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**SPEAKER CERTAINTY, EVENT REALIZATION, AND
EPISTEMIC MODALITY IN SIKSIKÁ BLACKFOOT**

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Abstract

This paper contributes to the debate on whether Blackfoot, a Plains Algonquian language is a tenseless language. We focus narrowly on the prefix *na-*, which is only used by speakers of the Siksiká dialect. Frantz (1991) analyses *na-* as a past tense marker. However, we demonstrate that the tense analysis fails to account for the fact that *na-* has a limited distribution in the context of negation, interrogative clauses and stative predicates, and is in complementary distribution with person prefixes. We re-analyse *na-* as an epistemic modal that expresses the speaker's certainty that the eventuality denoted by the verb has been realized, and show how this modal analysis accounts for its otherwise puzzling distribution. We argue that Blackfoot *na-* is part of a larger modal system that encodes speaker attitude toward the eventuality. Finally, we suggest that *na-* originated in the morphophonological process of initial change common in Algonquian languages.

Keywords

Siksiká Blackfoot, tense, tenselessness, epistemic modality, initial change

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1. Introduction

Blackfoot is a Plains Algonquian language spoken in Southern Alberta and Northwestern Montana. There are four dialects of Blackfoot, but only one of them, Siksiká, uses the prefix *na-*. In his grammar of Blackfoot, Frantz (1991: 35) lists *na-* as one of four past tense strategies. Frantz claims that the choice of past tense strategy depends on “...whether or not an agreement prefix is present, properties of the first morpheme of the stem, and when competing forms exist, preference or dialect of the speaker.” Specifically regarding *na-*, it is restricted to stems without an agreement prefix, and is only used in combination with a subset of stem-initial morphemes. Other past tense strategies are not subject to the same restrictions, and as such, there are always competing forms to *na-* for Siksiká speakers.

The question that we consider in this paper is what determines the choice of *na-* in Siksiká Blackfoot. Our answer is that *na-* is primarily an epistemic modal that indicates the speaker’s certainty that the eventuality (i.e. event or state) denoted by the verb has been realized. As such, *na-* entails rather than asserts past time reference. This analysis allows us to understand restrictions on the distribution of *na-* that are otherwise puzzling. For example, consider the paradigm in (1)-(3)^{1, 2, 3}

- (1) *Nitssksíni’p aná imitááwa náisiksipiiwayi ní John.*
 nit-ssksini-’p an-wa imitaa-wa na-siksip-(y)ii-wa-ayi ni J
 1-know.TI-1:INAN DEM-PROX dog-PROX na-bite-PROX-PRN DEM J
 ‘I know the dog *na-* bit John.’
- (2) *Nitsikáánistsi’takiwa aná imitááwa (*ná)áhksiksipiiwayi ní John.*
 nit-ik-aanistsi’taki-wa an-wa imitaa-wa aahk-siksip-(y)ii-wa-ayi ni J
 1-VX-think.AI-PROX DEM-PROX dog-PROX might-bite.DIR-PROX-PRN DEM J
 ‘I think the dog (**na-*) bit John.’

- (3) *Nimáátsksini 'pa* (**ná*)*ikkamsiksipotsiiniki* *aní* *imitááyi*.
 ni-maat-sskini-'p-wa ikkam-siksip-otsiiniki an-yi imitaa-yi
 1-NEG-know.TI-1:INAN-PROX if-bite.TA-SBJN.OBV:3 DEM-OBV dog-OBV
 'I don't know if the dog (**na-*) bit him.'

That *na-* can appear in the clausal complement of 'know' but not of 'think' or 'don't know' is unexpected if *na-* is primarily a tense morpheme, but follows from the epistemic modal analysis that we develop here.

The goals of this paper are to provide a systemic description of the distribution and use of *na-*, and to motivate an analysis that sheds light on its semantic content. Further, we explore the consequences of the epistemic modal account for a broader treatment of the Blackfoot tense/mode/aspect system, and present preliminary reflections on the historical development of Siksiká *na-*.

The paper is organized as follows. In §2, we define epistemic modality from a cross-linguistic perspective, and distinguish it from other related grammatical categories, such as evidentiality and mood. In §3, we provide empirical evidence for our claim that Siksiká Blackfoot *na-* is an epistemic modal that asserts the speaker's certainty that an eventuality has been realized. In §4, we argue against plausible alternative analyses of *na-*, specifically that it is a marker of past time reference, perfective aspect, or verum focus. In §5, we consider *na-* within the larger framework of the epistemic modal system of Siksiká Blackfoot, and motivate a typology of modals in the language. §6 is a discussion of the historical context of *na-*. In this section, we hypothesize that *na-* is an innovation in the Siksiká dialect, and that it developed from a cross-Algonquian morpho-phonological phenomenon known as initial change. Finally, §7 concludes the paper.

2. What is an Epistemic Modal?

In this section, we define epistemic modality, and distinguish it from the closely related category of evidentiality. Modality can be largely grouped into two categories: epistemic modality and deontic modality. Our focus is on EPISTEMIC MODALITY, which we define as a grammatical category that indicates the speaker's evaluation of the truth value of a proposition, or of the realization of an eventuality.

A related notion is EVIDENTIALITY, which refers to the marking of information source, or the means by which a speaker acquires the information asserted in a proposition. In essence, evidential markers indicate the type of evidence a speaker has for asserting a proposition. Some authors (e.g. Palmer 1986; Rooryck 2001; Blain and Déchaine 2007) treat these as belonging to a single category of evidentiality, whereas others (e.g. Weber 1986; de Haan 2001; James, Clarke, and MacKenzie 2001; Palmer 2001) distinguish markers of evidence type (evidentials) from markers of speaker evaluation (epistemic modals). We adopt the latter assumption, that epistemic modality and evidentiality are distinct notions, based on our observations about Siksiká Blackfoot *na-*, which functions as an epistemic modal, but does not have any specifically evidential content. We provide support for this claim in §3.5 below.

A second related notion is MOOD, a grammatical category that indicates a contrast between indicative and subjunctive or realis and irrealis (Palmer 2001). In some languages, mood and modality overlap. However, in Blackfoot, mood and modality are marked by different types of morphemes. Common to the Algonquian languages are distinctions between different “orders,” including independent, conjunct, imperative, and

subjunctive. The orders are marked by suffixes, and appear to signal mood distinctions. Modality, on the other hand, appears to be marked by prefixes (such as *na-*) in Blackfoot. We elaborate on this in §5.

In sum, epistemic modality refers to the speaker’s evaluation of the truth value of a proposition or the realization of an eventuality. It is a grammatical category distinct from that of evidentiality and mood. In the following section, we provide evidence that Siksiká Blackfoot *na-* belongs to the category of epistemic modals.

3. *na-* as an Epistemic Modal: The Evidence

In this section we present evidence in support of our hypothesis that *na-* is an epistemic modal. Specifically, we substantiate the claim that *na-* asserts speaker certainty that an eventuality has been realized. Our evidence comes from our consultant’s comments about the use of *na-*, as well as the distribution of *na-* in negative contexts, interrogative contexts, and stative predicates. We also demonstrate that the use of *na-* is independent of the source of evidence, and thus is not an evidential marker.

3.1 Characterizing *na-*: Our Consultant’s Comments

Our consultant, Rachel Ermineskin’s comments shed light on the contribution of *na-* to the interpretation of the clause. Her most common characterization is that *na-* indicates that the utterance is “after the fact” of the eventuality. An example is given in (4), in which the “after the fact” connotation is directly attributed to the presence of *na-*.⁴

- (4) *Nitóhtsimaa náhka Rosie náihpiyihka.*
 nit-ohtsimaa na-hk-wa R **na**-ihpiyi-hk-wa
 1-hear.news.AI DEM-REL-PROX R **na**-dance.AI-REL-PROX
 ‘I heard that Rosie danced.’
 → RE: ‘She’s relating it after the fact, so that’s why I changed it to
náihpiyihka [from *ihpiyihka*].’

Our understanding of this type of comment is that it expresses the fact that the eventuality expressed by the proposition is realized before the time of speaking. A second example that highlights this part of the meaning of *na-* is given in (5), with a contrasting example in (6).

- (5) *Na Leo náóksisawoo.*
 na Leo **na**-oksisawoo
 DEM Leo **na**-visit.AI
 ‘Leo went visiting.’

- (6) *Na Leo íkksisawoo.*
 na Leo **ii**-oksisawoo
 DEM Leo **ii**-visit.AI
 ‘Leo went visiting.’

