

Non-Propositional Modal Meaning

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1 Introduction

The semantics of evidentials is often analyzed as a subcase or a special case of modality in the recent formal literature (Izvorski, 1997; Faller, 2002; Speas, to appear; McCready and Ogata, 2005, among others). Moreover, some modern linguists consider the analysis of modality as a subcase of evidential or a speech act modifier (Papafragou 2000; Huddleston and Pullum 2002; Drubig 2001, among others; see also von Stechow 2005, for the summary of the recent discussion).

My purpose in this article is to present a case study on the Japanese evidential morpheme *darou*. *Darou* is a sentence-final evidential marker that has a modal-flavor. It is an evidential marker in the sense that it makes reference to the speaker's lack of evidence. *Darou* is also a modal expression in the sense that it involves a quantification over epistemic possible worlds. I go through the contexts where the use of *darou* is licit and claim that the semantics of *darou* indicates a bias toward the embedded proposition based on a particular modal base in the sense of Kratzer (1991). The data on embedded *darou* also show an interesting pattern from the shiftable indexicals in terms of point-of-view (c.f. Schlenker, 2003). In addition, I exhibit a peculiar distribution of *darou* with probability adverbs and phrases, which pertains to the discussion of levels of meaning in the literature on evidentials.

2 Case Study: *Darou*

This section gives an analysis for the Japanese sentence-final evidential marker *darou*. *Darou* has been understood as an expression that indicates a 50-80% probability of the proposition (Masuoka, 1991). Hence, the closest English interpretation for (1) would be 'Probably, he will come tomorrow.'

- (1) ashita kare-ga kuru darou.
tomorrow he-Nom come DAROU
'He will come tomorrow-*darou*.'

In fact, the interpretation of (1) is not easily distinguishable from (2-a), which uses a probability adverb *tabun* ‘probably’. It is also possible to use both the marker and the adverb as in (2-b).

- (2) a. *tabun ashita kare-ga kuru.*
probably tomorrow he-Nom come
‘Probably, he will come tomorrow.’
b. *tabun ashita kare-ga kuru darou.*
probably tomorrow he-Nom come DAROU
‘Probably, he will come tomorrow-*darou*.’

I re-interpret the intuition reported by Masuoka (1991) (50-80% probability) as that *p-darou* indicates the speaker’s bias for *p*. I argue that the bias is based on the speaker’s pure prediction but not on any observable evidence.

2.1 Data

In the following, I make an informal approximation of the properties of *darou* by going through the empirical data based mainly on observations from previous works (Masuoka, 1991; Morimoto, 1994; Takubo, 2001; Sugimura, 2004) in addition to the new data on embedding.

2.1.1 Prediction/Inference from non-observable Evidence

The following examples show that *darou* can be attached only to predictions derived by epistemic reasoning.

Darou cannot be used when particular instances of evidence are available for the event denoted by the proposition. Note that the distinction I am making here is not between direct and indirect evidence. Rather, it is between reasoning from generalization on the one hand and inference by observable evidence (including direct and indirect) on the other. First of all, as in (3), *darou* cannot be used when the speaker has direct evidence for the content of the proposition.

- (3) Direct Evidence
a. Context: The speaker saw John drinking last night.
b. #*Kinou John-wa wine-o takusan nonda darou.*
yesterday John-Top wine-Acc many drank DAROU
‘Probably, John drank a lot of wine yesterday.’
(Translation of Izvorski’s (1997) example)

Furthermore, (4) shows that *darou* cannot be used for the inference drawn from an indirect evidence, either.

- (4) Indirect Evidence
a. Context: There are a lot of empty wine bottles in John’s room.

- b. #Kinou John-wa wine-o takusan nonda darou.
yesterday John-Top wine-Acc many drank DAROU
'John drank a lot of wine yesterday-*darou*.'

The context where *darou* can be used is the one where the speaker draws a conclusion/prediction from some generalizations rather than particular evidence as in (5).

(5) Prediction

- a. Context: John likes wine very much.
- b. #Kinou John-wa wine-o takusan nonda darou.
yesterday John-Top wine-Acc many drank DAROU
'John drank a lot of wine yesterday-*darou*.'

The following pair of the examples illustrates the same point. *Darou* cannot attach to the inference drawn from a specific piece evidence as in (6).

(6) Indirect Evidence

- a. Context: My ex-girlfriend's last name on the alumni phonebook has changed.
- b. #kanojo-wa mou kekkon-shita darou.
she-Top already marriage-did DAROU
'She is married by now-*darou*.' (Morimoto, 1994)

Darou can attach to some guess which is simply compatible with the available facts, as in (7).

(7) Prediction

- a. Context: It has been seven years since I broke up with my ex-girlfriend.
- b. kanojo-wa mou kekkon-shita darou.
she-Top already marriage-did DAROU
'She is married by now-*darou*.' (Morimoto, 1994)

In many cases, *darou* cannot be used with a first person pronoun. Since the speaker is asserting his/her decision on their actions, it is not felicitous to indicate the speaker's judgement on its probability.

- (8) #watashi-wa ashita party-ni iku darou.
I-Top tomorrow party-to go DAROU.
'I will go to the party tomorrow-*darou*.'

Darou with a first person is possible if the speaker does not have control over his/her action as in (9).

- (9) ashita kare-ni at-ta ato, watashi-wa naku darou.
tomorrow he-Dat meet-Past after, I-Top cry DAROU.
'After I meet him tomorrow, I will cry-*darou*.'

Morimoto (1994) showed that *doumo* ‘somewhat/somehow’ presupposes that the speaker actually saw some kind of evidence of the content of the embedded proposition. (10-b) presupposes that either the speaker actually saw Mr. Kato’s son in person or the speaker has some cognitive experience of the evidence for the statement such as seeing a picture of him, while (10-a) does not have such a requirement.

- (10) a. Kato-san-no musuko-wa chiisai.
 Kato-Mr.-Gen son-Top small
 ‘Mr. Kato’s son is small.’
 b. Kato-san-no musuko-wa doumo chiisai.
 Kato-Mr.-Gen son-Top somehow small
 ‘Mr. Kato’s son is somehow small.’ (Morimoto, 1994)

Doumo cannot co-occur with *darou*, since the presuppositions of *doumo* and the semantic meaning of *darou* conflict each other: *doumo* requires direct or indirect evidence, while *darou* prohibits the presence of any evidence.

- (11) #doumo kouteibuai-ga 1-percent agaru darou.
 somehow official-discount-rate-Nom 1-percent rise DAROU
 ‘Probably, the official discount rate will somehow rise by 1 percent.’ (Takubo, 2001)

In summary, *darou* cannot be used for an inference that the speaker draws from a particular instance of evidence. Although it is not clear what counts as evidence, the data show that the grammar of *darou* distinguishes the context in which it can occur.

2.1.2 Probability adverbs

As mentioned earlier for (2-b), *darou* can co-occur with *tabun* ‘probably’, which seems to convey the equivalent message. Sugimura (2004) observes that *darou* can also co-occur with *kitto* ‘certainly’ but cannot co-occur with a low-probability adverb, *moshikasuruto* ‘maybe’ (12).

