

# On the semantics of modality auxiliaries in Crow

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To study the semantics of the modals auxiliaries in Crow, I employ the semantic elicitation techniques proposed by Matthewson (2004). While an in-depth study of the modal auxiliaries of Crow is beyond the scope here, I describe the basic semantic properties of the modal auxiliaries. Research on modality has typically classified modals under two dimensions: MODAL FORCE and MODAL FLAVOR. The former concerns whether the expression is intended to convey NECESSITY, WEAK NECESSITY, or POSSIBILITY. Necessity modals (e.g. *must* and *have to* in English) are said to have strong force, while possibility modals (e.g. *may*, *might*) have weak force. Modal flavor, on the other hand, concerns the kind of modal interpretations that can be expressed; that is, whether necessity or possibility is concerned or compatible with a set of beliefs, desires, norms, or assumptions about the world. Modals operating with a CIRCUMSTANTIAL flavor are compatible with a given set of facts or circumstances, while modals with a DEONTIC flavor are compatible within a given body of rules and laws. An EPISTEMIC flavor is understood with respect to the knowledge or evidence that we possess, and a BOULETIC flavor is understood relative to our desires and wishes.

**Methods** In the summer of 2019, I conducted fieldwork on Crow working with four bilingual speakers of Crow and English, aged 25 to 42, to investigate how modality is expressed in the language. To accomplish this task, I employed a modality questionnaire (Vander Klok 2013) and a set of so-called “storyboards” that were designed to target certain modal meanings based on a particular context (Burton & Matthewson 2015). With the modality questionnaire, I read aloud a scenario in English (e.g. *it is 2am*) and asked speakers to provide the most appropriate Crow translation for the target expression based on the given scenario (e.g. *Logan must be sleeping*). Speakers were then asked to judge the ‘naturalness’ of slightly different versions of these sentences (i.e. modified with other modal auxiliaries) relative to the same context that was given. In addition to using the modality questionnaire, I constructed several contexts accompanied by target expressions which were also written and read out loud in English.

The storyboards elicitation task involved translating into Crow a series of pictures that together formed a narrative. Working page-by-page, I presented the illustrations, which did not contain any text, to speakers while narrating the story in English. The speakers were then asked to provide a translation in Crow of the story one page at a time. The four storyboards that were

used in this study are from the Totem Fields Storyboards website and are entitled *Tom and Mittens*, *Basketball Brothers*, *Hawaii Trip*, and *Chore Girl*.<sup>1</sup> Each storyboard was designed to target a specific set of grammatical features. For example, the Hawaii Trip storyboard included a narrative of someone describing a planned trip to Hawaii. Since the entire story was narrated in English using the future tense, one of the features that was targeted was the expression of future. To supplement the data obtained through the use of these two elicitation instruments (i.e. questionnaire and storyboards), I also analyzed data from extant documentation on Crow, such as texts produced by speakers of Crow who worked with Robert Lowie in the early 20th century and texts that were produced by the Bilingual Materials Development Center on the Crow Indian Reservation from the late 1970s into the 1980s.

**The future -ii** The future suffix *-ii* has often been translated into English with either the prospective *be going to* or the auxiliary *will*. I suggest that this suffix possesses strong modal force and is similar to the so-called future mode in Tlingit, a Na-Dene language, in expressing circumstantial necessity (Cable 2017).

The examples in (1) provide several necessity claims based on three given scenarios. The target expression to be translated into Crow appears inside the parentheses. Examples (1a) and (1b) present two contexts which call for two future outcomes: (a) getting gas so that the protagonist is able to carry on with his or her journey, and (b) building a fire lest one succumbs to the freezing temperatures. These contexts target claims of necessity in light of the facts surrounding the two impending and particularly inconvenient scenarios – an empty gas tank and death by hypothermia. In (1c), which is taken from a text about a traditional Crow story entitled *Uuwatisee* ‘Big Metal’, a herd of big horn sheep are being recruited to help carry a boy who was pushed off a cliff by his stepfather. One of the sheep, who goes by the name of Big Horn Ram, has been asked to take the lead. In the conditional, the antecedent clause (or protasis) describes the circumstances, whereas the apodosis illustrates the necessity claim. The fact that the future morpheme may be used in these constructions provides further evidence that the meaning of *-ii* conveys circumstantial necessity.<sup>2</sup>

(1) Context [necessity circumstantial]:

- a. You are driving, and you haven’t looked at your gas tank for quite some time. You notice that your gas is nearly empty. You think: (I NEED to get gas.)