When asked to elaborate on the distinction between (5) and (6), our consultant commented that *náóksisawoo* can be used “...after the fact, that he **did** go and visit, that he’s back home now.” In contrast, *íkksisawoo* would be used if Leo left in order to go visiting, but has not yet returned home. Again, as in (4), this type of comment indicates that *na-* is used to signal that the event has been completed by the time of speaking.

A second description our consultant offers indicates that *na-* signals speaker certainty. Consider the examples in (7) and (8) below.

- (7) *Náisiksipiiwayi aní John.*
na-siksip-yii-wa-ayi an-yi John
na-bite.TA-DIR-PROX-PRN DEM-OBV John
 ‘It (the dog) bit John.’
 → RE: ‘You cannot say this if you don’t know for sure; you have to know it.’

- (8) *Náísootaawa.*
na-i-sootaa-wa
na-rain.II-PROX
 ‘It rained.’
 → RE: ‘Like right now, I’m looking outside, and I know that it rained ... I see that the ground is wet, it rained.’

The comments in (5) and (8) both make reference to the evidence the speaker has for asserting that the event occurred. In (5), the speaker is certain of the event because she has witnessed Leo’s return. In (8), the wet ground signals a prior raining event. These references to evidence suggest that speaker certainty may be closely connected with the availability of evidence. We return to this issue in §3.5.

3.2 *na-* with Negation

Our hypothesis that *na-* is an epistemic modal indicating speaker certainty that an eventuality has been realized predicts that *na-* should not be possible in negative clauses. The reason for this is that a negative clause fails to assert that the event occurred (or that the state holds, in the case of stative predicates), and this is inconsistent with our characterization of *na-*. This prediction is borne out, as shown in (9) and (10).

- (9) *(*Na)máátsiksipiiwaatsiks.*
maat-siksip-yii-waatsiksi
 NEG-bite.TA-DIR-3SG.NONAFFIRM
 ‘S/he didn’t *(*na-)* bite him/her.’
- (10) *(*Na)imáátsstssimaayi.*
maat-sstssi-m-wa-ayi
 NEG-burn.TI-3:INAN-PROX-PRN
 ‘S/he didn’t *(*na-)* burn it.’

In (9) and (10) we see that clausal negation is indicated by the prefix *maat-*. If *na-* combines with *maat-*, this is ungrammatical. However, there is a second negative prefix *sa-*, which appears closer to the verb stem than *maat-* and signals constituent negation. That *maat-* and *sa-* signal different types of negation is indicated by the fact that the two negative markers can co-occur, as shown in (11) and (12). In (11), for example, *sa-* negates the verb ‘appear,’ turning it into ‘disappear.’ As such, *sa-* only has scope over the predicate, not the clause. *maat-*, on the other hand, negates, and has scope over, the entire clause.

- (11) *Omá* *aaáattsistaawa* ***máútsayinakoyima***.
om-wa aaattsistaa-wa **maat-sa**-inakoyim-wa
DEM-PROX rabbit-PROX NEG-NEG-appear.AI-PROX
‘The rabbit didn’t disappear.’

- (12) *Na Doris* ***máútsayinsskaka’pssi***.
na D **maat-sa**-insskak-a’pssi
DEM D NEG-NEG-tidy-be.AI
‘Doris is not an untidy person.’

This observation about the distinction between *maat-* and *sa-* negation gives rise to the prediction that although *na-* is impossible with *maat-*, it should be possible with *sa-*. This is because *sa-* modifies the content of the predicate, which determines the nature of the eventuality, and not whether or not it occurs. This prediction is borne out:

- (13) *Náútsayinakowa*.
na-sa-inako-wa
na-NEG-visible.II-PROX
‘It was invisible.’

In (13), *sa-* is prefixed to *inako* ‘be visible’ to derive a predicate ‘be invisible.’ The contribution of *na-* is to assert the speaker’s certainty that something was indeed invisible.

In sum, *na-* is not possible with clausal negation, but is possible with constituent negation. This is consistent with our hypothesis that *na-* asserts the speaker’s certainty that an eventuality has been realized.

3.3 *na-* in Interrogative Contexts

Generalizing our findings from §3.2, our hypothesis is that *na-* will always be possible in clauses that assert an eventuality, but impossible in those that fail to make that assertion. This gives rise to predictions regarding the availability of *na-* in different types of questions. In particular, we consider two broad categories of questions: polar questions (‘yes/no questions’) and content questions (‘*wh*-questions’). Polar questions request a yes or no response to whether a proposition holds, whereas content questions request a particular piece of information about a presupposed proposition (Whaley 1997). In this section, we discuss the distribution of *na-* in these two contexts. The facts are generally consistent with our analysis of *na-* as an epistemic modal, though some issues arise regarding oblique content questions.

3.3.1 *na-* in Polar Questions

Polar questions ask whether or not the proposition denoted by the clause holds. As such, they are predicted to be incompatible with *na-*, precisely because they fail to assert a proposition. This prediction is borne out, as shown in (14) and (15) below.

(14) *Na Leo (*na)ikataí'sstsimaahkatsiiwaatsiksi ni Rosie?*
 na L kata'-sstsimaahkat-yii-waatsiksi ni R
 DEM L Q-hire.TA-DIR-NONAFFIRM DEM R
 'Did Leo (**na-*) hire Rosie?'

(15) *Na Leo (*na)ikataí'so'kaawaatsiksi omi kookóowayi?*
 na L kata'-it-yo'kaa-waatsiksi om-yi k-ookoowa-yi
 DEM L Q-LOC-sleep.AI-NONAFFIRM DEM-OBV 2POSS-house-OBV
 'Did Leo (**na-*) sleep at your house?'

(14) and (15) question whether or not a proposition holds, and as such, are not compatible with *na-*. However, not all polar questions are requests for information. In particular, echo polar questions have a different pragmatic function than canonical polar questions. They are used to express the speaker's evaluation of, and most often surprise at, a presupposed proposition. In English, the two types of polar questions are formally distinguished by the position of the auxiliary verb and the intonation contour: For example, the question "Did Mary come late?" is used to request information regarding whether Mary came late or not, whereas "Mary came LATE?" expresses the speaker's surprise at Mary's tardy arrival.

Similarly in Blackfoot, echo questions are formally distinguished from requests for information. Because echo questions presuppose the proposition, we predict them to be compatible with *na-*. This prediction is borne out.

- (16) *Náóoyo'siwaatsiksi?*
na-ooyo'si-waatsiksi
na-cook.AI-3SG.NONAFFIRM
 'S/he cooked?'
- (17) *Náókska'siwaatsiksi?*
na-okska'si-waatsiksi
na-run.AI-3SG.NONAFFIRM
 'S/he ran?'

Formally, the difference between the echo questions in (16) and (17) versus the requests for information in (14) and (15) is that the latter use the interrogative prefix *kata*'-, whereas the former do not. Unlike requests for information, echo questions express the speaker's reaction to the truth of a presupposed proposition. This is confirmed by our consultant's response when asked whether (17) could be used as a request for information. To quote her, "you use this if you're surprised, because Leo ran [for instance,] in spite of his injuries." Our consultant further noted that such questions cannot be uttered out of the blue. This follows from the assumption that they evaluate a given proposition, and as such they cannot be uttered without a context.

In sum, *na*- is not possible in polar questions that are requests for information, but it is possible in polar echo questions. Our characterization of *na*- as expressing speaker certainty that an eventuality has been realized is consistent with this distribution, because requests for information question a proposition about an eventuality, whereas echo questions presuppose the truth of the proposition.

3.3.2 *na-* in Content Questions

Content questions have a different information structure than polar questions. It is generally assumed that the interrogative word (or ‘*wh*-word’) in a content question is the focus, and that the remainder of the question is a presupposition (Kemp 1977; Rochemont 1978; Culicover and Rochemont 1983). Frantz’s (1991) description of content questions is consistent with the focus-presupposition structure that is generally assumed. To quote Frantz (1991: 35), content questions “...can be viewed as requests to supply a value for a variable in an otherwise complete proposition. For example, asking ‘Who did you see?’ in English is equivalent to saying “You saw someone; tell me the identity of that someone.””

