

Wondering about the Alternatives in Navajo

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1. Introduction

In this paper, I provide a formal semantic analysis of the Navajo (Southern Athabaskan) particle *daats'i* exemplified in (1) and (2). All translations were offered by consultants in the contexts shown.¹

- (1) *Context:* Your stomach hurts and you wonder if it was the food served at lunch. You wonder if anyone else is having the same problem. You are thinking about your friend Mary. *You say:*

Mary bibid diniih **daats'i**.

Mary 3poss.stomach 3S.hurt DAATS'i

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

'Mary's stomach might hurt, or it might not.' 'Mary's stomach might hurt.'

- (2) *Context:* You see your coworker Mary taking some pain pills. You wonder what is wrong with her. Something definitely is hurting her, but you're not sure what. *You say:*

Mary bibid **daats'i** diniih.

Mary 3poss.stomach DAATS'i 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...).'

Sentences like (1) are felicitous in contexts where the speaker is uncertain whether or not it is the case that 'Mary's stomach hurts' is true. Sentences like (2) are felicitous in contexts where the speaker believes that the predicate ('it hurts') holds of some entity but is uncertain whether it is the mentioned entity (e.g., 'Mary's stomach') or some alternative to that entity (e.g., 'Mary's head'). The parenthetical material in (2) that names a possible alternative was included by consultants, who reported that the translation felt incomplete without it.

I propose that *daats'i* is a focus-sensitive operator. I assume Rooth's (1992) Alternative Semantics account of focus, in which focus-marking on some head generates a set of alternatives to that head. These alternatives can be operated on by focus-sensitive operators, including English *only* and *even* and, I argue, Navajo *daats'i*.

In addition to being focus sensitive, *daats'i* is also an epistemic modal operator: it asserts that each of a set of alternatives is accessible given the speaker's beliefs. The truth conditions of a sentence containing *daats'i* depend on which constituent is focus-marked. In (1), it is a (positive) polarity head that is focus-marked. The speaker in (1) asserts that the alternatives 'Mary's stomach *does* hurt' and

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¹ In order to establish truth conditions for *daats'i*, interviews were conducted with consultants using truth/felicity judgment tasks (Matthewson 2004). After reading and hearing contexts, consultants were asked to translate English sentences paired with each context. Consultants also judged constructed Navajo sentences in contexts.

‘Mary’s stomach does *not* hurt’ are epistemically accessible. In (2), it is the noun ‘stomach’ that is focus-marked. The speaker in (2) asserts that each of a set of alternatives of the form ‘Mary’s x hurts’ is epistemically accessible, where x is contextually restricted to include only body parts.

The paper proceeds as follows. Section 2 briefly outlines Rooth’s Alternative Semantics account of focus. Section 3 summarizes what previous research has determined about modality and focus in Navajo. Section 4 considers examples like (1) and (2) in closer detail to argue that *daats’i* is a focus-sensitive operator. Section 5 motivates a modal semantics for *daats’i*. Section 6 gives a formal analysis of *daats’i* as found in sentences like (1) and (2). Section 7 concludes.

2. Background assumptions about Alternative Semantics

Following Rooth (1992, 1996), I assume that all constituents α have both ordinary ($[[\cdot]]^o$) and focus ($[[\cdot]]^f$) semantic values. If α is not focus (F-) marked, then its focus semantic value is simply the singleton set of its ordinary semantic value (3a). If α is F-marked, then its focus semantic value is the domain of all expressions of the same type as α (3b).

- (3) a.
$$\begin{array}{c} \text{[[Mary]]} \\ \swarrow \quad \searrow \\ \text{[[Mary]]}^o \quad \text{[[Mary]]}^f = \{ \text{[[Mary]]}^o \} \end{array}$$
 b.
$$\begin{array}{c} \text{[[Mary}_F \text{]]} \\ \swarrow \quad \searrow \\ \text{[[Mary}_F\text{]]}^o \quad \text{[[Mary}_F\text{]]}^f = D_e \end{array}$$

Focus semantic values compose by means of pointwise Function Application such that focus semantic values can be defined for entire clauses even if only a subconstituent of that clause is F-marked. The value of the F-marked element varies across each proposition in a set like (4c).

