A focus-sensitive modal operator in Navajo[1]

Second Generals Paper, Revision
Elizabeth Bogal-Allbritten

1.0 Introduction

This paper examines the semantics of the Navajo particle *daats'í* as it occurs in the environments represented by (1) and (2).

(1) *Context:* You don't know if it is raining or not. *You say:*
Nahałtin **daats'í**.
3S.rain DAATS'Í
Translations: 'Is it raining?', 'I wonder if it's raining.', 'I don't know if it's raining or not.' 'Maybe it's raining, or maybe not.', 'It might be raining.'

(2) *Context:* You see your coworker Mary taking some pain pills. You wonder what is wrong with her. Something definitely is hurting her. It might be her stomach that hurts, or maybe her head, or maybe her back. *You say:*
Mary bibid **daats'í** diniih.
Mary 3poss.stomach DAATS'Í 3S.hurt
Translations: 'It might be Mary's stomach that hurts (or it might be her head).'
'Is it Mary's stomach that hurts? (Or is it her head…).'

Informally, *daats'í* in example (1) raises the possibility that the event described by the proposition might hold, but it is also a live possibility that it does not hold. I term such uses of *daats'í* cases of 'polarity association.' In example (2), *daats'î* seems to associate with a noun phrase, 'stomach.' Consultant comments indicated that the speaker is certain that some part of Mary's body hurts, but is uncertain whether it is her stomach or another part (e.g., her head). I refer to such uses of *daats'í* as instances of 'constituent association.'

Both polarity and constituent association are united by their implicit invocation of alternatives to the event or noun overtly mentioned. It is possible in the speaker's estimation that it will rain, but it is also possible that it will not. It is possible that Mary's stomach hurts, but it is also possible that another part of her body hurts. With this basic similarity in mind, I provide a unified analysis of polarity and constituent associative uses of *daats'í*. I argue that *daats'í* is a focus sensitive operator not unlike English *only* as discussed by Rooth (1985, 1992, 1996). The interpretation of both *daats'í* and *only* is dependent on the (obligatory) placement of focus marking with the clause. In contrast with English *only*, *daats'í* has a modal meaning. As in Rooth

[1] I thank Navajo consultants and linguists Ellavina T. Perkins, Louise Kerley, Leroi Morgan, Louise Ramone, and Fern Seaton for their invaluable help. All data presented here are due to original fieldwork conducted at the Navajo Language Academy held in Flagstaff, AZ (2011, 2012) unless otherwise indicated. This paper has benefited greatly from discussion with Angelika Kratzer and Seth Cable, as well as with Peggy Speas, Noah Constant, Ilaria Frana, Kirill Shklovsky, Mats Rooth, Ted Fernald, Judith Tonhauser, Kai von Fintel, Henry Davis, and audiences at SULA 7 and the 2012 Winter meeting of SSILA. Citations from Young and Morgan (1987) are prefixed with 'g' (grammar) or 'd' (dictionary). Navajo interlinear glosses are simplified. Subject marking is indicated as 1S, 2S, 3S, etc. Object marking is indicated as 1O, 2O, 3O, etc.

(1992), focus marking generates the presupposition that there exist alternatives in the context to the focus-marked element. Whereas *only* requires (informally) that the overtly mentioned alternative is the only alternative that holds, *daats'í* requires (again, informally) that while the overtly mentioned alternative is a good possibility given the speaker's beliefs about the world, all of the other alternatives are also accessible possibilities.

After providing background in Sect. 2 on basic Navajo grammar and previous discussion of Navajo modal particles, I present novel empirical data in Sections 3 and 4. In Section 3, I discuss sentences like (1) in which *daats'í* has polarity association. Section 4 discusses constituent associative uses of *daats'í*. Section 5 presents a unified formal analysis of both uses of *daats'í*. Section 6 presents directions for further work. Section 7 concludes.

2.0 Background

2.1. *Background on Navajo and modal particles*

Prior to discussing *daats'í*, I will place it in the context of Navajo grammar, with a focus on what has been said previously about apparently modal modifiers in the language.

Navajo is a primarily SOV language. The highly morphologically complex verb comes at the right edge of the clause. The basic unit of verbal meaning is standardly identified as the verb stem, which occurs at the right edge of the verb word. The verb always bears morphological marking of subject and object in addition to marking for aspect. The verb also contains various 'thematic' morphemes whose meaning is unclear or whose presence is contingent on the presence or absence of other morphological marking. Since verbal morphology is not crucial to the present study, I greatly simplify verbal glosses.

Verb-external subject and objects are optional and are somewhat flexible in their order. Locative phrases also occur verb-externally: the linear position of locative phrases relative to nominal phrases is subject to some degree of flexibility based on discourse context.

Navajo sentences also frequently contain a number of additional particles that mark "various adverbial and discourse functions" (Willie 1996: 339). A subclass of such particles is the set of particles marking possibility. The only previous discussion of modal-like expressions in Navajo comes from Willie (1996). I will briefly summarize the three possibility particles that Willie spends the most time discussing. The first particle identified by Willie is *shíí*, which she translates as 'probably, maybe.'[2]

(3) Shizhé'é naadooghał **shíí**.
1poss.father 3S.will.go SHÍÍ
'My father will probably visit you.' (Willie 1996: 339)

Willie identifies *daats'í* as a particle indicating epistemic possibility. Willie writes that *daats'í* "indicates a weaker possibility than *shíí*" (Willie 1996: 340).

[2] I do not discuss *shíí* in any greater depth in this paper. For more discussion of *shíí*, please refer to Bogal-Allbritten (2012) and Bogal-Allbritten (in prep.).

(4) Naanish=góó **daats'í** deesháát.
job=toward DAATS'Í 1S.will.go
'Maybe I will go to work.' (Willie 1996: 340)

Willie writes that neither *daats'í* nor *shíí* can appear in initial position and both have a tendency to appear in second position following the first constituent. In shorter sentences, *daats'í* and *shíí* can – but do not have to – appear in final position. A relevant example for *shíí* is shown in (3). A relevant example for *daats'í* is shown in (5).

(5) Bibid diniih **daats'í**.
3poss.stomach 3S.hurt DAATS'Í
'Maybe his/her stomach hurts.'

The discussion to follow is almost entirely focused on *daats'í*. A few further observations comparing *daats'í* and *shíí* are presented in Sect. 3.2.

2.2. *Methodology*

As discussed at length in Matthewson (2004), the elicitation of information about meanings brings a set of unique challenges. Sentences that consultants judge infelicitous may be infelicitous for many different reasons: the fieldworker must isolate the source of the infelicity. In addition, while translations of target language sentences initially appear to be an effective method of collecting data about meaning, translations can only be treated as clues to meaning and do not provide evidence for a sentence's truth conditions relative to some context, particularly when the sentence contains an element that does not have a truth conditionally identical counterpart in English.

We will see that direct translations are particularly ill-suited to the study of *daats'í* since a given sentence with *daats'í* was often spontaneously translated into a range of English sentences that themselves have quite different truth conditions. The translations presented under the Navajo are due to consultants or, where indicated, to Young and Morgan (1987) or Willie (1996). If consultants provided multiple English translations, I have included them all. For example, the following example shows translations provided by consultants for a single sentence with *daats'í*:

(6) Nahałtin **daats'í**
3S.rain DAATS'Í
a. 'Is it raining?'
b. 'I wonder if it's raining.'
c. 'I don't know if it's raining or not.'
d. 'Maybe it's raining, or maybe not.'
e. 'It might be raining.'

To address these challenges, I follow the methodology for semantic fieldwork outlined by Matthewson (2004). Matthewson argues that the only "real evidence about truth conditions is truth value judgments in particular contexts" (2004: 389). The primary elicitation method that I used was presenting consultants with a context in English intended to target a particular type of semantic value or syntactic position. Sentences were tested within these contexts for felicity and

grammaticality. Consultants were then asked either to (a) provide a Navajo sentence that would be appropriate in the context, or (b) judge whether a pre-constructed Navajo sentence would sound "acceptable" in the context. If a sentence was judged "unacceptable" by the consultant, the sentence was tested in different contexts to determine if the sentence was ungrammatical or infelicitous. Navajo sentences provided by consultants were later re-tested with other consultants.

Where possible, Navajo sentences presented to consultants were taken from the Young and Morgan (1987) Navajo dictionary. Each dictionary entry illustrates lexical items in a wide range of sentences taken from texts and interviews with native speakers between 1910 and 1970. I also supplemented the Young and Morgan sentences with sentences from interviews between native speaker (and consultant) Louise Kerley and her sister. These interviews were transcribed in full and translated by Ms. Kerley and are available for public access in the Northern Arizona University Colorado Plateau Archives.

A final aspect of data collection is speaker commentary and introspection. Like translations, comments are taken as clues to meaning rather than results about meaning. Matthewson recommends that the fieldworker record all comments and judge how these clues can be interpreted (2004: 408). While consultants were not asked to provide linguistic analysis through their comments, comments frequently proved valuable both as clues to the analysis and to indicate what types of sentences and contexts to test in the future. The primary classes of comments of collection speak to grammaticality (e.g., "it sounds wrong to have *daats'í* there"), felicity conditions and context (e.g., "with *daats'í*, it sounds like she'd be guessing"), or how the sentence might function in a conversation. Where comments were crucial clues to the analysis, I have included the comments in full.

3.0 Polarity association of *daats'í*

Consultants provided a range of translations for *daats'í* in matrix sentences, including as polar questions (7a) but also as non-interrogative statements of wondering (7b), uncertainty (7c), and disjunctive (7d) and non-disjunctive modal sentences (7e). The unifying feature of these translations is that the speaker is uncertain about whether it is raining, or not.

(7) Nahałtin **daats'í**
3S.rain DAATS'Í
a. 'Is it raining?'
b. 'I wonder if it's raining.'
c. 'I don't know if it's raining or not.'
d. 'Maybe it's raining, or maybe not.'
e. 'It might be raining.'

The various methods of translation do not have a one-to-one relationship with different types of contexts. In many contexts, consultants provided multiple translations from the list given below and indicated that all of the English translations are appropriate translations for the Navajo sentence. That is, the structure represented by the Navajo sentence in (7) is not mapped onto an interrogative structure in some contexts, and onto a declarative in other contexts.

The following subsections present additional evidence that *daats'í* cannot be reduced to either interrogatives or modals. The formal analysis of these data to be developed in Section 5 is previewed in Sect 3.3, where the terms 'alternatives' and 'polarity association' are introduced. In

Section 5, I will argue that the multiplicity of translations for (7) arises from a single syntactic and semantic object that lacks a simple truth conditionally equivalent counterpart in English.

3.1 *Comparison of* daats'í *with interrogatives*

In this section, I compare *daats'í* with Navajo polar questions. Polar questions are formed by cliticizing the particle *=ísh* to (typically) the first word in the clause.[3]

(8) Dichin=**ísh** ńlį́.
hunger=Q 2S.be
'Are you hungry?' (Young and Morgan 1987: d472)

The examples in (9) show that *daats'í* cannot co-occur with a polar question enclitic. Two possible combinations are represented:

(9) a. * Dichin=**ísh daats'í** ńlį́.
hunger=Q DAATS'Í 2S.be

b. * Dichin=**ísh** ńlį́ **daats'í.**
hunger=Q 2S.be DAATS'Í
Comment: "*=ísh* and *daats'í* don't go together. If you want a question with *=ísh*, you would just leave out *daats'í*."

The ungrammaticality of (9) might suggest that *daats'í* and the question enclitic serve the same function of introducing interrogativity: their co-occurrence could be ruled out due to redundancy. We can test whether *daats'í* actually has an interrogative meaning by determining whether *daats'í* sentences meet characteristics independently identified for interrogative sentences. I adopt the following list of characteristics from Caponigro and Sprouse (2007).

(10) True interrogative utterances are requests by the speaker for information from the addressee, such that:
a. An answer is required from the addressee in order for the dialogue to be felicitous.
b. The speaker doesn't know the answer, but thinks the addressee may know.

I test sentences with *daats'í* with respect to both characteristics in turn.

---

[3] In addition, the question particle *da'* appears in sentence initial position with *=ísh*, in which case *=ísh* attaches to the second word in the clause (i). It is also possible for a polar question to be formed by *da'* alone (ii).

(i) **Da'** dichin=**ísh** ńlį́?
Q hunger=Q 2S.be
'Are you hungry?'
(Young and Morgan 1987: d472)

(ii) **Da'** kintah=góó díníyá?
Q town=toward 2S.go
'Are you going to town?'
(Young and Morgan 1987: d301)

Young and Morgan (1987) report that there is no difference between questions with *da'* and questions formed by *=ísh* alone. I set aside further exploration of *da'* polar questions for the purposes of this paper.

First, interrogatives require an answer from the addressee in order for the dialogue to proceed felicitously. We predict that infelicity will arise both when the addressee fails to answer the question at all, or when the addressee fails to answer the question in an appropriate way. I focus on inappropriate answers to polar questions.[4] The responses in (11) represent some typically felicitous and infelicitous responses to interrogatives in English. Similar responses are discussed by Ciardelli et al. (2009). Very informally stated, appropriate responses to a polar questions help the speaker (asker of the question) to move toward resolving the issue raised by the question by adding information to, e.g., the common ground (e.g., Stalnaker 1974). If the addressee of the question cannot resolve the issue, she can reply that she does not know.

(11) a. *Speaker:* Will Ted come?
b. *Addressee:*
i. Yes.
ii. I don't know.
iii. No.
iv. # Will Ted come?
v. # Okay then, I'll make frybread.

The response in (iv) is inappropriate because it simply repeats the question that was already asked: it does not resolve the issue raised by the original instance of the question.[5] The response in (v) seems to be infelicitous since the phrase 'okay then' seems to have to pick up some state of affairs from the common ground. If no state of affairs has been established to hold, then 'okay then' is infelicitous. Put differently, use of (v) seems to presuppose that the issue of whether Ted will come has already been resolved – or, minimally, it is a possibility that he will come.

