to decipher those few unclear aspects of the orthography: an apostrophe “ ’ ” indicates a glottal stop, and acutely accented vowels represent some type of prosodic prominence, sometimes argued to be pitch accent.

⁴All data are from elicitation unless otherwise noted in the gloss line. The notation is explained as follows. “BB” stands for Beatrice Bullshields, my Blackfoot consultant. The number following this abbreviation (e.g., “16582”) is the identification number that indicates where the form can be found in my database.

2.1 Properties of body part NI

Blackfoot medials appear to fall into two types: those that denote body parts,⁵ like *ika* ‘foot,’ and those that denote substances, like *iksi* ‘wood.’ I will refer to constructions containing the former as *body part NI* and those containing the latter as *classifier NI*. As the label implies, the medial of classifier NI constructions constrains the possible referents of the inner argument. The syntactic subject and notional theme of *úkkspiksi* ‘be tall’ (3) can only apply to wooden tree-like objects (e.g., trees, bushes and poles) and not, for example, to houses (4).⁶

- (3) *óma miistsis úkkspiksi*
om-wa miistsis iik-ssp-iksi
DEM-PROX.SG tree INT-high-wood
‘that tree is tall.’ (BB; 15024)
- (4) **ómi naapiyoyis úkkspiksi*
om-yi náapiyoyis iik-ssp-iksi
DEM-IN.SG house INT-high-wood
‘that house is tall.’ (BB; 17827)

In contrast, the medial of body part NI constructions denotes the notional theme of the verb, while the inner argument appears to denote the possessor of the theme (cf. ‘she is washing his feet’ in (1)). These thematic differences motivate a tentative distinction between body part and classifier NI. While the two constructions might be amenable to a unified analysis, at present I focus on body part NI since there are far fewer documented classifier medials than there are body part ones⁷ and since, as a result, I have elicited more data on the body part NI construction. I leave comparisons of the two constructions to future research.

Medials in body part NI occur in between the verb root (VRT) and the final (FIN). In general, the verb root provides the lexical information for the verb (i.e., the type of event denoted) while the final specifies the verb’s transitivity and any animacy restrictions on its arguments. In (1), *ssi* ‘wipe’ is the verb root and *atsi-m* ‘FIN-TA’ is the (putatively complex) final. This final tells us that the verb is transitive and that the object must be grammatically animate.

Blackfoot medials cannot occur outside of a complex verb. That is, they cannot occur as phonologically independent nouns. The grammatical counterpart of (5) is (6), which contains the independent nominal *mohkát* ‘foot.’

- (5) **nítóhkoonii’pa ómi ika*
nit-ohkoon-i-hp-wa om-yi ika
1-find-TI-DIR-3SG DEM-IN.SG foot
‘I found that foot’ (BB; 17394)

⁵The sixteen body part medials identified so far are given in Appendix A.

⁶One way of saying ‘that house is tall’ is *ómi naapiyoyis issпойsasi*. The morphology of the verb here is unclear to me. It appears to contain the *ssp* ‘high’ morpheme, but that is all I can discern at present.

⁷I have identified only two classifier medials so far in Blackfoot: *iksi* ‘wood’ and *ikim* ‘liquid’ (cf. Frantz and Russell (1995)). Another candidate is *a’pís* ‘string; rope.’ Cf. Frantz and Russell (1995): *ntssaapinnawa nit-sa-a’pís-inn-aa-wa* ‘1-out-rope-by.hand-DIR-3SG’ ‘I adjusted the strand out from the inside of it.’

- (6) *nítóhkoonipa ómi mohkátsi*
 nit-ohkoon-i-hp-wa om-yi mohkát-yi
 1-find-TI-DIR-3SG DEM-IN.SG foot-IN.SG
 ‘I found that foot’ (BB; 17392)

The verb root in (1) can form a well-formed verb without the medial (7).

- (7) *átssiistsimi ómi imitáá*
 á-ssi-istsi-m-yii om-yi imitáá
 IMPF-wipe-FIN-TA-DIR DEM-OBV.SG dog
 ‘he is giving a bath to that dog.’ (BB; 17838)

As this example shows, the complex verb has a different final when the medial is removed: compare *istsi* glossed ‘FIN’ in (7) with *atsi* ‘FIN’ in (1).⁸ It is clear, however, that a given verb root can exist as part of a complex verb without a medial, whereas a medial cannot exist without a verbal or adjectival element to its left.⁹

Doubling in NI constructions refers to the phenomenon wherein the same thematic role is expressed by both an IN and an independent nominal. Examples (8) and (9) would appear to indicate that doubling cannot occur in body part NI. That is, the ungrammaticality of (9) could be explained by pointing to the illegality of having two themes: (i) the medial *aapin* ‘eye’ and (ii) the independent noun phrase *annááhk Sam oápssp* ‘Sam’s eye.’

- (8) *nítsissapaapino’toka*
 nit-sap-aapin-o’t-o-ok-wa
 1-in-eye-grasp-TA-INV-3SG
 ‘he poked me in the eye.’ (BB; 14709)
- (9) **nítsissapaapino’toaa annááhk Sam oápssp*
 nit-sap-aapin-o’t-o-aa ann-wa-hka Sam ot-moápssp
 1-in-eye-grasp-TA-DIR DEM-PROX.SG-INV sam 3-eye
 ‘I poked Sam in the eye.’ (lit: ‘I eye-poked Sam’s eye’) (BB; 17387)

However, doubling does, in fact, occur in body part NI constructions. The ungrammaticality judgment given to (9) is, I claim, simply the result of the pragmatic oddity of the repetition inherent in saying something like ‘I eye-poked Sam’s eye.’ The fact that the direct objects of transitive body part NI verbs are sometimes translated into English as possessors (cf. ‘she is washing his feet’) and sometimes as direct objects

⁸I do not at present know the functions of *atsi* ‘FIN’ and *istsi* ‘FIN.’ Hence I purposefully gloss them vaguely as ‘final.’ Both these putative morphemes do, however, appear to change the meaning of the verb from ‘wipe’ to ‘wash.’ Cf. *issíkaasi* (*ssi-ika-aa’si* wipe-foot-MREFL) ‘he wiped his own feet’ and *issíim osstoksís* (*ssi-i-m ot-mosstoksís* wipe-TI-DIR 3-face) ‘he wiped his face.’

⁹Medials can occur in complex nominals also. Observe *ómiksi otsskótsskiiks á’poyíyaa* (om-iksi ótssko-sski-iksi á-i’poyi-yi-aawa — DEM-AN.PL blue-face-AN.PL IMPF-speak-3PL-PRO) ‘those blue-faces are talking’ (BB; 17816). This form was elicited by showing the speaker a picture of two blue-faced Pacman-like creatures talking to one another. When asked whether the form could be used to describe the situation depicted, the speaker assented.

(cf. ‘he poked me in the eye’) provides the clue that the Blackfoot direct objects are not notional possessors but themes. Confirmation of this insight comes from data like (10) and (11).

- (10) *anná* *Conrad ássiikawatsii*
 ann-wa Conrad á-ssi-ika-atsi
 DEM-PROX.SG conrad IMPF-wipe-foot-FIN
 ‘Conrad is washing his feet (i.e., the feet that are part of his body)’ (BB; 17817)
 *‘Conrad is washing his feet (i.e., the lifeless feet he sculpted)’ (BB; 17818)
- (11) *anná* *Meagan ísapaapino’toyii* *anní* *Patrick*
 ann-wa Meagan sap-aapin-o’t-o-yii ann-yi Patrick
 DEM-PROX.SG meagan in-eye-grasp-TA-DIR DEM-OBV.SG patrick
 ‘Meagan poked Patrick’s eye (i.e., the eye that is part of his body)’ (BB; 17819)
 *‘Meagan poked Patrick’s eye (i.e., the lifeless eye that he owns)’ (BB; 17819)

These data show that the Blackfoot direct objects of transitive body part NI constructions are not notional possessors but themes. Sentences (10) and (11) must denote situations in which Conrad and Patrick are, respectively, washed and poked. At the same time, these sentences denote situations in which feet and an eye are also, respectively, washed and poked. Hence, I propose that doubling does occur in body part NI constructions and that in such cases *both* the IN and the direct object are notional themes.¹⁰

It is possible to refer to the washing of a lifeless, disembodied foot in Blackfoot. To do so, one must use the independent nominal *mohkát* ‘leg; foot’ (12). This form is uninflected for possession.¹¹

- (12) *anná* *Conrad ássiiststóm* *ómi* *mohkátsi*
 ann-wa Conrad á-ssi-iststo-m om-yi mohkát-yi
 DEM-PROX.SG conrad IMPF-wipe-FIN-DIR DEM-IN.SG leg-IN.SG
 ‘Conrad is washing that foot’ (BB; 17868)

Finally, Blackfoot medials do not introduce discourse referents.¹² A theme denoted by an independent nominal, *óma imitáá* ‘that dog’ in (13), does introduce a discourse referent that may be referred back to by the second clause. However, the theme denoted by an incorporated medial does not (14).¹³ The speaker comments of this form: “It’s an unfinished sentence,” assumedly meaning that an independent nominal is required as in (15).