- (4) a. $[[\text{Mary}_F]]^f = D_e$ b. $[[\text{dances}]]^f = \{ \lambda x \lambda w. x \text{ dances in } w \}$
c. $[[\text{Mary}_F \text{ dances}]]^f = \{ p_{\langle st \rangle} : \exists x \in D_e. p = \lambda w : x \text{ dances in } w \}$

Rooth (1992) and many subsequent authors have identified various grammatical phenomena that make use of focus semantic values. Among these are focus sensitive operators (e.g., *only*, *even*). However, operators like *only* are not interpreted with respect to the entire focus semantic value of their complement, but rather with respect to a variable C . The variable C is valued by the context and is referred to as the ‘alternative set.’ Formally, C is defined as a subset of the focus semantic value. The value of C must satisfy the presuppositional restrictions introduced by Rooth’s focus interpretation operator (\sim) (5). C is presupposed to contain both the ordinary semantic value of ϕ and a set of alternatives drawn from the focus semantic value of ϕ . Further valuation of C is dependent on context. Focus sensitive operators (*only* and, I argue, *daats’i*) take C as their first argument (6).

- (5) a. $[[\sim \phi]]^o = [[\phi]]^o$ b. $[[[\sim \phi]]]^f = \{ [[\phi]]^o \}$
c. \sim presupposes context contains antecedent C such that:
i. $[[C]]^o \subseteq [[\phi]]^f$ ii. $\exists \varphi$ such that $\varphi \in [[C]]^o$ & $\varphi \neq [[\phi]]^o$

- (6) $[[\text{only}]] = \lambda C \lambda p \lambda w \forall q. q \in C \ \& \ q(w) \rightarrow p \subseteq q$

3. Background on Navajo

Navajo is a (typically) SOV language with a highly morphologically complex verbal structure. *Daats’i* does not interact with verbal morphology in any discernible way. Given that my proposal is that *daats’i* is a focus-sensitive operator with a modal semantics, it will be useful to first sketch previous discussions of focus and modality in Navajo.

Navajo is claimed to lack a prosodic reflex of focus marking (McDonough 2002). Navajo expresses focal-like meanings by means of particles. The contrastive focus particle *ga’* shown in (7b) directly follows the focused (and, by assumption, F-marked) constituent. It appears to be obligatory for focus particles to directly follow F-marked constituents in Navajo (Fernald and Perkins 2007). Unlike *only*, they cannot associate with focus-marked constituents at a distance.

- (7) a. Sitsilí hoozdoh=di bighan.
 1poss.brother Phoenix=LOC 3S.live
 ‘My brother lives in Phoenix.’
- b. Sitsilí **ga’** hoozdoh=di bighan.
 1poss.brother FOC Phoenix=LOC 3S.live
 ‘It’s my brother who lives in Phoenix.’

Navajo expresses modal meanings by a variety of grammatical means, including particles. Willie (1996) sketches expressions of modality in Navajo, including modal particles. She contrasts the particle *daats’i* with the particle *shíí* shown in (8).

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

Willie (1996: 340) writes that *daats’i* “indicates a weaker possibility” than *shíí*, but does not elaborate on what the source or nature of this relative weakness might be. A naïve hypothesis is that *shíí* and *daats’i* can be analyzed as English epistemic *must* and *might*, respectively. However, this hypothesis seems untenable for two reasons. First, evidence from fieldwork suggests that *shíí* is felicitous in contexts where the evidence would be too weak to license English *must* (9).

- (9) *Context:* You believe that there is a 30% chance that it will rain tomorrow. *You say:*
 Yiskáago **shíí** ’áhoníítá.
 tomorrow SHÍÍ 3S.will.rain
 ‘It might be going to rain tomorrow.’ (# ‘It must be going to rain tomorrow.)

The felicity of (9) suggests that the semantics of *shíí* covers the semantic ground captured by *might* and *must*. For possible analyses, see Rullmann et al. (2008) and Deal (2011).

Second, *daats’i* appears to be capable of associating with constituents below the level of the clause. English modal auxiliaries are only capable of expressing speaker uncertainty about an entire proposition: they cannot be used to express that a predicate definitely applies to some individual whose identity is uncertain. I return to discuss this difference at greater length in Sect. 4 and 5.