Navajo translations of each of the responses in (11) were tested as responses to follow sentences with *ísh* (12) and sentences with *daats'í* (13). As shown in (12), Navajo *ísh* sentences again pattern like English interrogatives. Responses (i) through (iii) were judged to be felicitous while (iv) and (v) were not.

(12) a. *Speaker:* Ted=**ísh** yiighah?
Ted=Q 3S.will.come
'Will Ted come?'
b. *Addressee:*
i. 'Aoo.
ii. Hóla.
iii. Nidaga'.
iv. # Ted=ísh yiighah?

---

[4] I did not test dialogues in which the addressee fails to respond (e.g., (i)) with consultants.

(i) *Speaker:* Will Ted come?
Addressee: [does not respond]

There are potentially many reasons why the absence of a response in (i) could be inappropriate. Not all of these reasons necessarily identify the speaker's utterance as an interrogative.

[5] The response in (iv) improves if it is preceded by direct admission of agnosticism and placement of focal intonation on the auxiliary.

(i) I don't know, *will* Ted come?

I am not sure why focal intonation helps to ameliorate the response.

v. # ’Akó shíį, dah diniilghazh ła’ ’adeeshłiish.
okay.then frybread some 3O.1S.will.make
‘Okay then, I will make some frybread.’

By contrast, when the speaker utters a *daats’í* sentence, response (v) becomes felicitous. I do not translate the *daats’í* sentence in (13) in order to avoid biasing the classification of *daats’í* as an interrogative marker or as a morpheme with some other function. Consultants were not asked for translations in these contexts, but instead were asked only to judge whether or not the sentence as given in Navajo was ‘appropriate’ to the context.

(13) a. *Speaker:* Ted **daats’í** yiighah.
Ted DAATS’Í 3S.will.come
b. *Addressee:*
i. ‘Aoo.
ii. Hóla.
iii. Nidaga’
iv. # Ted=ísh yiighah?
v. ’Akó shíį, dah diniilghazh ła’ ’adeeshłiish.
okay.then frybread some 3O.1S.will.make
‘Okay then, I will make some frybread.’

Whereas an *ísh* interrogative cannot count as a response to either an *ísh* interrogative or a *daats’í* sentence, a *daats’í* sentence is a felicitous response to an *ísh* interrogative:

(14) *Context:* You (the speaker) ask your sister (the addressee) if Ted will be coming. Your sister isn’t sure: she doesn’t know if he’ll come or not. Either one is possible.
a. *Speaker:* Ted=**ísh** yiighah?
Ted=Q 3S.will.come
‘Will Ted come?’

b. *Addressee:* Ted **daats’í** yiighah.
Ted DAATS’Í 3S.will.come
Comment: “Maybe he’ll come, or not. He might come.”

The generalization so far is that *daats’í* sentences are not necessarily interrogatives, despite the fact that consultants sometimes translate them into English as interrogatives. Informally, *daats’í* sentences are sufficiently informative to count as answers to interrogatives, or to be the basis for further action.

We now turn to Caponigro and Sprouse’s second criterion for interrogative status: interrogatives are felicitous in contexts where the speaker doesn’t know the answer, but thinks the addressee may know. In the general case, consultants judged sentences with *daats’í* to be less felicitous than *ísh* interrogatives in contexts where the speaker believes the addressee will know the answer. In the context in (15), the addressee is more knowledgeable than the speaker. Consultants judged the *daats’í* sentence to be odd.

(15) *Context:* You don't know if it is raining or not. Your coworker just came in from the outside so she will definitely know if it is raining or not. *You say to her*,

a. # Nahałtin **daats'í**.
3S.rain DAATS'Í

b. Nahałtin=**ísh**?
3S.rain=Q
'Is it raining?

The unavailability of *daats'í* in (15) suggests that *daats'í* cannot form an interrogative: even in a context that biases an interrogative interpretation – where the speaker is seeking information from a more knowledgable interlocutor – *daats'í* is generally judged to be infelicitous.[6]

The example in (16) completes the paradigm. If the context is changed such that the addressee is known to be incapable of answering, *daats'í* is felicitous while *ísh* is not.

(16) *Context:* You don't know if it is raining or not. Your coworker has been in your windowless office with you all day so you know she doesn't know. You say to her,

a. # Nahałtin=**ísh**?
3S.rain=Q
'Is it raining?

b. Nahałtin **daats'í**.
3S.rain DAATS'Í

Example (16) shows that while both *daats'í* and *ísh* sentences are felicitous in contexts where the addressee is known to be capable of answering, only *daats'í* is felicitous when the speaker does not think that the addressee is capable of answering.

Sentences with *ísh* pattern like interrogatives according to both of Caponigro and Sprouse's (2007) criteria, while sentences with *daats'í* pattern like interrogatives according to neither. The analysis in Section 5 must capture the differences between interrogatives and *daats'í* sentences while also providing an account of why consultants sometimes chose interrogative translations for *daats'í* sentences.

3.2. *Comparison of* daats'í *with epistemic modal* might

Consultants also frequently translated *daats'í* sentences with English modal elements. I repeat the relevant translations below:

(17) *Context:* You don't know if it is raining or not. *You say:*
Nahałtin **daats'í**.
3S.rain DAATS'Í
Translations: 'Maybe it's raining, or maybe not.', 'It might be raining.'

---

[6] An apparent counter-example to this generalization is discussed in Sect. 6.4.

Willie (1996) characterized *daats'í* as one member of the set of modals in Navajo that expresses a weak notion of epistemic possibility. I agree that *daats'í* indicates that the prejacent – defined as the proposition that remains when *daats'í* is removed – is a possibility given what the speaker's beliefs about the world of utterance. In other words, we might posit that *daats'í* has a meaning identical to English epistemic modal *might*. The denotation in (18) is adapted from the denotation found in Kratzer (1981, 2012) and work by other authors within this framework.

(18) a. For any world w of evaluation, DOX-ALT(w) returns the set of the speaker's doxastic alternatives, or the set of worlds consistent with all of the propositions comprising the speaker's beliefs about w.
b. The function $BW_{\text{stereo}} \in D_{<st,st,>}$ takes the set of worlds returned by DOX-ALT(w). BW_{stereo} returns the set of 'best worlds'. The best worlds are those doxastic alternatives for which hold the most propositions that characterize the 'stereotypical course of events' in w.
c. If defined,
$$[[\textit{might}]]^{c} = \lambda p_{<st>} \lambda w_{s}. \exists w' \in \text{BW}_{\text{STEREO}}(\text{DOX-ALT}(w)).\ p(w')$$

Daats'í and English epistemic *might* both seem to be felicitous in contexts where the speaker has access to indirect inferential evidence for the truth of a proposition. In the following contexts, consultants reported that *daats'í* would be felicitous in the (a) sentences. Consultants were not asked for English translations. According to my judgments for the (b) sentences, English epistemic *might* is also felicitous in these contexts.

(19) *Context:* You hear some sort of animal in your attic. You go up to investigate and see a long furry tail disappearing behind some boxes.
a. Mósi **daats'í** 'át'é.
cat DAATS'Í 3S.be
Comment: "Since you just saw the tail, you're not really sure."
b. It **might** be a cat.

(20) *Context:* You drive past Ellen's house and see that the lights are on and there is a car in the driveway.
a. Ellen **daats'í** sidá.
Ellen DAATS'Í 3S.sit
Comment: "If you don't know because there's more people who live there."
b. Ellen **might** be home.

If the context were defined such that the speaker was more certain about the truth of the proposition, then consultants instead suggested that *shíí* – the 'stronger' modal identified by Willie (1996), Sect. 2 – be used instead of *daats'í*. Very informally, it seems that Navajo *shíí* is felicitous in contexts where English epistemic *must* would be preferable to *might*. I leave exploration of this suggestion to future work.

(21) *Context:* You drive past Ellen's house and see that the lights are on and Ellen's car is in the driveway. You know that Ellen lives alone.

a. Ellen { **sh́ı́** / # **daats'í** } sidá.
Ellen SH́Í DAATS'Í 3S.sit
b. Ellen {**must** / # **might** } be home.

The above examples suggest that in order for both *daats'í* and epistemic *might* to be felicitous, the speaker must believe that the proposition is a possibility given what she knows to be true. However, if the evidence points too strongly in favor of the proposition being true, both *daats'í* and *might* become infelicitous in favor of *sh́ı́* and *must*. While the details of such an analysis would have to be filled in, an analysis of *daats'í* as the Navajo form of epistemic *might* appears promising. In the analysis of *daats'í* in Sect. 5, I will maintain a proposal in which both *daats'í* and English epistemic *might* express that some proposition ϕ holds in at least one of the speaker's doxastic alternatives.

We are left with a last puzzle relating to translations. Consultants did not always translate sentences with *daats'í* simply with *might*. Instead, the disjunctive translation in (22) was frequently offered alongside the other translations including *might* for Navajo sentences given in the same context. Each disjunction seems to express a distinct possibility that is consistent with the state of the world as described by the context.

(22) *Context:* You don't know if it is raining or not. *You say:*
Nahałtin **daats'í**.
3S.rain DAATS'Í
'Maybe it's raining, or maybe not.'

While we cannot take translations as direct evidence for semantic meaning, consultants' persistence in offering disjunctive modal translations for sentences like (22) hint that there is more to the meaning of *daats'í* than just the meaning of *might*. The analysis in Section 5 addresses the possible source of this additional meaning.

3.3. *Summary and introducing 'polarity association'*

We have seen evidence that *daats'í* sentences cannot be analyzed as interrogatives, although interrogatives are frequently offered in consultants' translations of *daats'í* sentences. Furthermore, we have seen that *daats'í* and English weak epistemic modal *might* both express that a proposition is consistent with the speaker's doxastic alternatives (or, belief worlds). At the same time, we can ask whether consultants' decision to translate *daats'í* with disjunctions gives us a further clue to the meaning of *daats'í*.

In Section 5, I formalize these observations by invoking Roothian (1985, 1992) alternatives as determined by focus marking and pragmatics. Until then, however, we will still need a certain amount of vocabulary to informally describe *daats'í* sentences. One of these pieces of vocabulary that I introduce is the informal notion of an alternative. Sentence (23) illustrates.

(23) *Context:* You don't know if it is raining or not. *You say:*
Nahałtin **daats'í**.
3S.rain DAATS'Í

In a context where the speaker does not know what the weather is like, it seems clear that either 'it is raining' or 'it is not raining' could be true. On the basis of the felicity of (23) in this kind of context, I argue that *daats'í* indicates that the Speaker views two propositions as compatible with her belief worlds: 'it is raining' (*nahaltin*) and the negation of this proposition, 'it is not raining.' I refer to the propositions 'it is raining' and 'it is not raining' as 'alternatives.' On the basis of the contexts above which *daats'í* just judged to be felicitous, *daats'í* (roughly) seems to require that both of these alternatives be compatible with the speaker's beliefs about how the world is. Where speakers offered disjunctive translations of *daats'í* sentences – as in (22) – the disjunctions correspond to what I call 'alternatives.'

The sentences we examined in Section 3 were all like (23): the alternatives vary in the value of their polarities (positive vs. negative). In Section 4, we will see that alternatives can also vary with respect to the value of some nominal argument, e.g., the object of the verb. In order to differentiate between these two possibilities, I describe *daats'í* as 'associating' with some syntactic object. *Daats'í* 'associates' with the syntactic object that varies across the set of alternatives. Depending on what *daats'í* associates with, sentences with *daats'í* will have different felicity conditions.

In Section 3, *daats'í* is described as having 'polarity association': because the polarity values differ across the set of alternatives {'it is raining, it is not raining'}, we say that *daats'í* associates with the head bearing polarity information. In Section 4, we will describe *daats'í* as having 'constituent association.' This will indicate that the value of some constituent values across the set of alternatives. The constituents that vary in the examples we look at are always nominal constituents. I retain the label 'constituent association' (rather than, say, 'nominal association') since Section 6 sketches other types of constituent association (e.g., association with a verb, association with a numeral) that we may ultimately want the account to cover.

4.0 Constituent association of *daats'í*

In the previous section, we saw that *daats'í* has qualities in common with epistemic *might*, but it isn't clear that *daats'í* should be analyzed as synonymous with English *might*. Further support for this position is presented in this section. I demonstrate *daats'í* can associate with constituents below the level of the clause. The same is not possible for *might* without special syntax. In this section, I specifically address examples in which *daats'í* associates with nominal arguments or locative modifiers. In Sect. 6.5, I return to examples in which *daats'í* apparently associates with numerals.

The first pair of examples that we will examine is shown in (24) and (25). In the context in (24), the issue at hand is whether or not Mary's stomach hurts. This context targets polarity association of *daats'í*. In this type of context, consultants reliably suggested Navajo sentences in which *daats'í* occupied a clause-final position. Recall from Sect. 2 that *daats'í* typically occurs in clause-final position in particularly short sentences. Consultants rejected (24b), where *daats'í* is not in clause final position.

(24) *Context:* Your stomach hurts and you think it may have been the lunch they served at lunch. You want to check if anyone else is having the same problem. You are wondering specifically about your friend Mary. *You say:*

a. Mary bibid diniih **daats'í**.
   Mary 3poss.stomach 3S.hurt DAATS'Í

'I wonder if Mary's stomach is hurting.'
'Does Mary's stomach hurt?'

b. ?? Mary bibid **daats'í** diniih.
Mary 3poss.stomach DAATS'Í 3S.hurt

By contrast, in contexts in which a nominal constituent is 'questioned' or 'called into question' by *daats'í*, consultants reliably suggested Navajo sentences in which *daats'í* directly followed that constituent rather than occupy clause-final position (25b). In this type of context, the identity of the object of the verb 'hurt' varies across the alternatives held to be possibilities by the speaker. In the context as given in (25), it is established that some part of Mary's body hurts, but it isn't clear which part it is. In this context, consultants rejected (25a), where *daats'í* occupies clause final position.[7]

(25) *Context:* You see your coworker Mary taking some pain pills. You wonder what is wrong with her. Something definitely is hurting her. It might be her stomach that hurts, or maybe her head, or maybe her back. *You say:*
a. ?? Mary bibid diniih **daats'í**.
Mary 3poss.stomach 3S.hurt DAATS'Í

b. Mary bibid **daats'í** diniih.
Mary 3poss.stomach DAATS'Í 3S.hurt
'It might be Mary's stomach that hurts (or it might be her head).'
'Is it Mary's stomach that hurts? (Or is it her head…).'

