

# *Motion verbs, sentience, and event delimitedness in Blackfoot*

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## *Abstract*

This paper provides the first detailed documentation of aspectual properties of motion verbs in Blackfoot (an Algonquian language) from the Kainaa dialect. In particular, the focus of the paper is to detail how a sentient subject in this language is associated with an inherent endpoint of motion events (i.e., delimitedness). I show that in Blackfoot, an event can have a delimited construal when a sentient subject is an agent (but not a theme). A language-specific requirement for event delimitedness is thus the presence of an external argument that is sentient, which I formalize as a feature [m(ental state)] on a DP, as in Ritter (2015). A major contribution of the current study is thus to show that event delimitedness can be constrained by formal features of the external argument, whereas previously only the internal argument was thought to be involved in event delimitedness.

**Keywords:** sentience, agent, (lexical) aspect, initiation, delimitedness

## *Résumé*

Cet article fournit la première documentation détaillée des propriétés aspectuelles des verbes de mouvement dans le dialecte kainaa du pied-noir ('blackfoot'), une langue algonquienne. L'objectif précis de l'article est de détailler comment, dans cette langue, un être sensible est associé à un point final inhérent, dans le cas des événements de mouvement (c.-à-d., la délimitation). Je démontre qu'en pied-noir, un événement peut avoir une interprétation délimitée quand un sujet sensible est un agent (mais pas un thème). Une exigence propre à cette langue quant à la délimitation des événements est donc la présence d'un argument externe doté de sensibilité, que je formalise sous forme d'un trait [m] (pour 'état mental') sur un DP, comme le veut Ritter (2015). La contribution majeure de la présente étude est donc de montrer que la délimitation des événements peut être contrainte par certains traits formels de l'argument externe, alors qu'auparavant, seul l'argument interne était jugé comme intervenant dans la délimitation des événements.

**Mots-clés:** sensibilité, agent, aspect (lexical), initiation, délimitation

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## 1. INTRODUCTION

This article provides the first detailed linguistic description of motion verbs in the Kainaa dialect of Blackfoot, a Plains Algonquian language spoken in Southern Alberta and North-western Montana.<sup>1</sup> The particular focus of this article is twofold. One is to describe how an inherent endpoint of a motion event can be expressed in Blackfoot; this endpoint will be shown to be associated with the presence of a certain type of an external argument, that is, a sentient DP that is an agent. The other is to provide a formal analysis of the association between a sentient external argument and an inherent endpoint of the motion verbs.

Lexical aspect (henceforth, aspect) refers to the internal temporal properties of the event described, where the properties of an event are determined not by a verb alone, but by the verb and its internal argument, that is, a VP (Verkuyl 1972, Dowty 1979, van Voorst 1988, Tenny 1994). An event can be minimally described in terms of whether or not it has a distinct or inherent endpoint. Following Tenny (1994), I refer to this property of an event as delimitedness.<sup>2</sup> For instance, a goal PP of a motion event can indicate that an event is delimited (Dowty 1979, Jackendoff 1990, Pustejovsky 1991, Smith 1991, Tenny 1994, Borer 2005, Ramchand 2007, MacDonald 2008a, Travis 2010 among many others). Consider the English examples in (1). The sentence in (1a) expresses an event of ‘the ball rolling’. The event in (1a) is considered to be non-delimited without an endpoint; it is not specified when the event of rolling finished, that is, was completed. However, the event can become delimited by the addition of a goal PP such as ‘into the river’ as shown in (1b): the event of the ball rolling was completed by the time the ball reached the river. Although the details differ, this type of a goal PP that marks an endpoint has been proposed to be VP-internal (e.g., Borer 2005, Ramchand 2007, MacDonald 2008a, Tungeth 2008, Travis, 2010). Following these previous studies, I assume that a goal PP that marks an endpoint belongs to a VP-internal position.

- (1) a. The ball rolled.  
 b. The ball rolled into the river.

The data in (1) shows that an internal argument such as a goal PP (1b) alone can be associated with event delimitedness of the VP. However, as will be shown in this article, an internal-goal PP in Blackfoot cannot appear without a certain type of a subject, namely a sentient DP, and it is further shown that the sentient subject in question has to be an agent (not a theme). Sentience refers to real-world or semantic

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<sup>1</sup>The following abbreviations are used in the article: 3: third person; AI: Animate Intransitive; AN: animate; ACCOMP: accompaniment; ASSOC: associative; DEM: demonstrative; FP: functional projection; II: inanimate intransitive; IMP: imperfective; IN: inanimate; LOC: locative; NEG: negative; SG: singular; TH: theme.

<sup>2</sup>Temporal adverbials such as ‘in/for X time’ are often used to identify delimitedness of a given event (Dowty 1979, Tenny 1987, Pustejovsky 1991 among others). However, this test does not serve to identify delimitedness in Blackfoot (Algonquian), the language that the present analysis is based on (see Kim 2017 for relevant data).

animacy, or the ability to sense or perceive (Speas and Tenny 2003). To illustrate, some of the core data of Blackfoot are provided in (2) (see section 4 for details, and Table 3 for a summary).<sup>3,4</sup> The goal PP ‘to that hill’ is allowed with the sentient subject *anna sahkomaapi* ‘the boy’ as shown in (2a), but it cannot appear when the subject is non-sentient *anna pokon* ‘the ball’ as the ungrammaticality of the sentence in (2b) suggests. This article demonstrates that a sentient subject such as ‘the boy’ in (2a) has to be an agent to delimit the event by allowing a goal PP.

- (2) a. *Anna sahkomaapi itapoowa oomi isspahkoyi.*  
 anna sahkomaapi itap-oo-wa oomi isspahkoyi  
 DEM boy.AN GOAL-go.AI-3SG DEM hill.IN  
 ‘The boy went to that hill.’ Kim 2015b:131
- b. \**Anna pokon itapinnoowa oomi isspahkoyi.*  
 anna pokon itap-inn-oo-wa oomi isspahkoyi  
 DEM ball.AN GOAL-down-go.AI-3SG DEM hill.IN  
 Intended: ‘The ball went to that hill.’

Building on this type of data, I propose that in Blackfoot, event delimitedness is associated with a sentient external argument. I further propose that such a sentient external argument is an event initiator (initiator, henceforth), and as such it has a determining role in the delimitedness of VP, as in Ritter and Rosen (2000). Under the proposed account, aspect in Blackfoot is initiation-oriented with a language-specific requirement that an initiator be sentient. The association between a sentient subject and event delimitedness in Blackfoot is not exactly the same as in English, where an event can be delimited by adding a direct object (e.g., ‘John painted’ vs. ‘John painted a portrait’). As will be shown in section 4 (also, see section 2), event delimitedness in Blackfoot can be understood as being less direct than in English, as pointed out by an anonymous reviewer: the delimitedness interpretation of the VP indicated by a goal PP is visible only when a particular type of a subject, a sentient agent, is present.<sup>5</sup>

My proposal that Blackfoot aspect is sentient initiator-oriented constitutes strong empirical support for the prevailing view in which grammar of Blackfoot is sentence-dominant (e.g., Frantz 2009, Johansson 2009, Meadows 2010, Ritter and

<sup>3</sup>Throughout this article, Blackfoot examples are presented with an additional first line which indicates the orthographic spelling following Frantz (2009) without pitch accent; however, I followed my consultants’ orthography whenever it differed from Frantz’s orthography. If not otherwise indicated, the data presented in this article are from author’s fieldwork with speakers of the Kainaa dialect.

<sup>4</sup>Morpheme breakdowns in this article are not exhaustive and morphemes irrelevant to this article are not indicated.