*taláa-m bu-lútche-w-ii-k*  
gas-INDEF 1A-get-1A-FUT-DECL

‘I need to get gas’ (Jack Real Bird; 2018-17.0.840.001:25)

- b. You are mountain climbing and there is an avalanche. You are stuck in the snow. You think, (I NEED to make fire, otherwise I am going to die.)

*Biláa-aw-apchi-w-ii-k*  
fire-1A-ignite-1A-FUT-DECL

<sup>1</sup>The Totem Fields Storyboards website from which the storyboards were obtained is accessible at <http://totemfieldstoryboards.org/>.

<sup>2</sup>Since the third-person forms of the future *-ii* suffix are suppletive, speakers who wish to talk about the future or express circumstantial necessity with third person singular and plural subjects often employ the forms *-iimmaachi* and *-oomaachi*, respectively.

‘I will light a fire’ (Jack Real Bird; 2018-17.084.001:25)

- c. *da-lée-lak dii=piisshe beé-w-ii-lu-k*  
2A-go-COND 2B-after 1A.PL.go-1A-FUT-PL-DECL  
‘if you [take the lead], we will [follow] you’ (Old Coyote 1985: 7)

Although *-ii* is often used to talk about the future, this morpheme does not express future tense. In the sentence given in (2), the future morpheme is used within a past context (i.e. the day before) to indicate a past planned event (i.e. going to eat at Popeyes). However, this plan was subsequently abandoned; instead, the speaker indicated that she ate at KFC. Its co-occurrence in the past provides strong evidence that the future-oriented readings arising from *-ii* is not future tense, which is typically used to indicate an event taking place after the time of utterance (Klein 1994).

- (2) *húulee-sh Popeyes koon bawuush-b-ii-btaa KFC ko koon bawuushí-k*  
yesterday-DEF Popeyes LOC 1A.EAT-1A-FUT-even.though KFC PRO LOC 1A.EAT-DECL  
‘Although I was going to eat at Popeyes yesterday, I ate at KFC’  
(Felice Big Day; 2018-17.084:46)

According to the examples in (1) and in (2) then, the future suffix *-ii* is a future modal that can also be used to express circumstantial necessity.

**The modal *-iimmaachi* ‘will, must’** While *-iimmaachi* is used to make necessity claims, it is also used by speakers to talk about the future.<sup>3</sup> However, like the future suffix *-ii*, I argue that *-iimmaachi* is not a marker of future tense. Evidence for this claim is given in (3), where *-iimmaachi* may be used to refer to an event with a past topic time.

- (3) *húulee-sh Popeyes koon bawuush-b-iimmaachi-btaa KFC ko koon bawuushí-k*  
yesterday-DEF Popeyes LOC 1A.eat-1A-MOD-even.though KFC PRO LOC 1A.eat-DECL  
‘Although I was going to eat at Popeyes yesterday, I ate at KFC’  
(Felice Big Day, pers. comm. 2020)

Not only does the modal *-iimmaachi* share some overlap with the future suffix *-ii* by occurring in future expressions, but both can also be used to convey circumstantial necessity. For example, in (4), which has the same scenario given in (1a), *-iimmaachi* is used to express circumstantial necessity.

- (4) Context [necessity circumstantial]: You are driving, and you haven’t looked at your gas tank for quite some time. You notice that your gas is nearly empty. You think: (I NEED to get gas.)

*taláa-m bu-lútche-w-iimmaa*  
gas-INDEF 1A-get-1A-MOD

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<sup>3</sup>In my data, both *-iimmaachi* and *-iimmaa* appear to have an overlapping distribution and speakers have indicated that there exists no difference in meaning between the two forms even when paired with the same discourse context. Therefore, I surmise that the latter form is simply a reduced form of *-iimmaachi*. In light of this, I use the form *-iimmaachi* to refer to both the full and reduced forms.