Note that both translations of (25b) contain *it*-clefts. It seems that while *daats'í* is inherently capable of associating with nominal constituents, the same is only possible for *might* if a special syntactic structure – an *it*-cleft – is imposed.

To summarize, if the default position of *daats'í* in short sentences like (24)/(25) is clause-final – as is reported to be the case for short sentences (Willie 1996) – then this is the position in which *daats'í* has polarity association. If *daats'í* appears in a position other than this one, then it associates the constituent directly to its left. I refer to such uses of *daats'í* as cases of constituent association: the identity of the (nominal) constituent that *daats'í* follows varies across the alternatives.

The descriptive picture becomes more complex if we consider longer clauses that contain multiple constituents to the left of the verb, e.g., a noun phrase as well as a locative phrase. Willie (1996) reports that the default position of *daats'í* in such clauses is clause-second. This position gives rise to polarity association by *daats'í*. We can again contrast sentences of this

[7] It is interesting that consultants judged (25a) infelicitous in this context. As the context is set up, it should be possible to say (in English) 'Mary's stomach might hurt' or, 'Does Mary's stomach hurt?', to pick two of the frequent methods of translating polarity associative *daats'í* sentences. It is just the case that 'Is it Mary's stomach that hurts?' is only appropriate in this type of context and not in a context where polarity of the proposition is at issue. This issue will have to receive more attention in later study. One possibility to consider is that some general pragmatic principle relating to Maximize Presupposition (Heim 1991, Sauerland 2003) is responsible for the infelicity of (25a) in the context. However, I leave further exploration of the competition between *daats'í* sentences in terms of presuppositions to future work.

shape with sentences in which *daats'í* occurs in a position other than clause-second. Such sentences were only judged felicitous in contexts in which only the constituent directly to the left of *daats'í* is 'questioned.'

The context in (26) is set up such that the speaker is uncertain about the truth of the proposition expressed by the sentence as a whole: the speaker does not know which of *p* (*Dave is riding his horse at the rodeo ground*) and ¬*p* (*Dave is not riding his horse at the rodeo ground*) is true. As discussed in Sect. 3.3, this is the situation that holds when *daats'í* has polarity association. We predict that *daats'í* must be in its default (i.e., clause-second) position in order for this semantic configuration to hold. This prediction is borne out in (26a). In (26b), *daats'í* is in non-default position and the sentence is infelicitous in the context.

(26) *Context:* You know that your friend Dave is out of the house today. He didn't tell you what he'll be doing, but you know that he likes to ride his horse in rodeos, so he might be riding his horse at the rodeo ground. It's just one possibility. *You say:*

a. Naa'ahóhai ná'ádleehí=di **daats'í** łį́į bił naaldloosh.
rodeo.ground=LOC DAATS'Í horse 3O.3S.ride

b. ?? Naa'ahóhai ná'ádleehí=di łį́į **daats'í** bił naaldloosh.
rodeo.ground=LOC horse DAATS'Í 3O.3S.ride
Comment: "We kind of questioned the horse here [whether it is a horse he is riding]."

However, it is not the case that (26b) is an ungrammatical sentence: rather, it is infelicitous in a context targeting polarity association by *daats'í*. In the context in (27), *daats'í* associates only with the nominal constituent *łį́į́* 'horse.' The Speaker is certain that Dave is riding at the rodeo ground, but is uncertain whether he is riding a horse, or some other animal with four legs.[8] The sentence in (27b) was judged felicitous while (27a) was judged infelicitous. Again, if *daats'í* has constituent association, it must directly follow its associate.

(27) *Context:* Your friend Dave went to the rodeo today to ride. He rides various things at the rodeo, depending on the day: he could be riding a horse, a bull, or mule. You wonder if it is a horse that he is riding. *You say:*

a. ?? Naa'ahóhai ná'ádleehí=di **daats'í** łį́į bił naaldloosh.
rodeo.ground=LOC DAATS'Í horse 3O.3S.ride

b. Naa'ahóhai ná'ádleehí=di łį́į **daats'í** bił naaldloosh.
rodeo.ground=LOC horse DAATS'Í 3O.3S.ride
Comment: "It sounds like you're questioning the horse."

[8] The verb *bił naaldloosh* can be more literally translated as 'S/he with it moves on all fours.' The portion of meaning 'to move on all fours' is contributed by the verb stem, *-ldloosh* 'to move on all fours' (Young and Morgan 1987: d95). We would expect – and seem to find, judging by consultants' comments – that the alternatives to *horse* would be restricted to animals that are compatible with the verb.

We have seen two examples in which *daats'í* associates with a nominal argument. The context in (28) targets constituent association of *daats'í* with a nominal phrase marked by the locative enclitic *=di* 'at.' In the context, it has already been established that Anne's brother is running: only the location is uncertain. In this context, *daats'í* must directly follow the locative phrase *tsékoohdi* 'at the canyon' (28a). It cannot occur in its default position (28b), which we predict would give rise to polarity association by *daats'í*, which is incompatible with the context as it has been given.

(28) *Context:* Anne wakes up and finds that her younger brother is not at home. She finds a note in which he tells her that he has gone running. His running shoes and shorts are also missing. She knows he is definitely running somewhere. Anne wonders about where he might be running. She has some places in mind (the canyon, the town, the school, the park). *Anne thinks:*

a. Sitsilí tsékooh=di **daats'í** dilwoł.
1poss.little.brother canyon=LOC DAATS'Í 3S.run
'Would he be at the canyon now?' 'I wonder if he's running at the canyon.'

b. ?? Sitsilí **daats'í** tsékooh=di dilwoł.
1poss.little.brother DAATS'Í canyon=LOC 3S.run
'I wonder if he's running at the canyon.'

So far, we have seen that *daats'í* can associate with a particular constituent within a larger clause. The identity of this constituent varies across the alternatives compatible with the speaker's beliefs. As several of the consultant comments and translations reported in this section show, consultants often used English interrogatives or invoked the idea of 'questioning' to approximate the meaning of *daats'í*. The same phenomenon was observed in Sect. 3 in examples where *daats'í* had polarity association. We saw in Sect. 3.1 that despite their translations, *daats'í* sentences did not exhibit the characteristics of true interrogative utterances. One piece of evidence for that claim was that *daats'í* sentences could be responded to with sentences like (29b) while this response was not possible for true interrogatives (30).

(29) a. *Speaker:* Mary bibid **daats'í** diniih.
Mary 3poss.stomach DAATS'Í 3S.hurt
b. *Addressee:* 'Akó sh̨į́, I will buy medicine.
okay then (…I will buy medicine).

(30) a. *Speaker:* Mary=**ísh** bibid diniih?
Mary=Q 3poss.stomach 3S.hurt
'Does Mary's stomach hurt?'
b. *Addressee:* # 'Akó sh̨į́, I will buy medicine.
okay then (…I will buy medicine).

In Sect. 3.1, I claimed that responses like those of the addressee shown above are infelicitous with true interrogatives because the phrase 'okay then' seems to pick up some state of affairs from the common ground. If no state of affairs has been established to hold, then 'okay

then' is infelicitous. An interrogative would not establish that a particular state of affairs holds, but instead asks which *does* hold. By contrast, the *daats'í* sentences here and in Sect. 3.1 seem to at least partially resolve the issue of whether Mary's stomach hurts: it is a possibility given what the speaker knows.

A final issue that I leave largely unaddressed in this paper is whether *daats'í* can ever have constituent association with a verbal constituent. An example that should be tested in future work is given in (31). In a longer sentence like this one, we would expect *daats'í* to occur in second position (after *Sam*) if *daats'í* were to have polarity association.

(31) *To be tested:*
Sam ɬíį bił naaldloosh **daats'í**
Sam horse 3O.3S.ride DAATS'Í
Intended: 'Maybe it was *riding* that Sam did to the horse (or maybe he roped it, or maybe he fed it,…).'

In the fieldwork that I have conducted to this point, no examples like (31) have been attested. I return to this apparent restriction in Sect. 6.1.

4.2 *Summary of observations about* daats'í

The primary conclusion of Sections 3 and 4 is that *daats'í* can have either polarity association or constituent association. Linear position of *daats'í* is important for determining its association. If *daats'í* occurs in 'default' position (clause-final in short sentences, clause-second in longer sentences), it has polarity association. If *daats'í* directly follows a numeral, nominal, or locative constituent, it can have constituent association: only that constituent is 'questioned' by *daats'í*. These observations are summarized in (32).

(32) *Daats'í* can have either polar association or constituent association.
a. When *daats'í* has constituent association with some constituent α, then the alternatives are propositions in which only the value of α varies.
b. When *daats'í* has polar association, then the set of alternatives that must be compatible with the Speaker's beliefs are two propositions ϕ and $\neg\phi$. The value of the polarity of the proposition differs across alternatives.

Despite being able to have constituent or polarity association, the core meaning of *daats'í* is invariant. In all of the examples we have seen so far, the speaker seems to be expressing that a particular proposition is a possibility given her beliefs about the world. In addition, sentences with *daats'í* seem to express that there are alternative propositions which are also possible given what the speaker knows to be the case.

(33) *Daats'í* sentences are only felicitous where the speaker's beliefs about the world are such that some ϕ and all members of a set of alternatives to ϕ are compatible with these beliefs.

The empirical observations in (32) and (33) are the basis of the formal analysis developed in the next section.

In addition, the analysis should ultimately capture the following observations about the linear placement of *daats'í*.

(34) a. Polarity association:
i. In longer sentences, *daats'í* occurs in second position.
ii. In shorter sentences, *daats'í* occurs in final position.
b. Constituent association:
Daats'í directly follows the constituent that it associates with.

Apart from observation (34b), addressing issues of linear placement of *daats'í* is largely left aside for the remainder of the paper, with the exception of a few brief remarks made in Sect. 6.1.

5.0 Alternatives-based analysis of *daats'í*

In this section, I propose a semantic analysis for *daats'í* sentences within the framework of alternative semantics (Rooth 1985, 1992, 1996). I argue that *daats'í* is a focus sensitive operator that occurs in sentences in which there is a focus-marked phrase. The identity of this focus-marked phrase determines whether the sentence would be classified as a case of 'constituent associative' *daats'í* (Sect. 4) or 'polarity associative' *daats'í* (Sect. 3). In sentences where *daats'í* has been described as having constituent association, a nominal phrase is focus-marked. In sentences described as cases of polar association by *daats'í*, the polarity head is focus-marked.

The discussion proceeds as follows. First, since the proposal for *daats'í* draws on previous work on English focus-sensitive operator *only*, I briefly summarize treatment of focus sensitive operators within the alternative semantics framework (Rooth 1985, 1992). Next, I provide accounts of constituent and polar association. In addition to differences in the focus-marked element, I propose that there are two flavors of *daats'í*: adnominal and adclausal. This portion of the discussion follows work on *only*. Finally, I address possible questions for the account, including realization of focus marking in Navajo and the existence of potentially ambiguous sentences.

5.1. *Overview of focus operators within the alternative semantics framework*

The proposal for *daats'í* is developed in the framework of Rooth's (1985, 1992) alternative semantics. Alterative semantics posits that a second set of semantic values – the focus semantic value (35a) – exists for a phrase ϕ, alongside the ordinary semantic value of phrase ϕ (35b).

(35) a. $[[\phi]]^f$ *Focus semantic value*
b. $[[\phi]]^o$ *Ordinary semantic value*

In the absence of focus (F-) marking, the focus semantic value of some head is the unit set of its ordinary semantic value:

(36) a. $[[\text{dances}]]^o = \lambda x \lambda w.x$ dances in w
b. $[[\text{dances}]]^f = \{\lambda x \lambda w.x$ dances in $w\}$

Focus semantic values become more distinct from ordinary semantic values when phrase ϕ is F-marked. In English, F-marking is indicated by particular prosody while in other languages, it may be indicated by special focus particles. The focus semantic value of an F-marked phrase ϕ is the domain of all semantic objects of the same type as ϕ. For instance, if the NP *stomach* is F-marked, its focus semantic value is the domain of type e individuals. Here and elsewhere, I follow convention and indicate F-marking with subscripted $_F$ and capitalization of the portion of the phrase that receives prosodic emphasis in English.

(37) a. $[[\text{Mary}]]^o$ = Mary
b. $[[\text{MARY}_F]]^f = D_e$

Focus semantic values compose through pointwise Function Application. For instance, if (36b) composes with (37b), each member of the domain D_e composes with the type <est> predicate. The formalization used to represent pointwise Function Application in later discussion is exemplified below.

(38) *Pointwise Function Application*
$[[\text{MARY}_F \text{ dances}]]^f = \{ p_{<st>} : \exists x \in D_e.\ p = \lambda w : x \text{ dances in } w \}$
'The set of propositions of the form '*x* dances in *w*'

Rooth (1985, 1992) identifies various grammatical phenomena that can be formalized – and related – by invoking focus semantic values. Among these phenomena are focus sensitive operators, such as *only* and *even*. The interpretation of these operators depends on the placement of F-marking within the sentence. A very informal and general characterization of *only* is given in (39a). The sentences in (39b) and (39c) represent two different interpretations of *only* depending on which phrase is F-marked.

(39) a. *only*(α): α and not any alternative to α.
b. We have only invited [uncle THEodore$_F$].
≈ We have invited uncle Theodore and no one else (e.g., **uncle Chester**, **grandpa Ed**, **uncle Mike**, **grandma Mary**).
c. We have only [inVIted$_F$] uncle Theodore.
≈ We have invited uncle Theodore, but we haven't done anything else to him (**e.g., follow up with him by phone, sent him a subpoena**).