¹⁰Cite Patrick Littell on this . . .

¹¹When the possessed form of the nominal is used, as in *anná Conrad ássiiststóm ohkátsi*, the phrase can only denote a situation where Conrad is washing his own attached, flesh and bone foot.

¹²Lisa says “It would be good to cite literature on incorporation and discourse referents, e.g. Bittner, van Geenhoven, Chung and Ladusaw, Baker etc.” I have some reading to do . . .

¹³This form is truly ungrammatical. It cannot mean ‘I washed John’s feet; he looked dirty.’ This is because the complex verb *íikóótsipinaatsííya* ‘they looked dirty’ requires a subject that is both inanimate and plural. To say ‘he looked dirty,’ one would use *íikóótsip-inaamm* ‘dirty-appear.as’

- (13) *nítssiistsima* *óma* *imitáá; iikóótsipinám*
 nit-ssi-ist-m-aa om-wa imitáá iikootsip-inaamm
 1-wipe-FIN-TA-DIR DEM-PROX.SG dog dirty-appear.as
 ‘I washed that dog; it was dirty.’ (BB; 17005)
- (14) **nítssiikawáátsima* *anná* *John, iikóótsipinaattsíya*
 nit-ssi-ika-atsi-m-aa ann-wa John iikootsip-inaattsi-yi-aawa
 1-wipe-foot-FIN-TA-DIR DEM-PROX.SG john dirty-appear.as-3PL-PRO
 ‘I washed John’s feet, they looked dirty.’ (BB; 17016)
- (15) *nítssiikawáátsima* *anná* *John, iikóótsipinaattsi*
 nit-ssi-ika-atsi-m-aa ann-wa John iikootsip-inaattsi-yi
 1-wipe-foot-FIN-TA-DIR DEM-PROX.SG john dirty-appear.as-3PL
ohkátsists
 ot-mohkát-istsi
 3-leg-IN.PL
 ‘I washed John’s feet, his feet looked dirty.’ (BB; 17015)

We have seen that medials in body part NI constructions occur between verb roots and finals, are optional from the point of view of the verb, cannot occur outside of a complex verb (or nominal), can be doubled by independent nominals bearing the same thematic role,¹⁴ and do not introduce a discourse referent.

In the following section I present the argument of Wiltschko (2007) that Halkomelem lexical suffixes are not categorial nouns and assess how well it can be transferred to Blackfoot medials.

2.2 Medials and lexical suffixes do not have the same distribution as nouns

Wiltschko (2007) shows that Halkomelem lexical suffixes have a different distribution than nouns. She argues that this is evidence that incorporated lexical suffixes are not nouns categorially. In what follows, I show that the same distributional differences hold of Blackfoot medials and nouns.

Wiltschko (2007) argues that lexical suffixes in Halkomelem Salish are bare roots ($\sqrt{\text{ROOT}}$) incorporated into the verb. Unlike nouns, verbs and adjectives which have phonological features (ϕ), semantic features (λ) and categorial features (κ), $\sqrt{\text{ROOTS}}$ are linguistic objects that have only ϕ and λ (cf. Pesetsky (1995), Marantz (1997)).

The categorial identity of both lexical suffixes and medials is mysterious. They both denote sets of entities, which might suggest that they are of the lexical category noun. However, they are both obligatorily bound, which suggests that they belong to a

¹⁴Lisa Matthewson (p.c.) suggests that the direct object could be a beneficiary while the incorporated noun is a theme. In Blackfoot, benefactive constructions have a direct object beneficiary and a secondary object theme. This could be tested by seeing whether a benefactive construction like *ann-wa Meagan POKE-BEN [ann-yi Patrick]_{dir.obj} [ot-odássp]_{sec.obj}* could be said of the situation involving the lifeless, disembodied eye. If it could, then this would indicate that the body part NI construction is not a covert benefactive. . .

grammatical or derivational category. Wiltschko (2007) argues that the boundedness of Halkomelem lexical suffixes actually places no constraints on their categorial identity.

In fact, it is arguably the case that there is not a single free morpheme in Blackfoot. If what has been said of the Blackfoot verb is correct (cf. Frantz and Russell (1995)), then all verbs in the language should be morphologically complex and all their constituent morphemes bound: verb roots require finals and vice versa, and medials (apparently) require both. Furthermore, it appears that all noun stems in Blackfoot require suffixation of either number or non-particular morphemes (cf. Frantz (1991, pp. 7-14)). If this is true, then even the “independent” nominals are not free morphemes (16).

- (16) Blackfoot nominals are not free:
1. *nínaa-wa* man-PROX.SG
 2. *nínaa-yi* man-OBV.SG
 3. *nínaa-yi* man-IN.SG
 4. *nínaa-i* man-NON.PAR
 5. **nínaa* man

If lexical category labels like noun and verb could only be attributed to free morphemes, then no element of the complex verb could receive them. Clearly then, if “noun” is to be a syntactically useful category in Blackfoot it will need to be applicable to bound morphemes.

Wiltschko (2007) identifies four necessary conditions on nouns in Halkomelem and finds that lexical suffixes meet none.¹⁵ The conditions are the ability to combine with (i) possessive morphology, (ii) plural marking, (iii) determiners and (iv) the ability to saturate a predicate’s argument positions.

2.2.1 Blackfoot medials and Halkomelem lexical suffixes cannot take possessive morphology

Blackfoot nouns have a similar set of distributional criteria to Halkomelem nouns. First, they have a set of possessive affixes that are distinct from the agreement affixes of verbs.¹⁶ Compare the suffix that marks an inclusive plural argument (*o’pa*) on the verb *okska’si* ‘run’ in (17) with the affixes that mark an inclusive plural possessor (*k-...-innoon*) on the noun *itákkaa* ‘friend’ in (18).

- (17) *apinákosi áakaokska’so’pa*
aapinákos-yi áak-á-okska’si-o’pa
 tomorrow-be FUT-IMPF-run-2IP
 ‘tomorrow we will be running.’ (Frantz (1991); 16292)

¹⁵Note that these are necessary and not sufficient conditions for identifying nouns. Anything that can be called a noun, must meet these conditions. I do not claim of Blackfoot, nor does Wiltschko of Halkomelem, that anything that meets these conditions must be a noun.

¹⁶Lisa says: “For many Salish languages, maybe including Halkomelem (I can’t remember right now), you can’t word it like this because intransitive verbs in subordinate clauses use possessive endings to mark subjects.”

- (18) *kitákkaannoona*
k-itákkaa-innoon-wa
 2-friend-21PL.POSS-PROX.SG
 ‘our friend.’ (Frantz (1991); 17366)

Unlike nouns, Blackfoot medials cannot occur with possessive nominal morphology: contrast (19) with (20, 22). Notice that this is not a semantic restriction since, as seen in (19, 21), the referent of the medial can be possessed (Jane’s feet, our feet).

- (19) *anná Sam ássiikaawaatsimii anní Jane*
 ann-wa Sam á-ssi-ika-atsi-m-yii ann-yi Jane
 DEM-PROX.SG sam IMPF-wipe-foot-FIN-TA-DIR DEM-OBV.SG jane
 ‘Sam washed Jane’s feet.’ (BB; 17398)

- (20) **anná Sam ássotsikaawaatsimii anní Jane*
 ann-wa Sam á-ssi-ot-ika-atsi-m-yii ann-yi Jane
 DEM-PROX.SG sam IMPF-wipe-3-foot-FIN-TA-DIR DEM-OBV.SG jane
 ‘Sam washed Jane’s feet.’ (BB; 17397)

- (21) *anná Sam nitássiikaawaatsimokiinnaan*
 ann-wa Sam nit-á-ssi-ika-atsi-m-oki-innaan
 DEM-PROX.SG sam 1-IMPF-wipe-foot-FIN-TA-INV-1PL
 ‘Sam washes our feet.’ (BB; 17399)

- (22) **anná Sam nitássinikannaanawaatsimokiinnaan*
 ann-wa Sam nit-á-ssi-n-ika-innaan-atsi-m-oki-innaan
 DEM-PROX.SG sam 1-IMPF-wipe-1-foot-1PL-FIN-TA-INV-1PL
 ‘Sam washes our feet.’ (BB; 17400)

2.2.2 Blackfoot medials and Halkomelem lexical suffixes cannot take plural marking

Blackfoot nouns can combine with morphemes that mark plurality. Inanimate gender nouns take the plural suffix *-istsi* (23) while animate nouns take *-iksi* (24).