- (12) kare-wa tabun/kitto/*moshikasuruto kuru darou.
 he-Top probably/certainly/maybe come DAROU
 ‘Probably/Certainly/*Maybe, he will come-*darou*.’ (Sugimura 2004)

Following Sugimura’s (2004) observation, I propose that *darou* semantically indicates a high probability, namely a bias (more than 50 %) toward the event denoted by the proposition, rather than Masuoka’s (1991) 50-80 %.

The notion of 80 % (non-100 %) as the interpretation of *darou* comes from the following intuition: when *darou* stands alone without a probability adverb as in (1) repeated here as (13), it seems to indicate a slight uncertainty compared to the one without *darou* (14). I propose that the uncertainty is not due to lexical specification of *darou* but derived by a pragmatic inference

(conversational implicature). Namely, by explicating that it is merely a biased view, it is implicated that it is not a belief.

(13) ashita kare-ga kuru darou.
tomorrow he-Nom come DAROU
'He will come tomorrow-*darou*.'

(14) ashita kare-ga kuru.
tomorrow he-Nom come.
'He will come tomorrow.'

Hence, this uncertainty is cancelable because it is not a lexical property of *darou*. The bias can be strengthened by *kitto* 'certainly'. On the other hand, *darou* is incompatible with *moshikasuruto* 'maybe', which is at the low end of the probability scale (lower than 50 %).

In short, the lexical meaning of *darou* includes a bias toward the event denoted by the embedded proposition. This bias can be strengthened by a probability adverb, as long as the meanings are compatible with each other.

2.1.3 Embedding under attitude operators

In the recent literature of semantics and pragmatics, the notion of context-shift has been getting more prominent. In particular, some indexicals are claimed to be shifted by a change of context (Schlenker, 2003; Oshima, 2004a,b, to appear; Anand, 2005, among others). If the semantic contribution of *darou* includes the speaker's bias, it is an interesting question whether the notion of 'the speaker' can be shifted if the context changes.

A brief introduction to shiftable indexicals is in order. Kaplan (1989) claims that the referent of an indexical is always determined by the context of the actual utterance, which is summarized in the following thesis.

(15) Fixity Thesis (a corollary of Direct Reference):
The semantic value of an indexical is fixed solely by the context of the actual speech act, and cannot be affected by any logical operators.
(Kaplan 1989; restatement by Schlenker 2003)

For example, in English, the indexical *I* always refers to the actual speaker of the sentence. Consequently, in order to describe the situation in (16), the subject of the reported speech has to be referred by the third person pronoun *he*. (16-a) is not an accurate description of the situation in (16), since English *I* can only refer to the actual speaker.

(16) Situation to be reported: John says: 'I am a hero.'
a. English: John_i says that he_i is a hero.
b. English: *John_i says that I_i am a hero. (Schlenker, 2003)

Observing this fact, [Kaplan \(1989\)](#) claims that there is no operator that shifts the context that determines the value of indexicals. He calls such operators *monsters*.

In contrast, [Schlenker \(2003\)](#) argues that “every attitude verb is a Kaplanian monster” (p.37). In Amharic, for example, the first person indexical shifts in attitude reports to the agent of the reported attitude as depicted in (17) (the actual example in Amharic is given in (18)).

(17) Situation to be reported: John says: ‘I am a hero.’
Amharic (lit.): John_i says that I_i am a hero. ([Schlenker, 2003](#))

(18) ጎን ጎጃና ነፃ-ኸኸ ያለ -all
John hero be.PRT -1sO 3M.say -AUX.3M
‘John says that he is a hero.’
(lit. John_i says that I_i am a hero.) (D. Petros, p.c. to Schlenker)

[Schlenker \(2003\)](#) proposes the following logical structure for the Amharic sentence, in which he treats semantics of attitude predicates as quantification over contexts. In addition, the embedded clause contains shiftable indexicals, agent(c_i), time(c_i), world(c_i), which are functions from contexts to individuals/times/worlds.

(19) SAY_{<John,now,actually>} c_i be-a-hero (agent(c_i), time(c_i), world(c_i))
([Schlenker, 2003](#))

In (19), the context of the reported speech act, c_i is bound by the attitude predicate. As a result, in Amharic, *-ኸኸ* is interpreted as agent(c_i), which refers to the speaker in the embedded context, John. English *I* is not shiftable, i.e. it can only pick up the actual context ($[[I]]^g = \text{agent}(c_{@})$), and therefore, it can only be interpreted as the speaker in the context of the actual utterance.

The Japanese reflexive *zibun* is argued to have the same property as Amharic *I* ([Kuroda, 1973](#); [Sells, 1987](#); [Iida, 1996](#); [Oshima, 2004a,b, to appear](#)). Namely, *zibun* can take a long-distance antecedent if it is embedded under *because*, while it cannot under *when*.

(20) a. *Takasi_i-wa [Yosiko-ga mizu-o zibun_i no ue-ni kobosi-ta toki]
Takasii-Top [Yosiko-Nom water-Acc self_i Gen on-Loc spill-Past when]
nurete-simatta.
wet-got
‘Takasi_i got wet when Yosiko spilled water on him_i’
b. Takasi_i-wa [Yosiko-ga mizu-o zibun_i no ue-ni kobosi-ta node]
Takasii-Top [Yosiko-Nom water-Acc self_i Gen on-Loc spill-Past because]
nurete-simatta.
wet-got
‘Takasi_i got wet because Yosiko spilled water on him_i’
([Sells 1987](#) cited in [Tenny 2004](#))

[Oshima \(2004b\)](#) analyzes one of the uses of *zibun* as a shiftable first person indexical (called

a *quasi-indicator* in Oshima (2004b) following Castañeda (1967)). Namely, in addition to the anaphoric use as in (21-a), *zibun* can refer to the agent ‘Max’ of the reported attitude *omot* ‘think’, (‘I’ of the embedded speech act) as in (21-b).

- (21) a. Max_i wa zibun_i o nagut-ta.
 Max_i Top self_i Acc hit-Past
 ‘Max_i hit himself_i.’
 b. Max_i wa zibun_i ga yuusyuu-da to omotte-i-ru.
 Max_i Top self_i Nom talented-be:Pres Comp think-Asp-Pres
 ‘Max_i thinks he_i is talented.’ (Oshima, 2004b)

Oshima (2004b) argues that the reference of *zibun* is assigned within the ‘context of use’ of indirect utterances. Hence, in (21-b), *zibun* picks out ‘Max’ as its referent since it appears within the context where Max is the agent of the knowledge (see also Anand, 2005).¹

- (22) a. $[[zibun]]^c = agent(c)$
 b. $c@ [IP Max c_i [CP [IP zibun talented] Comp] believe]$ (21-b)
 c. $agent(c_i) = Max$

Given Oshima’s (2004b) shiftable indexical analysis of *zibun*, the asymmetry in (20) is predicted naturally by positing that *because* is an operator which introduces a new context.

Example (20-a) does not involve any indirect utterance, hence there is no shift of context. Therefore, *zibun* cannot be interpreted as a long-distance reflexive, but only as an anaphor. As a consequence, *zibun* in (20-a) can only refer to ‘Yoshiko’, which leads to an incongruent interpretation, ‘Takashi got wet when Yoshiko spilled water on herself.’ On the other hand, in (20-b), it is possible for *zibun* to refer back to the matrix subject ‘Takasi’ since *because* introduces a local context and ‘Takasi’ is the seat of knowledge in that context. Takasi’s reasoning expressed by the *because*-clause counts as a report of the indirect utterance by Takasi. As a result, *zibun* refers to the agent of the indirect utterance, Takasi.