In the sentences in (39), the bolded portion of the paraphrase names alternatives to the F-marked constituent. Here – and in later discussion – I use the term 'alternatives' in a different – and somewhat more formal – sense than I used it in Sections 3 and 4. Rooth (1992) characterizes alternatives in the relevant sense as follows:

> "At an intuitive level, we think of the focus semantic value of a sentence as a set of alternatives from which the ordinary semantic value is drawn, or a set of propositions which potentially contrast with the ordinary semantic value." (Rooth 1992: 76)

The alternatives to a particular F-marked constituent are of the same semantic type as the F-marked constituent. The alternatives in (39b) is a set of individuals while the alternatives in (39c) is a set of verb phrases.

However, the set of alternatives to a phrase cannot be the entirety of that phrase's focus semantic value. The focus semantic value of a DP like *uncle Theodore* is the infinitely large domain of individuals D_e: in most cases, we would want at least to restrict the set of alternatives to, say, humans who are capable of accepting an invitation. In many cases, we want to restrict the set of alternatives much more. In order for the sentence in (40) to be felicitous in the context as given, it must be the case that *only* is evaluated relative to some set of relatives that is not only much smaller than the domain of individuals but also excludes the relatives of *your mother*. The alternative set in (40) only contains relatives of *your father*.

(40) *Context:* We have invited all siblings of your mother but, I noticed, we have really neglected your father's relatives. *I say:*
So far, we have only invited [uncle THEodore]$_F$.
≈ We have invited uncle Theodore **and none of your father's other relatives**.
(Riester and Kamp 2010)

The set of alternatives is abbreviated as *C*. The variable *C* is pragmatically valued. One mode of valuation of *C* discussed by Rooth (1992, 1996) is equation of *C* with the ordinary semantic value of a question (i.e., a set of propositions) available in the local discourse. In the absence of a question in the discourse, other linguistic cues can be used to delimit *C*. For instance, the position of F-marking can suggest a particular set of alternatives to the F-marked item. Wagner (2005) presents the following discourse as one in which *C* is restricted in part by the placement of F-marking on *blue*:

(41) A: What kind of convertibles does she like?
B: She likes BLUE$_F$ convertibles.

The question asked by A is not 'What color of convertibles does she like?' but this question still values *C* for the F-marked constituent *blue* in B's response. Reconstruction of this value for *C* is due to a combination of A's question – which concerns kinds of convertibles – and B's answer – which contains an F-marked color term. Wagner argues that the saliency of the color term *blue* is responsible for restricting *C* to a set like {*blue*, *red*, *yellow*} instead of a set containing kinds of convertibles, more broadly construed (e.g., {*blue*, *vintage*, *red*, *Ford*}).

In order to define the relationship between a phrase's focus semantic value and *C*, Rooth introduces the focus interpretation (squiggle, ~) operator. The focus interpretation operator is inserted in the syntax at the level at which focus is interpreted regardless of the type of its syntactic associate (e.g., individual, proposition, or property). The focus interpretation operator imposes the presuppositions in (42) on *C*:

(42) $\phi \sim C$ introduces the presupposition that:[9]
i. $[[C]] \subseteq [[\phi]]^f$

[9] I suppress appearance of assignment functions *g* for perspicuity.

ii. $\exists\varphi$ such that $\varphi \in [[C]]^o$ & $\varphi \neq [[\phi]]^o$

'*C* is a subset of the focus semantic value of ϕ and there exists at least one element φ in *C* that is distinct from the ordinary semantic value of ϕ.' (Rooth 1996: 279)

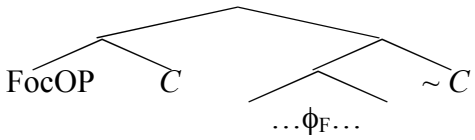
Once the focus interpretation operator has applied to some ϕ (or, 'focus has been interpreted'), the semantic effect of F-marking within ϕ is neutralized.

(43) a. $[[\phi \sim C]]^f = \{ [[\phi]]^o \}$ (Rooth 1992: 95)

b. By (43a), the ordinary semantic value corresponding to the phrase [ϕ ~ *C*] is $[[\phi]]^o$.

The alternative set *C* is taken as argument by focus sensitive operators like *only*. Focus sensitive operators (FocOP) stand in the following general configuration with the focus interpretation operator: There may be additional layers of structure above the projection containing ~*C*, but it is always the case that the sister of FocOP(*C*) contains the F-marked phrase.

(44)



Several different entries for *only* have been posited within the framework of alternative semantics. Rooth (1996) discusses an entry for *only* that attaches at the level of the clause.

(45) [[*only*]] $= \lambda C \lambda p \lambda w \forall q.q \in C \,\&\, q(w) \rightarrow p \subseteq q$ (adapt. Rooth 1996: 280)

'For all propositions *q*, if *q* is in the alternative set *C* and *q* holds in *w*, then *p* entails *q*.'

From the perspective of alternative semantics, the syntactic position of *only* and the focus interpretation operator does not matter: the important point is the identity of the F-marked phrase. For instance, *only* as defined in (45) can be the form of *only* that is present in both sentences (46a) and (46b), repeated from above.

(46) a. We have only invited [uncle THEodore$_F$].

≈ We have invited uncle Theodore and *no one else.*

b. We have only [inVIted$_F$] uncle Theodore.

≈ We have invited uncle Theodore, *but we haven't done anything else to him* (e.g., follow up with him by phone, sent him a subpoena).

The apparent difference in the interpretation of *only* results from the choice of F-marked phrase and the effect of this choice on the value of *C*, the first argument to *only*. Put differently, for both sentences *C* will be a set of propositions. These sets of propositions will differ only in which element is abstracted over. In (46a), the type e object argument is abstracted over. In (46b), the type <est> predicate is abstracted over.

Outside of the framework of alternative semantics, it is not uncommon for authors to argue that (at least Germanic) languages have an adnominal form of focus operators like *only*,

which exists alongside forms like (45). Among the authors who take up this point of view is von Stechow (1991) for German.

I set aside the proper analysis of *only* in Germanic languages for the time being. In the next subsection, however, I will propose that constituent association by *daats'í* involves an adnominal form of *daats'í*. As such, it will be helpful to have an adnominal entry for *only* as a model:

(47) $[[only_{\text{adnom}}]] = \lambda C \lambda x_e \lambda f_{<est>} \lambda w_s . f(x)(w) \ \& \ \forall y \in C, f(y)(w) \rightarrow y = x$

The adnominal and adclausal forms of *only* differ chiefly in that adnominal *only* must occur syntactically quite close to the F-marked phrase. In a sense, adnominal *only* helps to indicate which constituent is F-marked (Krifka 2001/2002). In languages where there are no obvious prosodic reflexes of F-marking, one might expect a more general strategy of having multiple entries defined for each type of focus sensitive operator (e.g., *only*, *even*) such that the operator can help the addressee understand the speaker's intended placement of focus. I return briefly below to discuss this issue in Navajo.

5.2. *Constituent association by* daats'í

I motivate the analysis for *daats'í* with constituent association using (48):

(48) *Context:* You see your coworker Mary taking some pain pills. You wonder what is wrong with her. Something definitely is hurting her. It might be her stomach that hurts, or maybe her head, or maybe her back. *You say:*
Mary bibid **daats'í** diniih.
Mary 3poss.stomach DAATS'Í 3S.hurt
Translations: 'It might be Mary's stomach that hurts (or it might be her head).'
'Is it Mary's stomach that hurts? (Or is it her head…).'

The relevant empirical observations for constituent association are repeated below.

(49) a. *Daats'í* sentences are only felicitous where the speaker's beliefs about the world are such that some ϕ and all members of a set of alternatives to ϕ are compatible with these beliefs.
b. When *daats'í* has constituent association with some constituent α, then the alternatives are propositions in which only the value of α differs.

When we initially set out these empirical observations, we did not formally define 'alternatives' or specify what it meant for *daats'í* to 'associate' with a particular constituent. We are now in a position to formalize these notions within the framework of alternative semantics. I claim that *daats'í* is a focus sensitive operator that, like *only*, takes as argument a set of alternatives *C* determined on the basis of context and the focus semantic value of the F-marked constituent. In sentences that I have described as exhibiting 'constituent associative' uses of *daats'í*, a nominal phrase is F-marked.

Furthermore, when it has constituent association, *daats'í* is adnominal. Specifically, I analyze adnominal *daats'í* as adjoining to the DP that contains the F-marked nominal

constituent. The main evidence in favor of this claim is that in such examples as discussed in Sect. 4, *daats'í* must be syntactically adjacent to the constituent that it associates with (i.e., the F-marked constituent). This provides some evidence that *daats'í* must be capable of being syntactically adjoined to a nominal constituent. Recall from Sect. 4 that in a context like (48), the word order in (50) is infelicitous, presumably because the correct syntactic relationship does not hold between *daats'í* and the F-marked constituent, which I argue below is *bid* 'stomach.'

(50) Mary bibid diniih **daats'í**.
Mary 3poss.stomach 3S.hurt DAATS'Í

Recall from discussion above that the use of specialized forms of focus sensitive operator (e.g., adnominal *only* and adnominal *daats'í*) may be a valuable strategy in languages where F-marking is not overtly realized (Krifka 2001/2002). The syntactic placement of the operator will indicate the placement of F-marking. While I invoke F-marking in Navajo, it has both been argued (McDonough 2002) and more casually observed (Peggy Speas, p.c.) that Navajo does not seem to use special prosody to differentiate polar questions and focus constructions from their declarative or non-focal counterparts. I return to this issue in more detail in Sect. 6.1. If it is the case that Navajo lacks overt reflexes of F-marking, then an adnominal entry for *daats'í* could aid interlocutors' comprehension of intended F-marking placement.

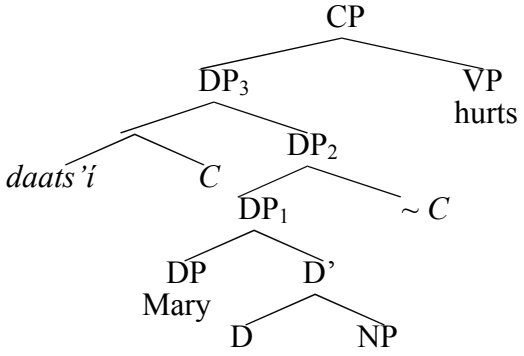
I define adnominal *daats'í* as in (51). This denotation is intended to capture the informal observation that all members of the set of alternatives (*C*) are possibilities given the speaker's beliefs about the world. Furthermore, at least one of the best worlds is a world in which the proposition containing the overtly named alternative holds.

(51) a. For any world *w* of evaluation, DOX-ALT(*w*) returns the set of the speaker's doxastic alternatives, or the set of worlds consistent with all of the propositions comprising the speaker's beliefs about *w*.
b. The function $BW_{stereo} \in D_{<s,st,>}$ takes the set of worlds returned by DOX-ALT(*w*). BW_{stereo} returns the set of 'best worlds'. The best worlds are those doxastic alternatives for which hold the most propositions that characterize the 'stereotypical course of events' in *w*.
c. If defined, $[[daats'i_{nominal}]] =$

$$\lambda C \lambda x_e \lambda f_{<e,st>} \lambda w_s . \forall y \in C,$$
$$\exists w' \in \text{DOX-ALT}(w). f(y)(w') \ \& \ \exists w'' \in \text{BW}_{\text{STEREO}}(\text{DOX-ALT}(w)), f(x)(w'')$$

The general syntactic configuration of the focus sensitive operator and the focus interpretation operator is the same as introduced in general terms in (44). *Daats'í* adjoins to the DP.

(52)



‘s STOMACH$_F$

I have F-marked only *bid* ‘stomach’ and not the entire DP *Mary bibid* ‘Mary’s stomach.’ In the context as defined in (48), the Speaker is wondering about which part of Mary is in hurting her: other objects that are not possessed by Mary are not possible alternatives in this context. If the entire DP were F-marked, the focus semantic value of could include any entity of type e, whether or not it is possessed by Mary (e.g., *the cat*, *John’s head*, *Ron’s hand*).

The set *C* taken as argument by *daats’í* and referenced by the focus interpretation operator contains contextually appropriate alternatives to the sister of ~ *C*, the DP *Mary’s stomach*. In the Navajo sentence in (48), it seems reasonable to assume that the verb *diniih* ‘it hurts’ imposes particular selectional restrictions on its subject, i.e., the members of *C*. As in English, only animate individuals can hurt in a literal sense; among animate individuals, body parts are those individuals that are most felicitously capable of hurting. A survey of the Young and Morgan (1987) dictionary entries containing *diniih* ‘it hurts’ suggests that the same restriction holds in Navajo.[10] I assume the following alternative set *C* for the purposes of illustration.

(53) $[[C]]^o$ = {Mary’s stomach, Mary’s head, Mary’s back}

In (54), I show calculation of the ordinary semantic values (regular letters) – and, until the point of focus interpretation, focus semantic values (prime letters) – for the structure in (52).