Frantz’s characterization of content questions would lead us to expect that *na-* should be possible because the speaker is presupposing that an event occurred (or that a state holds), and is asking for a specific piece of information regarding that eventuality. This prediction is borne out for some types of content questions, but not others. Specifically, *na-* is possible with ‘who’ and ‘what’ questions, but is not possible with other types of content questions, including ‘when,’ ‘where,’ ‘why,’ and ‘how.’ In what follows, we discuss first those types of questions that bear out the prediction, and then those that are more problematic

As mentioned, *na-* is possible in ‘who’ and ‘what’ questions, as in (18) and (19):

- (18) *Tsa anistápii na Rosie náóhkotsiwa ni oksísstsi?*
 tsa anistapii na R **na**-ohkot-yii-wa an-yi w-iksisst-yi
 what be.II DEM R **na**-give.TA-DIR-PROX DEM-OBV 3POSS-mother-OBV
 ‘What did Rosie give to her mother?’

- (19) *Tsikáá na Leo nássstimaahkatsiwa?*
 tsikaa na L na-sstimaahkat-yii-wa
 who.OBVDEM L na-hire.TA-DIR-PROX
 ‘Who did Leo hire?’

The structure of (18) is particularly illuminating. It is a cleft construction, formed with a matrix copula verb *anistápii* ‘to be,’ and an embedded verb *ohkot* ‘give’ to which *na-* is prefixed. Thus, this question would be more accurately rendered into English as “What is it that Rosie gave to her mother?”

It is widely assumed that cleft constructions have a specific information structure (Prince 1978; Erteschik-Shir 1986). In particular, a cleft construction contrastively focuses the clefted constituent, and presupposes the content of the embedded clause. For example, in (18), the interrogative word *tsa* ‘what’ is focused, and the event of giving is presupposed. As such *na-* is possible here.

Although (19) is not a cleft construction, we suggest that it has the same information structure as (18). Following Rochemont 1978 and others, we assume that interrogative pronouns such as *tsikaa* ‘who’ are focused. It follows, then, that (19) has a focused interrogative pronoun, and that the remainder of the clause (i.e. that Leo hired somebody) is presupposed. Once again, because the event is presupposed, *na-* is possible.

Given this account of the availability of *na-* in ‘who’ and ‘what’ questions, it is surprising that *na-* is not possible with other types of content questions, specifically ‘where,’ ‘when,’ ‘why,’ and ‘how’ questions. Consider the data in (20) through (23).

- (20) *Tsimáá na Leo (*na)itsapiipómmaawa pisátssaisski?*
 tsimaa na L it-sapiipommaa-wa pisatssaisski
 where DEM L LOC-plant.AI-PROX flower
 ‘Where did Leo (**na-*) plant the flowers?’

- (21) *Tsa anistsíiyi na Rosie (*na)itááhkaniwa ni si'kááni?*
 tsa anistsiiyi na R it-waahkani-yii-wa ni si'kaan-yi
 what be.AI DEM R LOC-sew.TA-DIR-PROX DEM blanket-OBV
 'When did Rosie (**na-*) sew that blanket?'
- (22) (**Na*)imáákihpiyiwa na Leo?
 maak-ihpiyi-wa na L
 reason-dance.AI-PROX DEM L
 'Why did Leo (**na-*) dance?'
- (23) *Na Rosie tsa (*na)niitsspíyiwa?*
 na R tsa niit-ihpiyi-wa
 DEM R what MANNER-dance. AI-PROX
 'How did Rosie (**na-*) dance?'

The questions in (20) through (23) contrast with the 'who' and 'what' questions discussed above in that they request information about adjuncts rather than arguments of the predicate. Morphologically, they are further distinguished from 'who' and 'what' questions in that they contain a RELATIVE ROOT, a verbal prefix that "identifies the oblique grammatical relation of some nominal in the clause" (Frantz 1991: 94). In the case of questions, the nominal identified by the prefix is what is being questioned.

We speculate that it is the presence of a relative root in 'where,' 'when,' 'why,' and 'how' questions that blocks *na-*. This speculation is based on the observation that declarative clauses with the locative relative root *it-* are similarly ungrammatical with *na-*. For example, consider (24), which shows a three-way contrast. (24)a shows that the prefix *na-* is possible without a relative root; (24)b shows that the relative root *it-* is possible without *na-*. However, in (24)c, when *na-* and the relative root are both present, the sentence is ungrammatical.

- (24) a. *Leowa náisapiipommaawa pisátssaisski.*
 Leo-wa **na**-sapiipommaa-wa pisatssaisski
 Leo-PROX **na**-plant.AI-PROX flower
 ‘Leo planted flowers.’
- b. *Na Leo óómi itsápiipommaawa pisátssaisski.*
 na Leo oomi **it**-sapiipommaa-wa pisatssaisski
 DEM Leo DEM **LOC**-plant.AI-PROX flower
 ‘Leo planted flowers over there.’
- c. **Na Leo óómi náitsápiipommaawa pisatssaisski.*
 na Leo oomi **na-it**-sapiipommaa-wa pisatssaisski
 DEM Leo DEM **na-LOC**-plant.AI-PROX flower
 ‘Leo (***na-**) planted flowers over there.’

The ungrammaticality of (24)c suggests that *na-* cannot co-occur with relative roots. Further support for an explanation along these lines comes from examples like (25), which contain the interrogative pronoun *tsikaa* ‘who’ as well as a relative root *itap-* ‘toward’. Again, when *na-* is prefixed to the relative root, the sentence is ungrammatical.

- (25) *Tsikáá na Leo (*na)itapáapiksistsiiwa aní pokóni?*
 tsikaa na Leo **na-itap**-aapiksist-yii-wa an-yi pokon-yi
 who.OBV DEM Leo **na-toward**-throw.TA-DIR-PROX DEM-OBV ball-OBV
 ‘Who did Leo (***na-**) throw the ball to?’

We argue that when *na-* is impossible in a content question, it is not due to an intrinsic incompatibility between *na-* and content questions, but rather to some other consideration, namely the presence of a relative root. At this point, the contribution of relative roots in Blackfoot is poorly understood, and thus we cannot explain why it is that they cannot co-occur with *na-*. Nevertheless, the prediction that *na-* should be possible with content questions is supported by the ‘who’ and ‘what’ questions discussed above.⁵

3.4 *na-* with Stative Predicates

The final prediction of our modal analysis of *na-* is that it is possible with some stative predicates but not others. Carlson (1977) identifies two categories of stative predicates: individual-level and stage-level. Individual-level states describe a permanent property, whereas stage-level states describe a temporary one. For example, consider the contrast between the individual-level state in (26) versus the stage-level state in (27):

- (26) Firemen are altruistic.
 (27) Firemen are available.

The theoretical assumption is that stage-level states behave like eventive predicates because both involve an event argument (Kratzer 1995). This event argument can be quantified, which gives rise to the temporal (i.e. temporary) interpretation of the event or state. Individual-level states lack this event argument, and as such, are atemporal in nature.

The relevance of this discussion for Siksiká *na-* is as follows: Like eventive predicates, stage-level (but not individual-level) states have an endpoint. Our characterization of *na-* as asserting the speaker's certainty that an eventuality has been realized requires the eventuality to have an endpoint. Thus, we predict that *na-* is possible with stage-level, but not individual-level, states. This prediction is borne out. Consider first the stage-level states in (28) and (29) below.

- (28) a. *Anníhk iksiksisái'kima.*
 annihk ik-iksisai'kim-wa
 before VX-sharp.AI-PROX
 'Before it was sharp.'

- b. *Annihk náiksisai'kima.*
 annihk **na**-iksisai'kim-wa
 before **na**-sharp.AI-PROX
 'Before it was sharp (...but now it is dull).'
- (29) a. *Annihk ámo si'káána amáóhksinaawa.*
 annihk amo si'kaan-wa amaohksinaa-wa
 before DEM blanket-PROX red.AI-PROX
 'Before, this blanket was red.'
- b. *Ámo si'káána annihk náómaohksinaawa.*
 amo si'kaan-wa annihk **na**-amaohksinaa-wa
 DEM blanket-PROX before **na**-red.AI-PROX
 'This blanket before it was red (...but now it is faded).'

Both the (a) and (b) examples above are translated into English with past time reference. The (a) examples are not marked with *na-*, and consequently they do not indicate whether the state still obtains at the time of speaking or not. The (b) examples, on the other hand, are marked with *na-*, and in this case, there is an implicature that the state no longer obtains. For example, (28)a could describe a knife that was and still is sharp, but (28)b could only describe a knife that was once sharp but is now dull.

Consider now individual-level states. The verb *itsowaaki* 'be pretty' clearly denotes an individual-level (or permanent) state, as is evident from examples like (30).