<sup>5</sup>An anonymous reviewer suggests that Irwin (2019), which shows that a certain type of a subject allows event delimitedness interpretation of VP, is relevant. For example, a subject with a whole-body interpretation (e.g., ‘The little boy danced into the room’) is associated with event delimitedness, in contrast to a subject with a body part interpretation (e.g., ‘The little boy smiled into the room’). In this case, ‘the little boy’ did not enter the room, unlike ‘the little boy’ who danced into the room.



a (volitional) agent, cause, or instrument. The range of thematic roles that an initiator may have is not the same across languages; for example, in some languages, but not in others, a cause or an instrument is allowed as an event initiator. Note that there is no assumption in either this article or in Ritter and Rosen (2000) that an initiator or an agent has to be sentient. In Ritter and Rosen (2000), not all initiators are agents and an initiator need not be sentient; for example, an instrument can act in this role. Languages differ as to which thematic roles can be an initiator and as to whether sentience is required or not. In section 4, I show that Blackfoot is a language that requires the agent to be an initiator. Moreover, sentience is shown to be a language-specific property of initiators.

Under the event structure discussed above, it has been proposed that languages can vary as to whether initiation, or delimitedness, is the more active (Ritter and Rosen 2000): I (initiation) languages vs. D (delimitation) languages. Under this view of variation, languages can have only one functional head specified for the relevant feature, either [initiation] on  $F_{\text{init}}$  or [delimited] on  $F_{\text{delim}}$ . In a D-language such as English, the feature [delimited] is specified on  $F_{\text{delim}}$ , but the feature [initiation] on  $F_{\text{init}}$  is not. Thus, a delimited event in a D-language is available without an initiator as long as an internal argument that satisfies the feature [delimited] on  $F_{\text{delim}}$  exists. For example, the goal PP ‘into the river’ in (1) delimits the event, even though the subject ‘the ball’ is not an initiator.

In an I-language, on the other hand, Ritter and Rosen (2000) proposed that  $FP_{\text{delim}}$  lacks an inherent [delimited] feature, and thus,  $F_{\text{delim}}$  alone cannot indicate that an event is delimited. Instead, an event can be delimited only if an initiator licensed by the feature [initiation] on  $F_{\text{init}}$  is present (though note that it is not the case that the presence of an initiator always induces a delimited event).<sup>6</sup> Thus, in an I-language, it is predicted that the presence of a delimiting phrase such as a goal PP is not sufficient to delimit an event; an initiator has to be present. I will show that this prediction is borne out by the data from Blackfoot. According to Ritter and Rosen (2000), in an I-language where agency is a factor for an initiator, only an agent ( $DP_{\text{ag}}$ ) can raise to the specifier of  $FP_{\text{init}}$  to obtain an event role of initiator. A non-agentive DP cannot raise to the specifier of  $FP_{\text{init}}$  and thus cannot be an initiator; a non-initiator remains below in  $vP$ .

I argue that Blackfoot is an I-language, since aspect, in Blackfoot, is initiator-oriented; that is, the feature [initiation] is active, but not the feature [delimited]. Thus, the delimitedness interpretation of a goal PP of a motion event in the language can be visible only when a sentient initiator is present (see (2a) vs. (2b)). Just as only certain kinds of internal arguments delimit events in D-languages (e.g., goal PPs in English), only certain types of external arguments initiate events in I-languages. Specifically for Blackfoot, event initiators must be sentient and have an agent role.

I would now like to briefly discuss proposals that distinguish between the external argument introducing heads Voice and  $v$ , (Alexiadou et al. 2015, Tollan and

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<sup>6</sup>An event can have an initiator with or without a delimiter (i.e., an object or a goal PP) in both I-languages and D-languages (e.g., ‘John ran to the store’ vs. ‘John ran’, where ‘John’ is an initiator).

Oxford 2018). The core proposal of these studies is that an agent appears in a structurally higher position than a causer or a doer does. Specifically, an agent appears in the specifier of VoiceP, and a causer or a doer appears in the specifier of  $\nu$ P. Regarding an event initiator in an I-language, which allows only an agent argument to be an initiator, these proposals predict that an agent introduced by VoiceP can be an event initiator, but that a non-agent introduced by  $\nu$ P cannot. Interestingly, Tollan and Oxford (2018) proposed that the distinction between Voice and  $\nu$  is supported by data from Plains Cree and Oji-Cree, two Algonquian languages. As Blackfoot is also part of this family, it is reasonable to think that it may also have a similar distinction between Voice and  $\nu$ . If so, event initiators in Blackfoot originate from agents in the specifier of VoiceP, but those in the specifier of  $\nu$ P cannot be event initiators. I agree that the distinction between an agent and a non-agent occurs in Algonquian languages; this distinction is visible in Blackfoot, as suggested by the data shown here, but at this stage it is unclear whether the heads Voice and  $\nu$  are the relevant heads for agent and non-agents in Blackfoot in the same way as proposed in Tollan and Oxford (2018). This is because the core evidence for the distinction between Voice and  $\nu$  in Algonquian provided in Tollan and Oxford (2018) does not fit with the Blackfoot data discussed in this article (see footnote 7 in the next section). Thus, I leave this issue for further research.

### 3. BACKGROUND ON BLACKFOOT

This section discusses some properties of Blackfoot grammar that will provide a basis for the understanding of the discussion in the rest of the article. The focus is on animacy and verb classification.

Blackfoot grammar distinguishes two types of animacy (e.g., Bliss 2007; Frantz 2009; Ritter and Rosen 2010; Wiltschko and Ritter 2015; Kim 2014b, 2018), namely grammatical animacy and semantic animacy. Grammatical animacy determines noun class and is morphologically reflected on agreement, for example, on a verb (see the discussion on verb classification below). Nouns are categorized into two grammatical classes: animate and inanimate. Nouns in the grammatically inanimate class are ontologically inanimate objects or things. Nouns in the grammatically animate class may be humans or animals such as *saahkomaapi* ‘boy’, but may also be certain inanimate things. For instance, nouns such as *ainaka’si* ‘wagon’ belong to the grammatically animate noun class. All grammatically animate nouns use the same plural marking *-iksi*, as in *saahkomaapi-iksi* ‘boy-s’ and *ainaka’si-iksi* ‘wagon-s’. Grammatically inanimate nouns such as *napioyis* ‘house’ use a different plural marking from grammatically animate nouns; that is, *-istsi*, as in *napioyis-istsi* ‘house-es’.

Unlike grammatical animacy, semantic animacy refers to real-world animacy. A human or animal is viewed as semantically animate, but an object or a thing is not. Among the semantically animate nouns, those that have the ability to sense or perceive (Speas and Tenny 2003) are referred as *sentient* nouns in the literature on Blackfoot, as mentioned in section 1. In previous studies, only sentient nouns are shown to play important roles in various parts of Blackfoot syntax (e.g., Bliss 2007; Meadows 2010; Ritter and Rosen 2010; Kim 2014b, 2015b, 2017, 2018;

Wiltschko and Ritter 2015). Wiltschko and Ritter (2015) suggest that the aforementioned studies show that only sentient arguments are visible to narrow syntax. By providing novel evidence from motion verbs, the present article makes the significant contribution that event delimitedness in the Blackfoot language is also sentient-oriented.

The grammatically animate class in Blackfoot includes both sentient nouns and some non-sentient ones, while the grammatically inanimate class includes non-sentient nouns only. For instance, in Blackfoot, the noun *ainaka'si* 'wagon' is semantically inanimate and non-sentient, but it is grammatically animate.

Grammatical animacy of a subject or an object in Blackfoot is morphologically reflected in a verbal suffix called a *final*. Final morphemes in Blackfoot are suffixes to a root verb; they indicate the grammatical animacy of the subject (S) or the object (O) as well as the transitivity of the verb (Frantz 2009). Throughout this article, (in)animate refers to grammatical (in)animacy (as opposed to non-sentience). The forms of the finals vary according to the verb that they attach to and are often not easily separable from a verb. In many cases, the forms of the finals are suppletive. To illustrate, consider the data in (4). The verb *sspitta* 'tall' in (4a) is in an Animate Intransitive (henceforth AI) final form, which indicates that the verb is intransitive and the subject noun is animate. The animate DP 'that boy' in (4a) can appear as a subject, but the inanimate DP 'that house' is not allowed as the subject of the AI verb. A grammatical example of the inanimate DP 'that house' as a subject is shown in (4b) with a corresponding Inanimate Intransitive (henceforth II) verb *sspiti*.