- (23) a. $c@ [IP Takasi [AdjunctP c_j Yoshiko water zibun spilled because] ...]$ (20-b)
 b. $[[zibun]]^{c_j} = agent(c_j) = Takasi$

The shift of context created by attitude predicates and the *because* operator allows *zibun* to be interpreted as a long-distance reflexive, that is, it refers to the agent of the local speech act or the seat of the reported knowledge.

In fact, the bias expressed by *darou* in (24-a) is attributed to Mary, since the speaker can felicitously challenge the content of the bias as in (24-b).

¹ Following Culy’s (1997) insight, Oshima (2004a,b, to appear) further distinguishes the use of *zibun* as a long-distance reflexive into two uses, a logophoric use and a perspectival (emphatic) use. Oshima (2004a,b, to appear), only logophoric *zibun*, which appears under attitude verbs, gives rise to a *de se* interpretation. On the other hand, perspectival *zibun* in an adverbial clause (e.g., *because*-clause) does not imply self-orientation.

- (24) a. Mary-wa John-ga kuru darou to omot-teiru.
 Mary-Top John-Nom come DAROU Comp think-Prog
 ‘Mary thinks that John will come-*darou*’
 b. Boku-wa sou-wa omow-anai-kedo.
 I-Top so-Top think-Neg-though
 ‘I don’t think so (that he will come), though.’

Interestingly, however, the *because* operator is not sufficient to change the agent of the bias. One of the Japanese forms for ‘because’, *kara*, can embed *darou* as in (25-a), although it seems that the speaker has to be the agent of reasoning of *because*. When the reasoning is attributed to someone other than the speaker as in (25-b), the use of *darou* becomes infelicitous.

- (25) a. boku-wa ame-ga furu darou kara kasa-o mot-te it-ta
 I-Top rain-Nom fall DAROU because umbrella-Acc have-and go-Past
 ‘Because it will rain-*darou*, I took an umbrella with me.’
 b. ??John-wa ame-ga furu darou kara kasa-o mot-te it-ta
 John-Top rain-Nom fall DAROU because umbrella-Acc have-and go-Past
 ‘Because it will rain-*darou*, John took an umbrella with him.’

Example (25-b) can be improved by inserting an attitude verb overtly as in (26).

- (26) John-wa ame-ga furu darou kara to omot-te, kasa-o mot-te
 John-Top rain-Nom fall DAROU because Comp think-Past, umbrella-Acc have-and
 it-ta
 go-Past
 ‘Thinking that because it will rain-*darou*, John took an umbrella with him.’

Observing these data above, my speculation here is that the agent of the bias by *darou* can only be co-referred with the agent of the speech act. In Schlenker (2003), attitude predicates are analyzed as reported speech acts. In this view, the subject of the attitude predicate is the agent of the embedded speech act; which in turn is the agent of knowledge of the embedded proposition. On the other hand, the context that *because* introduces only changes the representations of knowledge, hence it does not change the agent of the speech act, although it might change the agent of knowledge. Hence, without an overt attitude predicate, *because* does not shift the agent of bias expressed by *darou*. Accordingly, (25-b) results in infelicity since the actual speaker’s bias toward ‘it will rain’ does not cause John to bring an umbrella. This difference between the *because* operator and attitude predicates I propose here is very speculative, and I cannot justify this proposal at present. For the purpose of this article, I would like to draw readers’ attention to the fact that the agent of the bias indicated by *darou* can be shifted by an attitude predicate.

In summary, the agent of the bias indicated by *darou* is the agent of the local speech act. If *darou* appears at root, the agent is the speaker of the actual utterance. The agent can be shifted only under attitude verbs, hence it has a tighter restriction than the long distance reflexive *zibun*). Only a change of speech act can change the agent of the bias, while a change of knowledge state cannot.

To conclude this section, the properties of *darou* can be summarized as follows.

- The use of *darou* is licit only when the speaker does not have any observable instances of evidence.
- *Darou* indicates a bias (more than 50 %) toward the embedded proposition, i.e., p is more likely than \neg p.
- The agent of bias is the agent of the local speech act.

2.2 Semantic Contribution of *Darou*

Integrating the properties observed above, I define the semantic contribution of *darou* as follows:

- (27) The Interpretation of p-*darou*
 The speaker of the utterance context has an epistemic bias for p derived from reasoning and not from observable (direct or indirect) evidence.

I follow Kratzer's (1991) standard analysis of modality in order to implement this property of *darou*.

2.2.1 Kratzer (1991)

In Kratzer (1991), modals are treated as quantification over epistemic possible worlds (the modal base; $f_c(i)$ in (28)). Possibility (*might*) is defined as existential quantification over the modal base, while necessity (*must*) is defined as universal quantification over the modal base.

- (28) a. $\llbracket \mathbf{might}\phi \rrbracket^{c,i} = 1$ iff $\exists w' \in f_c(i) : \llbracket \phi \rrbracket^{c, \langle w', t_i \rangle} = 1$
 b. $\llbracket \mathbf{must}\phi \rrbracket^{c,i} = 1$ iff $\forall w' \in f_c(i) : \llbracket \phi \rrbracket^{c, \langle w', t_i \rangle} = 1$
 (c : the context of utterance; i : the index of evaluation (a world-time pair); $f_c(i)$: the set of worlds compatible with what is known in i)
 (von Stechow and Gillies' (2005) reformulation of Kratzer (1991))

In addition to the modal base and quantificational force, Kratzer (1991) introduces the notion of ordering source. The ordering source forces a particular ordering among epistemic worlds of the modal base in terms of their accessibility. For example, (29-b) is interpreted somewhat weaker than (29-a). If (29-b) were a mere universal quantification over the modal base, it would be at least as strong as (29-a).

- (29) a. She climbed Mount Toby.
 b. She must have climbed Mount Toby. (Kratzer, 1991)

According to Kratzer (1991), in (29-b), the *stereotypical* ordering source restricts the modal base so that the propositions determined by the modal base denote what is *normally* true in that world.

Hence, the universal quantification is only over the restricted domain, which does not necessarily include the actual world where (29-a) is evaluated.

2.2.2 Restricted Modal Base

Let us turn back to the question of the semantic contribution of *darou*. First of all, how can we represent formally the difference between p-*darou* (1), repeated here as (30), and p (14), repeated here as (30)?

- (30) ashita kare-ga kuru darou.
tomorrow he-Nom come DAROU
'Probably, he will come tomorrow.'
- (31) ashita kare-ga kuru.
tomorrow he-Nom come.
'He will come tomorrow.'

Remember that I stipulate the semantic contribution of *darou* as in (27) repeated here as (32).

- (32) The Interpretation of p-*darou*
The speaker of the utterance context has an epistemic bias for p derived from reasoning and not from observable (direct or indirect) evidence.

More specifically, following Kratzer's (1991) standard analysis of modality, I claim that *darou* restricts its quantificational domain and has a certain quantificational force. *Darou* contributes to the communication background in that it restricts its modal base to the speaker's prediction and excludes what can be inferred by available evidence.

The intuition of uncertainty about the propositional content as in (30) comes from this restriction of *darou*, that the speaker does not have observable evidence for the assertion.