- (30) *Anna Nicole nóhk otái'ni'si saakaitsówaaki.*
 A N annohk ot-a-i'ni-hsi saakai-itsowaaki
 A N now 3-IMPF-die.AI-CONJ still-pretty.AI
 'Anna Nicole now that she is dead she is still pretty.'

Confirmation that *itsowaaki* is a permanent state comes from our consultant's response to the following question: "Can you describe someone who is dead as having been pretty in the past?" Her reply was that she would say they were still pretty.

As predicted, *na-* is not possible with individual-level states such as *itsowaaki*.

- (31) a. *Angelina Jolie ikítsowaaki.*
 A J ik-itsowaaki
 A J VX-pretty.AI
 ‘Angelina Jolie is pretty.’
- b. **Isskóóhtsik ana Elizabeth Taylor náítsowaaki.*
 isskoohtsik an-wa E T **na**-itsowaaki
 long.ago DEM-PROX E T **na**-pretty.AI
 ‘Elizabeth Taylor was pretty.’
- (32) a. *Na Brad Pitt ikítsowa’pssi.*
 Na B P ik-itsowa’pssi
 DEM B P VX-handsome.AI
 ‘Brad Pitt is handsome.’
- b. **Na Marlon náítsowa’pssi.*
 na M **na**-itsowa’pssi
 DEM M **na**-handsome.AI
 ‘Marlon was handsome.’

In sum, *na-* is possible with stage-level, but not individual-level states. Our characterization of *na-* as asserting speaker certainty that an eventuality has been realized predicts this distribution, because only predicates that have an endpoint (i.e. stage-level states, but not individual-level states) can be evaluated by the speaker with respect to whether they have been realized or not.

3.5 *na-* is Not an Evidential Marker

How a speaker evaluates whether an eventuality has been realized may be based on various factors, including the type or reliability of the evidence the speaker has for assessing the truthfulness of a proposition. Precisely for this reason, Siksiká *na-* is often used in contexts where the speaker has strong evidence for asserting that an eventuality has been realized. This leads to the question of whether *na-* can be considered an

evidential marker. In this subsection, we argue that *na-* is not an evidential marker, because its distribution is not restricted to a particular type of evidence, but rather can be used in any context where the speaker can assert certainty.

Evidential markers indicate the type of evidence a speaker has for asserting a proposition. In a typological survey of evidentiality, Willet (1988) observes that only four types of evidence are grammaticized across languages. These are personal experience, direct evidence, indirect evidence, and hearsay. Speas (2004) notes that of the four evidential types, personal experience is the unmarked type, in the sense that, if a language marks any evidential distinctions, it will be those that contrast with personal experience. This is not to say that evidential types are necessarily autonomous. Willett (1988) notes that there are languages in which a single evidential marker is used for multiple evidential types, but in such cases, there is still a contrast between two or more evidential types.

If Siksiká *na-* were an evidential marker, we would expect it to conform to these cross-linguistic tendencies. For instance, if *na-* were an evidential, then it should mark an evidential distinction that contrasts with the unmarked evidential category, namely personal experience. This prediction is not borne out, as *na-* can be used in the context of personal experience, with the inclusive person.

- (33) *Kiistówa ki niistówa náóówato'p aní napáyini.*
 kiistowa ki niistowa **na**-oowato-'p an-yi napayin-yi
 2SG.PRN and 1SG.PRN **na**-eat.TI-1:INAN DEM-OBV bread-OBV
 'You and I ate the bread.'

A second prediction is that if *na-* were an evidential, then it should mark some but not all evidential types. This prediction is also not borne out. In addition to appearing in

the context of personal experience, *na-* can also be used with direct evidence ((34) and (35)), indirect evidence ((36) and (37)), and hearsay ((38) and (39)).

- (34) *Nitssksini'p* *aná* *imitááwa* *náiksipiiwayi* *ní* *John.*
 nit-ssksini-'p an-wa imitaa-wa **na**-siksip-yii-wa-ayi ni J
 I-know.TI-I:INAN DEM-PROX dog-PROX **na**-bite.TA-DIR-PROX-PRN DEM J
 'I know that the dog bit John.'

- (35) *Aná* *náóoyiwa* *akóópis.*
 an-wa **na**-ooyi-wa akoopis
 DEM-PROX **na**-eat.AI-PROX soup
 'S/he ate soup.'
 → RE: 'Right now I am telling you 'she ate soup,' I saw her, she ate it.'

Following Speas (2004), we assume that complements of predicates that assert the speaker's knowledge represent direct evidence. The prefix *na-* is used in such contexts as illustrated in (34), where *na-* appears in the clausal complement of *nitssksini'p* 'I know.' In other cases, it is clear from the context that the speaker has direct evidence for the truth of the proposition, and again we find that *na-* is used. For example, in (35), *na-* appears on the matrix verb *ooyi* 'eat', and the consultant's explanation indicates that the speaker has direct evidence for asserting the proposition based on personal experience: The sentence is licit in a context where the speaker has witnessed the eating event.

As seen in (36) and (37), *na-* can also be used with indirect evidence.

- (36) *Ni'tóóhkainakow* *na* *Rosie* *náihpiyiwa.*
 ni'toohk-a-inako-w(a) na R **na**-ihpiyi-wa
 visible-IMPF-show.II-PROX DEM R **na**-dance.AI -PROX
 'It shows that Rosie danced.'

- (37) *Na Leo násapipoommaatooma omístsi pisátssaisskístsi.*
 na L **na**-sapipoommaatoo-m-wa om-ístsi pisatssaissk-ístsi
 DEM L **na**-plant.TI-3:INAN-PROX DEM-PL flower-PL
 ‘Leo planted those flowers.’
 → RE: ‘After the fact you say, ‘Look, he planted these. There they are; they’ve grown.’’

In (36), the matrix verb *ni'tóóhkainakow* ‘it shows that’ takes a complement representing an event that the speaker has not personally witnessed, but for which s/he has evidence. Similarly in (37), the context is such that the speaker has evidence for the event (i.e. the flowers that have grown), even though s/he didn’t witness it her/himself.

The final evidential type is hearsay, when the speaker learns about the event from a third party. As seen in (38) and (39), *na-* can be used in these contexts, as well.

- (38) *Nitohkáániikkoo náhk Rosie náihpiyihka.*
 nit-ohk-waaniist-ok-oo na-hk R **na**-ihpiyi-hk-wa
 1-ADV-say.TA-INV-UNSPEC DEM-REL R **na**-dance.AI-REL-PROX
 ‘Someone told me Rosie danced.’
- (39) *Nitóóhtsimaa nahk Rachel náikiikiyihk ni bingo.*
 nit-yoohtsim-a-wa na-hk R **na**-ikiiki-yihk ni bingo
 1-hear.TI-DIR-PROX DEM-REL R **na**-win.AI-REL DEM bingo
 ‘I hear that Rachel won at bingo.’

In sum, *na-* is used with each of the four grammaticized evidential types, namely personal experience (with the inclusive person), direct evidence, indirect evidence, and hearsay. Importantly, *na-* does not mark an evidential distinction that contrasts with the unmarked category of personal experience. In fact, *na-* is not used to contrast evidential categories at all. On this basis we conclude that *na-* is not an evidential marker.

3.6 Summary

In this section, we have presented empirical evidence in support of our hypothesis that *na-* is an epistemic modal that asserts the speaker's certainty that an eventuality has been realized. We have shown that our consultant's description of *na-* as being used 'after the fact' of the event and in the context of speaker certainty are consistent with our characterization of *na-*. Furthermore, we have demonstrated that the distribution of *na-* is predicted by our analysis. Specifically, *na-* is possible with constituent but not clausal negation, content but not polar questions (with the exception of polar echo questions), and stage-level but not individual-level states. In short, *na-* is restricted to utterances in which a proposition about the realization of an eventuality can be asserted. Finally, we have shown that *na-* is compatible with various evidence types, indicating that it not an evidential marker.

4. Arguments Against Other Plausible Analyses of *na-*

In the previous section, we argued that *na-* is an epistemic modal that asserts the speaker's certainty that an eventuality has been realized. This characterization of *na-* crosscuts other inflectional categories, such as tense, aspect, and information structure. In this section, we present evidence that none of these categories adequately captures the syntax and semantics of *na-*.

4.1 *na-* is Not a Marker of Past Time

It is clear that *na-* is used for the most part with past time reference. If *na-* were a marker of past time, it could be either an inflectional past tense morpheme or a past time adverbial. In what follows we consider each of these options in turn, and show that neither category can account for the properties of *na-*.