- (4) a. *Anna saahkomaapi iiksspitaawa.*  
 anna saahkomaapi/\*anni napioyisi iik-sspitaawa  
 DEM boy.AN/ DEM house.IN very-tall.AI-3SG  
 'That boy is tall.'/\* 'That house is tall.'
- b. *Anni napioyisi iiksspitiwa.*  
 anni napioyisi iik-sspitiwa  
 DEM house.IN very-tall.II-3SG  
 'That house is tall.'

There are four types of finals in Blackfoot (Frantz 2009) including AI and II forms, like other Algonquian languages (see Bloomfield 1946). As motion verbs in Blackfoot discussed in this article are all AI verbs (see section 4), I do not discuss the other two types of finals: finals that indicate that the verb is transitive, and those who indicate the grammatical animacy of the object.<sup>7</sup>

The number and person suffixes on the verb in Blackfoot cross-reference arguments of the verb. For example, in (4), the suffix *-wa* on the AI verb 'tall' indexes the third person singular subject. Furthermore, for intransitive verbs such as AI or II

<sup>7</sup>In Tollan and Oxford (2018) (see section 1), Voice and *v* heads in Algonquian have different morphological marking. The head *v* is the locus of a final morpheme. However, in Blackfoot, motion verbs that allow an agent subject and those that do not are both marked with AI final morpheme (see section 4). As for Voice, it is proposed to be marked with a theme marker available in Algonquian languages with transitive verbs only. AI motion verbs in Blackfoot are all intransitives and thus they are lacking theme markers.

verbs, only a 3<sup>rd</sup> person subject is indexed on the verb as a suffix; for instance, first person is not indexed on the verb as a suffix. This article does not discuss these suffixes or the differences between 3<sup>rd</sup> and other persons with respect to the indexing on the verb, as they are not relevant to the issues, such as delimitedness or VP, that are discussed in this article.

#### 4. SENTIENCE, DELIMITEDNESS, AND MOTION EVENTS

In this section, I demonstrate that a goal PP in Blackfoot only occurs when an initiator is present, supporting the proposal that aspect in Blackfoot is initiator-oriented. I show that Blackfoot is a type of I-language where an initiator is an agent, and that this initiator must be sentient.

##### 4.1 Inherently directed vs. manner of motion verbs with a PP

The central proposals discussed in this article stem from the existence of two types of motion verbs in Blackfoot: a) inherently-directed motion verbs such as ‘go’, ‘descend’, or ‘climb’ and b) manner-of-motion verbs such as ‘roll’ (in the sense of Levin 1993). The main goal of this section is to establish basic properties and structures of those two types of motion verbs along with verbal prefixes associated those verb types, building on the works of Kim (2014a, 2015a, b). In the discussion to follow, inherently-directed motion verbs are referred as GO-type verbs, and the manner verbs are referred to as ROLL-type verbs. In Blackfoot, GO-type verbs such as ‘come’, ‘descend’, ‘ascend’ or ‘climb’ are expressed by the root verb *oo* ‘go’ prefixed with a direction prefix; for example, *waamis-oo* (up-go) ‘ascend/climb’ (see (4a)) or *sainnis-oo* (down-go) ‘descend’. In this article, I illustrate examples of GO-type verbs with the verb *oo* ‘go’.

Before discussing the GO- and ROLL-type motion verbs central to the analysis, I discuss the use of two different types of verbal prefixes that appear with these motion verbs (Frantz and Russell 1995; Kim 2015a, b). The first is a goal prefix *itap-* ‘to’ and the second is one of a large set of direction prefixes. The goal introduces a goal DP only when it is prefixed to a GO-type verb (so **not** with a ROLL-type verb; see discussion of example (6b)). By contrast, a direction prefix indicates only a direction and cannot introduce a goal DP. An example of each type is illustrated in (5a) and (5b) respectively, with the GO-type verb *oo* ‘go’:

- (5) a. *Anna saahkomaapi itapowa oomi isspahkoyi.*  
 anna saahkomaapi **itap**-oo-wa oomi isspahkoyi  
 DEM boy.AN GOAL-go.AI-3SG DEM hill.IN  
 ‘The boy went to that hill.’ Kim 2015b: 131
- b. *Anna saahkomaapi aamisoowa.*  
 anna saahkomaapi **waamis**-oo-wa (\*oomi isspahkoyi)  
 DEM boy.AN up-go.AI-3SG (DEM hill.IN)  
 Lit. ‘The boy moved upwards.’



In (5a), the prefix *itap-* has a goal meaning ‘to’ and introduces the endpoint *oomi isspahkoyi* ‘that hill’ to the motion event.<sup>8</sup> An endpoint introduced by the prefix *itap-* can be omitted (see (7)). In contrast, in (5b), a direction prefix *waamis-* ‘up’ appears on the verb, and as indicated in the example, it cannot introduce a goal of the direction such as ‘that hill’. Following the previous literature, I assume that the prefixes like those in (5) appearing with motion verbs instantiate a P head (Frantz 2009, Kim 2014a).

As discussed earlier, the P *itap-* has a goal meaning when it is prefixed to a GO-type verb. However, when prefixed to a ROLL-type verb, it is shown to have a direction (‘toward’) meaning, but not a goal meaning (Kim 2015b), similar to ‘toward’ in English (Jackendoff 1983). For example, in a GO-type motion verb (6a), an *itap* PP indicates a goal, giving rise to a delimited meaning of the event: the event ‘going to the river’ is completed when John has reached ‘the river’.

- (6) a. *Anna John itapoowa anni niitahtaayi.*  
 anna John **itap-oo**-wa anni niitahtaayi  
 DEM John GOAL-go.AI-3SG DEM river.IN  
 ‘John went **to** the river.’ adapted from Kim 2015b
- b. *Anna oohkotok itapinninaka’siwa anni niitahtaayi.*  
 anna oohkotok **itap-inn-inaka’si**-wa anni niitahtaayi  
 DEM stone.AN toward-down-roll.AI-3SG DEM river.IN  
 ‘The stone rolled down **toward** the river.’ adapted from Kim 2017

On the other hand, the prefix *itap-* merely indicates a direction ‘toward’ when it appears with a ROLL-type such as *inaka’si* ‘roll’, as illustrated in (6b). In this case, *itap-* introduces a DP ‘the river’ which indicates only a direction of the motion denoted by the verb, supported by the fact that the event of ‘rolling’ in (6b) is considered to be non-delimited. The event took place ‘toward’ the river, but it is not specified whether the event has been completed there. Kim (2015b) proposes that this difference in delimitedness arises from two different meanings of *itap-*, modelled on the differences between ‘to’ (delimited) and ‘toward’ (non-delimited) proposed for English in Jackendoff (1983). For now, I adopt this proposal. In section 4.3, however, I show that the difference in delimitedness between the two different meanings of *itap-* is borne out by Blackfoot-specific evidence, providing language-specific diagnostics to determine whether an *itap*-PP denotes a goal or a direction. Importantly, building on the results of diagnostics, I demonstrate in section 4.4 that only a goal *itap*-PP such as in (6a) contributes to event delimitation, and only when a sentient initiator is present.

Another thing to note is that to a ROLL-type verb as in (6b) obligatorily requires a direction prefix such as *inn-* ‘down’ that cannot introduce a DP, the locus of the direction, like *waamis-* ‘up’ in (5b). The sentence is ungrammatical without this type of direction prefix, even if the direction P *itap-* is present (*\*itap-inaka’si-wa anni niitahtaayi*).

<sup>8</sup>In the literature on Blackfoot, an *itap*-type prefix is called a linker, and a *waamis-* type prefix is called a non-linker (Frantz 2009).

The two types of motion verbs also differ in that GO-type motion verbs require either a goal *itap*-P, as shown in (7a), or a direction prefix, as in (7b). This is true even when the goal DP introduced by the *itap* prefix is omitted, as in (7a). In contrast, with ROLL-type motion verbs, a direction *itap*-PP (both the prefix and DP) is optional, as shown in (7c) (Kim 2015b).