4. *Daats’i* is a focus sensitive operator

In this section, I will argue that *daats’i* selects for complements containing a focus (F-) marked head. The value of that head varies across each of a set of possibilities (or, alternatives) under consideration by the speaker. I return to the modal aspect of the analysis in Sect. 5.

In context (10), the speaker has good evidence that some part of Mary’s body hurts (she is taking pain pills). However, the speaker’s evidence does not allow her to discern which part of Mary’s body is in pain: it could be her stomach, but it could also be some other body part (e.g., her head).

- (10) *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 bi-bid **daats’i** diniih.
 Mary 3poss-stomach DAATS’i 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...).’

The propositions under consideration by the speaker can be modeled as Roothian focus alternatives (11), where only the value of *x* varies across the set of alternatives. Following the reasoning presented in Sect. 2, this suggests that it is *-bid* ‘stomach’ that is F-marked in (10).

- (11) ‘Mary’s *x* hurts’ = {Mary’s *stomach* hurts, Mary’s *head* hurts, ...}

By contrast, the context in (12) is set up such that the speaker lacks the evidence necessary to conclude that some part of Mary's body hurts. The speaker is instead wondering whether Mary's stomach hurts or not.

- (12) *Context:* Your stomach hurts and you wonder if it was the food served at lunch. You wonder if anyone else is having the same problem. You are thinking about your friend Mary. *You say:*

Mary bi-bid diniih **daats'i**.

Mary 3poss-stomach 3S.hurt DAATS'í

'Mary's stomach might hurt, or it might not.'

'I wonder if Mary's stomach is hurting.'

'Mary's stomach might hurt.'

'Does Mary's stomach hurt?'

Once again, the propositions under consideration by the speaker in (12) can be modeled as Roothian focus alternatives (13). Here, only the polarity value varies across the set of alternatives. I propose that in (12), a null positive polarity head is F-marked.

- (13) { 'Mary's stomach *does* hurt,' 'Mary's stomach *does not* hurt' }

I assign polarity heads the semantics in (14). Precedent for polarity heads comes from Laka (1990), Caponigro and Polinsky (2011), and Höhle's (1992) analysis of *verum focus*.

- (14) a. [[NEG]] = $\lambda p_{st} \lambda w_s. \neg p(w)$

- b. [[POS]] = $\lambda p_{st} \lambda w_s. p(w)$

In the following discussion, I will refer to *daats'i* as either having nominal or polarity association.² These labels are meant to invoke two interrelated properties. We have already examined the first property: what varies across the set of alternatives under consideration by the speaker? If the identity of the nominal argument varies, I will say that *daats'i* has nominal association. If the clause's polarity value varies, then I will say that *daats'i* has polarity association.

The second property is: where does *daats'i* occur in the clause? Where it has nominal association, *daats'i* must directly follow the F-marked noun, as in (10). If *daats'i* is not adjacent to the noun, then *daats'i* cannot have nominal association. The word order in (15) is infelicitous in the nominal associative context from (10):

- (15) Context from (10)

Mary bi-bid diniih **daats'i**.

Mary 3poss-stomach 3S.hurt DAATS'í

Word order is more complex in cases of polarity association by *daats'i*. In the polarity associative context in (12), we found that *daats'i* occurred in clause-final position. Occurrence of *daats'i* in any other position results in infelicity in polarity associative context:

- (16) Context from (12)

Mary bi-bid **daats'i** diniih.

Mary 3poss-stomach DAATS'í 3S.hurt

Thus, we can say that when it is in clause-final position, *daats'i* can have polarity association. However, it appears that clause-second position is sometimes the preferred position for *daats'i* to have polarity association.³ An instance of polarity associative *daats'i* occurring in clause-second position is

² *Daats'i* also seems capable of associating with numerals, where it contributes something like an approximative meaning. I do not discuss this use in the main analysis, but note such examples in Sect. 7.

³ Willie (1996) notes that *shĩĩ* also can occupy either clause-second position or clause-final position. Willie writes that final position is preferred if the sentence contains only one inflected verb. There must be more to the pattern for *daats'i*, however, since both (12) and (17a) contain only one inflected verb, but they differ in the preferred placement of *daats'i*. I leave further exploration of issues in word order to future work.

given in (17a). In the context in (17), the speaker is unsure whether Dave is riding horses or not. The possibility that he might be riding some other type of animal is not relevant.