4.1.1 *na-* is Not a Past Tense Marker

Frantz (1991: 36) describes *na-* as a past tense marker that may appear on stems in word-initial position. Apparent support for this analysis comes from the observation that *na-* clearly cannot have future or present time reference, as shown in (40):

- (40) *Na Leo náókska'siwa.*
 na L **na**-okska'si-wa
 DEM L **na**-run.AI-PROX
 'Leo ran.' / *'Leo is running.' / *'Leo will run.'

(40) demonstrates that *na-* must be used with past time reference. However, in §5, we claim that this is a consequence of its epistemic modal content. Our goal in this section is to demonstrate that *na-* is not a past tense marker.

Characteristically, past tense inflection is obligatory and unrestricted by factors such as polarity, clause type and the lexical semantics of the predicate (Ritter and Wiltschko 2009). Siksiká Blackfoot *na-* meets neither of these criteria for past tense inflection. First, it is optional in past time contexts, as shown in (41):

- (41) *Ostóyi (ná)ísapiipommaa pisátssaisski matónni.*
 ostoyi sapiipomma-(w)a pisatssaisski matonni
 3SG.PRN plant.AI-PROX flower yesterday
 ‘S/he (**na-**) planted flowers yesterday.’

Second, as observed in §3, the distribution of *na-* is restricted in ways that would be unexpected if were a past tense marker. We saw that *na-* is impossible in negative clauses, in some types of interrogative clauses, and with individual-level stative predicates. It is also ungrammatical in the clausal complement of predicates meaning ‘think’ and ‘don’t know’. Examples(1)-(3)are repeated here as (42)-(44):

- (42) *Nitsksini’p aná imitááwa náksiksipiiwayi ní John.*
 nit-ssksini-’p an-wa imitaa-wa **na**-siksip-yii-wa-ayi ni J
 1-know.TI-1:INAN DEM-PROX dog-PROX **na**-bite-PROX-PRN DEM J
 ‘I know the dog bit John.’
- (43) *Nitsikáánistsi’takiwa aná imitááwa (*ná)áhksiksipiiwayi ní John.*
 nit-ik-aanistsi’taki-wa an-wa imitaa-wa aahk-siksip-yii-wa-ayi ni J
 1-VX-think.AI-PROX DEM-PROX dog-PROX might-bite.TA.DIR-PROX-PRN DEM J
 ‘I think the dog (***na-**) bit John.’
- (44) *Nimáátssksini’pa (*na)ikkamsiksipotsiiniki ani imitaayi.*
 ni-maat-ssksini-’p-(w)a ikkam-siksip-otsiiniki an-(yi) imitaa-yi
 1-NEG-know.TI-1:INAN-PROX if-bite.TA-SBJN.OBV:3 DEM-OBV dog-OBV
 ‘I don’t know if the dog (***na-**) bit him.’

While these facts are incompatible with a past tense analysis, they are consistent with the hypothesis presented here, namely that *na-* is an epistemic modal signalling speaker certainty that an eventuality has been realized.

4.1.2 *na-* is Not a Past Time Adverbial

The second possibility is that *na-* is a past time adverbial. The optionality of *na-* in past time contexts, as observed in (41) above, is consistent with the adverbial analysis. However, there is good reason to assume that *na-* is not an adverbial either. As noted, *na-* appears in word-initial position. Another class of prefixes that appears in this position are the person prefixes, *nit-* (1st person) and *kit-* (2nd person)⁶. The prefix *na-* is in complementary distribution with these person prefixes, as shown in (45) and (46) below.

- | | | | | |
|------|----|---|----|---|
| (45) | a. | <i>Nitókska'si</i>
nit-okska'si
1-run.AI
'I ran' | b. | <i>*Nanitókska'si</i>
na -nit-okska'si
na -1-run.AI
'I ran' |
| (46) | a. | <i>Kitókska'si</i>
kit-okska'si
2-run.AI
'You ran' | b. | <i>*Kitnáókska'si</i>
kit- na -okska'si
2-na -run.AI
'You ran' |

The person prefixes are clearly inflectional, as evidenced by the fact that they are obligatory and their semantic contribution is entirely systematic. If *na-* were an adverbial modifier we would expect it to occupy a distinct position from inflection. Thus, the complementarity of *na-* and the inflectional person prefixes indicates that *na-* is not an adverbial modifier, but is rather a type of inflection.

In sum, *na-* is neither a past tense inflection nor a past time adverbial. In the next section we discuss evidence against *na-* as a marker of perfective aspect.

4.2 *na-* Does Not Mark Perfect(ivity)

A second element of meaning that characterizes sentences with *na-* is completion. If the contribution of *na-* were to signal that the event is complete or completed, then it would reasonably be analysed as either perfect or perfective aspect.⁷ In this subsection we show that neither of these hypotheses is tenable.

4.2.1 *na-* Does Not Mark Perfect Tense

Izvorski (1997) claims that in some languages the present perfect tense functions as an indirect evidential. In subsequent work, Iatriadou et al (2001) discuss various uses of the present perfect, including what they call an experiential perfect. The experiential perfect describes an event that is completed before the moment of speech. This description of the experiential perfect seems to fit the distribution of *na-*. A second reason to consider this hypothesis is that our consultant often uses the pluperfect when she translates sentences with *na-* into English, as illustrated in (47) and (48).

- (47) *Aná ninááw ná'po'takiwa.*
 ana ninaa-wa na-a'po'taki-wa
 DEM man-PROX *na*-work.AI-PROX
 ‘The man **had** worked.’

- (48) *Náóhpotaawa mohkínsstsis matónni.*
 na-ohpotaaw-wa mohkínsstsis matonni
na-snow.II-PROX Calgary yesterday
 ‘It snowed in Calgary yesterday.’
 → RE: ‘Like it **had** snowed in Calgary yesterday’

Although *na-* bears surface similarity to the experiential perfect, the same considerations that led us to conclude that *na-* is not simply a marker of past time also lead us to reject

the hypothesis that *na-* is a marker of perfect tense. Notably, this hypothesis fails to account for the fact that *na-* is impossible in the context of clausal negation, yes/no questions, and in the clausal complement of predicates like ‘think’ and ‘don’t know’.⁸

4.2.2 *na-* Does Not Mark Perfective Aspect

Perfect tense is used to situate a previous eventuality viewed from the perspective of a later time, i.e. a completed eventuality. A similar semantic contribution is made by perfective aspect, which indicates that the eventuality in question is complete. It is clear that *na-* does not convey perfective aspect either. Again, the impossibility of *na-* in the context of clausal negation, yes/no questions, and in the clausal complement of predicates like ‘think’ and ‘don’t know’ challenges this hypothesis. A second argument derives from the observation that *na-* can co-occur the imperfective marker *á-*, as illustrated in (49) and (50).⁹

- (49) *Matónni ná'paikskimaawa.*
 matonni **na-a'**p-a-ikskimaa-wa
 yesterday **na**-PREF-**IMPF**-hunt.AI-PROX
 ‘Yesterday he went hunting.’

- (50) *Matónni ná'paisskoiwa* *aniksi pookáiksi.*
 matonni **na-a'**p-a-ssko-yii-wa *an-iksi pookaa-iksi*
 yesterday **na**-PREF-**IMPF**-chase.TA-DIR-PROX DEM-PL child-PL
 ‘Yesterday he chased the children around.’

If *na-* were perfective, then it would be semantically incompatible with a marker of imperfectivity, such as *á-*.

Thus, these facts suggest an analysis of *na-* as a marker of perfective aspect cannot account for its syntactic distribution.¹⁰

4.3 *na-* is Not a Marker of Verum Focus

Comments offered by our consultant for sentences containing *na-* often contain emphatic *did*. Consider the following examples:

- (51) *Náípahtsa 'pssó'p.*
na-ipahtsa'pssi-o'p
na-make.mistake.AI-INCL
 'We did something wrong.'
 → RE: 'We DID do something wrong; we say this because we know it...because we did do something wrong and we know it.'
- (52) *Nitóóhtsimaa náhk Rachel náíkiikiyihk ni bingo.*
 nit-yoohtsim-a-wa na-hk R **na**-ikiiki-yi-hk ni bingo
 I-hear.TI-DIR-PROX DEM-REL R **na**-win.AI-OBV-REL DEM bingo
 'I hear that Rachel won at bingo.'
 → RE: 'Yeah, that she DID win, that it is after the fact that [she] won.'