(54) a. $[[NP]]^o$ = $\lambda z.z$ is a stomach

a’. $[[NP_F]]^f$ = D_{et}

b. $[[D]]^o$ = $\lambda g_{et}\lambda x_e$.the unique y s.t. $g(y)$ & y belongs to x

b’. $[[D]]^f$ = { $[[\text{‘s}]]^o$}
= {$\lambda g_{et}\lambda x_e$.the unique y s.t. $g(y)$ & y belongs to x}

c. $[[D']]^o$ = $[\lambda g_{et}\lambda x_e$.the unique y s.t. $g(y)$ & y belongs to $x](\lambda z.z$ is a stomach)
= λx_e.the unique y s.t. *stomach*(y) & y belongs to x

c’. $[[D']]^f$ = By (60a’), (60b’), and the definition of $[[.]]^f$:
{ $f_{<e,e>} : \exists g \in D_{et} . f = [[\text{‘s}]]^o(g)$ }
= { $f_{<e,e>} : \exists g \in D_{et} . f = [\lambda x_e$.the unique y s.t. $g(y)$ & y belongs to $x]$ }

d. $[[DP]]^o$ = *Mary*

d’. $[[DP]]^f$ = {*Mary*}

e. $[[DP_1]]^o$ = $[\lambda x_e$.the unique y s.t. *stomach*(y) & y belongs to $x](Mary)$
= the unique y s.t. *stomach*(y) & y belongs to *Mary*

---

[10] It could be the case that more verbs in Navajo in English impose stronger selectional restrictions on their arguments. For instance, see fn. 8 on the verb stem *–ldoosh* ‘to go on all fours.’ Fernald and Willie (2001) discusses the effect of so-called ‘classificatory’ verbs on argument interpretation in various grammatical contexts. Grammatical context as well as discourse context is therefore likely to be an important factor in Navajo in the determination of *C*.

e'. $[[DP_1]]^f$ = By (60c'), (60d'), and the definition of $[[.]]^f$,
$\{ y_e : \exists g \in D_{et} . y =$ [the unique y s.t. $g(y)$ & y belongs to *Mary*] $\}$

f. $[[DP_2]]^o$ = $[[DP_1]]^o$
f'. $[[DP_2]]^f$ = $[[DP_1 \sim C]]^f$
= $[[DP_1]]^f$, just in case the following presupposition is met:

i. $[[C]] \subseteq [[\phi]]^f$
ii. $\exists \varphi$ such that $\varphi \in [[C]]^o$ & $\varphi \neq [[\phi]]^o$

g. $[[C]]^o$ = {Mary's stomach, Mary's head, Mary's back}

h. $[[$*daats'i* $(C)\ ]]^o = [\lambda C \lambda x_e \lambda f_{<e,st>} \lambda w_s . \forall y \in C, \exists w' \in$ DOX-ALT(w).$f(y)(w')$
& $\exists w'' \in BW_{STEREO}($DOX-ALT$(w)), f(x)(w'')]([[C]]^o)$
= $\lambda x_e \lambda f_{<e,st>} \lambda w_s . \forall y \in$ {M's stomach, M's head, M's back},
$\exists w' \in$ DOX-ALT(w).$f(y)(w')$
& $\exists w'' \in BW_{STEREO}($DOX-ALT$(w)), f(x)(w'')$

i. $[[DP_3]]^o$ = $[\lambda x_e \lambda f_{<e,st>} \lambda w_s . \forall y \in$ {M's stomach, M's head, M's back},
$\exists w' \in$ DOX-ALT(w).$f(y)(w')$
& $\exists w'' \in BW_{STEREO}($DOX-ALT$(w)), f(x)(w'')]([[DP_1]])^o$
= $\lambda f_{<e,st>} \lambda w_s . \forall y \in$ {M's stomach, M's head, M's back},
$\exists w' \in$ DOX-ALT(w).$f(y)(w')$
& $\exists w'' \in BW_{STEREO}($DOX-ALT$(w))$,
f(the unique y s.t. *stomach*(y) & y belongs to *Mary*$)(w'')$

j. $[[CP]]^o$ = $[[DP_3]]^o([[VP]]^o)$
= $[\lambda f_{<e,st>} \lambda w_s . \forall y \in$ {M's stomach, M's head, M's back},
$\exists w' \in$ DOX-ALT(w).$f(y)(w')$
& $\exists w'' \in BW_{STEREO}($DOX-ALT$(w))$,
f(the unique y s.t. *stomach*(y) & y belongs to *Mary*$)(w'')$]
($\lambda z \lambda w'.z$ hurts in w')
= $\lambda w_s . \forall y \in$ {M's stomach, M's head, M's back},
$\exists w' \in$ DOX-ALT(w).*hurts*$(y)(w')$
& $\exists w'' \in BW_{STEREO}($DOX-ALT$(w))$,
hurts(the unique y s.t. *stomach*(y) & y belongs to *Mary*$)(w'')$

k. $[[CP]]^o(w_0)$ = $\forall y \in$ {M's stomach, M's head, M's back},
$\exists w' \in$ DOX-ALT(w_0).*hurts*$(y)(w')$
& $\exists w'' \in BW_{STEREO}($DOX-ALT$(w_0))$,
hurts(the unique y s.t. *stomach*(y) & y belongs to *Mary*$)(w'')$

'For all y in the set {Mary's stomach, Mary's head, Mary's back}, there exists a world w' in the set of the speaker's doxastic alternatives (determined relative to the actual world) in which y hurts in w'.

Furthermore, there exists a world *w''* among the set of the best (most stereotypical) doxastic alternatives in which Mary's stomach hurts in *w''*.'

I include in the denotation of *daats'í* the same stereotypical ordering source that we saw in the denotation of *might* in Sect. 3.2 (Kratzer 1981). The speaker's doxastic alternatives are ranked on the basis of how many propositions they satisfy within the stereotypical ordering source. In at least one of the best doxastic alternatives holds the proposition that results from composition of all of the overtly mentioned elements.

We can imagine a simpler denotation of *daats'í* that omits the second conjunction requiring the overt proposition to hold in one of the best doxastic alternatives:

(55) If defined, $[[daats'í_{\text{nominal}}]] = \lambda C \lambda x_e \lambda f_{<e,st>} \lambda w_s . \forall y \in C, \exists w' \in \text{DOX-ALT}(w).f(y)(w')$

Two related problems arise if this denotation of *daats'í* is adopted, however. First, *x*, the DP associate of *daats'í*, is taken as argument by *daats'í* but does not directly contribute to the truth conditions of sentences containing *daats'í*. The DP only indirectly contributes to the felicity conditions of *daats'í* sentences by helping to determine the contents of *C*. We must ask whether it is correct to formulate the operator *daats'í* such that one of its arguments is not directly utilized by the operator.

This first issue is not only theoretical. It also leads to the prediction that all of the pseudo-Navajo sentences in (56) will have the same truth conditions, provided that the value of *C* for each is at least {Mary's stomach, Mary's head, Mary's back}.

(56) a. Mary's STOMACH_F *daats'í* hurts.
b. Mary's HEAD_F *daats'í* hurts.
c. Mary's BACK_F *daats'í* hurts.

The truth conditions of all three sentences will be as in (57):

(57) $[[(56a\text{-}c)]] = \forall y \in \{\text{M's stomach, M's head, M's back}\}, \exists w' \in \text{DOX-ALT}(w_0).hurts(y)(w')$

It does not seem to be a desirable result for three sentences to contain different, non-synonymous lexical items but to have the same truth conditions.

This result is avoided if the denotation for *daats'í* is as in (51). We can illustrate this point with a toy model. Let us assume that the proposition in (58a) comprises the speaker's beliefs about the actual world w_0. The set of doxastic alternatives is the set of worlds that is not incompatible with the speaker's belief. In each doxastic alternatives except w_4, exactly one of the alternatives from *C* hurts.

(58) a. *Mary is taking pain medication in* w_0.
b. $\text{DOX-ALT}(w_0) = \{w_1, w_2, w_3, w_4\}$
w_1: Mary's stomach hurts.
w_2: Mary's head hurts.
w_3: Mary's back hurts.
w_4: Mary is not in pain.

The doxastic alternatives are ranked according to a stereotypical ordering source, or the set of propositions corresponding to the speaker's beliefs about what stereotypically holds in w_0. For the purposes of the toy model, let us assume the ranking in (59). The string '$x < y$' is to be read 'x outranks y.' More propositions from the stereotypical ordering source hold in higher ranked worlds.

(59) $w_1 < w_2 < w_3 < w_4$

Only (56a) is verified by the scenario captured by the toy model. The truth conditions of (56a) are as given in (54k). The best world (w_1) is the world in which *Mary's stomach hurts* is true. In order for (56b) and (56c) to be verified, the (partially defined) rankings would have to be as in (61a,b) respectively:

(60) a. $w_2 < \ldots.$
b. $w_3 < \ldots$

Crucially, under the revised semantics of *daats'í*, it is the case that while (61a-c) are not necessarily verified by the same scenarios – by virtue of having identical truth conditions – they could be verified by the same scenarios if the stereotypical ordering source does not provide a total ranking on worlds.

This seems to be a positive prediction. In the same context from (48) – repeated in (61) – consultant comments suggest that it would have also been possible for the Navajo sentence shown below to have been uttered. Note that (48) differs minimally from (61): the noun *bibid* 'her stomach' in (48) has been replaced with *bitsiits'iin* 'her head' in (61).

(61) *Context:* You see your coworker Mary taking some pain pills. You wonder what is wrong with her. Something definitely is hurting her. It might be her stomach that hurts, or maybe her head, or maybe her back. *You say:*

Mary bitsiits'iin **daats'í** diniih.
Mary 3poss.head DAATS'Í 3S.hurt
Translations:
'It might be Mary's head that hurts (or it might be her stomach).'
'Is it Mary's head that hurts? (Or is it her stomach…).'

As the context is defined in (48)/(61), it is the case that one of Mary's body parts necessarily hurts, but it is unclear which body part hurts. Given only this information, nothing in the stereotypical ordering source permits further ranking on the doxastic alternatives in which 'some body part hurts.' The ranking on worlds described by a context like (48)/(61) could be as shown in (62):

(62) $w_1, w_2, w_3 < w_4$

Given this ranking on worlds, we correctly predict that as long as *daats'í* associates with some member from the set {stomach, head, back}, the resulting Navajo sentence will be felicitous.[11]

5.3. *Account of polarity association*

Using basically the same machinery that we motivated for constituent association, I propose that we can account for the truth conditions of sentences in which *daats'í* has polarity association. The sentence in (63) minimally contrasts with the sentence we examined in Section 5.2.

(63) *Context:* Your stomach hurts and you think it may have been the lunch they served at lunch. You want to check if anyone else is having the same problem. You are wondering specifically about your friend Mary. *You say:*
Mary bibid diniih **daats'í**.
Mary 3poss.stomach 3S.hurt DAATS'Í
'I wonder if Mary's stomach is hurting.'
'Does Mary's stomach hurt?'

I repeat in (64) the empirical observations made about *daats'í* in cases of polarity association in Section 3. These observations can be compared with those made for constituent associative *daats'í* in (49).

(64) a. *Daats'í* sentences are only felicitous where the speaker's beliefs about the world are such that some ϕ and all members of a set of alternatives to ϕ are compatible with these beliefs.
b. When *daats'í* has polar association, then the set of alternatives that must be compatible with the Speaker's beliefs are two propositions ϕ and ¬ϕ.

The analysis for constituent association cannot be directly imported to account for polarity association. First, as argued in Section 4, the alternatives in cases of polarity association by *daats'í* are the propositions *Mary's stomach does not hurt* and *Mary's stomach hurts*. It is no longer the nominal phrase *stomach* that is F-marked: the noun *stomach* is constant across both of the alternatives. The point of variation between the two alternatives is the polarity of the proposition. I propose that the F-marked element is a null polarity head whose possible values are POS and NEG. Polarity heads are type <st,st> operators that take a proposition as argument and return either the proposition with the same polarity value (POS) or the negation of its original polarity value (NEG).[12]

---

[11] It is the case that in (48) and (61), the consultants suggested Navajo sentences with particular nouns ('stomach' or 'head,' respectively). However, given the felicity in the same context of sentences containing either noun, it is likely the case that the choice of noun volunteered by the consultants was influenced strongly by the English prompt sentence and not reflective of the context.

[12] In earlier iterations of this work, I considered the possibility that the entire CP *Mary's stomach hurts* might be F-marked. The focus semantic value of the F-marked CP would be the set of all <st> propositions. In the empirical discussion of *daats'í* with polarity association, I argued that when *daats'í* occurs in this position, other propositions are not potential alternatives to *Mary's stomach hurts* (e.g., *Ron's stomach hurts*, *Mary's head hurts*, *Lunch was*

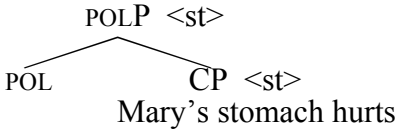
(65) a. [[NEG]] = $\lambda p_{st}\lambda w_s.\ \neg p(w)$
b. [[POS]] = $\lambda p_{st}\lambda w_s.\ p(w)$

In Navajo, while the positive polarity head is null, the negative polarity head is realized with the negative frame *doo…da*, which typically occurs around the negated predicate.

(66) Ted doo doogáá**ł** da.
Ted NEG 3S.will.come NEG
'Ted is not coming.'

I assign both polarity heads the same position in the syntax as shown below:

(67)



There is precedent in the literature for a POS head in Laka (1990) who develops Chomsky's (1957) proposal for AFF, identified as the morpheme that introduces *do*-support. More recent arguments for a polarity head can be found in Caponigro and Polinsky (2011) who motivate it for language from Adyghe (Circassian). In addition, some proposals for verum focus include polarity heads similar to those defined above, e.g., Höhle (1992).[13]

When the NEG or POS polarity head is F-marked, its focus semantic value is the domain of all type <st,st> operators.

(68) a. $[[\text{POS}]]^o = \lambda p_{st}\lambda w_s.\ p(w)$
b. $[[\text{POS}]]^f = D_{<st,st>}$

As with the focus semantic value of type <et> elements, the focus semantic value of an F-marked polarity head will be a set of infinite size. Once again, focus sensitive operators like *daats'í* do not utilize the entire focus semantic value as their set of alternatives. Instead, a subset of the focus semantic value – *C* – functions as the set of alternatives. In the case of constituent association that we examined above, the contents of *C* is restricted both by grammatical context (e.g., restrictions on what types of nouns can 'hurt') and discourse context. Across different contexts, we expect *C* to vary.

By contrast, the contents of *C* in cases of polarity association do not vary across contexts: *C* is always just the set {POS, NEG}. While there are potentially many other operators of type <st,st>, these operators are never included in *C*. I leave unanswered here the question of why this

---

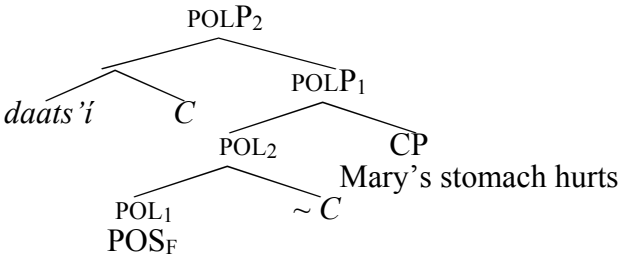
tasty). While it may be challenging under the polarity head analysis to reduce the size of *C* to include only polarity operators, it would be nearly impossible under an F-marked CP analysis to reduce the size of *C* to only the positive and negative propositions, to the exclusion of all other propositions which might be contextually quite salient.