- (7) a. *Anna John itapoowa anni niitahtaayi.*  
 anna John \*(itap)-oo-wa (anni niitahtaayi)  
 DEM John GOAL-GO.AI-3SG DEM river.IN  
 ‘John is going to the river.’ Kim 2015b: 128
- b. *Anna saahkomaapi aamisoowa.*  
 anna saahkomaapi \*(waamis)-oo-wa  
 DEM boy.AN up-GO.AI-3SG  
 Lit. ‘The boy moved upwards.’
- c. *Anna oohkotok itapinnaka’siwa anni niitahtaayi.*  
 anna oohkotok (itap)-jinn-inaka’si-wa (anni niitahtaayi)  
 DEM stone.AN (toward-)down-roll.AI-3SG DEM river.IN  
 ‘The stone rolled down (**toward** the river).’ adapted from Kim 2018

Following Kim (2014a, 2015b) and as also assumed for similar types of PPs in other languages (Baker 1996, Tungseth 2008), I assume that obligatory goal PPs are internal to the VP (similar to an object), while optional goal PPs are adjuncts.<sup>9</sup> Thus, the *itap*-PP can be treated as an argument of the GO-type motion verb in (7a), but an adjunct to the ROLL-type motion verb in (7c). Note that this distinction does not mean that an *itap*-PP has the same syntactic properties (such as an agreement) as the object of a transitive verb in the language (see relevant discussion in section 4.4).

The proposals made later in this section are built on the structure of *itap*-PP as proposed in Kim (2014a) whose analysis adopts the widely held proposal that a spatial P has an extended projection such as *p* (e.g., van Riemsdijk 1990, Rooryck 1996, Svenonius 2003 among others). The structure is illustrated in (8).

- (8) [<sub>pP</sub> Figure                      *p*    [<sub>PP</sub> P    Ground]]  
*Anna John* ‘John’ *itap-* <*itap-*> *anni niitahtaayi* ‘the river’  
 Kim 2017: 128

In (8), *itap*- instantiates P which moves to a functional *p*. The head *p* introduces a Figure in its specifier, and a Ground as a complement PP. A Figure is an entity in motion or an entity that is located with respect to the Ground (Talmy 1985). The Ground is a location of the Figure. For instance, in (8), ‘John’ is a Figure in motion occupying the specifier of *pP*. The DP ‘the river’ is the Ground where the Figure ‘John’ is located, and it occupies the complement of P.

<sup>9</sup>An obligatory goal PP can be extracted like a subject or an object in Blackfoot, according to my consultants (see also Frantz 2009). Iteration is not possible with an obligatory goal PP for my consultants. I also tested iteration and extraction with an optional goal PP, but the judgements were not as consistent as they were for an obligatory goal PP; this calls for further research. However, the difference in the judgements suggests that the two types of goal PPs do not have the same status, as argued here.

AI motion verbs Types of prefixes	GO-type <i>oo</i> ‘go’	ROLL-type <i>inaka’si</i> ‘roll’
<b><i>itap</i> prefix</b>	-Obligatory -Goal meaning (‘to’)	-Non-obligatory -Direction meaning (‘toward’)
<b>Direction prefix</b>	-Obligatory (e.g., <i>waamis-</i> ‘up’)	-Obligatory (e.g., <i>inn-</i> ‘down’)

**Table 1:** Two types of AI motion verbs with respect to verbal prefixes

Table 1 summarizes the distribution of the two different types of motion verbs with respect to the verbal prefixes discussed in this section. There are two types of prefixes: (i) an *itap*- prefix that can indicate either a goal or a direction and (ii) a direction prefix. The former introduces a DP of goal or direction, while the latter cannot introduce a DP goal or direction (not indicated in the Table below). Regarding the obligatoriness of these prefixes, GO-type verbs require one of the two, but not both.

#### 4.2 Sentience, a goal phrase, and feature [m(ental state)]

The motion verbs in Blackfoot discussed in this article belong to the AI class, meaning that the subjects of the motion verbs are animate but can be either sentient or non-sentient (see section 3).<sup>10</sup> This is illustrated in (9a) and (9b): the animate subject, *saahkomaapi* ‘boy’, in (9a) is sentient, and the animate subject, *ainaka’si* ‘wagon’, in (9b) is non-sentient. Note that GO-type motion verb *oo* ‘go’ is prefixed with direction prefix *waamis* ‘up’ in both cases of (9). These examples show that with a direction prefix, a GO-type verb can appear with either a sentient or non-sentient subject.

- (9) a. *Anna saahkomaapi aamisoowa.*  
 anna saahkomaapi waamis-oo-wa  
 DEM boy.AN up-go.AI-3SG  
 Lit. ‘The boy moved upwards.’
- b. *Anna ainaka’si aamisoowa.*  
 anna ainaka’si waamis-oo-wa  
 DEM wagon.AN up-go.AI-3SG  
 Lit. ‘The wagon moved upwards.’

On the other hand, GO-type motion verbs impose a sentience restriction on their subjects when they appear with a goal prefix *itap*- (Kim 2015b), as shown in (10). In (10a), the subject is a sentient DP ‘the boy’ and the goal is ‘that hill’ introduced

<sup>10</sup>There are motion verbs that belong to the II class; however, they are scarce (see Frantz and Russell 1995 for data).

by *itap-*. However, the utterance becomes ungrammatical when the subject is switched to a non-sentient but animate DP ‘that wagon’ as in (10b).

- (10) a. *Anna saahkomaapi itapoowa oomi isspahkoyi.*  
 anna saahkomaapi itap-oo-wa oomi isspahkoyi  
 DEM boy.AN GOAL-go.AI-3SG DEM hill.IN  
 ‘The boy went to that hill.’

- b. \**Anna ainaka’si itapoowa oomi isspahkoyi.*  
 anna ainaka’si itap-oo-wa oomi isspahkoyi  
 DEM wagon.AN GOAL-go.AI-3SG DEM hill.IN  
 Intended: ‘The wagon moved to that hill.’

Kim 2015b:131

Building on Kim (2014a, 2015a, b), this article shows that the sentience restriction exhibited by GO-type motion verbs as in (10) is required only when a goal *pP* appears, as shown by the fact that the non-sentient subject ‘wagon’ is grammatical with the same type of motion verb in the absence of a goal *pP*, as illustrated in (9b). The contrast between (9) and (10) suggests that a GO-type motion verb requires a sentient subject in order to indicate an endpoint of an event, that is, a goal of motion.

The current article further provides new data on ROLL-type motion verbs. The properties of ROLL-type motion verbs are significant to the core proposal of this article, as a ROLL-type verb shows a contrast from a GO-type verb with respect to sentient subjects. With a ROLL-type motion verb, subjects are not required to be sentient, in contrast to a GO-type motion verb. As illustrated in (11), for instance, either a sentient DP ‘the boy’ (11a) or a non-sentient DP ‘the ball’ (11b), both of which are animate, can appear as a subject of the AI verb ‘roll’ (the meaning of the subject of a ROLL-type verb will be shown in section 4.4). Note that without direction *itap-pP*, optional with a ROLL-type verb, the sentences in (11) are grammatical.

- (11) a. *Anna saahkomaapi itapinninaka’siwa anni niitahtaayi.*  
 anna saahkomaapi itap-inn-inaka’si-wa anni niitahtaayi  
 DEM boy.AN toward-down-roll.AI-3SG DEM river.IN  
 ‘The boy rolled down toward the river.’

- b. *Anna pokon itapinninaka’siwa anni niitahtaayi.*  
 anna pokon itap-inn-inaka’si-wa anni niitahtaayi  
 DEM ball.AN toward-down-roll.AI-3SG DEM river.IN  
 ‘The ball rolled down toward the river.’

Summarizing the data thus far, the sentences in (9)–(10) show that a GO-type motion verb can indicate a goal of motion via *itap-pP* only when its subject is a sentient DP. With a ROLL-type motion verb as in (11), *itap-pP* indicates direction of motion, and there is no sentience restriction on the subject. The sentience restriction on the subject imposed by different motion verbs is summarized in Table 2 below.