The consultant's use of emphatic *did* in the comments above suggests that the contribution of *na-* may be to foreground the speaker's belief that the proposition denoted by the clause is true. Under this hypothesis, *na-* could potentially be analysed as a marker of VERUM FOCUS (Höhle 1992). This is a type of contrastive focus for which the contrast set consists only of the two polarities "it is true that p" and "it is not true that p".

If *na-* marked verum focus, we would expect it to be possible not only in affirmative clauses that assert the truth of the proposition, but also negative clauses that deny it. As was demonstrated in §3.2, this is not the case. Example (9) from that section is repeated here as (53).

- (53) *(*Na)máátsiksipiíwaatsiks.*
na-maat-siksip-yii-waatsiksi
na-NEG-bite.TA-DIR-3SG.NONAFFIRM
 'S/he didn't **na-** bite him/her.'

That *na-* cannot be used to foreground the truth polarity of a negative clause suggests that it is not a marker of verum focus.

4.4 Summary

To summarize, we demonstrated in this section that *na-* cannot be analysed as a marker of past time reference, either as a tense morpheme or as an adverbial. It also cannot be analysed as a marker of perfect tense, perfective aspect, or verum focus. Rather, *na-* is most accurately characterized as an epistemic modal that denotes the speaker's certainty that an eventuality has been realized. In the following section, we give a more detailed analysis of the modal characterization of *na-*, and its role in the epistemic modal system of Siksiká Blackfoot.

5. Towards a System of Epistemic Modality in Siksiká Blackfoot

In this section we offer independent support for our analysis of *na-* as an epistemic modal based on the complementarity of *na-* and other Blackfoot verbal prefixes that arguably belong to this category. We begin by developing a typology of epistemic modals in §5.1. In §5.2 we apply this typology to the modal system of Siksiká Blackfoot.

5.1. A Typology of Epistemic Modals

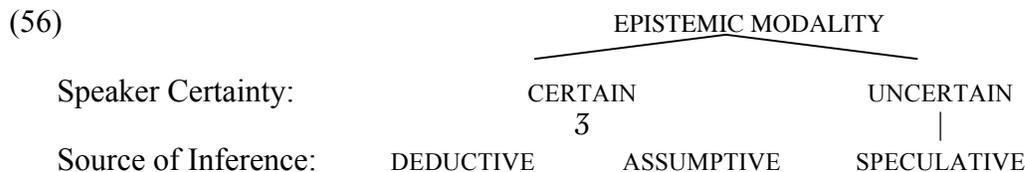
According to Palmer (2001), there are two types of information that are commonly encoded in epistemic modal systems in the world's languages. The first is speaker confidence or certainty about the proposition, and the second is the source of inference on

which speaker certainty is based. Palmer (2001) distinguishes two sources of inference. One is inference based on observable evidence, what Palmer calls this the deductive mode. The other is inference from what is generally known, referred to by Palmer as the assumptive mode. He claims that the difference between English *will* and *must* in the following examples can be characterized as a distinction between sources of inference (Palmer 2001: 28).

(54) It's nine o'clock – John **will** be in his office now (assumptive).

(55) Yes, the lights are on, so he **must** be there (deductive).

Combining speaker certainty with source of inference, we propose that epistemic modal systems can have the structure in (56), and that this structure characterizes the modal system of Blackfoot.



In the remainder of this section we discuss each of these levels in turn.

5.2 Speaker Certainty

We begin with a discussion of speaker certainty, which is typically discussed in the formal semantics literature in terms of quantificational force (e.g. Kratzer 1991). English

must, for example, is considered to be a universal quantifier, as it conveys epistemic necessity, or the speaker's certainty about the truth of what s/he is saying. English *may* and *might*, on the other hand, are existential quantifiers, or modals of epistemic possibility, expressing a lack of certainty.

We propose epistemic modals can quantify, not only over possible worlds (as is typically assumed) but also over possible eventualities. In other words, the speaker can express certainty either about the truth value of the proposition (we call this PROPOSITIONAL CERTAINTY) or about the realization of the eventuality (we call this EVENTUAL CERTAINTY). We claim that Blackfoot *na-* expresses speaker certainty about the eventuality, rather than about the proposition. A strong piece of evidence in support of this claim comes from the fact discussed in section §3.2 that *na-* is incompatible with clausal negation. If *na-* were a modal that expressed propositional certainty, then it would be possible in negative clauses which assert that the eventuality does not obtain. A speaker can be equally certain about the truth value of affirmative and negative propositions. However, as a modal that expresses eventual certainty, *na-* is only possible when there is in fact an eventuality to be certain about.

5.2.1 Contrasting Speaker Certainty: *na* vs. *aahk-*

At the level of speaker certainty, languages can make a contrast between certainty and uncertainty about the occurrence of an eventuality. Blackfoot is such a language. In addition to *na-*, which expresses speaker certainty about the occurrence of the eventuality, Blackfoot has another modal *aahk-*, which expresses speaker uncertainty.

This is listed in the Blackfoot dictionary as ‘might’ (Frantz and Russell 1995: 1) Our claim that *na-* and *aahk-* belong to the same natural class leads to the prediction that they will appear in complementary distribution. This prediction is borne out, as illustrated by the following example:

- (57) *Na Rosie (*na)ááhkikkamihpiyiwa.*
 na R aahk-ikkam-ihpiyi-wa
 DEM R might-if-dance.AI-PROX
 ‘Rosie (**na-*) might have danced.’

The characterization of the difference between *na-* and *aahk-* as expressing speaker certainty and uncertainty, respectively, is further supported by the fact that *aahk-* is possible in the complement of ‘think,’ but *na-* is not.

- (58) a. *Nitsikáánistsi’taki na Rosie (*na)ááhksoowatoomaistsi.*
 nit-ik-waanistsi’taki na R aahk-oowatoo-m-wa-istsi
 1-VX-think.AI DEM R might-eat.TI-3:INAN-PROX-3PL.PRN
 ‘I think Rosie (**na-*) ate them.’
- b. **Nitsikáánistsi’taki na Rosie náówatooma.*
 nit-ik-waanist-i’taki na R na-oowatoo-m-aistsi
 1-VX-think.AI DEM R na-eat.TI-3:INAN-3PL.PRN
 ‘I think that Rosie *na-* ate them.’

On the assumption that ‘think’ expresses lack of certainty about its complement, the modal *aahk-* in the embedded clause is compatible with the matrix predicate, but the modal *na-* is not.

5.3. Source of Inference

As pointed out in §5.1, epistemic modals denoting speaker certainty can be further distinguished along the lines of source of inference. Our consultant’s characterization of

the use of *na-* as being used “after the fact” indicates that it encodes not only certainty but also source of inference. Only “after the fact” does the speaker have access to the source of inference required to assess the degree of certainty.

In §5.2, we proposed that the speaker certainty distinction in Blackfoot is eventual, rather than propositional. Thus, sources of inference will necessarily be subtypes of the eventual distinction. In other words, the speaker can be certain that there is an eventuality, either based on observable evidence of that eventuality (analog to Palmer’s deductive) or on what is generally known (analog to Palmer’s assumptive).

We propose that in an eventuality-based modal system, the analog of the deductive/assumptive distinction is a realized/unrealized distinction. The rationale for this is that a mode that is based on observable evidence of an eventuality is only possible in the context of events that are realized, as there would be no observable evidence for an unrealized event. On the assumption that the two types of source of inference are contrastive, it follows that the alternative mode must be used in the context of unrealized events.

We hypothesize that *na-* instantiates the realized mode. Support for this claim comes from our consultant’s comments about the use of *na-*, which focus on the fact that the event has occurred:

- (59) *Na Leo násapipoommaatooma omístsi pisátssaisskístsi.*
 na L **na**-sapipoommaatoo-m-wa om-ístsi pisátssaissk-ístsi
 DEM L **na**-plant.TI-3:INAN-PROX DEM-PL flower-PL
 ‘Leo planted those flowers.’
 → RE: ‘After the fact you say, ‘Look, he planted these. There they are; they’ve grown.’

- (60) *Náísootaawa.*
na-i-sootaa-wa
na-rain.II-PROX
 ‘It rained.’
 → RE: ‘Like right now, I’m looking outside, and *náísootaawa*, it rained.’
 [HB: ‘So you say *náísootaawa* if it’s finished raining?’]
 → RE: ‘Yeah, it’s already stopped raining, but you see that the ground is wet, it rained.’

5.3.1 Contrasting Source of Inference: *na-* versus *yaak-*

Just as *na-* contrasts with the modal *aahk-* with respect to speaker certainty, *na-* also contrasts with a modal *yaak-* with respect to source of inference. *na-* and *yaak-* are in complementary distribution, as shown in (61) below.