‘I need to get gas’

(Jack Real Bird; 2018-17.0.84.001:25)

Relatedly, the contexts in (5) emphasize the deontic nature of the claims being made. In (5a), patrons of libraries are expected to maintain a minimal level of noise. In (5b), according to the rules instated by the dwarf, pregnant women are not permitted to enter his abode. Therefore, the two necessity expressions that employ the modal auxiliary *-iimmaachi* indicate deontic modality.

(5) Context [necessity deontic]:

a. Logan is in a library. (Logan **MUST** be quiet.)

*Logan chichítseetchee-mmaa*

Logan be.quiet-MOD

‘Logan must be quiet’

(Felice Big Day; 2018-17.084.001:9)

b. The next day [the man and his wife] went and reached the dwarf’s house. [The dwarf] came out to meet them. He had a fire and they stayed there. “That wife of yours is pregnant, **she cannot enter our house**. Do you enter alone,” said he, “come.” (Lowie 1918: 172)

*ko bale-aasúua biléeli-ssaa-iimmaachi-k*

PRO 1PL.POS-house house-NEG-MOD-DECL

‘she cannot enter our house’

(Lowie 1960: 86)

In addition to expressing circumstantial and deontic modality, *-iimmaachi* may also be used to make necessity claims that are compatible with one’s knowledge or beliefs about the world. The scenario presented in (6) is an exercise in deduction. The math teacher sets up a problem for the student to infer and by the process of elimination, we infer that the ball resides within C. As such, the epistemic expression in (6) involves claims of necessity.

(6) Context [necessity epistemic]: The math teacher says: The ball is in A or in B or in C. It is not in A. It is not in B. So, (it **MUST** be in C.)

*éebk búupche C kool-íimma*

that ball C be.there-MOD

‘that ball must be in C’

(Riley Singer; 2018-17.084.001:2)

Just as the future suffix *-ii* can be recruited to express future modal meanings, so too can *-iimmaachi*. In contrast, however, *-iimmaachi* can also be used to convey strong necessity with a variety of different modal flavors.

**The modal *-iishdaachi* ‘should’** With a weaker modal force, the modal suffix *-iishdaachi* comes to the fore. Within the documentation records of Crow, this morpheme has typically been translated into English as ‘should’ or ‘ought to’ and my data corroborates these descriptions. In the context provided in (7), it is said that social norms dictate that the oldest should marry first. Therefore, the weak necessity expression draws upon a deontic (or root) modal base.

(7) Context [weak necessity deontic]: Logan is the oldest child, and he is not yet married. His younger brother, Taylor, wants to get married. But according to social norms, (the oldest **OUGHT TO** marry first.)

*héela baa-isáa koochík bach-áxp-iilushdaachi-k*  
among INDEF-big first RECIPIENT-marry-MOD.PL-DECL

‘the oldest ones should marry first’ (Felice Big Day; 2018-17.084.001:43)

In (8), the hypothetical situation calls upon the speaker’s past experiences living on the Crow Indian Reservation to determine what the current weather is in Lodge Grass. Because their judgment is grounded in their knowledge that snow falls in the afternoon in Lodge Grass, this context targets an epistemic expression.

- (8) Context [weak necessity epistemic]: You are not living in Lodge Grass anymore. You notice how different it is with the weather in Australia, where you live right now. You know that in Pryor it’s the winter now, and there’s often snow every afternoon. Now it’s 3pm, so (it SHOULD be snowing in Lodge Grass.)

*Bínneete kon bíihp-iishdaachi-k*  
Lodge.Grass LOC snow-MOD-DECL

‘It should be snowing in Lodge Grass’ (Jack Real Bird; 2018-17.084.001:9)

The contexts provided in (7) and (8) target a weak necessity claim and speakers respond with utterances containing the suffix *-iishdaachi*. Thus, I consider *-iishdaachi* as a weak necessity modal.