I propose that the sentient property of an argument in Blackfoot is represented by the feature [m(ental state)] (Reinhart 2002) in line with Ritter (2015) and Wiltschko and Ritter (2015).<sup>11</sup> In Reinhart (2002), the feature [m] represents a sentient

<sup>11</sup>In Wiltschko and Ritter (2015), the relevant sentient arguments belong to ‘H(igh)-Animacy’ nominals which include humans, animals, and spirits, and are indicated as H-

Subject AI motion verbs	Sentient animate	Non-sentient animate
<b>GO-TYPE, <i>oo</i> 'go'</b>		
direction prefix (e.g., <i>waamis-</i> 'up')	✓	✓
<i>itap-</i> GOAL prefix	✓	✗
<b>ROLL-TYPE, <i>inaka'si</i> 'roll'</b>		
direction prefix (e.g., <i>inn-</i> 'down')	✓	✓
<i>itap-</i> direction prefix	✓	✓

**Table 2:** Sentence restriction in the motion verbs

participant whose mental state is relevant to the event such as those indicated by VPs, which can be either agentive or non-agentive (e.g., an experiencer). It is important to keep in mind that sentience represented by an [m] feature indicates that an argument it indexes is a mental state holder; but the feature itself does not imply agency.<sup>12</sup> A DP with [m] feature in Blackfoot is indexed as a sentient DP, not necessarily as an agent DP. In the next section, a sentient subject that licenses a goal *pP* (e.g., a subject of a GO-type verb) is shown to be an agent, in contrast to a sentient subject that cannot license a goal *pP* (e.g., a subject of a ROLL-type verb).

In Blackfoot, as shown by the contrast between (9) and (10), only a sentient subject of a GO-type motion verb allows a goal *pP*; a non-sentient subject does not. I propose that a goal *p* requires a sentient argument in its specifier; that is, in terms of the feature [m], the specifiers of goal *p* require a DP that bears the feature [m]. The current proposal on the sentience restriction of goal *pP* shown with the motion verbs is in line with the configurational property of Blackfoot proposed in Wiltschko and Ritter (2015) in which a certain set of functional heads in the language requires a sentient argument in its specifiers.

In the domain of the motion verbs discussed in this section, the relevant functional head that requires a sentient DP is a goal *p*, and the *p* required by a GO-type motion verb imposes a restriction on its specifier to be filled with a DP, that is, a DP with the [m] feature. Following Ritter (2015), I assume that a sentient DP is in a selectional relationship with a relevant functional head in terms of a feature-checking relation, as schematically illustrated in (12b) below.<sup>13</sup> Implementing this assumption for GO-type motion verbs, I propose that a head *p* realized by *itap-* bears an

indexed. In this article, I use the feature [m] as in Ritter (2015). Regarding the proposals made in this article, nothing hinges on the different terminological use.

<sup>12</sup>As a reviewer mentioned, this predicts that a grammatically animate non-sentient argument (e.g., 'wagon') will pattern with a sentient argument if it is contextually given mental state. This prediction is borne out by the data. It has been shown that a DP such as 'wagon' in Blackfoot is allowed to license a goal *pP* only in a context where such a DP is personified; for example, *Thomas the Tank Engine* in a cartoon context (see Kim 2017 for details).

uninterpretable [m] feature, [*um*], which is in feature-checking relation with [m] on a sentient DP that merges in its specifier, as illustrated in (12b). If, instead of a sentient DP ‘that boy’, a non-sentient DP such as ‘the wagon’ appears in the specifier of *pP*, as in (12c), the derivation crashes, as it does not have the feature [m] to check [*um*] on *p*. The contrast between the derivations in (12b) and (12c) captures the fact that with GO-type motion verbs, only a sentient argument allows a goal *pP*.

- (12) a. *Anna saahkomaapi itapoowa oomi isspahkoyi.*  
 anna saahkomaapi itap-oo-wa oomi isspahkoyi  
 DEM boy.AN GOAL-go.AI-3SG DEM hill.IN  
 ‘The boy went to that hill.’ Kim 2015b: 131
- b. [<sub>VP</sub> V [<sub>pP</sub> DP [m] *p* [~~##~~] [<sub>PP</sub> P DP]]]  
*oo*‘go’ ‘the boy’ *itap-* <*itap-*> ‘that hill’
- c. \* [<sub>VP</sub> V [<sub>pP</sub> DP *p* [*um*] [<sub>PP</sub> P DP]]]  
*oo*‘go’ ‘the wagon’ *itap-* <*itap-*> ‘that hill’

In the next two sections, I further develop the proposed structure of the GO-type motion verbs in (12b). I demonstrate that this structure is associated with delimitedness, made available by a sentient initiator, in contrast to the structure of ROLL-type motion verbs.

### 4.3 Delimitedness in motion verbs

In this section, I provide Blackfoot-specific evidence to show that an *itap-pP* yields a delimitedness interpretation of a motion event when it expresses a goal meaning, but not when it expresses a directional meaning. That is, an *itap-pP* that expresses a goal meaning can indicate that an event has reached a final point such that the event is completed, unlike an *itap-pP* that expresses a directional meaning. It is important to keep in mind that the delimitedness interpretation of *itap-pP* is visible only when a sentient initiator is present, as will be shown in section 4.4. The difference in meaning between the *itap-pPs* has been assumed in Kim (2015b, 2017) relying on English data in Jackendoff (1983).

Novel evidence for Blackfoot provided in this section builds on two diagnostics that identify whether an endpoint of a predicate is semantically present or not, like the diagnostics used in previous studies (e.g., Matthewson 2004, Bar-el 2005, Bar-el et al. 2005, Travis 2010). Before the discussion of new evidence from Blackfoot that is the central part of this article, I provide some background on these diagnostics from the previous studies. The two tests are: (i) culmination cancellation, and (ii) event continuation, from Bar-el (2005). These tests are illustrated in (13a) and (13b) respectively.

- (13) a. Culmination cancellation  
 # The president was assassinated... but he isn’t dead.
- b. Event continuation  
 He/She X-ed, and (maybe) he/she is still X-ing. Bar-el 2005

A culminated event has an inherent endpoint, which suggests that it is delimited. For example, in (13a), the first conjunct expresses a culminated event, assassination

of the president. If the culminated portion of the event is an entailment, cancelling the portion results in a contradiction, as shown by the second conjunct in (13a), which cancels the assassination of the president, resulting in a contradiction (indicated by #). In this way, the culmination cancellation test shows whether the event in question has an endpoint. The event continuation test in (13b) indicates whether the event in question is ongoing or not. An ongoing event can be continued with a progressive phrase, while a delimited event is incompatible with such a continuation, suggesting that it has an endpoint. For these diagnostics to work, the event in question (in the first conjunct, as in (13)) should be expressed as a perfective (e.g., see Bar-el 2005). Following Dunham (2007) and Armoskaite (2008), I assume that bare forms or past tense forms (as identified in Frantz 2009) in Blackfoot have perfective interpretations. Thus, the verbs used to set up the tests (i.e., the verbs in the first conjuncts) in Blackfoot are expressed in one of these forms.<sup>14</sup>

In what follows, I provide novel evidence from Blackfoot by discussing how diagnostics such as those in (13) figure when applied to the motion verbs discussed in the previous sections. The results of the tests show that delimitedness interpretation of an *itap-pP* is possible only when it appears with GO-type, but not with ROLL-type motion verbs. First, consider the results of the two tests applied to a GO-type motion verb, as in (14). In the examples to follow in this section (and the rest of the article), a relevant context for the examples is provided as a non-aligned first line in each of the examples.

- (14) Context: There was a boy named John in the town who got all dirty by playing in mud. The water in his house was broken, so he went to the river to wash.

- a. *Anna John itapoowa oomi niitahtaayi.*  
 anna John itap-oo-wa oomi niitahtaayi  
 DEM John GOAL-go.AI-3SG DEM river.IN  
 ‘John went to that river.’
- b. *Ki maatomaito'toowa oomi niitahtaayi.*  
 #ki maat-omaa-it-o'too-wa oomi niitahtaayi  
 and NEG-yet-LOC-arrive.AI-3SG DEM river.IN  
 ‘and he has not arrived at that river yet.’
- c. *Ki annohk saakiaitapoowa oomi niitahtaayi.*  
 #ki annohk saaki-a-itap-oo-wa oomi niitahtaayi  
 and now still-IMP-GOAL-go.AI-3SG DEM river.IN  
 ‘and he is still going to that river now.’