[13] More recent proposals for verum focus (e.g., Romero and Han 2004, Gutzmann and Castroviejo Miró 2011) initially seem informative for an account of polarity association of *daats'í* in Navajo. However, the contribution of verum focus argued convincingly for by Romero and Han (2004) includes an epistemic component. This seems to be a distinct phenomenon from the issue under discussion here, so I keep the proposals distinct.

is the case. Further work must be dedicated to the issue of how *C* can always be restricted to only polarity operators.

Setting aside the issue of *C* for now, we can now turn to the semantics and syntax of *daats'í* as it occurs in cases of polarity association. Under an analysis in which the POL head is F-marked, focus is interpreted at the level of the polarity head.

(69)



Given its adclausal syntax in (69), *daats'í* would have the denotation in (70). After composition with the alternative set *C*, *daats'í* composes with a type <st> proposition corresponding to [POS Mary's stomach hurts].

(70) $[[daats'i_{clausal}]] = \lambda C \lambda p_{<st>} \lambda w_s . \forall q \in C,$
$\exists w' \in \text{DOX-ALT}(w).q(p)(w') \ \& \ \exists w'' \in \text{BW}_{\text{STEREO}}(\text{DOX-ALT}(w)), p(w'')$

I show below the semantic composition of the structure in (69):

(71) a. $[[\text{POL}_1]]^o = [[\text{POS}_F]]^o$
$= \lambda p_{st} \lambda w_s . \ p(w)$
a'. $[[\text{POL}_1]]^f = [[\text{POS}_F]]^f$
$= D_{<st,st>}$

b. $[[\text{POL}_2]]^o = [[\text{POL}_1]]^o$
b'. $[[\text{POL}_2]]^f = [[\text{POL}_1 \sim C]]^f$
$= [[\text{POL}_1]]^f$, just in case the following presupposition is met:
i. $[[C]] \subseteq [[\phi]]^f$
ii. $\exists \varphi$ such that $\varphi \in [[C]]^o \ \& \ \varphi \neq [[\phi]]^o$

c. $[[C]]^o = \{\text{POS}, \text{NEG}\}$

d. $[[\text{CP}]]^o = \lambda w.$[the unique *y* s.t. *stomach*(*y*) & *y* belongs to *Mary*] hurts in *w*

e. $[[\text{POLP}_1]]^o = [\lambda p_{st} \lambda w_s . \ p(w)]$
$(\lambda w.$[the unique *y* s.t. *stomach*(*y*) & *y* belongs to *Mary*] hurts in *w*)
$= \lambda w_s .$ [the unique *y* s.t. *stomach*(*y*) & *y* belongs to *Mary*] hurts in *w*

f. $[[daats'í(C)]]^o = [\lambda C \lambda p_{<st>} \lambda w_s . \forall q \in C,$
$\exists w' \in \text{DOX-ALT}(w).q(p)(w') \ \& \ \exists w'' \in \text{BW}_{\text{STEREO}}(\text{DOX-ALT}(w)), p(w'')]([[C]]^o)$
$= \lambda p_{<st>} \lambda w_s . \forall q \in \{\text{POS, NEG}\},$
$\exists w' \in \text{DOX-ALT}(w).q(p)(w') \ \& \ \exists w'' \in \text{BW}_{\text{STEREO}}(\text{DOX-ALT}(w)), p(w'')$

g. $[[\text{POL}P_2]]^o = [\lambda p_{<st>} \lambda w_s . \forall q \in \{\text{POS, NEG}\},$
$\exists w' \in \text{DOX-ALT}(w).q(p)(w') \ \& \ \exists w'' \in \text{BW}_{\text{STEREO}}(\text{DOX-ALT}(w)), p(w'')]$
$(\lambda w.$[the unique y s.t. *stomach*(y) & y belongs to *Mary*] hurts in w)
$= \lambda w_s . \forall q \in \{\text{POS, NEG}\},$
$\exists w' \in \text{DOX-ALT}(w).q($[the unique y s.t. *stomach*(y) & y belongs to *Mary*] hurts in w') &
$\exists w'' \in \text{BW}_{\text{STEREO}}(\text{DOX-ALT}(w))$, [the unique y s.t. *stomach*(y) & y belongs to *Mary*] hurts in w''

h. $[[\text{POL}P_2]]^o(w_0) = \forall q \in \{\text{POS, NEG}\},$
$\exists w' \in \text{DOX-ALT}(w_0).q($[the unique y s.t. *stomach*(y) & y belongs to *Mary*] hurts in w') &
$\exists w'' \in \text{BW}_{\text{STEREO}}(\text{DOX-ALT}(w_0))$, [the unique y s.t. *stomach*(y) & y belongs to *Mary*] hurts in w''

'For all q in the set {POS, NEG}, there exists a world w' in the speaker's set of doxastic alternatives in which q returns True when applied to the proposition [Mary's stomach hurts in w'] and to w'. Furthermore, in at least one of the best doxastic alternatives w'' (ranked according to the speaker's beliefs about what stereotypically holds in the actual world), it is the case that Mary's stomach hurts in w''.'

Given this semantics for *daats'í*, we do not analyze the two sentences in (72) as having the same truth conditions. That is, they are not *necessarily* verified in the same scenarios.

(72) a. Ted **daats'í** doo doogáá**ł** da.
Ted DAATS'Í NEG 3S.will.come NEG
Intended: Ted NEG_F *daats'í* will come.

b. Ted **daats'í** doogáá**ł**.
Ted DAATS'Í 3S.will.come
Intended: Ted POS_F *daats'í* will come.

Sentence (72a) is felicitous in a context where worlds in which Ted does *not* come are the best-ranked given a stereotypical ordering source. By contrast, (72b) is felicitous in a context where worlds in which Ted *does* come are the best-ranked given a stereotypical ordering source. However, for both sentences, worlds in which the alternative holds must also be accessible given the speaker's knowledge about the world.

As before, although sentences like (72a) and (72b) do not have the same truth conditions – such that they are necessarily verified by the same scenarios – it is still possible to imagine

scenarios in which worlds where Ted does and does not come are equally ranked. In such scenarios, the truth conditions of either sentence in (72) would be verified.

Discussion with consultants suggests that in dialogue contexts where you're truly agnostic about whether Ted is more likely to come or not, the most natural dialogue is one in which the polarity of the *daats'í* sentence that you utter matches the polarity of your interlocutor's earlier statement. This point is illustrated in (73) and (74) for negative and positive polarity clauses, respectively. The only difference between (73) and (74) is the utterance made by 'your sister.'

(73) *Context:* You're planning a party. Your sister asks you if Ted will come to the party. You don't know anything about Ted's plans: he might come, or he might not.
a. *Your sister says:* 'I hope he won't come.'
b. *You say:* Hóla, Ted **daats'í** doo doogáá**ł** da.
don't.know Ted DAATS'Í NEG 3S.will.come NEG
Comment: "You're saying, 'I don't know, maybe he won't come.' You're leaving open the possibly that he won't come, or that he might come. You don't know. Maybe he will, maybe he won't."

(74) *Context:* You're planning a party. Your sister asks you if Ted will come to the party. You don't know anything about Ted's plans: he might come, or he might not.
a. *Your sister says:* 'I hope he comes.'
b. *You say:* Hóla, Ted **daats'í** doogáá**ł**.
don't.know Ted DAATS'Í 3S.will.come
Comment: "You don't know. He might come."

I leave to future work more exploration of dialogue contexts and the interaction between previous discourse and *daats'í* sentences.

6.0 Directions of Future Work

In this section, I address issues related to the formal analysis of *daats'í* in Section 5. I also consider how the work can be linked to ongoing work on alternatives and 'wondering' meanings cross-linguistically.

6.1. *Further questions on focus in Navajo*

Various focus-related constructions have been previously discussed for Navajo. McDonough (2002) reports that Navajo marks contrastive focus by placing the *ga'* particle after the focused noun. The data in (76) are based on discussion from Young and Morgan (1987), Willie (1991), and Hale, Jelinek, and Willie (2001).

(75) a. Sitsilí hoozdoh=di bighan.
1poss.little.brother Tuscon=LOC 3S.live
'My little brother lives in Tucson.'

b. Sitsilí **ga'** hoozdoh=di bighan.

1poss.little.brother FOC Tucson=LOC 3S.live
'It's my little brother who lives in Tucson.'

Drawing on extensive discussion from Perkins (1978), Fernald and Willie (2001) discuss the negative contrastive focus construction in which *hanii* replaces *ga'* in the first clause.

(76) Naaltsoos **hanii** dzídzááłtsooz, nástáán **ga'**.
paper NEG.FOC 3O.1S.put.in.fire logs FOC
'It wasn't the paper that I put in the first, it was the bag of logs.'

On the basis of pitch analysis, McDonough (2002) observes that in focal constructions in Navajo, there are no special prosodic reflexes of focus on the focused nouns themselves. This conclusion is supported by the informal observations of other linguists familiar with Navajo (Peggy Speas, p.c.). Identification of the F-marked noun in (75b) and (76) is made possible by the placement of the focus sensitive operator not by special prosodic emphasis on the noun.

I have proposed that *daats'í* is a member of the set of focus-sensitive operators in Navajo. On the basis of observations from *ga'* and *hanii*, we would not expect to find special prosodic reflexes of F-marking. Indeed, in the elicitation of the *daats'í* sentences discussed throughout this paper, I also noticed no special prosody in either cases of polarity or constituent association. The absence of F-marking in Navajo may be the reason that *daats'í* has both adclausal and adnominal forms, where the linear position of the adnominal form helps to indicate which constituent is F-marked.

However, the authors cited above report that *ga'* and *hanii* only associate with nominal constituents. It is always the case that the focus sensitive operator directly follows the F-marked phrase. Because *daats'í* can have either polarity or constituent association, the linear relationship between *daats'í* and the F-marked phrase is more complex. A single string can be ambiguous between polarity and constituent association. Recall that in longer sentences, the default position for *daats'í* – where it receives polarity associative interpretation – is in the second position in the clause. As a result, strings like (77) are potentially ambiguous between a polarity associative interpretation and a constituent associative interpretation where *daats'í* is adjoined to the locative DP *the rodeo ground*.

(77) Naa'ahóhai ná'ádleehí=di **daats'í** łį́į bił naaldloosh.
rodeo.ground=LOC DAATS'Í horse 3O.3S.ride
a. *Polarity:* 'Maybe s/he is riding a horse at the rodeo ground (or maybe s/he isn't).'
b. *Constituent:* 'Maybe it is at the rodeo ground that she is riding a horse (or maybe it is at the canyon, or maybe it is at the race track…).'

How do Navajo speakers tell which of the two possible interpretations for (77) is intended by a speaker? Is context the only clue to meaning, or is there special prosodic marking of the locative DP when it is F-marked? I leave examination of this issue to future fieldwork.

A second complication in the determination of whether *daats'í* has polarity or constituent association is that sentence length determines the 'default' (polarity associative) placement of *daats'í*. Willie (1996) reports that in short sentences, *daats'í* is in clause-final position while in longer sentences it is in clause-second position. The only inviolable rule seems to be that *daats'í* cannot be in clause-initial position. In sentences with only one word, e.g., (78), we correctly predict *daats'í* to be in final position:

(78) a. Nahałtin **daats'í**.
3S.rain DAATS'Í
b. ***Daats'í** nahałtin.

However, it is less clear why polarity associative *daats'í* occurs clause-finally in the following clause. Why could it not occur in clause-second position after *Mary*?[14]

(79) a. Mary bibid diniih **daats'í**.
Mary 3poss.stomach 3S.hurt DAATS'Í
b. *Mary **daats'í** bibid diniih.

More work will be necessary to isolate the factors that determine the placement of *daats'í* when it has polarity association. One potentially promising direction of study is to compare the Navajo facts with ongoing work on the prosodically determined placement of focus sensitive operators, as in Japanese (Noah Constant, p.c.).

The final question relating to focus in Navajo that I will mention is whether constituents other than nominal – and possibly numeral – phrases can be F-marked and associate with *daats'í*. The examples with *ga'* and *hanii* all feature nominal F-marked phrases. Not only do we not know whether *daats'í* can be used with an F-marked verb (e.g., (80)), but we do not know whether this is possible for *ga'* and *hanii* and Navajo focus sensitive operators more generally.

(80) *To be tested:*
Sam ɬį́į bił naaldloosh **daats'í**
Sam horse 3O.3S.ride DAATS'Í
Intended: 'Maybe it was *riding* that Sam did to the horse (or maybe he roped it, or maybe he fed it,…).'

This issue deserves further work. If focus sensitive operators in Navajo cannot associate with F-marked verbal constituents – or, if verbal constituents cannot be F-marked – why not? Is there simply no semantically or syntactically appropriate entry for *daats'í*? Or is there another more theoretically interesting reason?

6.2. *Polarity vs. clausal association*

---

[14] One possibility is that there is a restriction on the separation of possessors and possessed noun phrases. This does not seem to be generally true in Navajo, however. Faltz (2000) cites the following pair of sentences and reports that both are judged grammatical. In (ib), the possessor *Baa'* is separated from the possessed noun phrase *biyáázh* 'her son' by the locative DP *Kinłánídi* 'in Flagstaff.'

(i) a. Baa' bi=yáázh Kinłání=di naalnish
Baa' 3POSS.son Flagstaff=LOC 3S.work
'Bah's son works in Flagstaff.'
b. Baa' Kinłání=di biyáázh naalnish
Baa' Flagstaff=LOC 3POSS.son 3S.work
'Bah's son works in Flagstaff.' (Faltz 2000: 38-39)

I characterized the *daats'í* sentences in Section 3 as cases of polarity association by *daats'í*. That is, the alternatives vary in terms of their polarity specification. This proposal was indirectly suggested by the consultants' choice of translations. For instance, the sentence in (81) was occasionally translated by consultants as shown in (81a), but never as in (81b).