In other words, the quantificational domain of *darou* is restricted so that every world in the domain is assigned to the set of propositions that constitute what is generalized in the speaker's knowledge and cannot be inferred by any particular instance of evidence as we have seen in section 2.1.1. The source of the bias is not observable evidence but epistemic reasoning.

2.2.3 Bias: more than 50 %

We have identified the quantificational domain for the modal-meaning of *darou*. In order to complete a modal analysis of *darou*, we need to also identify its quantificational force. I define the quantificational force of *darou* as more than 50 %. Hence, a low probability adverb *moshikasuruto*, which indicates less than 50 %, is not compatible with *darou*, as in (12) (repeated here as (33)).

- (33) kare-wa tabun/kitto/*moshikasuruto kuru darou.
he-Top probably/certainly/maybe come DAROU
'Probably/Certainly/*Maybe, he will come.' (Sugimura, 2004)

On the other hand, universal quantification by *kitto* ‘certainly’ is possible, since it is compatible with the semantics of *darou*. The semantics of *darou* indicates the likelihood of the embedded proposition higher than its alternative ‘he will not come’, while *kitto* strengthen the likelihood into 100 %.²

Hence, we obtain the following definition for the modal meaning of *darou*.

- (34) The modal meaning of *p-darou*
- a. Quantificational Domain: possible worlds which are compatible with the speaker’s non-observable reasoning
 - b. Quantificational force: more than 50 % ($p > \text{likelihood} \neg p$)

2.2.4 Agent of Bias

Finally, we need to modify the definition in (34) in order to incorporate the data discussed in 2.1.3. Namely, in (24-a), repeated here as (35), an overt attitude predicate shifts the agent of bias from the speaker to *Mary*.

- (35) Mary-wa John-ga kuru darou to omot-teiru.
 Mary-Top John-Nom come DAROU Comp think-Prog
 ‘Mary thinks that John will come-*darou*’

Hence, the denotation of *darou* includes a shiftable indexical, the *speaker* of context *c*. Note that this is distinct from the agent/seat of knowledge in context *c*. As presented in section 2.1.3, the change of the knowledge agent by *because* is not sufficient to change the bias agent of *darou*. (25-b), repeated here as (36), is infelicitous since it is hard to imagine that the actual speaker’s bias toward ‘It will rain’ is the reason why John took an umbrella with him.

- (36) ??John-wa ame-ga furu darou kara kasa-o mot-te it-ta
 John-Top rain-Nom fall DAROU because umbrella-Acc have-and go-Past
 ‘Because it will rain-*darou*, John took an umbrella with him.’

²The bias meaning expressed by *darou* is Focus-sensitive. That is, if the embedded proposition receives Focus-marking as in (i-b), the alternatives considered to have lower probability compared to ‘John will come’ are ‘Mary will come.’, ‘Bill will come.’ etc. rather than ‘John will not come.’ In this case, therefore, it is not clear that the quantificational force of the bias is ‘more than 50 %’.

- (i) a. dare-ga kuru?
 who-Nom come
 ‘Who will come?’
- b. [_F JOHN-ga] kuru darou.
 [John-Nom] come DAROU
 ‘John will come-*darou*.’

This is an interesting issue but beyond the scope of this article, hence I only consider the case where the competitors of the bias are *p* and $\neg p$.

The agent of the bias, i.e. the individual to which the modal base of *darou* is accessible, is the speaker of the local speech act.³ Therefore, we now obtain the following definition for *darou*:

- (37) The modal meaning of p-*darou* in context *c*
- a. Quantificational Domain: possible worlds which are compatible with the non-observable reasoning of the speaker of context *c*
 - b. Quantificational force: more than 50 % ($p >_{likelihood} \neg p$)

2.3 Section Summary

To summarize, *darou* is analyzed as a quantification over the modal base which consists of epistemic possible worlds accessible to the speaker of the utterance context. The modal base is restricted to generalizations by ‘the speaker’ and does not include propositions inferrable from particular instances of evidence ‘the speaker’ might have. The quantificational force of *darou* is more than 50 %. The notion of ‘the speaker’ can be shifted if an attitude predicate introduces a reported speech act.

3 A Puzzle

As shown above, *darou* is not compatible with the low probability adverb ‘*moshikasuruto*’ *maybe*, since *darou* expresses the speaker’s bias toward the proposition, i.e. the speaker’s judgement that the probability of the proposition is high. This line of analysis encounters an interesting puzzle when we look at clausal expressions of probability. As in (38), for example, both the auxiliary *darou* and the adverb *tabun* are compatible with a full clausal phrase *kanousei-ga aru* ‘there is a possibility that’.

- (38) a. *kare-ga kuru kanousei-ga aru darou.*
 he-Nom come possibility-Nom exist DAROU
 ‘Probably, there is a possibility that he would come.’
- b. *tabun kare-ga kuru kanousei-ga aru.*
 probably he-Nom come possibility-Nom exist
 ‘Probably, there is a possibility that he would come.’

This contrasts with the incompatibility of *darou* and *moshikasuruto* that we have seen in (12), repeated here as (39).

- (39) **kare-wa moshikasuruto kuru darou.*
 he-Top probably/certainly/maybe come DAROU
 ‘Maybe, he will come-*darou*.’ (Sugimura 2004)

³This property of *darou*, being shiftable under attitude predicates, raises an interesting issue with respect to the level of meaning to which *darou* contributes. See section 4.4 for details.

The contrast can be made even sharper as in (40).

- (40) a. kare-ga kuru kanousei-ga hikui darou.
 he-Nom come possibility-Nom low DAROU
 ‘The possibility that he would come is low-*darou*.’
 b. tabun kare-ga kuru kanousei-ga hikui.
 probably he-Nom come possibility-Nom low
 ‘Probably, the slight possibility that he would come is low.’

In short, while *darou* cannot co-occur with the adverb of low probability *moshikasuruto* ‘maybe’, it can with a clausal counterpart, namely *kanousei-ga aru* ‘there is a possibility that...’ and *kanousei-ga hikui* ‘the possibility that ... is low.’

4 Not part of the propositional content

In order to resolve the puzzle presented above, I propose dividing the probability expressions into two groups as follows.

(41)

Group A	<i>kanarazu</i> ‘certainly’, <i>kanousei-ga aru</i> ‘there is a possibility that’, <i>kanousei-ga hikui</i> ‘the possibility that ... is low’
Group B	<i>darou</i> , <i>tabun</i> ‘probably’, <i>kitto</i> ‘certainly’, <i>moshikasuruto</i> ‘maybe’

In the following, I argue that unlike Group A, The semantic meaning denoted by expressions in Group B, namely the bias meaning of *darou* and adverbs like *tabun* ‘probably’, *kitto* ‘certainly’ and *moshikasuruto* ‘maybe’, are not part of the propositional content, but contributes to a higher level, speech-act operator or expressive level. First, I show that elements in Group B cannot be part of the negated content of a proposition. Second, I argue that, with question formation, the elements in Group A are embedded under a question operator, while the ones in Group B always outscope the question operator.

4.1 Embedding under Negation

In the previous literature on evidentials, it has been agreed upon that the meaning conveyed by evidentials is not part of the assertion. One of the reasons for this view is that the evidential meaning is not embedded under negation. For example, according to [Izvorski \(1997\)](#), a Bulgarian present perfect form indicates that the speaker infers the embedded proposition from indirect evidence.