- (23) *miniístsi*
 mini-istsi
 island-IN.PL
 ‘islands.’ (Frantz and Russell (1995); 9253)

- (24) *má’siksi*
 ma’s-iksi
 root-AN.PL
 ‘roots.’ (Frantz and Russell (1995); 10974)

Note that verbs in relative clauses and demonstratives can also take plural marking (25).

- (25) *omiksi aakítíkoaksi ánihkiiksi*
om-iksi aakíí-ikoan-iksi á-inihki-iksi
DEM-AN.PL woman-being-AN.PL IMPF-sing-AN.PL
áyaakahkayiyaawa
áyaak-waahkayi-yi-aawa
FUT-go.home-3PL-PRO
‘those girls who are singing are on their way home.’ (*Frantz (1991); 17367*)

Examples (27, 28) show that medials cannot occur with plural morphology. Note that while the independent nominal counterparts of medials are all inanimate (with the exception of *moápsp* ‘eye’ (NAN), the independent counterpart of *aapin* ‘eye’), this is no reason to assume that the medials themselves are inanimate also. Hence the tests with both animate and inanimate plural morphemes below.

- (26) *átssiikaawaatsimii*
á-ssi-ika-atsi-m-yii
IMPF-wipe-foot-FIN-TA-DIR
‘she is washing his feet.’ (*BB; 17401*)
- (27) **átssiikaistsawaatsimii*
á-ssi-ika-istsi-atsi-m-yii
IMPF-wipe-foot-IN.PL-FIN-TA-DIR
‘she is washing his feet.’ (*BB; 17402*)
- (28) **átssiikaiksiawaatsimii*
á-ssi-ika-iksi-atsi-m-yii
IMPF-wipe-foot-AN.PL-FIN-TA-DIR
‘she is washing his feet.’ (*BB; 17403*)

While plural marking is not available on medials, example (29) shows that medials are vague between singular and plural reference, i.e., both singular and plural interpretations are available. This shows that the lack of morphological plural marking on medials is not the result of a semantic restriction.

- (29) *ihkitskawa*
ihkit-ika-wa
freeze-foot-3SG
‘he froze his feet’
‘he froze his foot’ (*Frantz and Russell (1995); 5870*), (*BB; 17855*)

2.2.3 Blackfoot medials and Halkomelem lexical suffixes cannot follow demonstratives

In Blackfoot there are no determiners distinct from demonstratives. Independent nominals can occur to the right of demonstratives, as already illustrated in (25) above.

Examples (30, 31) show that medials cannot occur to the right of demonstratives. Note that animate nouns (but not inanimate ones) must mark their referents as more

salient in the discourse (“proximate”) or as less salient (“obviative”). In Blackfoot an animate nominal that is possessed by a third person referent is obligatorily obviative while its possessor is obligatorily proximate (Frantz 1991). While the animate proximate singular suffix is *-wa* ‘PROX.SG,’ it just so happens that the animate obviative singular suffix and the inanimate singular suffix are phonologically identical: *-yi* ‘IN/OBV.SG.’ Thus the ungrammaticality of (30) shows us that *ika* ‘foot’ cannot occur to the right of either an inanimate singular demonstrative (*om-yi*) or an animate proximate singular demonstrative (*om-yi*).

- (30) **áíssomiikaawaatsimii*
 á-ssi-om-yi-ika-atsi-m-yii
 IMPF-wipe-DEM-IN/OBV.SG-foot-FIN-TA-DIR
 ‘she is washing his foot.’ (BB; 17404)
- (31) **áíssomiksikaiksawaatsimii*
 á-ssi-om-iksi-ika-iksi-atsi-m-yii
 IMPF-wipe-DEM-AN.PL-foot-AN.PL-FIN-TA-DIR
 ‘she is washing his feet.’ (BB; 17405)

2.2.4 Blackfoot medials and Halkomelem lexical suffixes do not saturate argument positions

Wiltschko (2007) shows that Halkomelem nouns saturate argument positions but lexical suffixes do not. In Blackfoot we have already seen data showing that the addition of a medial to a complex verb does not decrease the verb’s valency, i.e., the medial does not saturate an argument position. The medial-less verb *ssiwaatsim* ‘wash’ in (32) is transitive as evidenced by the relator suffix *yii* ‘DIR.’ Incorporation of the medial *ika* ‘foot’ in (33) does not detransitivize the verb: it is still transitive as evidenced by the continued presence of the relator. A comparison of (33) with (34) shows that it is the presence of the final ‘m’ that transforms a formally intransitive verb with reflexive meaning into a transitive verb.

- (32) *áíssiwaatsimi*
 á-ssi-atsi-m-yii
 IMPF-wipe-FIN-TA-DIR
 ‘she is washing him.’ (adapted from BB; 16715)
- (33) *áíssiikaawaatsimi*
 á-ssi-ika-atsi-m-yii
 IMPF-wipe-foot-FIN-TA-DIR
 ‘she is washing his feet.’ (adapted from BB; 16582)
- (34) *áíssiikaawaatsi*
 á-ssi-ika-atsi
 IMPF-wipe-foot-FIN
 ‘he’s washing his (own) feet.’ (BB; 16575)

Observe in (35) that the verbal inflection agrees with the first and second person arguments and not with the third person argument denoted by the medial *ika* ‘foot.’ The prefix *kit-* indicates a second person argument and the DIR suffix *-oo* indicates first person agent and second person theme. If the medial were acting as a syntactic argument of the verb, we would, contrary to fact, expect verbal inflection to agree with it.

- (35) *kitássiikaawaatsimo*
 kit-á-ssi-ika-atsi-m-oo
 2-IMPF-wipe-foot-FIN-TA-DIR
 ‘I wash your feet.’ (BB; 17450)

2.3 Medials as $\sqrt{\text{ROOTs}}$ and medials as nouns

Blackfoot medials that denote body parts such as *ika* ‘foot’ have meanings that suggest they are nouns. However, as we have seen, medials must occur within a morphologically complex word (verb or noun) and with a verbal or adjectival element to their left. Furthermore, characteristic features of nouns in Blackfoot — the ability to combine with plural and possessive morphology, occurrence with demonstratives and the ability to saturate argument positions — are not shared by the necessarily incorporated medials.

However, we are not forced to conclude from these facts either that Blackfoot medials have different syntactic category from nouns or, as the $\sqrt{\text{ROOT}}$ analysis claims, no category at all. Both a medial-as-noun and a medial-as- $\sqrt{\text{ROOT}}$ analysis are compatible with the facts.

Below I discuss how a medial-as- $\sqrt{\text{ROOT}}$ analysis might account for these facts. I then consider how a medial-as-noun analysis could do the same. I conclude that the data available at present underdetermine the theoretical account.

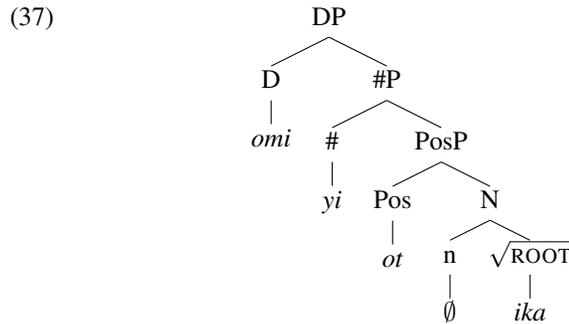
2.4 Medials as $\sqrt{\text{ROOTs}}$

Viewing medials as $\sqrt{\text{ROOTs}}$ permits the following explanation of why they can combine neither with plural and possessive morphology nor to the right of a demonstrative. I assume that the complex verb as well as the verb root *ssi* ‘wipe’ have category *verb* (V), the medial *ika* ‘foot’ has *bare root* ($\sqrt{\text{ROOT}}$), the third person singular possessor prefix *ot* ‘3’ has *possessor* (Poss), the demonstrative *omi* ‘dem’ has *demonstrative* (D) and the plural marker *iksi* ‘AN.PL’ has *number* (#). I ignore the complication of finals for the moment. Consider the rewrite rules in (36), among which is the context-sensitive rule (36f).