(81) *Context:* You don't know if it is raining or not. *You say:*
Nahałtin **daats'í**.
3S.rain DAATS'Í
a. *Suggested translation:* 'Maybe it's raining, or maybe not.'
b. *Not given by any consultants:* 'Maybe it's raining, or maybe it's snowing' (or sunny, just cloudy, etc.'

Both modes of translation involve the consultant adding addition lexical material in the form of a disjunction. I took the absence of (b)-type translations as evidence that in sentences like (81), *daats'í* expresses that *it is raining* and *it is not raining* are the only alternative propositions that the speaker claims might hold.

We must consider whether this is a real finding or simply the result of setting contexts up in a way that biased the outcome. As discussed in Section 2.2, translations are not to be taken as direct evidence for meaning. Perhaps if contexts like (82) and (83) were tested, we would find that the alternatives invoked by *daats'í* are not necessarily ϕ and $\neg\phi$ but rather ϕ and some other proposition (or propositions) ψ.

(82) *To be tested:*
Context: You're sitting in a windowless room. You can hear a soft noise outside. The noise could be rain, or it could be snow, or it could just be the wind blowing leaves around. *You say:*
Nahałtin **daats'í**.
3S.rain DAATS'Í
Intended: 'Maybe it's raining (or maybe something else is happening).'
Alternatives: 'It is snowing,' 'The wind is blowing leaves around.'

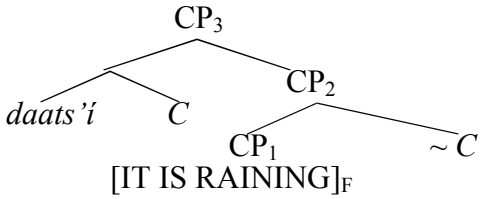
(83) *To be tested:*
Context: You hear a thumping noise coming from outside. It could be a couple of different things making the noise. First, your older sister could be weaving. Second, your younger brother could be dancing. Third, your older brother could be beating a drum. These are some of the possibilities. *You say:*
Shádí **daats'í** yitł'ó
1poss.older.sister DAATS'Í 3O.3S.weave
Intended: 'Maybe my older sister is weaving (or maybe something else is happening).'
Alternatives: 'My younger brother is dancing,' 'My older brother is beating a drum.'

Exploration of this issue will have to be left to future work due to a lack of empirical data.

However, if we do find *daats'í* to be felicitous in contexts like (82) and (83), the analysis developed above can be extended to account for such cases, which I will provisionally term

'clausal association.' The alternative set *C* would be based on the focus semantic value of CP_1 rather than a polarity head. The syntactic structure is shown in (84).

(84)



If we wanted to accommodate structures like (84), we would have to revise our semantics for *daats'í* as in (85).

(85) $[[daats'í_{clausal}]] = \lambda C \lambda p_{<st>} \lambda w_s . \forall q \in C,$
$\exists w' \in \text{DOX-ALT}(w).q(w') \ \& \ \exists w'' \in \text{BW}_{\text{STEREO}}(\text{DOX-ALT}(w)), p(w'')$

The focus semantic value of CP_1 is the set of all propositions. The alternatives within *C* will be a subset of these propositions, *q*. Each *q* must hold in one of the speaker's doxastic alternatives, while *p* – the proposition corresponding to the ordinary semantic value of CP_1 – must hold in at least one of the best doxastic alternatives.

If F-marking of entire clauses is possible in Navajo, the challenge for the analysis will be to restrict *C* sufficiently. In contrast with the case of constituent association – where the meaning of the verb helped to constrain which nouns appeared in *C* – context alone will be responsible for the restriction of *C* to 'relevant' propositions, such as those listed as 'alternatives' in (82). As Constant (2012) writes, "If an entire utterance is focused, we predict no structural restrictions on the alternative set. This leaves the choice of alternatives entirely in the hand of the pragmatics – whichever propositions are "salient"" (Constant 2012: 425).

While Constant does not formalize the precise mechanism by which the pragmatics can restrict a set of propositional alternatives, he notes the general importance of preceding questions in context on the saliency of alternatives. In a discourse like (86), the question in (86a) makes salient the two alternative propositions in (86b). If the *daats'í* sentence in (86c) appears in this context, the alternatives in the *C* taken as argument by *daats'í* will be as in (86b).

(86) a. Is it going to rain tomorrow?
b. {It will rain tomorrow, it will not rain tomorrow}
c. Nahałtin **daats'í**.

By contrast, the question in (87a) makes salient the alternative propositions in (87b). If the *daats'í* sentence in (87c) appears in this context, the alternatives in *C* will be as in (87b).

(87) a. What is making that funny noise on the roof?
b. {It is raining, it is snowing, the wind is blowing leaves around}
c. Nahałtin **daats'í**.

Although this analysis attributes a very powerful role to the context in the determination of *C*, it may allow us to replace our polarity associative *daats'í* (70) with the clausal associative *daats'í* in (85). If clausal association is permitted for *daats'í*, *C* can potentially contain the negation of the original proposition, e.g., 'it is not raining.' Indeed, alternatives like 'it is snowing' will often (but not necessarily) imply 'it is not raining.'

Because the *C* of clausal associative *daats'í* is potentially a superset of the *C* of polarity associative *daats'í*, successfully restricting *C* to polarity alternatives will still be a matter of making the context sufficiently restrictive. If we re-examine the contexts used to illustrate 'polarity associative' *daats'í* in Section 3, we find that the contexts mentioned the polarity alternatives explicitly. That is, the context in (81) is like (86) and not like (87). I leave to future work the question of whether setting up contexts to be more like (87) would cause speakers to give translations of *daats'í* sentences along the lines suggested in (82).

6.3. *The source of apparent interrogativity*

In Section 3.1, I compared *daats'í* sentences to interrogatives in Navajo: consultants frequently suggested polar interrogatives as one of the methods of translating *daats'í* into English where *daats'í* had polar association. When we examined *daats'í* in cases of constituent association in Sect. 4, we again found that consultants often translated these sentences using English interrogatives. However, in cases of both polarity and constituent association, we found that *daats'í* sentences do not behave precisely like interrogatives. In particular, they permit responses in which the addressee takes it as given that a certain state of affairs will hold. Findings like these – along with the data reported in Sect. 3.2 – motivated a modal rather than interrogative analysis of *daats'í*.

However, it is worth asking why interrogative translations were frequently suggested. In particular, consultants and Young and Morgan (1987) report that *daats'í* sentences like (88a) are understood to be 'polite questions.' The 'polite question' usage of *daats'í* is found where the verb is marked for second-person subject: that is, the speaker is questioning the addressee about her own actions or state of being. The regular interrogative (88b) does not have the polite interpretation.

(88) *Context:* Your friend's stomach is growling. You say to her,

a. Dichin ńlį́ **daats'í**.
hunger 2S.be DAATS'Í
Translation: 'Are you hungry?'

b. Dichin=**ísh** ńlį́?
hunger=Q 2S.be
'Are you hungry?' (Young and Morgan 1987: d472)

Given the semantics I have assigned to *daats'í*, the speaker is admitting that her beliefs about the world admit not only the possibility that 'you are hungry' but also the possibility that 'you are not hungry.' *Daats'í* sentences are, in a sense, admissions of ignorance. An admission of ignorance is pragmatically very similar to an interrogative, especially in a context like (88) where the addressee is more capable of answering than the speaker. When a speaker expresses

ignorance about a topic that she knows the addressee is knowledgeable of, there is plausibly activated a general principle of conversational cooperativeness that requires the addressee to fill in the speaker's missing knowledge. The same effect is observed for English sentences like (89).

(89) *Context:* You're talking to your mother-in-law. You want to offer her some baked goods. *You say:*
a. Maybe you're hungry…
b. I wonder if you're hungry…

Even though *daats'í* sentences do not have the semantics or pragmatics of true interrogatives, they can – in the right context – function as requests for information by virtue of general principles of conversational cooperativeness. The 'politeness' component attributed to (88a) is likely due to the absence of a true pragmatic onus placed on the addressee to respond.

In information-seeking contexts, *daats'í* sentences will always be in competition with true *ísh* interrogatives. As a result, there may be contexts in which *daats'í* sentences are judged 'odd' while *ísh* interrogatives are judged felicitous. One such context is given below.

(90) *Context:* You don't know if it is raining or not. Your coworker just came in from the outside so she will definitely know if it is raining or not. *You say to her*,
a. # Nahałtin **daats'í**.
3S.rain DAATS'Í

b. Nahałtin=**ísh**?
3S.rain=Q
'Is it raining?

In this context, the addressee is more knowledgeable than the speaker but consultants judged the *daats'í* sentence to be odd. One possible explanation is that the 'politeness' that arises from *daats'í* sentences is appropriate in contexts where the speaker is inquiring about the addressee's internal state. Asking for information about the weather is not as potentially socially fraught, however. The additional work that the addressee must do to interpret the *daats'í* sentence in (90a) as a request for her input is not balanced by indirectness being desirable in the conversational context. As a result, the *daats'í* is judged to be less felicitous than the *ísh* interrogative.

6.4. *Comparing* daats'í *and* might

At the end of Section 3.2, I pointed out that consultants regularly offered disjunctive translations, as well as translations with *might*, for *daats'í* sentences where *daats'í* has polarity association.

(91) *Context:* You don't know if it is raining or not. *You say:*
Nahałtin **daats'í**.
3S.rain DAATS'Í
'Maybe it's raining, or maybe not.'

'It might be raining.'

This indirectly suggested that perhaps there is a component of meaning in the semantics of *daats'í* that is distinct from the semantics of *might* alone. In Section 5, I argued that *daats'í* indicates that the speaker believes the overtly expressed proposition to be possible, and also indicates that other propositions (which vary from the overtly expressed proposition in a systematic, contextually-constrained way) are also possible. Informally, we can say that a speaker who uses *might* makes no claims about the possibility of any proposition other than the one overtly expressed.

Example (92) shows a previously unconsidered piece of data in which *daats'í* seems to pattern differently from *might*.

(92) *Context:* You left for school before your sister Mary. You and Mary go to the same school. You are telling your mutual friend what you know about Mary.

a. Mary bibid diniih. 'Ólta'góó **daats'í** doogáá**ł**
Mary 3poss.stomach 3S.hurt school.to DAATS'Í 3S.will.go
Translation: 'Mary has a stomachache, will she go to school? I wonder if she'll go. Maybe, maybe not.'

b. Mary's stomach hurts. # She might go to school.

The analysis at present can account for the felicity in (92a). Presumably, *daats'í* is felicitous in this context because worlds in which 'Mary goes to school' are true are equally ranked – or higher ranked – than worlds in which 'Mary does not go to school' are true.

However, it is unclear why (92b) should be infelicitous in the same context. If *might* only requires that at least one (best) world is a world in which Mary comes to school, *might* should not be infelicitous in a context where there is also a good (possibly equal) probability that Mary will *not* come to school. *Might* is agnostic on such alternative propositions.

One analytic possibility is that *might* performs a (not necessarily truth-conditional) function that *daats'í* does not perform. Ciardelli et al. (2011) propose an analysis of *might* within the framework of Inquisitive Semantics. Briefly, they argue not only for the types of meaning usually invoked in Inquisitive Semantics – informative and inquisitive content – but a third type of meaning, 'attentive' content. Attentive content draws attention to certain possibilities. The authors argue that *might* in a sentence like (92b) draws attention to the possibility that Mary might go to school. Ultimately, data like (91) may be best captured by introducing the concept of attentive content to the semantics of *might*, but not into the semantics of *daats'í*.

Perhaps the concept of attentive content can be formalized outside of Inquisitive Semantics by making use of alternative propositions. For instance, perhaps *might* can be defined such that worlds in which alternative propositions hold are necessarily lower ranked than the overtly mentioned proposition, according to the stereotypical ordering source. I leave development of these very initial sketches to future work.

6.5. *Approximative uses of* daats'í

In Section 4, we considered cases of constituent association in which *daats'í* associates with a nominal argument of the verb. There seems to be at least one other kind of constituent (other than polarity heads) *daats'í* can associate with. In (93) *daats'í* seems to associate with numerals.

(93) a. Yiskąago dá'ák'eh=góó 'ashdładi **daats'í** 'ałnáá'deesbąs
tomorrow field=toward five DAATS'Í 1S.will.drive.back.and.forth
'Tomorrow I'll make perhaps five trips back and forth to the field.'
(Young and Morgan 1987: d98)

b. K'ad 'éí 'éidii yęęni náhást'éí **daats'í** tsin naaztą
now those those nine DAATS'Í stick 3S.cost
'Now those (fabrics) are about nine a yard.' (L. Kerley interviews; Tape 2, Line 18)

More work will have to be done to understand precisely what contexts speakers have in mind when they utter sentences like (93). Based on the discourse context from which (93b) was taken, it seems that the question implicit in the discourse is exactly what price the fabrics had, not specifically whether they were nine dollars or not. The speaker seems to have used *daats'í* to express that the numeral named (nine) is approximate.

As a first pass at an informal account, we could say that the alternative set for numeral associative uses of *daats'í* contains numerals whose values are within some contextually delimited range around the overtly mentioned numeral. This 'approximative' interpretation of modal morphemes is not restricted to Navajo. Sauerland and Stateva (2007) discuss approximative interpretations of the normally modal particle *maybe*. However, their account does not make reference to the modal semantics of *maybe* and attempt to relate the two functions. If this is a cross-linguistically attested clustering of functions (approximative and modal) onto single morphemes, there may be a deeper connection between, e.g., notions of scalarity and possibility that deserve further study.

6.6. *Cross-linguistic connections*

Constructions that are at least superficially similar in meaning to (polarity associative) *daats'í* sentences are reported in various languages. The unifying feature of these constructions is the quality of 'wondering' or being an 'indirect question.' Authors cited below who discuss these constructions claim that they indicate speaker uncertainty. They can also be interpreted as requests for information that, unlike true interrogatives, can appear in self-addressed contexts or in contexts with an uninformed addressee. These qualities recall the discussion of polarity associative uses of *daats'í* in Section 3.