- (17) *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** ʃíí bił naaldloosh.
 rodeo.ground=LOC DAATS'í horse 3O.3S.ride
- b. ?? Naa'ahóhai ná'ádleehí=di ʃíí **daats'í** bił naaldloosh.
 rodeo.ground=LOC horse DAATS'í 3O.3S.ride

If *daats'í* follows the noun ʃíí 'horse' (17b), then the sentence is infelicitous in that context. The word order in (17b) is felicitous in the context in (18), where nominal association is appropriate.

- (18) *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 ʃíí **daats'í** bił naaldloosh.
 rodeo.ground=LOC horse DAATS'í 3O.3S.ride.animal
 Comment: "It sounds like you're questioning the horse."
- b. ?? Naa'ahóhai ná'ádleehí=di **daats'í** ʃíí bił naaldloosh.
 rodeo.ground=LOC DAATS'í horse 3O.3S.ride.animal

I have argued in this section that *daats'í* is a focus-sensitive operator. It can associate with either an F-marked noun or polarity head. When it associates with a noun, it must directly follow that noun. As in Rooth (1992), F-marking generates a set of focus alternatives that can be constrained by context and utilized by some focus-sensitive operator, like *daats'í*. In the next section, I consider what is done with this set of alternatives when a speaker makes an assertion with *daats'í*. I argue that *daats'í* has an epistemic modal semantics: each alternative is epistemically accessible for the speaker.

5. *Daats'í* has an epistemic modal semantics

Throughout the paper, examples with *daats'í* have been shown with the range of translations suggested by consultants. Translations include modal sentences and interrogatives:

- (19) *Context:* Your stomach hurts and you wonder if it was the food served at lunch. You wonder if anyone else is having the same problem. You are thinking about your friend Mary. *You say:*
- Mary bi-bid diniih **daats'í**.
 Mary 3poss-stomach 3S.hurt DAATS'í
 'Mary's stomach might hurt, or it might not.' 'Mary's stomach might hurt.'
 'I wonder if Mary's stomach is hurting.' 'Does Mary's stomach hurt?'

In this section, I consider the status of this range of translations: are *daats'í* sentences truly ambiguous between, e.g., modal and interrogative meanings? Or do multiple translations arise because *daats'í* sentences do not perfectly map onto a single English sentence?

I argue that evidence supports the latter hypothesis. The first, simplest piece of evidence is that consultants frequently offered multiple translations of the forms in (19) for a single given Navajo sentence presented in a single context. This suggests that *daats'í* sentences are not ambiguous: context does not bring out one 'meaning' over another. The remainder of this section argues that *daats'í* also

cannot be reduced to one of either an interrogative marker or a weak epistemic modal (*might*). In discussion below, I omit English translations of *daats'í* sentences to avoid biasing the analysis.

5.1. *Daats'í* sentences are not interrogatives

While *daats'í* sentences are sometimes translated as interrogatives, they are not interpreted as interrogatives: they do not have the same use conditions as have been attributed to interrogatives. In order for an interrogative to be felicitous, the questioner must believe that the addressee may be capable of answering (Caponigro and Sprouse 2007). In contexts in which the addressee is known to be incapable of answering, *daats'í* was preferred to the Navajo interrogative sentence, formed by the question enclitic =*ish*.

(20) *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. # Nahaltin= ish ? | b. Nahaltin daats'í . |
| 3S.rain=Q | 3S.rain DAATS'í |
| 'Is it raining? | |

Conversely, if the context is altered such that the addressee is believed to know the answer, *daats'í* sentences were judged to be less felicitous than the interrogative. The unavailability of *daats'í* in (21) suggests that *daats'í* never forms an interrogative: even in a context that biases an interrogative interpretation – e.g., where the speaker is seeking information from a more knowledgeable interlocutor as in (21) – *daats'í* is generally judged to be infelicitous.⁴

(21) *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. Nahaltin= ish ? | b. # Nahaltin daats'í . |
| 3S.rain=Q | 3S.rain DAATS'í |
| 'Is it raining? | |

5.2. *Daats'í* cannot be reduced to *might*

It is true that *daats'í* is licensed in contexts license the English weak epistemic modal *might* (22):

(22) *Context*: Your stomach hurts and you wonder if it was the food served at lunch. You wonder if anyone else is having the same problem. You are thinking about your friend Mary. *You say*:

- | | | |
|-------------------------------|---------|------------------|
| a. Mary bi-bid | diniih | daats'í . |
| Mary 3poss-stomach | 3S.hurt | DAATS'í |
| b. Mary's stomach might hurt. | | |

In order to capture the similarities between *daats'í* and epistemic modals, I propose that *daats'í* has an epistemic modal base and a stereotypical ordering source (Kratzer 1981, 2012). In slightly simplified terms, an epistemic modal base (EPI-BASE) takes the world of evaluation as argument and returns the set of epistemically accessible worlds: this set contains the worlds consistent with all propositions that comprise the speaker's beliefs about the world of evaluation. The set of epistemically accessible worlds are ranked according to how well they adhere to the speaker's beliefs about the way the world stereotypically operates. The function (BW_{stereo}) returns the set of 'best worlds': this set contains the epistemically accessible worlds that satisfy the most propositions that the speaker believes characterizes the stereotypical course of events.

However, *daats'í* cannot be analyzed as identical to *might*. *Might* – and other modal auxiliaries – are classically analyzed as quantifying over propositions (Kratzer 1981, 2012). But we have seen in

⁴ Bogal-Allbritten (2013) addresses why consultants still offer interrogative translations for *daats'í* sentences.

Sect. 4 that *daats'i* can associate with nouns: the alternatives under consideration by the speaker vary only in terms of the identity of the noun. The only way in English to approximate nominal association is to introduce additional syntactic structure, such as an *it*-cleft. The ability of *daats'i* to associate with F-marked nouns led to the alternatives-based analysis in Sect. 4. In the next section, I connect the modal analysis of *daats'i* to its focus sensitive semantics.

6. Analysis of *daats'i*

6.1. Defining adnominal *daats'i*

Recall from Sect. 4 that when *daats'i* has nominal association, it must directly follow the F-marked noun. I posit that in cases of nominal association, *daats'i* is adnominal (23).⁵ I illustrate composition with adnominal *daats'i* in (24).

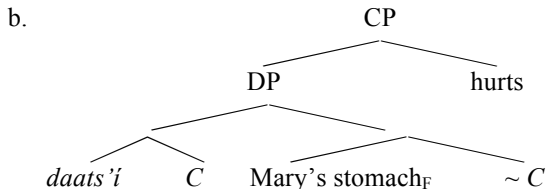
(23) If EPI-BASE and BW_{stereo} are defined, then $[[daats'i]_{\text{nominal}}] = \lambda C \lambda x_e \lambda f_{e, \text{st}} \lambda w_s. \forall y_e \in C, \exists w' \in \text{EPI-BASE}(w). f(y)(w') \ \& \ \exists w'' \in BW_{\text{STEREO}}(\text{EPI-BASE}(w)), f(x)(w'')$

(24) a. Mary bibid **daats'i** diniih. *Nominal association*

Mary 3poss.stomach DAATS'I 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...).'



Rooth's (1992) focus interpretation operator requires the identification in the context of an alternative set C that is presupposed to have the properties in (25a,b). I assume the toy C in (25c). The truth conditions for (24) are given in (25).

- (25) a. It must be a subset of the focus semantic value of the DP [Mary's stomach_F].
 b. C must contain the DP $[[Mary's\ stomach]]^0$ as well as at least one other alternative of the same semantic type. The other alternative(s) is determined by the verb's (*diniih* 'it hurts'), selectional restrictions and discourse context.
 c. $[[C]]^0 = \{\text{Mary's stomach, Mary's head, Mary's back}\}$

(26) $[[CP]]^0 = [\forall y \in \{\text{M's stomach, M's head, M's back}\}, \exists w' \in \text{EPI-BASE}(w_0). \text{hurts}(y)(w') \ \& \ \exists w'' \in BW_{\text{STEREO}}(\text{EPI-BASE}(w_0)), \text{hurts}(\text{the unique } z \text{ s.t. stomach}(z) \ \& \ z \text{ belongs to Mary})(w'')]$

'For all y in the set $\{\text{Mary's stomach, Mary's head, Mary's back}\}$, there exists a world w' in the set of the speaker's belief worlds (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) belief worlds in which Mary's stomach hurts in w'' .'