- (36)
- | | | | |
|----|--------------|---|----------------------------|
| a. | V | → | V ($\sqrt{\text{ROOT}}$) |
| b. | DP | → | D PossP |
| c. | PossP | → | Poss N |
| d. | #P | → | # PossP |
| e. | N | → | n $\sqrt{\text{ROOT}}$ |
| f. | n <i>ika</i> | → | <i>mohkát</i> |

In the medial-as- $\sqrt{\text{ROOT}}$ approach, $\sqrt{\text{ROOT}}$ s can form nouns upon combination with *little nouns* (n) (cf. (36e)), in which case their phonological form changes (e.g., from *ika* to *mohkát* (cf. (36f)). Little nouns, in this theory, are phonologically empty morphemes that simply bequeath category to category-less $\sqrt{\text{ROOT}}$ s. $\sqrt{\text{ROOT}}$ s can also merge with verbs like *ssi* ‘wipe’ to create new verbs (cf. (36a)).¹⁷ However, $\sqrt{\text{ROOT}}$ s themselves cannot take plural or possessive morphology, nor can they occur to the right of demonstratives.

The Blackfoot phrase *ómi ohkátsi*¹⁸ ‘his leg’ (cf. BB; 17439) would, by (36), have the phrase structure in (37).



The substring *ssiika* of *ássiikaawaatsi* ‘he’s washing his (own) feet’ (cf. (34) above) would have the phrase structure in (38).



A medial like *ika* ‘foot’ is thus correctly predicted never to occur with possessive or plural morphology or to the right of a demonstrative. Outside of a complex verb, a $\sqrt{\text{ROOT}}$ medial only occurs in these contexts when it has first been transformed into a noun, in which case its phonological form betrays its acquired category. Inside of a complex verb, a $\sqrt{\text{ROOT}}$ medial cannot occur in these contexts since in doing so it would necessarily form part of a larger phrase having a category (#P, PossP or DP) that cannot merge with a verb root.

The fact that an incorporated medial does not saturate an argument position could also be attributed to its $\sqrt{\text{ROOT}}$ status. If we assume that a verb root like *ssi* ‘wipe’ has

¹⁷Note: as Lisa Matthewson points out (p.c.) the medial-as- $\sqrt{\text{ROOT}}$ approach should predict that $\sqrt{\text{ROOT}}$ s can merge with phonologically null *little vs* (v) to create verbs. This predicts that *ika* ‘foot’ should also be able to function as a verb. It is unclear to me how exactly one might rule out this false prediction. . .

¹⁸The phonology that derives [*ohkátsi*] ‘his foot’ from underlying *ot-mohkát-yi* ‘3-foot-IN.SG’ is complicated and not yet fully understood. The form *mohkát* is that used to talk about a disembodied foot. It has been suggested that *mohkát* is actually the complex form: *m-ohkát* ‘UNPOSSESSED?-foot’ (cf. Frantz (1991)). All possessed allomorphs are built upon the string *ohkát* (e.g., *nohkát* (*n-ohkát* ‘1-foot’) ‘my foot’). Additionally, *ot* ‘3’ might actually be *o* ‘3’ with an epenthetic *t* in certain phonological contexts.

a subcategorization frame that requires an object that is a DP (or even just a N), then clearly the $\sqrt{\text{ROOT}}$ medial will not suffice.

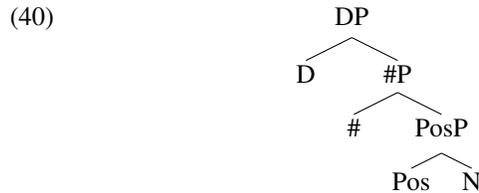
We have seen how a medial-as- $\sqrt{\text{ROOT}}$ analysis can account for the facts of body part NI constructions. In the next section, I discuss how a medial-as-noun analysis is equally capable.

2.5 Medials as nouns

In a medial-as-noun analysis, the impossibility of medials combining with plural morphology, e.g., **ssi-ika-iksi* ‘wipe-foot-AN.PL’ (cf. (28)), follows from the rewrite rules in (39).

- (39) a. V → VRT (N)
 b. #P → N #

As in (36), (#) forms a number phrase (#P) after merging with a noun. However, in this analysis, verbs can be formed by verb roots merging with nouns. Since verb roots cannot merge with number phrases, number marking will correctly be predicted as unavailable on incorporated medials.¹⁹ As phrase structure tree (40) illustrates, the same argument is applicable to possessive morphology and demonstratives. A phrase consisting of a nominal with possessive morphology or with a demonstrative to its left forms a PosP or a DP and in neither case can it incorporate into a verb.



One problem that arises from this approach is the onus of explaining why an independent nominal like *mohkát* ‘foot’ cannot behave as a medial and incorporate into a verb. If both *ika* ‘foot’ and *mohkát* ‘foot’ are nouns, then, by (39), they should both be able to incorporate into verbs.

I propose that *ika* ‘foot’ and *mohkát* ‘foot’ are simply different phonological manifestations of the same underlying lexical item. As a convenience, I label this underlying lexical item */foot/*. The context-sensitive rewrite rules in (41) will now account for the difference in distribution between the medial and independent nominal.

- (41) a. V → VRT (N)
 b. VRT → {*ssi, sap, ...*}
 c. N → {*/foot/, leyel, pokón ...*}
 d. VRT */foot/* → *ika*
 e. VRT *leyel* → *aapin*
 f. VRT *pokón* → * (*ungrammatical*)
 g. */foot/* → *mohkát*

¹⁹Note that *ótssko-sski-iksi* ‘blue-face-AN.PL’ mentioned above is not a counterexample as its constituency could be $[[\text{ótssko}_A \text{sski}_N]_N \text{iksi}_\#]_{\#P}$

Any instances of /foot/ preceded by a VRT will become *ika*. All others will become *mohkát*. Nouns that do not have medial counterparts, such as *pokón* ‘ball,’ are ungrammatical to the left of VRTs.²⁰

The fact that incorporated medial nouns are unable to saturate argument positions can be explained by showing that unincorporated nouns are also unable to saturate argument positions. A bare noun cannot be an object (42). A full DP is required (43).

(42) **nitsínowaa ponokáómitaa*
 nit-ino-aa ponoká-imitáá
 1-see-DIR elk-dog
 ‘I saw a horse.’ (BB; 16685)

(43) *nitsínowa óma ponokáómitaa*
 nit-ino-aa om-wa ponoká-imitáá
 1-see-DIR DEM-PROX.SG elk-dog
 ‘I saw that horse.’ (BB; 17857)

Note that there are certain Blackfoot verbs whose theme argument is not a DP (44). These verbs are labeled “paratransitive” and “pseudo-intransitive” in (Frantz 1991) and (Frantz 1971) respectively.

(44) *iihkanáapiya píítaa*
 ohkan-yáapi-yi-aawa píítaa
 all-see-3PL-PRO eagle
 ‘they saw an eagle’ (cf. Glougie (2000, ex. 10a))

In these forms, the bare nominal is not a morphological argument of the verb since the latter bears no object agreement. The putative underlying morphemes *yi* and *aawa* agree with the plural subject (cf. Frantz (1991)). However, the lack of agreement does not rule out the possibility that paratransitive constructions involve verbs with syntactic objects that are bare nouns. The advocate of the medial-as-noun approach must either argue that bare nouns in paratransitive constructions are not syntactic objects, or else backtrack and construct an alternative explanation for the inability of medials to saturate argument positions.