Given the context in (14), consultants were asked whether (14b) or (14c) can follow the sentence in (14a). An event associated with GO-type motion verbs with an obligatory goal *pP* is compatible with neither culmination cancellation (14b) nor event continuation (14c). In particular, note that the sentence in (14c) includes the adverb *annohk* ‘now’ which supports the ongoing reading of the imperfective *a-*, but rules out a habitual reading of the imperfective, as proposed for Blackfoot in

<sup>14</sup>I remain agnostic toward the issue of whether the language has a dedicated past marker, which Ritter and Wiltshko (2014) propose is absent from Blackfoot.

Dunham (2007). Moreover, the provided context also rules out a habitual reading of (14c). The incompatibility indicates that an event associated with the GO-type motion verb cannot be understood as ongoing, having an inherent endpoint indicated by an *itap-pP*. Taking the result of these tests as evidence, I propose that the *itap-pP* that appears with this type of the verb indicates a goal meaning. It will be shown in the next section that a goal meaning of *itap-pP* is visible only when an initiator is available.

With respect to the same tests, ROLL-type motion verbs show contrast with the GO-type in (14). Consider first the result of the tests with the ROLL-type motion verb. Recall that this type of verb allows an optional *itap-* phrase with directional meaning. When a direction *itap-* phrase is not present, as in (15a), an event indicated by this type of verb can be continued with a sentence such as in (15b) indicating that the event is ongoing. The presence of the adverb *annohk* ‘now’ in (15b) also confirms the ongoing interpretation of (15b).

(15) Context: There was a boy who was playing with a ball on top of a hill. The boy’s mother said not to play near the top of the hill for safety reasons, as the river down the hill is very deep. Suddenly, a monster appeared and pushed [the boy/the ball] down the hill.

- a. *Anna saahkomaapi/anna pokon inninaka’siwa.*  
 anna saahkomaapi/anna pokon inn-inaka’si-wa  
 DEM boy.AN / DEM ball.AN down-roll.AI-3SG  
 ‘That boy/ball rolled down.’
- b. *Ki annohk saakiainninaka’siwa.*  
 ki annohk saaki-a-inn-inaka’si-wa  
 and now still-IMP-down-roll.AI-3SG  
 ‘and he/it is still rolling down now.’

When an *itap-* direction phrase is present as in (16) below (where the same context as (15) was provided), the event can also be followed by a sentence that indicates event continuation (16c), which contrasts with the GO-type motion verb tested using the same test as in (14c). This contrast between the two types of the verbs suggests that the meaning indicated by an *itap-* phrase that appears with a ROLL-type motion verb is not the same as that indicated by GO-type motion verb, namely that the event does not include an endpoint. Otherwise, we would observe similar results of the test with both types of verbs. This is further supported by a culmination cancellation test with the ROLL-type motion verb, shown in (16b) below. This test does not entail a contradiction, in contrast to that of the GO-type motion verb shown in (14b). Building on these results, I conclude that the event associated with a ROLL-type motion verb lacks an inherent endpoint, and that an *itap-* phrase that appears with this type of the verb indicates a directional rather than a goal meaning.

- (16) a. *Anna saahkomaapi/anna pokon itapinninaka’siwa oomi niitahtaayi.*  
 anna saahkomaapi/ anna pokon itap-inn-inaka’si-wa oomi niitahtaayi  
 DEM boy.AN / DEM ball.AN toward-down-roll.AI-3SG DEM river.IN  
 ‘That boy/That ball rolled down toward that river.’
- b. *Ki maatomaito’toowa (oomi niitahtaayi).*  
 ki maat-omaa-it-o’too-wa (oomi niitahtaayi)



and NEG-yet-LOC-arrive.AI-3SG DEM river.IN  
 ‘and he/it has not arrived (at that river) yet.’

- c. *Ki annohk saakiaitapinninaka’siwa oomi niitahtaayi.*  
 ki annohk saaki-a-itap-inn-inaka’si-wa oomi niitahtaayi  
 and now still-IMP-toward-down-roll.AI-3SG DEM river.IN  
 ‘and he/it is still rolling down toward that river now.’

The data provided in this section suggests that the presence of an *itap-* goal *pP* alone is able to delimit an event similar to a goal PP in a D-language such as English (see sections 1 and 2). However, in the next section, I show that an *itap-* goal *pP* cannot be treated in the same way as a goal PP in a D-language. I demonstrate that the event delimitedness indicated by a goal *pP* in Blackfoot is visible only when a sentient DP that is an initiator is present. Importantly, this constitutes strong evidence for Blackfoot being an I-language.

#### 4.4 A delimited event via an initiator

As we saw in section 2, in an event, an I-language can be delimited only when an initiator is available. For instance, since goal *pPs* can indicate delimitedness of motion events, a prediction is that goal *pPs* will only be available if the sentence contains a volitional agent who initiates the event. In Blackfoot, a language-specific sentence restriction on external arguments (e.g., Frantz 2009, Johansson 2009) rules out other potential non-sentient candidates for an initiator, such as cause or instrument (see more discussion at the end of this section). If aspect in Blackfoot is sentient initiator-oriented as proposed in this article, a sentient argument with an [m] feature can be the type of agentive DP that can become an initiator.

In this section, I show that this prediction is borne out by the contrast between GO- and ROLL-type motion verbs. Specifically, I show that a sentient subject of a GO-type motion verb in Blackfoot is interpreted as an agent, which is eligible to be an initiator in the language. In contrast, a sentient subject of a ROLL-type motion verb can only be interpreted as a non-agent, such as a theme; thus, there cannot be an initiator with this type of verb.<sup>15</sup> This contrast captures the facts that events associated with GO-type motion verbs can license a goal *pP*, but events associated with ROLL-type motion verbs cannot. Evidence comes from the fact that a Figure argument of *p*, a sentient DP, is interpreted as an agent with GO-type motion verbs only, but not with ROLL-type motion verbs. Meadows (2010) identifies two different morphemes that introduce an argument with a specific role (i.e., either an agent or a theme) in Blackfoot. One is an accompaniment suffix (-*m*) that introduces a sentient entity that is interpreted as a companion of the agent argument in

<sup>15</sup>In this article, a subject of a ROLL-type motion verb is demonstrated to be a non-agent by applying the diagnostics in Meadows (2010), who refers to a relevant non-agent argument as a theme, like elsewhere in the literature about Blackfoot (e.g., Johansson and Ritter 2008, Bliss 2010, Kim 2018 among others). I likewise use *theme* to indicate the role of a subject of a ROLL-type motion verb, but importantly, a subject is non-agentive and therefore cannot be an initiator.

the sentence.<sup>16</sup> The other morpheme is an associative prefix (*iihp-/ohp-* ‘with’) that introduces an entity that is interpreted as an associate of a theme. Unlike an accompaniment suffix, an associate prefix does not impose a sentence restriction on its argument.<sup>17</sup> As shown by Meadows (2010) and as will be shown by the data below, a companion and an associate are different in their thematic roles: agent vs. theme. Consider the GO-type motion verb that requires a goal *pP* in (17), and the results of the tests applied to (17) are shown in (18).

I employ the two affixes as tests to identify whether the subject of a motion verb is an agent or a theme.<sup>18</sup>

- (17) *Anna saahkomaapi itapoowa anni isspahkoyi.*  
 anna saahkomaapi itap-oo-wa anni isspahkoyi  
 DEM boy.AN GOAL-GO.AI-3SG DEM hill.IN  
 ‘That boy went to the hill.’

The results of the tests support the hypothesis that the subject of the verb ‘go’ is an agent, as shown by the contrast in grammaticality between (18a) and (18b–c). GO-type motion verbs with a goal *pP* are grammatical with an agent-identifying accompaniment suffix as shown in (18a), but ungrammatical with a theme-identifying associative prefix as in (18b–c). The companion ‘that girl’ in (18a) is an agent, as indicated in the context provided, and in this case, the sentence in (18a) is grammatical, which suggests that the sentient subject ‘that boy’ must be an agent. In (18b–c), the added associates (either sentient ‘that girl’ (18b) or non-sentient ‘that book’ (18c)) are themes in the sense that they were carried by the subject ‘that boy’. In these cases, the sentences in (18b–c) are ungrammatical, which suggests that the sentient subject ‘that boy’ in (18b–c) cannot be a theme.