**The modal *-iib* ‘may, might’** The epistemic possibility marker *-iib* often co-occurs with *aaláa* ‘perhaps, maybe’, but its occurrence is optional in my data. The contexts given in (9) target a possibility epistemic claim. Note that the suffix *-iib* often undergoes syncope when following a vowel-final stem. In (9a), the teacher’s attendance is unpredictable, and his students are uncertain if he will even come. In (9b), the location of Logan’s necklace is not known even after the protagonist looked in a variety of places. In (9c), the context asks us to entertain the possibility of Logan, who has a rebellious streak, traveling to London to spite his parents.

- (9) Context [possibility epistemic]:

- a. Teacher Logan is not consistent. The students never know if he’s going to come or not to give a lecture. Today, it’s time to start class and the students are waiting again. (He MIGHT be coming to the school today.)

*Logan (aaláa) balee=híi-b*  
Logan perhaps 1B.PL=meet-MOD

‘Logan might meet us’ (Riley Singer; 2018-17.084.001:2)

- b. Logan is looking for her necklace. She’s not sure if she lost it or if it is somewhere in the house because she doesn’t remember the last time she wore the necklace. She looks in her wardrobe and on top of the wardrobe. It’s not there. She looks on top of the TV. It’s not there. She looks in her backpack. It’s not there. Wait! She didn’t check her sister’s wardrobe yet. (Logan’s necklace MIGHT be lost.)

*Logan aapíia (aaláa) xapíi-b*  
Logan necklace perhaps lose-MOD

‘Logan’s necklace might be lost’ (Riley Singer; 2018-17.084.001:2)

- c. Logan’s parents told him that he is not allowed to go to see his friend in London because it is too far away. You heard that Logan is leaving Wyola next week, but you don’t know where he will go. Logan is a daring type of guy that usually does things that he is not permitted to do. You think: (Logan MAY go to London.)

*Logan (aaláa) London kuss dée-b*  
Logan perhaps London towards go-MOD

‘Logan might go to London’ (Felice Big Day; 2018-17.084.001:43)

According to the results of the modality questionnaire, the modal auxiliary *-iib* is likely an epistemic possibility modal.

**The involuntary desiderative *-issbi*** The final modal suffix is the involuntary desiderative *-issbi*, which has been variously glossed as ‘want to’, ‘be ready to’, ‘feel like’, ‘be anxious to’, ‘wish to’, and ‘need to’. I suggest that *-issbi* expresses an involuntary state of desire, similar to the desiderative reported in Hidatsa (Park 2012: 194), which conveys “a sense of uncontrollable urge or need,” and to the so-called ‘involuntary state constructions’ in Bulgarian and Slovenian (Rivero 2009).

In certain contexts, the desiderative *-issbi* appears to suggest claims of necessity. In (10), which attempts to target statements of necessity with circumstantial modality, speakers often respond with sentences that employ the suffix *-issbi*. It is important to note that in all of these scenarios, the target expressions relate to various bodily functions which Levin & Rappaport Hovav (1995) describe as a class of ‘internally caused eventualities’; in other words, these kinds of bodily emissions are generally not under the control of the person and arise from inherent properties of the individual. The necessity claims that are associated with an individual’s physiological needs are thus not strictly correlated with the given set of facts or circumstances.

(10) Context [necessity circumstantial]:

- a. You are sitting in a car on the way to Bozeman. You have not had the chance to go to the toilet for three hours and your bladder is full. You text your friend: (I HAVE to pee so badly!)

*b-eeláx-b-issbi-k*  
1A-urinate-1A-DESID-DECL

‘I need to urinate’ (Riley Singer; 2018-17.084:1)

- b. Excuse me! (I HAVE TO sneeze.)

*b-ápii-w-axxi-w-issbi-k*  
1POS-nose-1A-cough-1A-DESID-DECL

‘I need to sneeze’ (Riley Singer; 2018-17.084:2)

- c. I ate a lot of beans and broccoli. I’m feeling hella bloated. I’m in a public space, but (I HAVE to fart!)