2.6 Summary of medial incorporation in Blackfoot

I have shown that Blackfoot medials behave just like Halkomelem lexical suffixes with respect to the four tests: the ability to occur with plural and possessive morphology, the ability to occur to the right of demonstratives and the ability to saturate argument

²⁰There are only 16 body part medials so far identified in Blackfoot. Rules (41d - 41f) and their kin could be reduced to a statement such as the following: *all [VRT N] strings are ungrammatical unless N = /foot/ or N = /eye/ or etc. . . .* Note that the same problem exists for the medial-as- $\sqrt{\text{ROOT}}$ analysis since a noun like *pokón* ‘ball’ would (contrary to fact) be expected to have a category-less $\sqrt{\text{ROOT}}$ form that could incorporate into complex verbs. Perhaps there is a semantic solution to this problem involving part-whole relations such that only nouns or $\sqrt{\text{ROOT}}$ s that denote parts of larger objects can be incorporated. However, such a semantic solution would predict that all body parts should be incorporable, which is not the case (show evidence) . . .

positions. Wiltschko (2007) argues from the results of these tests that Halkomelem lexical suffixes should be analyzed as category-less $\sqrt{\text{ROOT}}$ s. However, I argue that a medial-as-noun analysis is equally compatible with these facts.

In the next section I discuss another incorporation-type phenomenon in Blackfoot (denominal NI constructions) in the context of another $\sqrt{\text{ROOT}}$ -incorporation analysis of a similar phenomenon in Inuktitut (Johns 2007).

3 Inuktitut and Blackfoot denominal verb constructions

Blackfoot has a construction where an independent nominal combines to the left of a verb-like morpheme to produce a complex verb. Form (45) exemplifies this: the independent nominal *imitáá* ‘dog’ combines with the verbal element *hk-aa* meaning ‘acquire.’²¹

- (45) *nitsúmitam'sska*
 nit-imitáá-im-hk-aa
 1-dog-POSS-acquire-AI
 ‘I got me a dog.’ (BB; 16940)

Inuktitut contains a similar construction (46). As in (45), here again we have a nominal, *qukiuti* ‘rifle,’ that can occur independently (i.e., in an NP or in a DP). We also see a verb-like morpheme, this time *taa \bar{q}* ‘get’ that denotes an event of acquisition.

- (46) *qukiuti-taa \bar{q} -tunga*
 rifle-get-intr.part.1s
 ‘I got a rifle.’ (Johns (2007, p. 536); Inuktitut)

Below I discuss further parallels between Inuktitut and Blackfoot denominal verb constructions. In particular, I consider the claim of Johns (2007) that the Inuktitut version is composed of a $\sqrt{\text{ROOT}}$ nominal and a light verb. I assess how well this claim applies to the parallel Blackfoot construction. First, however, I present some of the salient properties of Blackfoot denominal verb constructions.

3.1 Properties of Blackfoot denominal NI

Including the predicative use of nominals, Blackfoot has 15 distinct denominal NI constructions corresponding to the denominal verbal morphemes discovered so far (47). The abbreviations are explained as follows: SUBJ indicates subject, OBJ direct object, IN incorporated nominal, VAI an intransitive verb with an animate subject, VII an intransitive verb with an inanimate subject and VTA a transitive verb with an animate object.

²¹The suffix *-im* (tentatively glossed ‘possessed’ (POSS)) sometimes occurs on nominals in both verbal and nominal possession constructions, cf. *otómitam* ‘his dog’ and *imitámi* ‘he has a dog.’ Its exact distribution is yet unknown.

	Verbal morpheme	Meaning	Transitivity
	∅	‘X _{SUBJ} be a Z _{IN} ’	VAI
	<i>wa’si</i>	‘X _{SUBJ} become a Z _{IN} ’	VAI
	<i>attsi</i>	‘X _{SUBJ} cause Y _{OBJ} to become a Z _{IN} ’	VTA
	<i>istot-o</i>	‘X _{SUBJ} cause Y _{OBJ} to become a Z _{IN} ’	VTA
	<i>i</i>	‘X _{SUBJ} have a Z _{IN} ’	VAI
	<i>hk-aa</i>	‘X _{SUBJ} acquire a Z _{IN} ’	VAI
(47)	<i>hk-o</i>	‘X _{SUBJ} cause Y _{OBJ} to acquire a Z _{IN} ’	VTA
	<i>hk-at</i>	‘X _{SUBJ} claim Y _{OBJ} as one’s Z _{IN} ’	VTA
	<i>ipitsi</i>	‘X _{SUBJ} be obsessed with Z _{IN} S’	VAI
	<i>inaa-ttsi</i>	‘X _{SUBJ} look like a Z _{IN} ’	VII
	<i>inaa-mm</i>	‘X _{SUBJ} look like a Z _{IN} ’	VAI
	<i>imo</i>	‘X _{SUBJ} smell like a Z _{IN} ’	VII
	<i>ihka’s-i</i>	‘X _{SUBJ} behave like a Z _{IN} ’	VAI
	<i>ihka’s-at</i>	‘X _{SUBJ} behave like a Z _{IN} toward Y _{OBJ} ’	VTA
	<i>imm</i>	‘X _{SUBJ} feels for Y _{OBJ} as a Z _{IN} ’	VTA

The verbal morphemes of this construction are morphologically bound in a different sense than the boundedness claimed for verbs and nouns in subsection 2.2 above (cf. (16)). While nouns and verbs cannot occur without inflectional morphology (i.e., agreement, number, etc.), the verbal morphemes of denominal NI cannot occur without a lexical item, namely a nominal, to their left (cf. (48) and cp. (45)).²²

- (48) **nítsska* *imitáá*
nit-hk-aa imitáá
1-acquire-AI dog
‘I got a dog; I bought a dog.’ (BB; 17019)

Doubling does not, in general, occur in denominal NI constructions. Recall the definition of doubling assumed here: an IN and an unincorporated argument share the same thematic role. One problem with testing this definition against denominal NI constructions is that it is not clear what thematic roles are required by the verbal morphemes listed in (47).

In the case of the intransitive denominal verbs, the IN and the subject appear to have distinct thematic roles. For example, whatever the thematic roles of the DP possessor and IN possessum of *i* ‘have’ are, it is clear that they are not the same. Therefore doubling cannot, by the definition, occur.

In the case of transitive denominal verbs, the same claim appears to hold. For example, the transitive verbal morpheme *hk-o* arguably has an agentive subject, a benefactive object and a theme IN.

The morpheme *hkat* appears to be an exception. I assume that the IN and the object are both themes. Doubling is therefore possible and, as (49) shows, also attested.

- (49) *óma* *imitáá* *nitsúmitaam’sskataa*
om-wa imitáá nit-imitáá-im-hk-at-aa
DEM-PROX.SG dog 1-dog-POSS-acquire-TRANS-DIR

²²I should also show that *nítsska óma imitáá* ‘I got that dog’ is bad. Elicit this data!!!

'I took that dog for my own.' (BB; 16952)

As with body part NI, the INs in denominal NI constructions can have neither possessive (50) nor plural morphology (51).

(50) **nitomitam'sska*
nit-imitáá-im-hkaa
1-dog-POSS-acquire
'he bought my dog.'²³ (BB; 15874)

(51) **imitááksskaa*
imitáá-iksi-hkaa
dog-AN.PL-acquire
'he bought dogs.' (BB; 15873)

Finally, the conditions under which the IN of denominal NI constructions introduces a discourse referent that can be referred back to in subsequent clauses are unclear. Compare the grammatically judged (52) to the ungrammatical (53).

(52) *nitsúiko's;* *íksapá'pssi*
nit-oko's-i iik-sahp-a'pssi
1-offspring-have INT-soft-be
'I have a child; she is easy (i.e., to take care of).' (BB; 17299)

(53) **nitsúimitam'sska,* *iikóótsipiinámmináy*
nit-imitáá-im-hk-aa iikootsip-inaa-mm-yini-áyí
1-dog-POSS-acquire-AI dirty-appear.as-3mm-4SG-PRO
'I bought a dog, he was dirty.' (BB; 17001)

We have seen that the INs of denominal NI constructions are independently occurring nominals that are situated to the left of verb-like elements and that these verb-like elements cannot occur without an IN. We have also seen that, like their medial counterparts, the INs of denominal NI constructions cannot occur with plural or possessive morphology. The data collected so far on discourse referent introduction is too conflicting to justify a firm conclusion.

Johns (2007) argues that Inuktitut verb-like morphemes are light verbs, i.e., functional elements with a closed class of possible meanings. She also argues that the nominal morphemes that occur to the left of these verb-like morphemes are category-less $\sqrt{\text{ROOT}}$ s. In the following two subsections I discuss how tenable these claims are for Blackfoot denominal NI constructions.

3.2 The verb-like morphemes of Inuktitut and Blackfoot denominal NI constructions as light verbs

Johns (2007) argues that the verb-like morphemes of Inuktitut denominal verb constructions are light verbs. As functional items, light verbs should form a closed class.