- (18) a. Context: The boy went to the hill with a girl, and the boy and the girl were walking together side by side.  
*Anna saahkomaapi iihpokitapoomiwa anni isspahoyi anna aakiikoan.*  
 anna saahkomaapi iihpok-itap-oo-**m**-yii-wa  
 DEM boy.AN with-GOAL-GO.AI-ACCOMP-TH-3SG  
 anni isspahkoyi anna aakiikoan

<sup>16</sup>The accompaniment suffix requires a prefix *iihpok-/ohpok-* ‘with’ on the same verb (Frantz 2009, Meadows 2010) (e.g., (18a)). The syntactic status of this prefix with respect to the accompaniment suffix is not clear, and I do not address this issue.

<sup>17</sup>In Bliss (2007), sentence restriction was proposed even for an argument introduced by an associate prefix, which is different from Meadows (2010). Although it is not clear where the difference stems from, I follow Meadows (2010) because my consultants’ judgments are consistent with showing no sentence restriction on DPs introduced by an associate prefix.

<sup>18</sup>In Blackfoot, the usefulness of agent-identifying tests often employed for other languages is unclear. For example, it is not clear whether an agent-oriented adverb such as ‘on purpose/intentionally’ exists at all; my consultants could not spell out this type of adverb. Moreover, imperatives or ‘try to’ phrases do not seem to identify an agent exclusively, as it is compatible with the subjects of psych-predicates (e.g., ‘fear’ or ‘worry’) in the language (Kim 2014b).

DEM hill.IN DEM girl.AN  
 '[That boy **and that girl (intended agent)**] went to the hill.'

- b. Context: The boy was going to the hill with a girl on his back. That is, the girl was carried by being putting on the back of the boy.

\**Anna saahkomaapi iihpitapoowa anni isspahkoyi anna aakiikoan.*

anna saahkomaapi **iihp**-itap-oo-wa  
 DEM boy.AN ASSOC-GOAL-go.AI-3SG  
 anni isspahkoyi anna aakiikoan  
 DEM hill.IN DEM girl.AN

Intended meaning: 'That boy went to the hill **with that girl (intended theme)**.'

- c. Context: The boy was going to the hill carrying a book in his hand.

\**Anna saahkomaapi iihpitapoowa anni isspahkoyi anni sinakia'tsis.*

anna saahkomaapi **iihp**-itap-oo-wa anni isspahkoyi  
 DEM boy.AN ASSOC-GOAL-go.AI-3SG DEM hill.IN  
 anni sinakia'tsis  
 DEM book.IN

Intended meaning: 'That boy went to the hill **with that book (intended theme)**.'

Recall that GO-type motion verbs without a goal *pP* allow either a sentient or non-sentient subject (see Table 2). Interestingly, GO-type motion verbs without an overt goal *pP* exhibit different behaviour with respect to the two affixes, depending on whether the subject is sentient or non-sentient. An example of a sentient subject with no goal phrase is illustrated in (19); the result of the two tests with (19) is shown in (20). An example of a non-sentient subject with no goal phrase is illustrated in (21a) and the result of the two tests with (21a) is shown in (21b–d). For the sentences in (20), the contexts given were the same ones used for the sentences in (18).

The sentient subject in (19) is compatible with an accompaniment suffix, as shown in (20a), but is incompatible with an associate prefix that identifies a theme, as shown in (20b–c). The grammaticality with an accompaniment suffix as in (20a) suggests that a sentient subject of GO-type motion verbs without a goal *pP* must be an agent. The ungrammaticality with an associate prefix as shown in (20b–c) further supports this conclusion: regardless of the sentient status of the associates (20b) or (20c), the sentences remain ungrammatical. That is, a sentient subject of GO-type motion verbs without a goal *pP* cannot be a theme.

- (19) *Anna saahkomaapi aamisooowa.*

anna saahkomaapi waamis-oo-wa  
 DEM boy.AN up-go.AI-3SG

'That boy went up.'

- (20) a. *Anna saahkomaapi iihpokaamissomiwa anna aakiikoan.*

anna saahkomaapi iihpok-waamis-oo-**m**-yii-wa anna aakiikoan  
 DEM boy.AN with-up-go.AI-ACCOMP-TH-3SG DEM girl.AN

'[That boy **and the girl (intended agent)**] went up.'

- b. \**Anna saahkomaapi iihpaamisooowa anna aakiikoan.*

anna saahkomaapi **iihp**-waamis-oo-wa anna aakiikoan  
 DEM boy.AN ASSOC-up-go.AI-3SG DEM girl.AN

Intended meaning: 'That boy went up **with the girl (intended theme)**.'

- c. \**Anna saahkomaapi iihpaamisoowa anni sinakia'tsis.*  
 anna saahkomaapi **iihp**-waamis-oo-wa anni sinakia'tsis  
 DEM boy.AN ASSOC-up-go.AI-3SG DEM book.IN  
 Intended meaning: 'That boy went up **with that book (intended theme)**.'

In contrast, the same verb without a goal phrase but with a non-sentient subject in (21a) shows the opposite, with respect to the two affixes. It is incompatible with an agent-identifying accompaniment suffix (21b), but is compatible with a theme-identifying associate prefix (21c). In (21b), 'the girl' is an agent, as indicated by the context. However, as the ungrammaticality with accompaniment suffix in (21b) shows, a non-sentient subject 'that wagon' cannot be treated as an agent.

- (21) a. *Anna ainaka'si aamisoowa.*  
 anna ainaka'si waamis-oo-wa  
 DEM wagon.AN up-go.AI-3SG  
 'That wagon moved up.'
- b. Context: A girl moved upwards walking side-by-side with the wagon which is driven by a driver or pulled by horses.  
 \* *Anna ainaka'si iihpokaamisoowiwa anna aakiikoan.*  
 anna ainaka'si iihpok-waamis-oo-**m**-yii-wa anna aakiikoan  
 DEM wagon.AN with-up-go.AI-ACCOMP-TH-3SG DEM girl.AN  
 Intended meaning: '[That wagon and **the girl (intended agent)**] moved up.'
- c. Context: There was a car loaded on the wagon which is driven by a driver or pulled by horses.  
*Anna ainaka'si iihpaamisoowa anna iitaisapopao'p.*  
 anna ainaka'si **iihp**-waamis-oo-wa anna iitaisapopao'p  
 DEM wagon.AN ASSOC-up-go.AI-3SG DEM car.AN  
 'That wagon moved up **with that car (intended theme)**.'
- d. Context: There was a girl without consciousness lying on the wagon, which is driven by a driver or pulled by horses.  
*Anna ainaka'si iihpaamisoowa anna aakiikoani.*  
 anna ainaka'si **iihp**-waamis-oo-wa anna aakiikoan  
 DEM wagon.AN ASSOC-up-go.AI-3SG DEM girl.AN  
 'That wagon moved up **with the girl (intended theme)**.'

In (21c), with a non-sentient associate 'that car', the sentence is grammatical in the context provided, where the car is treated as a theme, confirming that a non-sentient subject of a sentence such as in (21a) is a theme. As for a sentient associate such as 'that girl' in (21d), a similar result was observed. The associate 'that girl' is understood to be non-conscious (e.g., being unconscious or dead (an extreme case)), as suggested by the provided context. In this context, 'the girl' and 'that wagon' are moved together (i.e., themes). Thus, 'the girl' in this case is treated as a non-sentient entity just like 'that car'. The result of the test in (21) supports the proposal that a non-sentient subject of a GO-type motion verb without a goal *pP* must be a theme, not an agent.

The following table summarizes the role of a subject of a GO-type motion verb. It also shows the result of the tests with ROLL-type motion verbs that is discussed below.