When we examine the particular methods by which languages express this type of meaning, we see that languages often use radically different morphosyntactic means, many of which do not even slightly resemble *daats'í*. For instance, Littell et al. (2010) report the existence of 'conjectural questions' in St'át'imcets (Lillooet Salish), Nłeʔkepmxcín (Thompson Salish), and Gitksan (Tsimshianic). The construction is exemplified below for St'át'imcets. Conjectural question meaning arises through the appearance of an interrogative morpheme (e.g., polar question marker) and inferential modal in the same clause.

(94) a. lán=**k'a** kwán-ens-as ni=n-s-mets-cál=a
already=**INFER** take-DIR-3.ERG DET.ABS=1SG.POSS-NOM=write-ACT=EXIS

'She must have already got my letter.'

b. lá=**ha** kwán-ens-as ni=n-s-mets-cál=a
already=Q take-DIR-3.ERG DET.ABS=1SG.POSS-NOM=write-ACT=EXIS
'Has she already got my letter?'

c. lán=**as**=**há**=**k'a** kwán-ens-as ni=n-s-mets-cál=a
already=3SBJN=**Q**=**INFER** take-DIR-3.ERG DET.ABS=1SG.POSS-NOM=write-ACT=EXIS
'I wonder if she's already got my letter.'
'I don't know if she got my letter or not.' (Littell et al. 2010: 89-90)

Seemingly similar meanings are expressed using the *wh*-complementizer *ob* in German (Truckenbrodt 2006). Both Imbabura Quechua (Fasola 2007) and Tseltal Mayan (Shklovsky 2011) express similar meanings with morphemes usually used to express negation.

The morpheme *daats'í* cannot obviously be decomposed into a modal, interrogative morpheme, or negation marker. If the status of these morphemes as interrogative or negation markers is fundamental to the analysis of 'wondering' or 'conjectural questions' in particular languages, then it seems that the analysis of *daats'í* cannot tell us much about how such meanings arise in other languages.

Perhaps more promising is to focus on languages where this type of meaning is expressed, as in Navajo, through the use of single particles. One such language is Japanese. Matsugu (2005) reports that the particle *kana* has been traditionally analyzed as a self-addressed question marker or a marker of doubt. *Kana* appears to be able to associate with entire propositions (95) with a contribution similar to polarity associative uses of *daats'í*.

(95) *Context:* Speaker talking to herself.
Kookoo de atta no **kana**.
high.school at.existed NOM KANA
'Was there [a judo club] at my high school?' (Matsugu 2005: 425)

A particle used in self-addressed questions and other statements of uncertainty has been also identified in Tshangla, a Tibeto-Burman language. Bogal-Allbritten and Schardl (2012) discuss examples like (96) and (97). The particle *gisa* can occur in sentences that would otherwise be declarative (96) or interrogative (97). Both sentences are felicitous in contexts in which the speaker – and the addressee, in the case of (97) – is uncertain.

(96) *Context:* You're sitting inside the library. You don't know what the weather is like outside. You're wondering whether it's raining. *You say to yourself:*
Ngamsu khenca **gisa**.
rain hit GISA
Lit: 'It is raining *gisa*.'
Translation: 'Is it raining?' 'I wonder if it's raining.'
Consultant comment: "You're asking indirectly."

(97) *Context:* You're walking with a friend, Wangmo. You see Tshering going in the opposite direction. You and Wangmo don't know where Tshering is going. *You say:*
Tshering oga denca **gisa**.[15]
Tshering where go GISA
Lit: 'Where is Tshering going *gisa*?
Translation: 'Where is Tshering going?'

In addition, *gisa* can – like *daats'í*, (Sect. 3.1) – function as the response to a polar question (formed with the enclitic *=mo*). Like *daats'í* did, *gisa* in (98) indicates that B is uncertain.

(98) A: Wangmo ophe=mo?
Wangmo will.come=Q
'Will Wangmo come?'

B: Wangmo ophe **gisa**.
Wangmo will.come GISA
'Wangmo might come.'

The analysis of *daats'í* may prove informative for a more formal semantic treatment of *kana*, *gisa*, and other particles that express similar properties.

7.0 Conclusions

I have analyzed the Navajo particle *daats'í* as a focus sensitive operator with a modal semantics. I have posited two forms of *daats'í*: adnominal and adclausal. Their entries are repeated in (99c) and (99d), respectively.

(99) a. For any world w of evaluation, DOX-ALT(w) returns the set of the speaker's doxastic alternatives, or the set of worlds consistent with all of the propositions comprising the speaker's beliefs about w.
b. The function $BW_{\text{stereo}} \in D_{<s,st,>}$ takes the set of worlds returned by DOX-ALT(w). BW_{stereo} returns the set of 'best worlds'. The best worlds are those doxastic alternatives for which hold the most propositions that characterize the 'stereotypical course of events' in w.

c. If defined, $[[daats'í_{\text{nominal}}]] =$ *Adnominal*
$\lambda C \lambda x_e \lambda f_{<e,st>} \lambda w_s . \forall y \in C,$
$\exists w' \in \text{DOX-ALT}(w). f(y)(w') \ \& \ \exists w'' \in \text{BW}_{\text{STEREO}}(\text{DOX-ALT}(w)), f(x)(w'')$

d. If defined, $[[daats'í_{\text{clausal}}]] = \lambda C \lambda p_{<st>} \lambda w_s . \forall q \in C,$ *Adclausal*
$\exists w' \in \text{DOX-ALT}(w). q(p)(w') \ \& \ \exists w'' \in \text{BW}_{\text{STEREO}}(\text{DOX-ALT}(w)), p(w'')$

---

[15] In the absence of *gisa*, (98) would be a normal interrogative utterance:
(i) Tshering oga denca
Tshering where go
'Where is Tshering going?'

Daats'í is added to the set of focus sensitive operators in Navajo. In addition to the specific questions for future work outlined in Sect. 6, this proposal brings out some general directions for further work. First, examination of *daats'í* as a focus sensitive particle may also uncover new observations about the realization of focus-marking within Navajo.

Second, *daats'í* is unique among not only focus sensitive operators in Navajo but focus sensitive operators cross-linguistically in having a modal semantics. To my knowledge, there has not been previous discussion of focus sensitive modal operators. Further cross-linguistic study may turn up similar operators in other languages, however: Scott AnderBois (p.c.) reports that Yucatec Mayan may have such an operator. In addition, modal operators have only recently begun to be considered in frameworks that make use of alternatives in the broadest (non-Roothian) sense, for example the Inquisitive Semantics analysis of *might*, where propositions in general are treated as non-empty sets of possibilities (Ciardelli et al. 2009). If other constructions motivate the integration of alternative semantics and modal semantics, there will undoubtedly be interesting complications and questions that arise which may have ramifications for both systems.

References

Bogal-Allbritten, Elizabeth and Anisa Schardl. 2012. Tshangla conjectural questions. Talk presented at *South Asian Languages: Theory, Typology, and Diachrony* at Yale University, Sept. 28, 2012.

Büring, Daniel and Katharina Hartmann. 2001. The syntax and semantics of focus-sensitive particles in German. *Natural Language and Linguistic Theory* 19: 229-281.

Caponigro, Ivan and Maria Polinsky. 2011. Relative embeddings: a Circassian puzzle for the syntax/semantics interface. *Natural Language and Linguistic Theory* 29: 71-122.

Caponigro, Ivan and Jon Sprouse. 2007. Rhetorical questions as questions. In *Proceedings of Sinn und Bedeutung 11*, 121-133. Barcelona: Universitat Pompeu Fabra.

Chomsky, Noam. 1957. *Syntactic Structures*. Mouton: The Hague.

Ciardelli, Ivano, Jeroen Groenendijk, and Floris Roelofsen. 2009. Attention! *Might* in inquisitive semantics. In *Proceedings of SALT XIX*, ed. E. Cormany, S. Ito, and D. Lutz. Ithaca: Cornell University, 91-108.

Constant, Noah. 2012. English rise-fall-rise: a study in the semantics and pragmatics of intonation. *Linguistics and Philosophy* 35: 407-442.

Faltz, Leonard. 2000. A semantic basis for Navajo syntactic typology. In *The Athabaskan Languages: Perspectives on a Native American Language Family*, eds. Ted Fernald and Paul Platero, 28-50. Oxford: Oxford University Press.

Fasola, Carlos. 2007. A unified semantics for the Quechua question and negation marker *–chu*. In *Proceedings of the Fourth Conference on the Semantics of Under-represented Languages in the Americas*, ed. Amy Rose Deal. Amherst, MA: GLSA, 81-97.

Fernald, Ted and Maryanne Willie. 2002. Navajo classification and coercion. In *Proceedings of the First Conference on the Semantics of Under-represented Languages in the Americas*, eds. Ji-Yung Kim and Adam Werle. Amherst, MA: GLSA.

Gutzmann, Daniel and Elena Castroviejo Miró. 2011. The dimensions of verum. In *Empirical Issues in Syntax and Semantics 8*, ed. O. Bonami and P. Cabredo Hofherr. 143-165.

Hale, Ken, Eloise Jelinek, and Maryanne Willie. 2001. Topic and focus position in Navajo. Ms, MIT and University of Arizona.

Heim, Irene. 1991. Artikel und Definitheit. In *Semantik: Ein internationales Handbuch der zeitgenössischen Forschung,* ed. Arnim von Stechow and Dieter Wunderlich. Berlin: de Gruyter.

Höhle, Tilman N. 1992. Über verum-fokus im deutschen. In *Informationsstruktur und Grammatik*, ed. Joachim Jacobs, 112-141. Westdeutscher Verlag.

Kratzer, Angelika. 2012. *Modals and Conditionals. New and Revised Perspectives*. Oxford University Press.

Kratzer, Angelika. 1981. The notional category of modality. In *Words, Worlds, and Contexts*, ed. H.J. Eikmeyer and H. Rieser. Berlin: de Gruyter. 38-74.

Krifka, Manfred. 2001/2002. Notes on 'Syntax of Focus-Sensitive Particles.' Notes from course on *Topik und Fokus*, Humboldt-Universität. Accessed online: <http://amor.cms.hu-berlin.de/~h2816i3x/Lehre/2001_HS_TopikFokus/TopikFokus6.pdf>

Laka Mugarza, Miren Itziar. 1990. *Negation in syntax: On the nature of functional categories and projections*. Ph.D, MIT.

Littell, Patrick, Lisa Matthewson, and Tyler Peterson. 2010. On the semantics of conjectural questions. In *Evidence from Evidentials*, *UBC Working Papers in Linguistics 28*, ed. Tyler Peterson and Uli Sauerland, 89-104. Vancouver: University of British Columbia.

Matsugu, Yuka. 2005. Japanese epistemic sentence-final particle *kana:* Its function as a 'mitigation marker' in discourse data. *Pragmatics* 15: 423-436.

McDonough, Joyce. 2002. The prosody of interrogative and focus constructions in Navajo. In *Formal Approaches to Functional Phenomena*, eds. Andrew Carnie and Heidi Harley. Amsterdam, John Benjamins.

Perkins, Ellavina. 1978. *The Role of Word Order and Scope in the Interpretation of Navajo Sentences*. Ph.D, University of Arizona.

Riester, Arndt and Hans Kamp. 2010. Squiggly issues: Alternative sets, complex DPs, and intensionality. In *Logic, Language and Meaning*: *Lecture Notes in Computer Science.* 374-383. Accessed online: <http://www.ims.uni-stuttgart.de/~arndt/doc/riesterKampAC09.pdf>.

Rooth, Mats. 1985. *Association with Focus*. Ph.D, University of Massachusetts Amherst.

Rooth, Mats. 1992. A theory of focus interpretation. *Natural Language Semantics* 1: 75-117.

Rooth, Mats. 1996. Focus. In *The Handbook of Contemporary Semantic Theory*, ed. Shalom Lappin. Oxford: Blackwell.

Romero, Maribel and Chung-hye Han. 2004. On negative *yes/no* questions. *Linguistics and Philosophy* 27: 609-658.

Rullmann, Hotze, Lisa Matthewson, and Henry Davis. 2008. Modals as distributive indefinites. *Natural Language Semantics* 16: 317-357.

Sauerland, Uli. 2003. A new semantics for number. In *Proceedings of SALT XIII*, ed. Ro. Young and Y. Zhou. Ithaca, NY: CLC Publications.

Sauerland, Uli and Penka Stateva. 2007. Scalar vs. epistemic vagueness: evidence from approximators. In *Proceedings of SALT XVII*, ed. T. Friedman and M. Gibson. Ithaca, NY: Cornell University, 228-245.

Shklovsky, Kirill. 2011. When negation isn't: Unnegatives in Tseltal. Ms, MIT.

Stalnaker, Robert. 1974. Pragmatic presuppositions. *Semantics and Philosophy*, ed. Milton K. Munitz and Peter Unger. New York: New York University Press. 197-213.

von Stechow, Arnim. 1991. Current issues in the theory of focus. In *Semantik: Ein internationales Handbuch der zeitgenössischen Forschung*, ed. Arnim von Stechow and Dieter Wunderlich. Berlin: de Gruyter. 804-824.

Truckenbrodt, Hubert. 2006. On the semantic motivation of syntactic verb movement to C in German. *Theoretical Linguistics* 32: 257-306.

Wagner, Michael. 2005. *Prosody and Recursion*. Ph.D, MIT.

Willie, Maryanne. 1996. On the expression of modality in Navajo. *Athabaskan Language Studies: Essays in Honor of Robert W. Young*, ed. Eloise Jelinek, Sally Midgette, and Keren Rice, 331-347. Albuquerque: University of New Mexico Press.

Willie, Maryanne. 1991. *Navajo Pronouns and Obviation*. Ph.D, University of Arizona.

Young, Robert and William Morgan. 1987. *The Navajo Language*. Albuquerque: UNM.