²³The phrase *nitomitaam* means 'my dog.'

Johns (2007) intuites a semantic pattern in the set of roughly 100 observed verb-like morphemes. Her attempt to discern the underlying principles that delimit the meanings of these verb-like morphemes constitutes her argument that these morphemes are light verbs.

She begins by proposing the following constraints on possible light verb meaning.

- (54)
1. light verbs include no manner property
 2. light verbs include no change of state property
 3. light verbs include no adjectival property

Since she is more interested in devising a system for generating possible light verb meaning (cf. discussion below), Johns does not explain the above constraints in great depth. The prohibition on manner properties would seem correctly to allow a light verb meaning ‘get’ (cf. the attested *taaqa* ‘get’) while disallowing one that meant ‘steal,’ since theft entails acquisition in a particular, in this case illicit, manner.

The prohibition on changes of state would appear to be contradicted by the attested *nnguq* ‘become.’ We must therefore conclude that the prohibition is against the denotee of the incorporated nominal undergoing a change of state. A hypothetical Inuktitut phrase meaning ‘the prince became a frog,’ and where ‘frog’ is denoted by an incorporated nominal, would then cease to violate the constraint since no frog is undergoing a change of state.

Finally, the prohibition on adjectival properties²⁴ might disallow light verbs with meanings like ‘clean’ where the IN is understood to possess the adjectival property of cleanliness. However, the attested Inuktitut verb-like morpheme *lluq* ‘have a bad’ would seem to unavoidably contradict this (55).

- (55) *naa-lluq-tunga*
 stomach-have.a.bad-intr.part.1s
 ‘I have a sore stomach’ (Johns (2007, p. 551))

Johns’ negative constraints on possible light verb meaning do not appear to adequately capture the attested semantic range. However, she seems to advocate more strongly a system wherein complex light verb meanings are derived from primitives via abstract operators. It is to this system and its adequacy in capturing the range of both Inuktitut and Blackfoot putative light verb meanings that I now turn.

The most pervasive primitives in her system are *have* (HAV)²⁵ and *identity* (ID). The former denotes a general notion of possession roughly characterizable as ‘ x_{SUBJ} has one or more y_{IN} ’ and is used to express things like ‘I have a dog’ or ‘there are bears here (lit: this place has bears).’ The latter denotes predication, ‘ x_{SUBJ} is a y_{IN} ,’ and is used to express things like ‘Fido is a dog.’ The meanings of the primitives *be in* (IN), *go to* (TO), *come from* (FRM) and *go through* (THR) should need no explanation.

²⁴Of course, some kind of definition of what exactly is meant by “adjectival property” would help with the assessment of Johns’ claim.

²⁵Note: I am using an alternate notation for the primitives and operators argued for by Johns (2007). Nevertheless, to the best of my knowledge, I preserve the content of the system.

The operators *negation* (NEG), *quantity* (QUT), *eventiveness* (EV), *do* (DO), *bad* (BAD), *by vision* (VIS), *by sound* (SND), *by smell* (SML) and *by action* (ACT) all form new meanings from the primitives HAV and ID. NEG applied to HAV negates the primitive in a straightforward way: ‘ x_{SUBJ} has one or more y_{IN} ’ becomes ‘ x_{SUBJ} does not have a y_{IN} .’ QUT changes HAV to ‘ x_{SUBJ} has a lot of y_{IN} ’ and BAD changes it to ‘ x_{SUBJ} has one or more bad y_{IN} .’ EV changes HAV from a state — ‘ x_{SUBJ} has one or more y_{IN} ’ — to the event of entering into that state — ‘ x_{SUBJ} got one or more y_{IN} .’ DO effectively transforms an achievement created by EV into an accomplishment (more on this below). Finally, the operators VIS, SND, ACT and SML are claimed to change the arguments of ID such that they come to refer not to entities but rather to the visual, auditory, behavioural or olfactory properties of those entities. Thus VIS applied to something like ID(John, dog) transforms ‘John is a dog’ into ‘the visual properties of John are an instance of a dog’s visual properties,’ i.e., ‘John looks like a dog.’

Johns (2007) claims that there is no abstract causative operator involved in the generation of light verb meaning. Proposed light verbs that appear to express causation are, she claims, morphologically complex and contain independently occurring causative morphemes (glossed here as CAUS).

Table (56) shows the proposed light verbs of Inuktitut listed by Johns (2007) with their glosses and the primitives and operators that generate their meanings. The analogous Blackfoot verbal morphemes are listed in the appropriate cells. While Inuktitut is claimed to have around 100 light verbs (Johns 2007, p. 541), Blackfoot has only 15 so far identified (cf. (47) above). At least eight of the Blackfoot forms have clear Inuktitut analogues and are arguably derivable from the system.²⁶

²⁶The string *inaa* ‘resemble’ in (56) stands for two verb-like morphemes: *inaamm* and *inaattsi*. While these morphemes have the same meaning, the former is used with animate subjects, the latter with inanimate ones.

	Operators & primitives	Gloss	Blackfoot	Inuktitut
	HAV	'have'	<i>i</i>	<i>quq</i>
	NEG[HAV]	'lack'		<i>iruti</i>
	QUT[HAV]	'have lots'		<i>qauq</i>
	NEG[QUT[HAV]]	'lack enough'		<i>kiksa</i>
	EV[HAV]	'get'	<i>hkaa</i>	<i>taaq</i>
	EV[NEG[HAV]]	'lose'		<i>iqsiq, iq</i>
	EV[NEG[HAV]]-CAUS	'take'		<i>iq-gaa</i>
	BAD[HAV]	'have a bad'		<i>lluq</i>
	ID	'be'	∅	<i>miit</i>
(56)	EV[ID]	'become'	<i>wa'si</i>	<i>nnguq</i>
	VIS[ID]	'resemble'	<i>inaa</i>	<i>uqquuji, qpaluk</i>
	SND[ID]	'sound like'		<i>valuk</i>
	SML[ID]	'smell like'	<i>imo</i>	<i>sunniq</i>
	ACT[ID]	'act like'	<i>ihka'si</i>	<i>jjuujaaq</i>
	DO[EV[ID]]	'consume'		<i>tuq</i>
	DO[EV[NEG[ID]]]	'make'		<i>liuq</i>
	IN	'be in'		<i>miit</i>
	TO	'go to'		<i>no</i>
	FRM	'come from'		<i>minnqaq</i>
	THR	'go through'		<i>kuuq</i>

Some of the remaining Blackfoot verbal morphemes, also appear to fit into the system. The morphemes *hk-o*²⁷ 'get a x_{IN} for y_{OBJ} ' (cf. (57)) and *hk-at* 'claim x_{OBJ} as one's y_{IN} ' (cf. (49)) are arguably 'EV[HAV]-BEN' and 'EV[HAV]-TRAN' respectively. The string *o* has been hypothesized to be a benefactive (cf. Frantz (1991, pp. 104-06)) while *at* is an extremely common ending in transitive animate verbs and is arguably a general purpose transitivizer (cf. Armoskaite *in prog.*). Similarly, *ihka's-at* 'behave like a x_{IN} toward y_{OBJ} ' could be 'ACT[ID]-TRAN.'

- (57) *iihpokónsskoyii anní John*
 pokón-hko-yii ann-yi John
 ball-provide.to-DIR DEM-OBV john
 'he bought a ball for John.' (BB; 15169)

The morpheme *atssi* is a recognized causative morpheme (cf. Frantz (1991)). Therefore in denominal constructions *atssi* 'cause x_{OBJ} to become a y_{IN} ' could be analyzed as ∅-*atssi* 'ID-CAUS,' i.e., a causativized predicate nominal (58).

- (58) *anná Naapi iitsikánaiskiinaawattsiwáy*
 ann-wa Naapi iit-kaanaisskiinaa-∅-atssi-yii-wa-áyi
 DEM-PROX.SG naapi LOC-mouse-be-CAUS-DIR-3SG-PRO
 'Naapi turned him into a mouse.' (BB; 16727)

²⁷I should test the vagueness in the semantics of this form. If *hko* really means 'come to have an IN for OBJ,' then it should be felicitous in a situation where I am telling a friend that I got something for him, but where I haven't yet given it to him.