- (42) toj izpil vsiĉkoto vino vĉera.
 he drunk-PE all-the wine yesterday
 ‘He apparently drank all the wine yesterday.’ (Bulgarian; [Izvorski, 1997](#))

This indication of indirect evidence cannot be negated as in (43-b).

- (43) a. Apparently, Ivan didn't pass the exam.
b. Ivan ne izkaral izpita
Ivan not passed-PE the-exam
=Ivan didn't pass the exam (it is said/I infer)
≠It is not the case that {it is said/I infer} that Ivan passed the exam. (Bulgarian; Izvorski, 1997)

Izvorski (1997) takes this fact to show that the inference by evidential marking is not part of the assertion. This argument relies on the following assumption:

- (44) If the semantic meaning of a lexical item is part of the propositional content, the meaning should be able to be under the scope of a negation.

Turning to Japanese *darou*, it appears to have the same interpretation as the Bulgarian evidential-marking. In (45), the bias is not under the scope of the negation, but the bias is toward the proposition including the negation, 'John is not coming.'

- (45) John-wa ko-nai-darou.
John-Top come-Neg-darou
'John won't come-*darou*'

However, it is not clear whether the negation test is applicable, since the position of negation seems to be morpho-syntactically determined in Japanese. The negation in Japanese is a suffix that attaches to predicates like verbs and adjectives which it takes a scope over. (46) is thus ill-formed morpho-syntactically, not just semantically.

- (46) *John-wa ko-darou-nai.
John-Top come-darou-Neg

Hence, following Sugimura (2004), I use a sentential negation *wakedewanai* 'it is not the case that' to test the embeddability of the items in discussion. In fact, as Sugimura (2004) notes, there is a difference between *kanarazu* and *kitto* (both glossed as 'certainly') in their distribution under the negation. I extend this observation to the difference between items in Group A and Group B. It is possible to syntactically and semantically embed expressions in Group A under *wakedewanai* 'it is not the case that'. Namely, the probability expressed by the elements are negated.

- (47) a. kare-ga kanarazu kuru wakedewanai.
he-Nom certainly come Neg
'It is not the case that it is certain that he is coming.' (Sugimura, 2004)
b. kare-ga kuru kanousei-ga aru wakedewanai.
he-Nom come possibility-Nom exist Neg
'It is not the case that there is a possibility that he is coming.'

- c. kare-ga kuru kanousei-ga hikui wakedewanai.
 he-Nom come possibility-Nom low Neg
 ‘It is not the case that the possibility that he is coming is low.’

On the other hand, it is not possible to embed items in Group B under negation as in (48).

- (48) a. *kare-ga kuru darou wakedewanai.
 he-Nom come DAROU Neg
 Intended: ‘It is not the case that I have a bias toward ‘he is coming.’”
 b. *kare-ga tabun kuru wakedewanai.
 he-Nom probably come Neg
 Intended: ‘It is not the case that he is probably coming.’
 c. *kare-ga kitto kuru wakedewanai.
 he-Nom certainly come Neg
 Intended: ‘It is not the case that he is certainly coming.’

(Sugimura, 2004)

- d. *kare-ga moshikasuruto kuru wakedewanai.
 he-Nom maybe come Neg
 Intended: ‘It is not the case that he is maybe coming.’

As for adverbs, if they are placed in the sentence-initial positions as in (49), the grammatical judgement is lifted. However, note that the meanings obtained are different from (47). Namely, the probability meaning is not under the scope of negation. In fact, the probability is calculated over the entire proposition including the negation, ‘it is not the case that John is coming.’ Hence, the meaning structure here is parallel to the one observed for the Bulgarian perfect of evidential.

- (49) a. tabun, kare-ga kuru wakedewanai.
 probably he-Nom come Neg
 ‘Probably, it is not the case that he is coming.’
 b. kitto, kare-ga kuru wakedewanai.
 certainly he-Nom come Neg
 ‘Certainly, It is not the case that he is coming.’
 c. moshikasuruto, kare-ga kuru wakedewanai.
 maybe he-Nom come Neg
 ‘Maybe, it is not the case that he is coming.’

This is not an available option for *darou* which must occur in the sentence-final position.

- (50) *darou kare-ga kuru wakedewanai.
 DAROU he-Nom come Neg

Observing these facts, one thing to note is that syntactic position of Japanese items is more rigid than that of the Bulgarian evidential. In Bulgarian, the syntax does not determine the scopal relation between the two. Hence, when the evidential co-occurs with negation, the sentence is grammatical

but only with the reading where the evidential takes a wider scope over the negation. In Japanese, the syntax of the probability markers is less flexible, and hence when the items in Group B are forced to be in the scope of the negation, the sentence results in ungrammaticality. If the adverbs are placed sentence-initially, they are able to scope over the negation. Together with this difference between Japanese *darou* and probability adverbs on the one hand and the Bulgarian evidential on the other, I conclude that the negation test shows that the semantic contribution of *darou* and probability adverbs (Group B) are not part of the propositional content.

4.2 Embedding under Questions

Another test that distinguishes the two groups is inspired by Zimmerman's (2005) work on the German particle *wohl*. According to Zimmermann (2005), *wohl* expresses the speaker's epistemic uncertainty or assumption, as in (51).

- (51) Hein ist wohl auf See.
 Hein is at sea
 = Speaker assumes that Hein is at sea (German: Zimmermann, 2005)

Zimmermann (2005) claims that the semantic contribution of *wohl* is not part of the propositional content. Zimmermann (2005) builds his argument based on the interaction of a question operator with *wohl* and the following assumption.

- (52) If *wohl* made up part of the propositional meaning of an utterance, a proposition containing *wohl* should behave just like other propositions under question formation. (Zimmermann, 2005)

According to Zimmermann (2005), when *wohl* occurs in a question formation, the meaning of *wohl* takes scope over the question meaning. Namely, the speaker is not asking about the addressee's assumption, but the speaker is still asking about the truth of the proposition 'Hein is at sea,' and at the same time indicating that the addressee could answer with some uncertainty.

- (53) a. Ist Hein wohl auf See?
 Is Hein at sea
 ≈ Tell me (granted a degree of uncertainty) whether Hein is at sea or not.
 ≠ Tell me whether you assume that H. is at sea, or whether you don't assume that H. is at sea (German: Zimmermann, 2005)

Hence, with the assumption in (52), Zimmermann (2005) concludes that the meaning of *wohl* is not part of the propositional content.

Let us use this test with the Japanese probability expressions. First, I restate Zimmermann's (2005) assumption as follows.

- (54) If the semantic meaning of a lexical item is part of the propositional content, the meaning

should be able to be under the scope of a question operator.

Japanese question formation involves the question particle *ka* and a rising intonation, which I indicate with '?.⁴ As predicted, items in Group A can be embedded under the question particle as in (55). Furthermore, the probability meaning is also semantically embedded under the question as the translations show.

- (55) a. ashita kanarazu John-ga ki-masu-ka?
tomorrow certainly John-Nom come-Hon-Q
'Is it certain that John is coming tomorrow?'
- b. ashita John-ga kuru kanousei-ga ari-masu-ka?
tomorrow John-Nom come possibility-Nom exist-Hon-Q
'Is there a possibility that John is coming tomorrow?'
- c. ashita John-ga kuru kanousei-ga hikui-desu-ka?
tomorrow John-Nom come possibility-Nom low-Hon-Q
'Is the possibility that John is coming tomorrow low?'