- (61) a. *Na Rosie Áakaihpiyiwa.*
 na R **yaak-a-ihpiyi-wa**
 DEM R **UNREALIZED- IMPF-dance.AI-PROX**
 ‘Rosie will be dancing.’
- b. *Na Rosie Náihpiyiwa.*
 na R **na-ihpiyi-wa**
 DEM R **na-dance.AI-PROX**
 ‘Rosie danced.’
- c. *Na Rosie *na(y)áákihpiyiwa.*
 na R **yaak-ihpiyi-wa**
 DEM R **UNREALIZED-dance.AI-PROX**
 ‘Rosie ***na-** danced.’

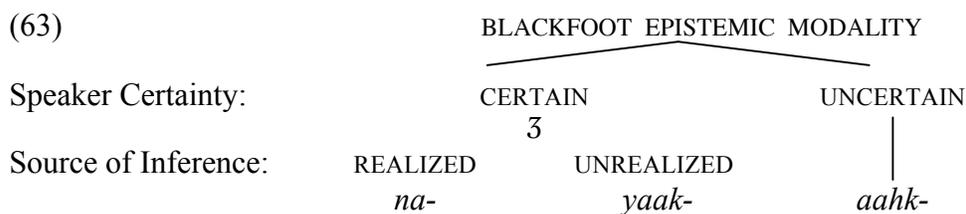
Frantz and Russell (1995: 2) list *yaak-* as a marker of future, and the use of *yaak-* in example (61)a is consistent with this characterization. The question of whether markers of future belong to a category of tense or mode is one that has been debated in the literature (e.g. Palmer 2001). We analyse the Blackfoot future marker as a modal, not only because it contrasts with *na-*, but also because it need not have a future time reference, as illustrated below.

- (62) *Nikátái'naayih_topi nitáakssakiaopii.*
 n-kátá'-inaa-yi-htopi nit-**yáak**-saki-a-opii
 1-NEG-chief-be-UNREAL 1-UNREALIZED-still-IMPF-stay.AI
 'Were I not a chief, I'd still be home.' (Frantz 1991: 85)¹¹

The sentence in (62) is a counterfactual conditional. The presence of *yaak-* in the main clause indicates that the state of being at home does not currently obtain. Comparing (61) and (62), we observe that they have different time references, but both refer to an unrealized event. This is inconsistent with a tense analysis, but follows straightforwardly from the modal analysis given here. This treatment of the distinction between *na-* and *yaak-* also sheds light on the past time restriction in the use of *na-*. Quite simply, because *na-* is only used in the context of realized events, the event must have ended before or at the evaluation time.¹² In other words, the apparent temporal contrast between *na-* and *yaak-* is simply a reflex of the realized/unrealized modal distinction.

5.4. A System of Epistemic Modality in Siksiká Blackfoot

We have argued that epistemic modality in Blackfoot expresses the speaker's attitude toward the eventuality, rather than the proposition. Analogous to Palmer's treatment of propositional modals, we have shown that there are two levels of distinction in eventual modals in Blackfoot, one expressing speaker certainty and the other expressing source of inference. Below we give the typology of Blackfoot modals developed above:



In §5.2 we showed that *na-* and *aahk-* contrast with respect to speaker certainty, and in §5.3 we showed that *na-* and *yaak-* contrast with respect to source of inference. For the sake of completeness, we now show that *aahk-* and *yaak-* are also contrastive.

The examples in (64) show that *yaak-* and *aahk-* are in complementary distribution, and that as with *na-* versus *aahk-*, the contrast is with respect to speaker certainty.

- (64) a. *Aakoksisawoo.*
yaak-oksisawoo-wa
 UNREALIZED-visit.AI-PROX
 ‘He will visit.’
- b. *Aahkoksisawoo.*
aahk-oksisawoo-wa
 UNCERTAIN-visit.AI-PROX
 ‘He might visit.’
- c. **Aakaahkoksisawoo.*
yaak-aahk-oksisawoo-wa
 UNREALIZED-UNCERTAIN-visit.AI-PROX
- d. **Aahkaakoksisawoo.*
aahk-yaak-oksisawoo-wa
 UNCERTAIN-UNREALIZED-visit.AI-PROX

The prefix *aahk-* makes no reference to source of inference. It is used to indicate the speaker’s uncertainty about the eventuality, regardless of whether it is realized, as illustrated in (65) and (66), or unrealized, as illustrated in (64)b above.

- (65) *Na Rosie ááhkikkamihpiyiwa.*
 na R **aahk**-ikkam-ihpiyi-wa
 DEM R UNCERTAIN-if-dance.AI-PROX
 ‘Rosie might have danced.’

- (66) *Nitsikáánistsi'taki na Rosie ááhksowatoomaistsi.*
 nit-ik-waanistsi'taki na R **áahk**-oowatoo-m-wa-istsi
 1-VX-think.AI DEM R **UNCERTAIN**-eat.TI-3:INAN-PROX-3PL.PRN
 'I think Rosie ate them.'

This characterization of *aahk-* also allows us to explain why *aahk-* is regularly used in desideratives, directives and requests, such as (67), (68) and (69), respectively:

- (67) *Nohkówa iksstaawa nááhkahkayssi.*
 n-ohko-wa iksstaa-wa n-**áahk**-waahkayi-hsi
 1-son-3SG want.AI-3s 1-**UNCERTAIN**-go.home.AI-CONJ
 'My son wants me to go home.' Frantz 1991: 143 (k)
- (68) *Nitáánistawa mááhksoyssi.*
 nit-waanist-a-wa m-**áahk**-ioyi-hsi
 1-say.TA-DIR-PROX 3-**UNCERTAIN**-eat.AI-CONJ
 'I told him to eat.' Frantz 1991: 142 (i)
- (69) *Nitsíkamanistomoawa mááhka'po'takssi.*
 nit-ikamanist-omo-a:-wa m-**áahk**-a'po'taki.AI-hsi
 1-ask-BEN.TA-DIR-3S 3-**UNCERTAIN**-work-CONJ
 'I asked for a job for him.' Frantz 1991: 141 (j)

The clausal complement of verbs such as *sstaat* 'want', *waanist* 'tell' and *ikamanist* 'ask' identifies a potential eventuality that is desired, and as such is far from certain. This is consistent with the observation of Frantz (1991: 142) that a verb embedded in the complement of a directive or request verb is "inflected with affixes from the conjunctive paradigm plus a prefix *aahk-* *which in some contexts seems to mean 'perhaps' or 'non-factive'* [HB&ER: emphasis added]."

In short, our treatment of Siksiká Blackfoot *na-* as an epistemic modal expressing speaker certainty about a realized eventuality not only explains otherwise puzzling restrictions on its use and interpretation, but also allows us to understand its place within the modal system of this language.

6. Historical Context: Initial Change is the Source of *na-*

In this section we turn to the question of the diachronic source of *na-*, in order to explain why this prefix is only used in the Siksiká dialect of Blackfoot. We argue that *na-* is a relatively recent innovation, and offer some speculative remarks as to its historical development. More specifically, we offer some support for a suggestion by Donald Frantz (p.c.) that *na-* has its origins in the morphophonological process of initial change common in Algonquian languages.

Initial change in Blackfoot is similar to the alternation observed in other Algonquian languages in that it involves a change in the initial vowel of prefixless verb forms, and affects vowel quantity and/or quality. Taylor (1967, 1969) offers a detailed discussion of the phenomena, based largely on his fieldwork with speakers of the South Peigan dialect of Blackfoot. He observes that Blackfoot initial change differs in important respects from the cognate phenomena in other Algonquian languages: First, it is not productive in Blackfoot, but rather lexically restricted to about a hundred known roots.¹³ Second, it is usually optional, and third, it appears on independent as well as dependent verb stems in Blackfoot.

The hypothesis that Siksiká Blackfoot *na-* has its origins in initial change comes from similarities between the two in both form and meaning. According to Taylor (1967) initial change in Blackfoot takes a variety of forms including insertion of *-ay-* (also attested in Cree, Ojibwe and Menominee), and an alternation between unchanged *ii* and changed *aa* (sometimes realized as *ai*). Members of this second group have an *n-* prefix

which is obligatory when the root is changed, but which may be absent when the root appears in the unchanged form, as illustrated in (70).