	Accompaniment (agent)	Associate (theme)
<b>GO-type: oo 'go'</b>		
Sentient subject + <i>pP</i>	✓	✗
Sentient subject; no <i>pP</i>	✓	✗
Non-sentient subject; no <i>pP</i>	✗	✓
<b>ROLL-type: inaka'si 'roll'</b>		
Sentient subject (+ <i>pP</i> )	✗	✓
Non-sentient subject (+ <i>pP</i> )	✗	✓

**Table 3:** Summary of the agent- and theme-identifying tests

Regarding the GO-type verbs, a fourth logical possibility would be a case of a non-sentient subject with a goal *pP*. However, as we have seen, this possibility is ruled out by the sentience restriction on this type of verb, and for this reason it is not included in Table 3.

When the same tests are applied, a ROLL-type motion verb contrasts with the GO-type, as indicated in Table 3. The verb behaves in the same way with the two morphemes, regardless of sentient status of the subject or of the presence of optional *pP* indicated by brackets: the subject of a ROLL-type verb is always a theme. Evidence is provided in data (23)–(24) below based on the sentence in (22). As shown in (22), the verb ‘roll’ allows either a sentient ‘that boy’ or non-sentient subject DP ‘that ball’, and *itap-* on the verb can indicate direction optionally. Regardless of the sentience of the subject, this verb is incompatible with an accompaniment suffix that introduces an agent companion, but compatible with an associate prefix that introduces a theme associate. This is shown in (23) with a sentient subject, and in (24) with a non-sentient subject.

(22) *Anna saahkomaapi/anna pokon (itap)inninaka'siwa (anni niitahtaayi).*

anna saahkomaapi/anna pokon (itap-)inn-inaka'si-wa (anni niitahtaayi)  
 DEM boy.AN / DEM ball.AN toward-down-roll.AI-3SG DEM river.IN  
 ‘That boy/that ball rolled down (toward the river).’

(23) a. Context: There is a boy who wanted to roll down (the hill) for fun, and asked a girl if she’s willing to roll down with him. She agreed, and they rolled down.

\**Anna saahkomaapi iihpokinninaka'simiiwa anna aakiikoan.*

anna saahkomaapi iihpok-inn-inaka'si-m-yii-wa anna aakiikoan  
 DEM boy.AN with-down-roll.AI-ACCOMP-TH-3SG DEM girl.AN

Intended meaning: ‘[Those boys and the girl (intended agent)] rolled down.’

b. Context: There was a boy who was playing with a girl or a ball on the hill. A monster came and pushed the boy together with either the girl or the ball, and so the boy rolled down either with the girl, or with the ball.

*Anna saahkomaapi iihpinninaka'siwa anna aakiikoani/anna pokon.*

anna saahkomaapi iihp-inn-inaka'si-wa

DEM boy.AN ASSOC-down-roll.AI-3SG  
 anna aakiikoan / anna pokon  
 DEM girl.AN / DEM ball.AN  
 ‘That boy rolled down [with that girl /that ball (intended theme)].’

The ungrammaticality with accompaniment suffix as in (23a) suggests that the sentient subject of ROLL-type verb such as ‘that boy’ cannot be interpreted as an agent. In (23a), as indicated by the context, the added companion ‘that girl’ is an agent. However, even in this context, the sentence in (23a) was rejected by the consultants. In contrast, the sentence in (22) is grammatical when it appears with an associate prefix as shown in (23b), which suggests that a sentient subject of the ROLL-type verb must be a theme. In (23b), unlike in (23a), ‘that girl’ is a theme, as indicated in the context.

With respect to a non-sentient subject ‘that ball’ of the verb ‘roll’ in (22), the same result was observed. With an accompaniment suffix, the result was ungrammatical as illustrated in (24a), just as with a sentient subject of the same verb (23a). In (24a), as indicated in the context, ‘that ball’ was treated as a sentient being having magical powers. However, a sentence such as (24a) was judged to be ungrammatical even in this type of context.

- (24) a. Context: There was a ball that has magical powers (sentient). The ball decided to roll down the hill for fun, and he asked a girl to be a companion to him. The girl agreed, and they rolled down.

\**Anna pokon iihpokinaka’simiiwa anna aakiikoan.*  
 anna pokon iihpok-inaka’si-m-yii-wa anna aakiikoan  
 DEM ball.AN with-down-roll.AI-ACCOMP-TH-3SG DEM girl.AN  
 Intended meaning: ‘[That ball and that girl (intended agent)] rolled down.’

- b. Context: There were a ball (non-sentient) and a stone (non-sentient) on the hill, and a girl chose to play with the ball on the hill. Suddenly, a monster appeared and pushed the ball either with the stone or the girl.

*Anna pokon iihpinaka’siwa anna oohkotok/anna aakiikoan.*  
 anna pokon iihp-inaka’si-wa anna oohkotok/ anna aakiikoan  
 DEM ball.AN ASSOC-down-roll.AI-3SG DEM stone.AN/ DEM girl.AN  
 ‘That ball rolled down [with that stone/that girl (intended theme)].’

As for (24b) with an associate prefix, a theme context was provided similar to the one given for (23b). In (24b), ‘that ball’ is an ordinary non-sentient ball, as illustrated in the context. The sentence was judged to be grammatical in this type of context. In sum, the result of the tests indicates that the subject of ROLL-type motion verbs is a theme, regardless of the sentience of the subject without a goal *pP* endpoint. Although I cannot provide relevant data for reasons of space, the same result is observed when an optional direction *pP*, *itap-* ‘toward’, appears with this type of verb.

The data presented in this section demonstrates that subjects of the GO-type motion verbs are interpreted as agents only when the subject is sentient, but those with ROLL-type verbs are interpreted as themes regardless of sentience of the subject.







With this conclusion, it cannot be said that the association between sentience restriction and event delimitedness proposed for AI motion verbs is a coincidence. Neither can it be concluded that event delimitedness in Blackfoot is expressed by a goal *pP* as is the case in English.

If so, what we are left with is the data of motion AI verbs and their implications. In particular, as shown in this section, all inherently-directed motion verbs – GO-type verbs with a goal *pP* – show this type of association. In contrast, ROLL-type motion verbs cannot be delimited, as they do not have an agent that can be an initiator. With this type of verb, even if a sentient argument merges in the specifier of *pP*, the sentient argument fails to be an initiator; that is, the presence of a goal *pP* with a sentient argument is not sufficient for event delimitedness. This contrast between GO-type and ROLL-type motion verbs is accounted for by the proposed structural differences between the two types of verbs (see (25) vs. (26)): the presence and absence of *v[um]*. These differences between the two types of verb indicate that a sentient subject plays an important role in Blackfoot aspect, which in turn suggests that aspect in Blackfoot cannot pattern the same way as English-type aspect. Although a delimitedness interpretation may be indicated by a goal *pP*, the interpretation can be visible only when an initiator is present (via *v[um]*).

## 5. CONCLUSION

I have provided a detailed linguistic description of how delimitedness of a motion event is associated with a sentient external argument in Blackfoot, and demonstrated that such a sentient argument is an agent that can be an event initiator. I have also provided a formal analysis of the association between a sentient initiator and event delimitedness. That Blackfoot has a sentient initiator-oriented aspect thus offers novel support to the current view in the literature about Blackfoot wherein Blackfoot grammar is sentience-dominant (e.g., Louie 2008, Frantz 2009, Johansson 2009, Meadows 2010, Ritter and Rosen 2010, Bliss 2013, Kim 2014b, Ritter 2015, Wiltschko and Ritter 2015).<sup>26</sup>

The result emerging from this study indicates that initiation is not merely a component of event structure, but can have a more dynamic role in some languages, as shown by Blackfoot. For example, an initiator in Blackfoot is involved in the determination of event delimitedness, which has traditionally been considered as being affected only by certain types of internal arguments such as a goal PP or an incremental theme object (e.g., Vendler 1967; Dowty 1979; Tenny 1987; Borer 2005; Ramchand 2007; MacDonald 2008a, b). Thus, the present article provides a crucial step toward understanding the organization of an initiation-oriented aspect, which paves the way for further study on related issues dealing with aspect.

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<sup>26</sup>It would be interesting to find out whether other Algonquian languages have sentience-oriented aspect similar to Blackfoot. There is currently insufficient empirical data on this issue to pursue comparison with Blackfoot, so I leave this topic for future research.

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