Turning to Group B, adverbs can occur in question formation, although their semantic meanings are not embedded under the question meaning. Namely, the speaker's interest is not in the probability of the proposition but in the truth of the proposition, and the speaker is allowing the addressee to have different degrees of uncertainty for the answer, which is parallel to the intuition reported for the German *whol* by Zimmermann (2005).

- (56) ashita John-ga tabun/kitto/moshikasuruto ki-masu-ka?
tomorrow John-Nom probably/certainly/maybe come-Hon-Q
'Is John coming tomorrow probably/certainly/maybe?'

This intuition can be attested by the following data. The answerer can respond to the question (57) by saying *iie* 'no', only when he/she disagrees with the propositional content of the question as in (57-b). The answerer cannot challenge the probability expressed by the adverbs as shown in (57-c) and (57-d).

- (57) ashita John-ga tabun ki-masu-ka?
tomorrow John-Nom probably come-Hon-Q
'Is John coming tomorrow probably?'
- a. hai, ki-masu.
yes, come-Hon.
'Yes, he is coming.'
- b. iie, ki-mase-n.
no, come-Hon-Neg
'No, he is not coming.'

⁴I use an honorific form *masu* or *desu* for question formation since the one without it, *kuru-ka* 'come-Q', is less conversational and harder to judge its intuition.

- c. #iie, kitto kuru
no, certainly come
'No, he is certainly coming.'
- d. #iie, moshikasuruto kuru
no, maybe come
'No, he is maybe coming.'

Now, let us examine the case for *darou*. Unlike the probability adverbs, it cannot co-occur within the canonical question formation (rising intonation and Q-morpheme) as shown in (58). (The morpheme *deshou* is an honorific form of *darou*.)⁵

- (58) a. *ashita John-ga kuru darou-ka?
tomorrow John-Nom come DAROU-Q
Intended: 'Do you have a bias toward 'John is coming tomorrow'?'
b. *ashita John-ga kuru deshou-ka?
tomorrow John-Nom come DESHOU-Q
Intended: 'Do you have a bias toward 'John is coming tomorrow'?'

However, the sequence of (58-a) can be grammatical if it is uttered with a falling intonation, although its interpretation is different, namely it is a self-addressing question.⁶

- (59) ashita John-ga kuru darou-ka.
tomorrow John-Nom come DAROU-Q
'I wonder if John is coming-*darou*.'

Apart from the issue of the question's addressee, the interpretation of (59) is parallel to the one with the adverbs and the German *whol* in terms of its scopal behavior. Namely, the speaker is not asking himself/herself about the probability but about the content of the proposition. The speaker can negate his/her first utterance by 'no' only when the speaker changes his/her mind about the propositional content as in (60-b), and not about its probability (60-c) and (60-d).

⁵The sequence *darou-masu* is morphologically ill-formed, as in (i).

- (i) *ashita John-ga kuru darou-masu.
tomorrow John-Nom come DAROU-Hon

⁶I would like to attribute this difference to the different shiftable indexicals that *darou* and the probability adverbs contain. As discussed earlier in section 2.1.3, the agent of the bias created by *darou* is the speaker of the local speech act. I speculate, on the other hand, that the probability of the adverbs in Group B (and perhaps the uncertainty expressed by the German *whol*) are associated to the agent of knowledge. This difference between the knowledge and the speech act results in the different behavior with the intonation. Gunlogson (2003) states "[r]ising declaratives commit the Addressee to the proposition expressed." and "[f]alling declaratives commit the Speaker to the proposition expressed." Namely, the rising intonation shifts the agent of knowledge to the addressee, while the falling accent does not. As for the agent of the speech act, it is always the actual speaker that performs the speech act of questioning. Accordingly, I suspect that *darou-ka* with a rising intonation is not available because the agent of knowledge is not sufficient to shift the change of the bias. This line of analysis is still speculative, and I leave this issue for future research.

- (60) ashita John-ga kuru darou-ka
 tomorrow John-Nom come DAROU-Q
 ‘I wonder if John is coming-*darou*.’
- a. un, kuru.
 yes, come.
 ‘Yes, he is coming.’
 - b. iya, ko-nai darou.
 no, come-Neg DAROU
 ‘No, he is not coming-*darou*.’
 - c. #iya, kitto kuru
 no, certainly come
 ‘No, he is certainly coming.’
 - d. #iya, moshikasuruto kuru
 no, maybe come
 ‘No, he is maybe coming.’

Hence, the bias meaning of *darou* is not in the scope of the question meaning.

In summary, the expressions in Group A contribute to the assertive content; and therefore, when they occur in a question formation, their semantic contribution is part of the proposition in question. On the other hand, the meanings expressed by the items in Group B are not in the scope of the question meaning, although there is a difference between *darou* and the adverbs in terms of the interpretation of the question (a canonical question or self-addressing question).

To conclude, the probability expressions in Group A are part of the propositional content of an utterance. On the other hand, the probability indicated by the items in Group B contributes to some higher level of meaning. In other words, there is a distinct level of meaning to which the elements in Group B contribute.

4.3 Chunks of meaning

The existence of different levels of meaning solves the puzzle of *darou* and its asymmetry with regard to the expressions that indicate low probability. I propose that the expressions in group B generate meanings independent of the propositional content. Namely, I propose to analyze the sentence-final marker *darou* and the probability adverbs like *tabun* ‘probably’, *kitto* ‘certainly’, and *moshikasuruto* ‘maybe’ as non-propositional expressions. On the other hand, the adverb *kanarazu* ‘certainly’ and phrases like *kanousei-ga aru* ‘there is a possibility that’, and *kanousei-ga hikui* ‘there is a slight possibility that’ contribute to the assertive or propositional level of meaning.⁷

⁷See section 4.1 and Sugimura (2004) for the difference between *kitto* and *kanarazu*.

(61)

propositional (Group A)	<i>kanarazu</i> ‘certainly’, <i>kanousei-ga aru</i> ‘there is a possibility that’, <i>kanousei-ga hikui</i> ‘there is a slight possibility that’
non-propositional (Group B)	<i>darou, tabun</i> ‘probably’, <i>kitto</i> ‘certainly’, <i>moshikasuruto</i> ‘maybe’

Different degrees of certainty (e.g. 40% and 80%) are compatible as long as one is stacked on top of the other. Incompatibility arises only when both the adverb and *darou* contribute different levels of certainty to the same level.

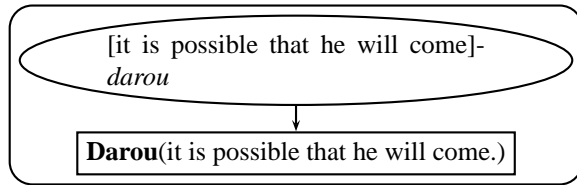
First of all, *darou* can co-occur with a pure assertive expression as in (38-a) and (40), repeated below as (62) and (63), since the existential possibility (propositional) and the likelihood (speech-act-level) are represented in different tiers.

(62) kare-ga kuru kanousei-ga aru darou.
he-Nom come possibility-Nom exist DAROU
‘There is a possibility that he will come-*darou*.’