Given the truth conditions in (26), 'Mary's stomach' must hurt in at least one of the speaker's best (most stereotypical) epistemically accessible worlds. Each of the other alternatives in C must hurt in some (not necessarily best) epistemically accessible world. In the context used to illustrate nominal

⁵ When Roothian alternatives are used, multiple entries do not have to be posited for focus-sensitive operators in order to get the association facts right: different placements of F-marking result in different types of 'association' by *only*. However, if syntactic constituency facts support it, a family of related entries can be proposed for focus-sensitive operators. Both adnominal and adclausal forms of *only* are adopted in the literature.

associative *daats'i* – repeated in (27) – the context makes it explicit that the speaker believes the overtly named noun ('Mary's stomach') to be only one of a set of equally likely possibilities:

- (27) 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.

The semantics in (26) are correctly predicted to be verified by the context in (27): while 'Mary's stomach' must hurt in one of the best worlds, this does not preclude other worlds (e.g., worlds in which 'Mary's back' or 'Mary's head' hurts) from being equally good. Worlds can be equally ranked if the ordering source does not choose one over the other.

I illustrate with the toy model in (28). The proposition in (28a) comprises the speaker's beliefs about the world of evaluation, w_0 . In each epistemically accessible world except w_4 , exactly one of the alternatives from C hurts. If the speaker's only stereotypical belief is that people only take pain medication when in pain, then the worlds are partially ranked as in (28c), where '<' means 'outranks.'

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

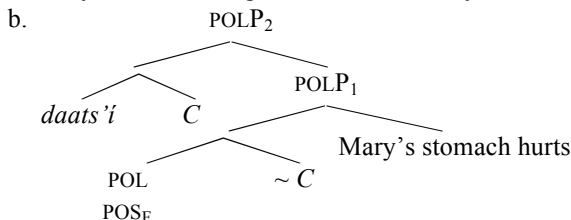
6.2. Defining adclausal *daats'i*

We saw in Sect. 4 that when *daats'i* associates with a polarity head, it occurs either in clause-final or clause-second position. Both of these linear positions are cross-linguistically associated with clausal adjunction. I propose an adclausal analysis of *daats'i* when it has polarity association. The alternative set C contains type <st,st> expressions. I assume that the alternative set C contains only the POS and NEG heads. Other <st,st> operators are not part of C .⁶

- (29) If EPI-BASE and $\text{BW}_{\text{stereo}}$ are defined, then $[[daats'i]_{\text{clausal}}] = \lambda C \lambda p_{\text{st}} \lambda w_s. \forall Q_{\text{st,st}} \in C, \exists w' \in \text{DOX-ALT}(w). Q(p)(w') \ \& \ \exists w'' \in \text{BW}_{\text{STEREO}}(\text{DOX-ALT}(w)), p(w'')$

Daats'i composes with a proposition ϕ (node POLP_1) that is specified for a particular polarity value in POL. I illustrate composition with adclausal *daats'i* below.

- (30) a. Mary bibid diniih **daats'i**. *Polarity association*
 Mary 3poss.stomach 3S.hurt DAATS'i
 'Mary's stomach might hurt.' 'Does Mary's stomach hurt?'



Composition of the truth conditions for (30) is as shown in (31).

- (31) $[[\text{POLP}_2]]^0 = [\forall Q \in \{\text{POS}, \text{NEG}\}, \exists w' \in \text{EPI-BASE}(w_0). Q([\text{the unique } y \text{ s.t. stomach}(y) \ \& \ y \text{ belongs to Mary}] \text{ hurts in } w')] \ \& \ \exists w'' \in \text{BW}_{\text{STEREO}}(\text{EPI-BASE}(w_0)), [\text{the unique } z \text{ s.t. stomach}(z) \ \& \ z \text{ belongs to Mary}] \text{ hurts in } w''$

⁶ Future work must ask why C includes no other members of the potentially infinite set of type <st,st> operators.

‘For all Q in the set {POS, NEG}, there exists a world w ’ in the speaker’s set of belief worlds 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 belief worlds 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 ’.

Following earlier reasoning, the truth conditions in (31) are predicted to be verified when worlds in which ‘Mary’s stomach hurts’ are equally ranked with worlds in which ‘Mary’s stomach doesn’t hurt.’ As before, if the ordering source is sufficiently underspecified, worlds in which ‘Mary’s stomach hurts’ can be ranked equally with worlds in which ‘Mary’s stomach does not hurt.’ This seems to be a good prediction given contexts like (22), where the speaker seems to truly be agnostic.