The remaining three Blackfoot verbal morphemes are, to varying degrees, problematic for Johns' system. The morpheme *ipitsi* 'be obsessed with x_{INS} ' could simply be the manifestation of a light verb primitive not identified by Johns: perhaps we might call it *like* (LIK).

The morpheme *imm* 'feel for x_{OBJ} as a y_{IN} ' is trickier. Being tri-argumental, this form does not seem a good candidate for a primitive. At this time, I do not know how *imm* could be elegantly incorporated into Johns' system.

Finally, the morpheme *istoto* 'cause x_{OBJ} to be a y_{IN} ' poses a clear challenge to the system. This form quite clearly contains causative meaning. Johns (2007) claims that causative meaning is outside the bounds of possible light verb denotations and that such apparent meaning in Inuktitut light verbs actually comes from independently occurring causative morphemes, e.g., *gaa* 'CAUS' in *iq-gaa* 'lose-CAUSE', 'cause to not have'. We might, therefore, be tempted to analyze it as 'EV[HAV]-CAUS.'

However, unlike the case of *atssi*, *istoto* is not plausibly analyzed as containing an independently attested causative morpheme. As far as is known, there are only two causative morphemes in Blackfoot—*atssi* and *ipi* (Frantz 1991, pp. 102-04) and neither is contained within the putative morphological complexity of *istoto*. Nor can *o* 'BEN' help us since it is clear from forms like (59) that the string *istot* on its own is responsible for the causative meaning. In this example, the final *aaki* 'PS.INTR' forms intransitive verbs with an unspecified object from transitive ones.

- (59) *ikohkiistotaki*
 ikohki-istot-aaki
 embarrassed-make-PS.INTR
 'cause embarrassment to someone' (Frantz and Russell (1995); 2336)

Johns' idea that the verb-like elements of Inuktitut denominal verb constructions have a finite set of denotations appears to be correct. However her attempts to delimit these meanings in a principled manner are either not fully consistent or appear to be falsified by portions of the data. As discussed above, the Inuktitut morpheme *lluq* 'have a bad' appears to contradict the constraint against adjectival meaning.

With respect to the system of generating possible light verb meaning, it is not clear what constraints there are on the combination of operator and primitive. For example, can *by smell* (SML) take the primitive *be in* (IN) as an argument and, if so, what could it mean?²⁸ Clearly, in order for her claims to be fully testable, Johns (2007) would need to provide both rigorous semantic denotations for her primitives and operators and a specification of the constraints on operator scope.

But even if one is charitable and fills in the gaps in the analysis, there appear to be inconsistencies. For example, if EV[ID](x,y) means 'x becomes a y,' then why is it that DO[EV[ID]](x,y) means 'x engages in an activity that results in x and y no longer being distinct objects'?²⁹ By the logic of the system, DO[EV[ID]](x,y) ought to mean 'x engages in an activity that results in the event of x becoming a y.'

²⁸Would something like *bathroom-SML[IN]* mean 'the olfactory properties of x are in the olfactory properties of a bathroom'!?

²⁹Note: this is Johns' analysis of the verbal morpheme meaning 'consume.'

Finally, when one attempts to account for the Blackfoot verbal morphemes via the system of primitives and operators, certain problems arise, most saliently the unpredicted existence of the apparently causative morpheme *istoto*. While the verbal morphemes of Blackfoot and Inuktitut denominal constructions may in fact be light verbs, i.e., a closed class of functional elements, the attempts of Johns (2007) to characterize this class are lacking.

3.3 INs of denominal NI as $\sqrt{\text{ROOTS}}$

Johns (2007) assumes the structure in (60) for denominal constructions,³⁰ where *v* is the light verb and $\sqrt{\text{ROOT}}$ is the incorporated nominal.



We have already seen that the incorporated nominal morphemes of denominal constructions, like the medials previously discussed, cannot take plural or possessive morphology (cf. (50) and (51)). However, as we have seen, simple rewrite rules like (61) can account for this fact without assuming an IN-as- $\sqrt{\text{ROOT}}$ analysis.

- (61)
- | | | | |
|----|-------|---|---------|
| a. | V | → | N v |
| b. | #P | → | # PossP |
| c. | PossP | → | Poss N |

Many of the verb-like morphemes of denominal constructions also occur to the right of adjectival elements. Compare the adjectival-verbal (62) with the denominal construction in (63).

(62) *ksikksinaattsi*
ksikk-inaattsi
 white-appear.as
 ‘be white.’ (Frantz and Russell (1995); 16862)

(63) *onnikiinattsi*
ónnikis-inaattsi
 milk-appear.as
 ‘be milk-like in appearance.’ (Taylor (1969); 16046)

Morphemes like *ksikk* ‘white’ have meanings that suggest they are adjectives, hence the term adjectival. They also have distinct distributions from nouns and verbs. For example, nouns can take number marking, cf. *ónnikis-istsi* ‘milks.’ Verbs, such as *ihpiyi* ‘dance,’ with number marking are relative clauses (64).

³⁰Note: Johns (2007) actually argues for movement of the $\sqrt{\text{ROOT}}$ from a lower position, but I ignore that complication here as it is not crucial to the present discussion.

- (64) *ómiksi áthpiyiiks iiksistsikóoya*
om-iksi á-ihpiyi-iksi iik-sistsikoo-yi-aawa
DEM-AN.PL IMPF-dance-AN.PL INT-tire-3PL-PRO
‘those ones that are dancing are tired.’ (BB; 17504)

However, adjectivals (called *adjuncts* in the Blackfoot literature) cannot take number morphology (65).

- (65) *ómiksi ksikksiks iiksistsikóoya*
om-iksi ksikk-iksi iik-sistsikoo-yi-aawa
DEM-AN.PL white-AN.PL INT-tire-3PL-PRO
‘those ones that are white are tired.’ (TEST THIS !!!)

Adjectivals are different from nouns and verbs in that they can modify nouns (66).

- (66) *ksikkokóowa*
ksikk-ookóowa
white-house
‘white tent, lit: white dwelling.’ (Frantz and Russell (1995))

A good number of the verbal morphemes that occur in denominal constructions can take an adjectival to their left as well as a nominal. Further examples can be found with *ihka’si* ‘behave’ (*átsspihka’siwa* ‘act superior; lit: act high’ (Frantz and Russell (1995))), and *imm* ‘feel toward’ (*okimm* ‘get mad at; lit: feel bad toward’ (BB; 16288)).

A theory that assumes that the verbal morphemes of denominal constructions combine only with $\sqrt{\text{ROOTs}}$ (67) would account for these facts slightly more elegantly than one that assumes combination with either nouns or adjectives (68).

$$(67) \quad \text{a. } V \rightarrow \sqrt{\text{ROOT}} v$$

$$(68) \quad \begin{array}{l} \text{a. } V \rightarrow N v \\ \text{b. } V \rightarrow A v \end{array}$$

However, this slight simplification in the theory (i.e., one rewrite rule instead of two) is hardly a knockout argument for the $\sqrt{\text{ROOT}}$ analysis.

The strongest evidence for the IN-as- $\sqrt{\text{ROOT}}$ approach is the stripping of functional material from complex nominals when incorporated. Consider the morphologically complex Blackfoot word for table (69).

- (69) *íitátsooyo’p*
it-á-iso-ooyi-o’p
LOC-IMPF-on-eat-21PL
‘table; lit: where we eat’ (Frantz and Russell (1995))

This word contains functional elements, including an aspectual morpheme (*á* ‘IMPF’) and nominalizing agreement morphology (*o’p* ‘21PL’). That it is a noun is shown by the fact that it has animacy specification, occurs with possessive and number marking

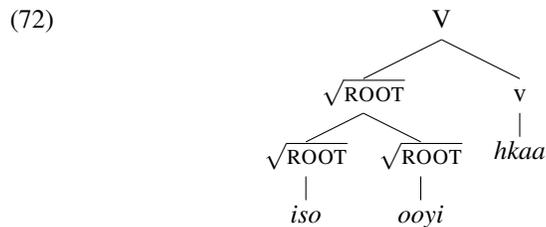
and occurs to the right of demonstratives.³¹ The lexical items internal to this complex nominal, i.e., *iso* ‘on’ and *ooyi* ‘eat,’ are not nouns.

Observe that expressing the acquisition of a table using a denominal construction results in a stripping away of the functional morphology (70). Retaining this morphology results in ungrammaticality (71).