(63) kare-ga kuru kanousei-ga hikui darou.
he-Nom come possibility-Nom low DAROU
‘There is a slight possibility that he will come-*darou*.’

Namely, *darou* is operating over the clause *kare-ga kuru kanousei-ga aru* ‘there is a possibility that he will come.’ and expresses a bias toward the whole proposition.

(64)

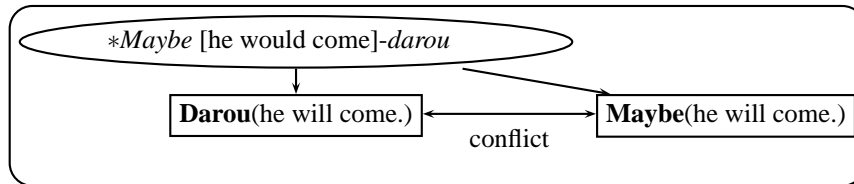


On the other hand, (12), repeated here as (65), with *moshikasuruto* causes a conflict in meaning since each represents a contradictory different degree of certainty in the same non-propositional level.

(65) kare-wa tabun/kitto/*moshikasuruto kuru darou.
 he-Top probably/certainly/maybe come DAROU
 'Probably/Certainly/*Maybe, he will come.' (Sugimura 2004)

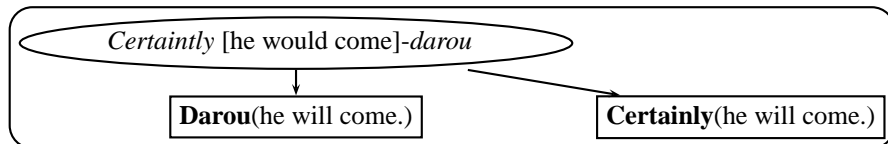
Each *darou* and *moshikasuruto* 'maybe' operates over the proposition *kare-ga kuru* 'he will come' and creates its own expressive meaning. *Darou* indicates high probability, and *moshikasuruto* indicates low probability. These two chunks of meaning result in an infelicity, since the speaker is giving an incongruent judgement.

(66)



Furthermore, if the quantificational forces of the probability do not conflict with each other, generating two expressive meanings does not cause an infelicity. *Darou* indicates the speaker's bias toward 'he will come', while *kitto* 'certainly' indicates the speaker's belief in the content of the proposition. These two meanings are compatible. The latter is a stronger version of the former.

(67)



To summarize, the puzzle presented in section 3 resolves if we analyze *darou* and probability adverbs as morphemes that create meanings that belong to a different level from a simple assertion. The incompatibility arises only when both the adverb and *darou* express incompatible meanings in the same level.

The bias meaning of *darou* shows a conflict with respect to probability only with a non-propositional adverb of low probability, while it is compatible with an assertive counterpart.

Let me conclude this section by showing the interpretation of (2-b) repeated here as (68). Both *darou* and *tabun* operate over the same propositional content ‘He will come tomorrow’, and yield non-propositional meanings independently.

- (68) tabun ashita kare-ga kuru darou.
 probably tomorrow he-Nom come DAROU
 ‘He will come tomorrow-*darou*.’

The sentence-final marker *darou* indicates a bias toward the proposition and the bias is based on the speaker’s reasoning that do not include particular instances of evidence.

- (69) non-propositional meaning 1 by *darou*
- a. p: He will come tomorrow.
 - b. Quantificational Domain: {w: w is a possible world which is compatible with the non-observable reasoning by the actual speaker}
 - c. Quantificational Force: more than 50 % ($p >_{likelihood} \neg p$)
 - d. In prose: the actual speaker considers the probability of p to be higher than $\neg p$ based on his/her non-observable reasoning.

By the adverb *tabun*, the speaker indicates that the content is highly probable based on his/her belief.

- (70) non-propositional meaning 2 by *tabun*
- a. p: He will come tomorrow.
 - b. Quantificational Domain: {w: w is a possible world which is compatible with the actual speaker’s belief}
 - c. Quantificational Force: around 80 % (Probability(p) \approx 0.8)
 - d. In prose: the actual speaker considers the probability of p as around 80%.

Note that unlike *darou*, *tabun* does not have the evidence-less condition. If *tabun* is used without *darou*, the speaker can have evidence for the propositional content as in (71).

- (71) John-no hey-a-ni bin-ga takusan aru kara, kinou John-wa tabun
 John-Gen room-Dat bottle-Nom many exist because yesterday John-Top probably
 wine-o takusan nonda.
 wine-Acc many drank
 ‘Because there are a lot of bottles in John’s room, John probably drank a lot of wine yesterday.’

Another thing to note is that the propositional content ‘he will come tomorrow’ in (68) is not an actual assertion of the speaker, but a mere argument to the higher functors like *darou* and *tabun*. If it were the actual assertion, the non-propositional meanings such as ‘the speaker’s bias’ and ‘the judgement of high probability’ would weaken the assertion. For example, the sequence of

two clauses in (72) is not felicitous. The assertion of the first conjunct without a modal entails the speaker's commitment to the truth of 'she climbed Mt. Tobi' in the actual world. However, the second conjunct indicates that the speaker considers the truth of the proposition 'she climbed Mt. Tobi' only in the restricted modal base, which might not include the actual world (see section 2.2.1).

(72) #She climbed Mt. Tobi and she must have climbed Mt. Tobi.

If the propositional content of *darou* in (68) were projected higher as the speaker's assertion, it would yield a message parallel to (72), 'he will come tomorrow, and I have a bias toward 'he will come tomorrow.'" Hence, when the proposition is predicated to *darou*, the propositional content is not projected but only the bias meaning is generated. (See also section 4.4.1.)

In summary, by taking the propositional content as an argument, *darou* generates a meaning which is distinct from the propositional level. Also, the argument does not independently project. The next question pertains to what is the nature of the level to which *darou* contributes.

4.4 Comparison with Potts (2003)

The puzzle presented in 3 is straightforwardly explained by the introduction of a different level of meaning. In the recent semantics literature, there is a distinguished level of meaning, *expressive* meaning, which is extensively discussed in Potts (2003). The behavior of *darou* is similar to the behaviour of expressives in that their meaning contribution is not under the scope of negation or question. For example, the expressive *damn* in (73) represents "the speaker disapproves of having to look after Sheila's dog" (Potts, 2003).

(73) I am not looking after Sheila's damn dog while she is on holiday. (Potts, 2003)

The meaning expressed by *damn* cannot be part of the negated content (74-a) nor part of the question (74-b), since both (74-a) and (74-b) carry the same expressive meaning "the speaker disapproves of having to look after Sheila's dog" as (73).

(74) a. It's just not true that Sheila's damn dog is on the couch!
b. Am I looking after Sheila's damn dog while she is on holiday? (Potts, 2003)

However, I show that the semantic meaning represented by *darou* exhibits properties which are different from the ones defined as expressive meanings in Potts (2003).

4.4.1 *Darou* does not involve an identity function

First of all, in Potts (2003), a computation of expressive meaning involves two functional applications, one that yields an expressive meaning and the other which is an identity function that yields

assertive meaning (at-issue entailment). For example, the expressive *damn* in (75) takes *Republicans* as its argument and yields an expressive meaning as in (75-a). At the same time, it yields the semantic meaning of *Republicans* by identity function in the assertive level. The assertive meaning of *Republicans* then becomes an argument to a higher functor like *say*, and the sentence obtains the meaning of at-issue entailment (75-b) independent of its expressive meaning.