We have only examined sentences with positive polarity heads. *Daats’i* can also occur in sentences in which ϕ has NEG polarity head (32a).⁷

- (32) a. Ted **daats’i** doo doogáál da.
 Ted DAATS’i NEG 3S.will.come NEG
 Ted NEG_F *daats’i* will come.
- b. Ted **daats’i** doogáál.
 Ted DAATS’i 3S.will.come
 Ted POS_F *daats’i* will come.

In (32a), *daats’i* composes with the proposition ‘Ted will not come in w ,’ which I abbreviate $\neg(\phi)$. The speaker asserts that $\neg(\phi)$ holds in one of her best epistemically accessible worlds. Also accessible is the alternative proposition that results from applying the negative polarity head from C to the original proposition, $\neg(\phi)$. The result is: $\neg(\neg(\phi))$. This alternative is logically reducible to ‘Ted will come in w ’ (ϕ) To generalize, no matter the original polarity of ϕ , there will always be an alternative with the opposite polarity value.

7. Conclusions and further work

I have argued that *daats’i* can be defined as either an adnominal – in the case of nominal association – or adclausal – in the case of polarity association – focus-sensitive operator. Both forms of *daats’i* are epistemic modal operators that assert that the complement of *daats’i* holds in at least one of the speaker’s best epistemically accessible worlds. In addition, there must be at least one alternative distinct from the prejacent that holds in at least one other epistemically accessible world.

A direction for future work is situating *daats’i* within the broader taxonomy of apparently focus sensitive elements. The account of *daats’i* presented here analyzes focus as a purely semantic effect. However, Beaver and Clark (2008) argue that some operators which initially appear to be focus sensitive (e.g., *always*) are in fact subject to a pragmatic notion of focus: focus helps to determine what sorts of questions are available in the discourse. The question of whether this type of analysis can apply to *daats’i* requires further consideration. Some early evidence against a pragmatic account is that adnominal *daats’i* appears to form a true constituent with nouns: *daats’i* cannot be linearly separated from the focus-marked noun. This suggests that *daats’i* shows the “conventionalized sensitivity to focus” exhibited by operators (e.g., *only*) that Beaver and Clark identify as being truly focus sensitive.

Furthermore, the primary claim that I have made here is that *daats’i* is a modal that is also focus sensitive. As pointed out by Villalta (2000), modal operators are not usually given analyses such that they can interact with focus. An exception is von Stechow (1999), who suggests that focus introduces a presupposition about the context, which is used to restrict the modal base. However, this method of relating modality to focus more closely resembles Beaver and Clark’s pragmatic approach. I have posited here a way for modality to interact with focus that permits modals to be considered focus sensitive elements in the strict sense associated with, e.g., *only*.

⁷ This is a positive prediction since the sentences in (32) were both judged felicitous in a context where the speaker is agnostic whether Ted will come or not. Consultants suggested that in such agnostic contexts, the most natural dialogue is one in which the polarity of the *daats’i* sentence that you utter matches the polarity of your interlocutor’s earlier statement.

If the analysis proposed here for *daats'í* is correct, we must ask if *daats'í* is exceptional. There is at least some reason to suspect that *daats'í* is not exceptional. The English modal adverb *maybe* has recently been discussed by Geurts and Nouwen (2007) and Zaroukian (2011). Geurts and Nouwen present examples in which *maybe* occurs within a nominal constituent (bracketed):

(33) a restaurant with [maybe 30 tables]. (Geurts and Nouwen 2007: 548)

Similar uses of *daats'í* are also attested (34). Similar to its nominal associative uses, *daats'í* must directly follow the numeral that it (apparently) associates with.

(34) K'ad 'éí 'éidii yéçeni [náhást'éí **daats'í**] tsin naaztá
 now those those nine DAATS'Í stick 3S.cost
 'Now those (fabrics) are about nine (dollars) a yard.' (Kerley 1994: Tape 2, Line 18)

Future work must address whether English 'adnumeral' or adnominal *maybe* could be analyzed as focus sensitive in terms similar to those posited for Navajo *daats'í*.

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