- (70) a. *Iinoyííway.* unchanged form (no nasal prefix)
 ‘He saw him.’
- b. *Niinóósa* unchanged form with nasal prefix
 ‘See thou him’
- c. *Náánoyiiway* (n+)ii → n+aa
 ‘He saw him’ Taylor 1967: 154 (Table IIIa.3)

Reasonably, *na-* originated in this second type of initial change. Taylor (1969: 123) analyses *náá-* and *nái-* as realizations of the string *nayI:*, commenting that these phonemic representations are “peculiar and unusual.” He also mentions that the contribution of the nasal is unknown.¹⁴ We speculate that Siksiká *na-* is the result of a re-analysis of the initial *n-* together the changed vowel *aa-* as an epistemic modal prefix with epistemic modal content consistent with the meaning of the derived word.

We offer three arguments in support of this hypothesis. First, Taylor (1967: 149) notes that “informants uniformly translate changed forms with English past tense verbs”, but does not analyse initial change as a type of past tense marking. Proulx (2005: 17) explains that “Blackfoot initial change usually is associated with actual as opposed to hypothetical action[...]Since it was associated with actual as opposed to hypothetical action, one would expect it to be found primarily in descriptions of past time.” Proulx’s characterization of initial change is entirely consistent with our modal analysis of *na-*.¹⁵

Our second argument is based on productivity. Synchronically, if we compare the use of the prefix *na-* to the infix *-ay-*, the two are strikingly different in the Siksiká

dialect: Siksiká *na-* is extremely productive, and can be added to any verb root, whereas *-ay-* is lexically restricted to a handful of roots.¹⁶ This observation about *-ay-* is consistent with Costa's (1996) characterization of initial change in Blackfoot as an archaism. The comparison of *na-* and *-ay-* is consistent with the claim that *na-* is not synchronically a type of initial change, but rather an innovation that developed from it. Related to this contrast in productivity is the fact, noted above, that the use of *na-* as an epistemic modal is not attested in other Blackfoot dialects. This is precisely what we would expect if this were a relatively recent innovation of the Siksiká dialect.

7. Conclusion

In conclusion, we have argued that the Siksiká Blackfoot prefix *na-* is an epistemic modal that expresses the speaker's certainty that the event or state denoted by the verb has been realized. This analysis of *na-* allows us to account for the distribution of *na-* in negative contexts, interrogative contexts, and stative predicates. We demonstrate that, although *na-* is consistently interpreted with past time reference, it cannot be analysed as a past tense marker or past time adverbial. Rather, we derive its past time interpretation from its modal content.

This analysis is consistent with Ritter & Wiltschko's (2009) treatment of Blackfoot as a tenseless language, and with their hypothesis that Person, rather than Tense, is the organizing feature that constitutes INFL, the head of the clause, in this language. Further, our suggestion that epistemic modals in Blackfoot are eventuality-based, quantifying over possible events as opposed to possible worlds, suggests that they

have a narrower scope than the more commonly studied propositional modals. This, too, is consistent with Ritter and Wiltschko's analysis, which situates the Blackfoot person prefixes (which are in complementary distribution with *na-*) in INFL rather than COMP, where modals are typically thought to be merged.

Thus, our analysis of *na-* as a eventuality-based epistemic modal fits within the emergent picture of Blackfoot clause structure. It remains to be seen whether this analysis can shed light on the sources of variation between Blackfoot and other Algonquian languages.

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¹ The following abbreviations are used in this paper: 1–first person; 2–second person; 3–third person; ADV–adverb; AI–animate intransitive; BEN–benefactive; CONJ–conjunctive; DEM–demonstrative; DIR–direct theme; II–inanimate intransitive; IMPF–imperfective; INAN–inanimate; INCL–inclusive; INV–inverse; LOC–locative; NEG–negation; NONAFFIRM–nonaffirmative; OBV–obviative; PL–plural; POSS–possessive PREF–prefix; PRN–pronominal clitic; PROX–proximate; Q–question; REL–relative; SBJN–subjunctive; SG–singular; TA–transitive animate; TI–transitive inanimate; UNSPEC–unspecified; VX–verbal prefix.

² The semantic contribution of the prefix *ik-* is yet poorly understood. Frantz (1991:93) identifies an intensifier prefix *iik-* that is used with stative verbs; when *ik-* is used with eventive verbs, it seems to have more general verbalizing function. For this reason, we have chosen to gloss it as VX ‘verbal prefix.’

³ Frantz (1991:78) observes that many consonant-initial roots have an *i*-initial allomorph when they appear in non-initial position, sometimes referred to as connective I. In our transcriptions, we include *i-* in the Blackfoot surface form (line 1), but we omit it from the Blackfoot morpheme-by-morpheme breakdown (line 2).

⁴ Comments are introduced with an arrow (→) and the consultant’s initials.

⁵ This division between polar and *when/where/how* questions on the one hand and *who/what* questions on the other is attested elsewhere in the Algonquian language family. For example, Bruening (2001) reports that in Passamaquoddy-Maliseet (Eastern Algonquian) different modes of the independent order are used for polar questions and those beginning with *when, where and how*; the conjunct order is used for ‘who’ and ‘what’ questions.

⁶ *na-* is also in complementary distribution with 3rd person *ot-*, which has a more complex distribution than *nit-* and *kit-*. For example, in matrix clauses, *ot-* occurs only in the inverse with multiple third persons, but in embedded (conjunct) clauses, *ot-* is used whenever there are only 3rd person arguments (Frantz 1991).

⁷ There is a debate in the literature as to whether the perfect is a tense or an aspect. (Iatridou et al 2001).

⁸ Another problem with the hypothesis that *na-* is a marker of perfect tense is that there are no other perfect tenses. For example, there is no distinction between present perfect and past perfect signalled by a combination of *na-* with other purported markers of past tense *ii-* (cf. Frantz 1991). Similarly, if *na-* were a perfect tense marker we might expect it to combine with the future prefix *yaak-* to produce a future perfect tense, but this is also not possible. See §5.3.1 below for discussion of the relationship between *na-* and the future marker *yaak-*.

⁹ Frantz (1991: 32-34) labels the morpheme *á-* as a durative marker. However, Dunham (2007, 2008) reanalyses it as an imperfective marker, based on the fact that it encodes both in-progress and habitual meanings, in a way parallel to imperfectives cross-linguistically.

¹⁰ Further support that *na-* is not aspectual comes from its complementarity with the person prefixes *nit-* and *kit-*, and the fact that these person prefixes block *na-* (see (45) and (46) above). Following Ritter and Wiltschko (2009), we assume that the person prefixes are merged in INFL. If *na-* were aspectual, then it would be merged in a lower functional

head, namely ASP. As such, it would either co-occur with person prefixes or it would undergo head movement to INFL and thus block the realization of the person prefixes.

¹¹ All of Frantz's examples cited in this section were confirmed with one of our Siksika consultants, Ikkinákahkomahka (Noreen Breaker). Frantz glosses *yaak-* as 'future' and *aahk-* as 'might'. We have modified the glosses to reflect our re-analysis of these prefixes as 'unrealized mode' and 'uncertain mode', respectively.

¹² This explanation of the past time restriction on *na-* would suggest that what constitutes a realized event might depend on the *aktionsart* of the event denoted. Specifically, past time reference would be required for telic events, but not necessarily for either states or atelic events. However, for reasons yet unclear, *na-* can only be used with stage-level states and activities that have ended (see (28)-(32) and (49) above).

¹³ Our own fieldwork with speakers of Kainaa and Siksiká Blackfoot suggests that, for contemporary speakers of these dialects, initial change is further restricted to a very small subset of the verbs that Taylor (1967, 1969) lists with an initial change variant.

¹⁴ Proulx (2005) analyses *nii-* and its changed form *náá-/náí* as a single prefix, noting that the function of this prefix is unknown. Regardless of whether the initial *n-* is historically part of the morpheme that undergoes initial change, the fact that it had no obvious function suggests to us that it was a prime candidate for re-analysis, together with the changed vowel.

¹⁵ Initial change may have undergone a similar kind of reanalysis in other Algonquian languages. For example, Goddard (1983) mentions a particle *na-* in Unami, an Eastern Algonquian language, which means 'it was then that' which is used to introduce a

subordinative mode verb (analogous to the Blackfoot conjunctive mode). This brief description suggests that the Unami *na-* also signals something akin to “after the fact.”

¹⁶ In fact our consultants only accepted one of the forms with *-ay-* listed in Taylor (1967, 1969): *paylim'a* ‘he came in’. This may be due to dialectal differences or to the further erosion of initial change in Blackfoot over the last forty years.