- (75) The damn Republicans want the bill passed. (Potts, 2003)
- a. expressive meaning: The speaker disapproves of Republicans.
 - b. at-issue entailment: The Republicans want the bill passed.

This identity function for the assertive tier is necessary for the following reason. (76) can be felicitously uttered even if we assume that Bush is a Republican and he will not call himself *damn*. According to Potts (2003), this is because the only at-issue entailment is the complement of *say*, while the expressive meaning of (76) is not part of it.

- (76) Bush says the damn Republicans deserve public support.

Darou does not have this property. If it did, it would create an incongruent message. For example, if (77) generated two meanings, *p* as its assertive meaning and *p-darou* as its expressive meaning, the expressive meaning would weaken the assertion. (See also (69).) Namely, (77) would mean something like ‘John came and I have a bias toward ‘John came.’

- (77) John-ga kita darou.
John-Nom came DAROU
‘John came-*darou*.’

Hence, it is not desirable to have two meanings projected at the same time for *darou*. *Darou* does not have multi-dimensional functional applications but only projects the bias meaning.

4.4.2 *Darou* can be semantically embedded

Related to the point above, Potts (2003) argues that at-issue meanings never apply to expressive meanings. For example, (76), repeated here as (78), is a consistent report of Bush’s utterance ‘the Republicans deserve public support.’ with the speaker’s additional comment on his/her attitude toward Republicans. Namely, the expressive meaning ‘disapproval of Republicans’ is not semantically embedded under *say*.

- (78) Bush says the damn Republicans deserve public support.

Darou behaves differently. As discussed earlier, the use of *darou* in (25-b), repeated here as (79), is infelicitous. If the bias meaning of *darou* projected invariably as the speaker’s comment and *because* only took the propositional content ‘It will rain.’ (79), could have an interpretation ‘John took an umbrella with him because it will rain, and the speaker has a bias toward ‘it will rain.’

- (79) ??John-wa ame-ga furu darou kara kasa-o mot-te it-ta
 John-Top rain-Nom fall DAROU because umbrella-Acc have-and go-Past
 ‘Because it will rain-*darou*, John took an umbrella with him.’

However, that interpretation is not available for (79). Hence, I conclude that *because* takes the non-assertive meaning, the speaker’s bias, as its argument; and therefore, (79) results in infelicity, since the speaker’s bias alone does not cause John’s action of taking an umbrella.

4.4.3 *Darou* is not necessarily speaker-oriented

Another related property Potts (2003) discusses is that expressive meanings are always attributed to the actual speaker. (80) illustrates his point. (80) shows that it is hard to associate the expressive meaning ‘disapproval of Republicans’ to the agent of the reported speech unless some intonation is added to indicate that the embedded sentence is a direct quote.

- (80) Clinton: The damn Republicans want the bill passed.
 Bush: #Clinton says the damn Republicans want the bill passed.

(Potts, 2003)

In section 2.1.3, we have seen that this is not the case for *darou*. The bias indicated by *darou* does not need to be the actual speaker, but the speaker of the local utterance. The speaker can challenge the content of the bias without causing infelicity as in (24), repeated here as (81), since the bias does not belong to the actual speaker but to the local speaker of the embedded speech act, *Mary*.

- (81) a. Mary-wa John-ga kuru darou to omot-teiru.
 Mary-Top John-Nom come DAROU Comp think-Prog
 ‘Mary thinks that John will come-*darou*’
 b. Boku-wa sou-wa omow-anai-kedo.
 I-Top so-Top think-Neg-though
 ‘I don’t think so (that he will come), though.’

Furthermore, the complement of *think* in (81–a) is not a direct quote. The (non-shiftable) indexical, *watashi* ‘me’ in (82) always refers to the speaker and never refers to *Mary*. If the embedded proposition were a direct quote, the referent of *watashi* ‘me’ should be the original speaker of the quote, *Mary*.

- (82) Mary-wa John-ga watashi-ni ai-ni kuru darou to omot-teiru.
 Mary-Top John-Nom me-Dat meet-to come DAROU Comp think-Prog
 ‘Mary thinks that John will come to see me.-*darou*’

In summary, the non-propositional meaning conveyed by *darou* is distinct from the expressive meaning defined in Potts (2003). First, the computation of *darou* does not involve an identity function. Second, the expressive meaning can be an argument to higher functors. Lastly, the expressive meaning can be associated with an agent other than the actual speaker.

4.5 Section Summary: Open End

This section argued that the indication of the speaker's probability judgement by Japanese evidential marker *darou* is not part of the assertion. It cannot be under the scope of negation nor question formation. Also, the bias meaning of *darou* conflicts only with adverbs of low probability at the same non-assertive level, while it is compatible with an assertive counterpart.

Although the property reported for *darou* is similar to the one for 'expressive meaning', the notion of 'expressive meaning' cannot be directly applied to *darou* since the semantic meaning of *darou* interacts with local contexts more closely than the ones previously observed for English expressives. Hence, if we would like to analyze the meaning of *darou* as expressive, we need to reformulate the term "expressive".

In fact, some items that are claimed to be expressive can be relativized to an attitude-bearer other than the speaker. Kratzer (1999) shows that at root-level, *ja* indicates that, for all the speaker knows, the content of the asserted proposition might be known to the addressee. According to Kratzer (1999), in contrast, if *ja* is embedded under an attitude predicate as in (83), it is interpreted as "for all Webster knows".

- (83) Webster sagte, dass er ja nienmanden gekant habe
Webster said that he JA nobody know had
'Webster said he hadn't know anybody.' (Kratzer, 1999)

Kratzer (1999) also reports that even in English, at least some expressives can be associated to the speaker of the reported utterance as in (84). The opinion that Webster is a bastard belongs to the individual denoted by *my father* rather than the actual speaker.

- (84) My father screamed that he would never allow me to marry that bastard Webster. (Kratzer, 1999)

Therefore, we seem to have enough motivation to reconsider the notion of "expressive" meaning. Another option to pursue is to analyze *darou* as a speech-act modifier or a sentence-type modifier as argued in Faller (2002) and Zimmermann (2005). Unfortunately, I cannot attempt an analysis of *darou* can be analyzed in this approach at present.

5 Conclusion

This article gave an analysis of *darou* as an evidential morpheme that has a modal-flavor:

- (85) The modal meaning of *p-darou* in context *c*
- Quantificational Domain: possible worlds which are compatible with the non-observable reasoning by the speaker of context *c*
 - Quantificational force: more than 50 %
($p > \textit{likelihood} \neg p$)

The following are crucial ingredients of the analysis. First, *darou* indicates a bias toward the event denoted by the embedded proposition. Second, the source of the bias for *p* is not observable evidence but epistemic reasoning. Third, the semantic denotation of *darou* contains a shiftable indexical ‘the speaker of context *c*’ as the agent of the bias. Fourth, I have argued that the bias for *p* introduced by *darou* is not part of the assertive content. The last two points create a tension in the theory of levels of meaning, since, unlike the expressive meanings discussed in Potts (2003), it is possible to semantically embed the probability judgement by *darou* and associate the judgement to some agent other than the speaker.

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