(70) *nitsítsoyo’sska*
 nit-iso-ooyi-hkaa
 1-on-eat-acquire
 ‘I bought a table.’ (BB; 15179)

(71) **itátsoyo’psskaa*
 it-á-iso-ooyi-o’p-wa-hkaa
 LOC-IMPF-on-eat-21PL-3SG-acquire
 ‘he bought a table.’ (BB; 15880)

If simplex and complex nouns are identical categorially, then the IN-as-noun approach to denominal constructions as specified in (68) will not be able to account for the data in (71). If, however, we assume a $\sqrt{\text{ROOT}}\text{-}\sqrt{\text{ROOT}}$ compounding analysis of *iso-ooyi* ‘on-eat,’ then the IN-as- $\sqrt{\text{ROOT}}$ approach could account for the grammaticality of (70), giving it the structure in (72). The ungrammaticality of (71) would follow from the fact that, as a noun, *itátsoyo’p* cannot combine with the verbal morphemes of denominal constructions.



The data just discussed would be compelling evidence against the IN-as-noun analysis of denominal NI constructions in Blackfoot were it not for the fact that forms like *nitsítsoyo’sska* ‘I bought a table’ (70) are sometimes accepted by my speaker and sometimes not. More work is needed in this area.

3.4 Summary of denominal NI constructions

We have seen that denominal NI constructions in Blackfoot involve a verb built up from an independently occurring nominal to the left of a verb-like morpheme. The verb-like morpheme requires a nominal to its left, although for some an adjectival morpheme can play the same role. The incorporated nominal cannot have plural or

³¹The form *itátsoyo’piists* ‘tables’ (BB; 15253) shows plural marking and inanimate gender. The form *omi itátsoyo’pi* ‘that table’ (BB; 15246) shows occurrence with a demonstrative. Finally, *nitsitátsooyihpi* ‘my table’ shows possessive marking.

possessive morphology. Finally, the data are currently inconclusive with respect to the incorporated element's ability to introduce a discourse referent.

The verb-like morphemes of this construction share a partially similar range of meaning to the Inuktitut morphemes analyzed as light verbs by Johns (2007). However, that researcher's attempt to capture this range in a principled way has been shown to not quite fully capture the generalizations of either language.

A range of data were put forward that gave partial support to the claim that the incorporated nominals in this construction are category-less $\sqrt{\text{ROOT}}$ s. The fact that plural and possessive morphology could not occur on these nominals as well as the fact that the verbal morphemes can occur with both incorporated nominals and adjectivals is suggestive of, but in no way necessitates, the conclusion that the left-side morpheme of this construction is a $\sqrt{\text{ROOT}}$. Finally, data showing the stripping of functional morphology from complex nominals when incorporated were claimed to be strong evidence for the IN-as- $\sqrt{\text{ROOT}}$ position, were it not for the fact that speaker judgments on such data are not consistent.

4 Conclusions

I have presented two distinct NI-like constructions in Blackfoot and found that they are compatible with, but do not entail, a $\sqrt{\text{ROOT}}$ -incorporation analysis. Readers who may be familiar with previous mentions of Blackfoot NI will notice that the constructions I discuss are not those cited in the literature. Example (73) is from Frantz (1971) and is cited by Mithun (1984), Gerdts (1998) and Gerdts (2003). It has been confirmed as grammatical by my consultant.

- (73) *nítssikóó'kakína* *óma* *nínaa*
 nit-ssik-mo'kakín-aa om-wa nínaa
 1-injure-back-DIR DEM-PROX.SG man
 'I broke that man's back.' (Frantz (1971); BB confirmed; 15590)

In its use of a body part-denoting nominal and its ordering between verb root and incorporee, this form resembles the body part NI discussed above. It differs from that construction, however, in that the IN is not a medial but an independently occurring nominal (*hskin* is the medial meaning 'back'). In elicitation I have encountered only a handful of forms with these properties and cannot, therefore, discuss them in any depth.

Such areas of ignorance afford the opportunity to point out that there are yet other NI-like constructions in Blackfoot that await study. For example, as pointed out by Uhlenbeck (1938), Blackfoot has constructions (74) in which an independent nominal (*matápi* 'person') occurs to the left of an independently attested verb (*ooyi* 'eat').

- (74) *átapíyooyi*
 á-matápi-ooyi
 IMPF-person-eat
 'he eats people.' (BB: 14668)

This construction, the one mentioned above and the classifier medial NI construction discussed previously all merit further investigation.

Returning to the two constructions examined at length in this paper, we can see that Blackfoot appears to contain both types of NI proposed by Rosen (1989). Blackfoot denominal NI is compound NI, the type where the IN saturates an argument of the verb. Although they do not occur as independent verbs, the verb-like morphemes of denominal NI constructions would all seem to be at least bi-argumental, with the IN saturating one of the argument positions. The lack of doubling further supports the claim that denominal NI is compound NI.

The body part NI construction is an instance of classifier NI, the type where the IN does not saturate a verbal argument.³² I argued above that the incorporated body part nominal and the inner argument of the verb share the same thematic role in these constructions. This doubling supports the claim that the body part NI is classifier NI.

Finally, I make some remarks on the relevance of this paper to the debate about the syntactic or morphological status of NI. Throughout my discussion I have treated word formation and phrase formation via the same mechanism of simple and context-sensitive rewrite rules. I will not justify this conflation of syntax and morphology here. Instead I consider whether there is any evidence that the IN in either of the Blackfoot constructions has come to its surface position via movement from an underlying argument position as proposed by Baker (1988) for Mohawk.

Data involving modifiers stranded by the moved nominal are difficult to find in Blackfoot. This is because modifiers in the language are affixes. For example, adjectival modifiers in Blackfoot are prefixes on the nominals they modify. Such nominals with adjectival modifiers can incorporate, at least in the case of the denominal NI construction (75).

- (75) *nitótsskomitám'i*
 nit-ótssko-imitáá-im-yi
 1-blue-dog-POSS-have
 'I have a blue dog.' (BB; 17862)

However, adjectivals cannot occur as free-standing words and hence will clearly not be able to remain stranded outside of the complex verb.³³

Finally, given that independent nominals can introduce discourse referents (cf. (13) above), the fact that INs in Blackfoot are, in general, unable to do so further suggests that syntactic movement is not responsible for NI in the language.

³²Note: here I am using the term "classifier NI" in the sense of Rosen (1989) and not in the sense above where the same term was used to refer to the Blackfoot-particular construction wherein a substance-denoting medial (e.g., *iksi* 'wood,' *ikim* 'liquid') incorporates into and classifies the direct object of a verbal morpheme.

³³The data : (i) **nitsimitám'i ótssko (nit-imitáá-im-hkaa ótssko* 1-dog-POSS-acquire blue) 'I got a blue dog'; (ii) *anná John nitsapaapino'toki sik* 'John hit my black eye.' (TEST THIS)

Appendix A Blackfoot medials

	Medial	Noun	Animacy of Noun
	<i>aapin</i> ‘eye’	<i>moápssp</i> ‘eye’	NAN
	<i>hksis</i> ‘nose’	<i>mohksists</i> ‘nose’	NIN
	<i>hskin</i> ‘back’	<i>mokakín</i> ‘back’	NIN
	<i>ihkin</i> ‘head; hair’	<i>motokáán</i> ‘head; hair’	NIN
	<i>ika</i> ‘foot’	<i>mohkát</i> ‘leg; foot’	NIN
	<i>ikin</i> ‘tooth’	<i>mohpíkin</i> ‘tooth’	NIN
	<i>ikinaki</i> ‘leg’	<i>mohkát</i> ‘leg; foot’	NIN
(76)	<i>ikinsst</i> ‘hand’	<i>mo’tsís</i> ‘hand’	NIN
	<i>inn</i> ‘by hand’	<i>mo’tsís</i> ‘hand’	NIN
	<i>isttsomo’k</i> ‘hat’	<i>isttsomokaan</i> ‘hat’	NIN
	<i>ittsi</i> ‘belly’	<i>móókoan</i> ‘stomach’	NIN
	<i>otoyi</i> ‘tail’	<i>mohsoyís</i> ‘tail’	NIN
	<i>oyi</i> ‘mouth’	<i>maoó</i> ‘mouth’	NIN
	<i>sski</i> ‘face’	<i>mosstoksís</i> ‘face’	NIN
	<i>ssp</i> ‘head; hair’	<i>motokáán</i> ‘head; hair’	NIN
	<i>sstooki</i> ‘ear’	<i>mohtóókis</i> ‘ear’	NIN

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