*baa-pía-w-issbi-k*  
1A-fart-1A-DESID-DECL

‘I need to fart’ (Riley Singer; 2018-17.084:10)

Indeed, the occurrence of *-issbi* in other necessity contexts that do not involve bodily functions are considered infelicitous by speakers. For example, the context in (11a) does not permit the use of *-issbi* in expressing a circumstantial necessity claim. The presence of *-issbi* is similarly disfavored in contexts that target a necessity deontic modal expression, as in (11b). In fact, when I asked my consultant, Jack Real Bird, for his judgment on the sentence with *-issbi* in (11b), he commented that the suffix indicates a desire rather than a need. Thus, although speakers may translate sentences with *-issbi* with the English modal *need to*, I argue that *-issbi* is not a necessity modal.

- (11) a. Context [necessity circumstantial]: You are driving, and you haven't looked at your gas tank for quite some time. You notice that your gas is nearly empty. You think to yourself: (I NEED to get gas.)

# *taláa-m bu-lútche-w-issbi-k*  
gas-INDEF 1A-get-1A-**DESID**-DECL

Intended: 'I need to get gas' (Jack Real Bird; 2018-17.084.001:25)

- b. Context [necessity deontic]: A pound of rice usually lasts for three days and there are two pounds left now. I don't have time to go to the store because it's far away and the car is at the shop for the next six days (so I HAVE to eat the rice for six more days.)

# *bisheetchichée baapé akáawii-m búush-b-issbi-k*  
rice day six.times-INDEF 1A.eat-1A-**DESID**-DECL

Intended: 'I need to eat rice for six days'

Consultant's comment: "[regarding *-issbi*] more like a desire, wish, or preference" (Jack Real Bird; 2018-17.084.001:8)

In fact, sentences with *-issbi* in other kinds of contexts abound. Some examples are given in (12). In (12a), a ravenous hunger forms the basis for the immediate slaughter of an unlucky beaver. In (12b), the speaker expresses a longing to remain on the land. In these two contexts, the notion of non-control readily applies: desires, such as food cravings or nostalgia, manifest without any clear reason or incentive. Therefore, speakers sometimes opt to translate *-issbi* as 'feel like', 'anxious to', and 'ready to' over 'want to', as in (12), to suggest an involuntary affective or emotional response that is associated with expressions that contain *-issbi*.

- (12) a. *bilápa-m baan-nuush-iss-aachi-m dappii-ábi-k*  
beaver-INDEF so-eat-**DESID**-APPROX-DS kill-PUNCT-DECL

'he was so anxious to eat a beaver that he killed it right away'

(Bilingual Materials Development Center 1981: 23, as cited in Graczyk 2007: 164, Ex.38)

- b. *hinne awá-m ítchi-kaashee-sh aw-íhchiss baa-lée-w-issbi-ssaa-k*  
this land-INDEF good-AUG-DEF 1A-without 1A-go-1A-**DESID**-NEG-DECL

'I'm not ready to leave behind this beautiful land'

(Bilingual Materials Development Center 1980: 7, as cited in Graczyk 2007: 303, Ex.15)

In the context of *-issbi*, this involuntary state may be biologically driven, such as in the cases involving bodily functions in (10), or it may be a yearning triggered by nostalgia or melancholy, as in (12). Thus, *-issbi* does not function as a circumstantial modal; rather, it contains a bouletic flavor that is ultimately linked to an involuntary state of desire.

**Summary** I have claimed that the future *-ii* is not a marker of future tense but is a future-oriented modal that can be used to express circumstantial necessity modality. Similarly, the three modal suffixes *-iimmaachi* ‘will, must’, *-iishdaachi* ‘should’, and *-iih* ‘may, might’ are lexically encoded primarily on the parameter of modal force. The modal *-iimmaachi* occurs in necessity expressions, whereas *-iishdaachi* is used to convey claims of weak necessity. Further down the cline is the epistemic possibility modal *-iih*. Lastly, I have suggested that the desiderative suffix *-issbi* is a purely bouletic modal that indicates an involuntary state of desire rather than claims of necessity.

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