

Question Intonation and Lexicalized Bias Expression

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Intonation

- Many languages express question meanings morpho-syntactically and prosodically.
- in English, Subject-Aux inversion renders a statement into an interrogative, which is often accompanied by a rising contour.
- question meanings can be expressed by morpho-syntax alone.
- a declarative sentence can be interpreted as a question solely by a rising intonation.

- (1)
- | | | |
|----|-----------------|------------|
| a. | Is John coming↑ | R.Interrog |
| b. | Is John coming↓ | F.Interrog |
| c. | John is coming↑ | R.Decl |

Japanese

- Similarly, in Japanese, a question particle *ka* marks a sentence as interrogative,
- which is sometimes accompanied by a rising contour.
- a question meaning can also be expressed by a declarative sentence with a rising intonation.

- (2)
- | | | |
|----|-------------------|----|
| a. | John-ga kuru ka↑ | |
| | John-Nom come Q | |
| | 'Is John coming?' | RI |
| b. | John-ga kuru ka↓ | FI |
| c. | John-ga kuru↑ | RD |

Utterance types

- Although all of these utterance types express some kind of question meanings,
- previous analyses agree upon that they are not completely interchangeable:
 - Bartels (1997) and Merin and Bartels (1997) for distinctions between rising interrogatives and falling interrogatives;
 - Gunlogson (2003) and Nilsenova (2002) for distinctions between falling declaratives and rising declaratives.

Goal

- This paper examines the interaction between these utterance types and the Japanese modal particle *darou*,
- (3) John-ga kuru **darou**↓ FD
'John is coming (I bet)'
- It offers an interesting test case
- (4) a. *John-ga kuru **darou** ka↑ RI
b. John-ga kuru **darou** ka↓ FI
'I wonder whether John is coming./'Let's think about the question whether John is coming.'
c. John-ga kuru **darou**↑ RD
'John is coming, right?'
- It sheds new light on the ongoing discussion of the interpretations of each utterance type.

Probability adverbs and *darou*

- Sugimura (2004) observes that *darou* can co-occur with high-probability adverbs, *tabun* 'probably' and *kitto* 'certainly'
 - but cannot co-occur with a low-probability adverb, *moshikasuruto* 'maybe'.
- (6) a. kare-wa tabun/kitto kuru darou.
he-Top probably/certainly come DAROU
'Probably/Certainly, he will come.'
b. *kare-wa moshikasuruto kuru darou.
he-Top pmaybe come DAROU
(Sugimura, 2004)

Darou

- Darou* is a sentence-final particle that has a modal-flavor.
 - When *darou* is used in a plain declarative, it expresses **the speaker's bias** toward the content of the preajcent proposition.
- (5) John-ga kuru **darou**.
Jonn-Nom come DAROU
'John is coming (I bet).'
'≈'Probably, John is coming.'

Bias

- (7) kare-wa tabun/kitto/*moshikasuruto kuru darou.
he-Top probably/certainly/maybe come DAROU
'Probably/Certainly/*Maybe, he will come.' (Sugimura, 2004)
- Darou* semantically indicates a high probability,
 - namely a bias (more than 50 %) toward the event denoted by the proposition,
 - hence *darou* is not compatible with a low-probability adverb (see Hara, 2006, for details).

Speaker-oriented

- The agent of the bias expressed by *darou* needs to be the speaker.

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

- The speaker's bias toward 'it will rain' does not cause John to bring an umbrella.

Property of *darou*

The properties of *darou* are summarized as follows:

- Darou* indicates a bias (more than 50 %) toward the embedded proposition, i.e., θ is more likely than $-\theta$.
- The agent of bias is the agent of the local speech act.

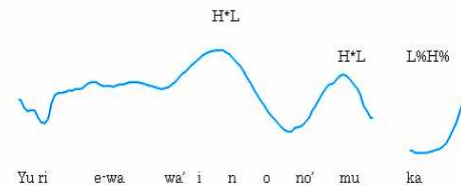
F0 analysis

- Darou* exhibits interesting and subtly distinct interpretations when it is used with
 - different sentence types (Declarative or Interrogative) and
 - different intonations (Falling or Rising).
- The F0 Contour was measured by an autocorrelation analysis of the PRAAT program (Boersma and Weenink, 2006).

rising interrogative without *darou*

- A high boundary tone is found at the end of the interrogative sentence (see also Venditti, 1995).

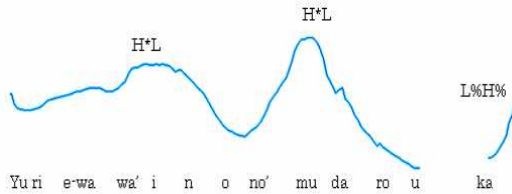
- (9) Yurie-wa wain-o nomu-ka[↑]
Yurie-Top wine-Acc drink-Q
'Does Yurie drink wine?'



Darou with a rising interrogative

- *Darou* cannot be used in an interrogative construction with a rising intonation.
- the speaker is asked to pronounce (10) with a final high boundary tone, which is reported as ungrammatical by the speaker.

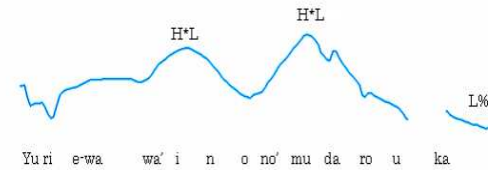
(10) *Yurie-wa wain-o nomu darou-ka↑
 Yurie-Top wine-Acc drink DAROU-Q



Darou within a falling interrogative

- If *darou* occurs within a falling interrogative, it is interpreted as a self-addressing question.

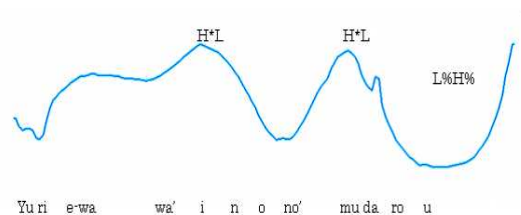
(11) Yurie-wa wain-o nomu darou-ka↓
 Yurie-Top wine-Acc drink DAROU-Q
 'I wonder if Yurie drinks wine.'



Darou within a rising declarative

- *Darou* with a rising declarative appears to function as a tag question.

(12) Yurie-wa wain-o nomu darou↑
 Yurie-Top wine-Acc drink DAROU
 'Yurie drinks wine, right?'



Summary

The influence of the boundary tone on interpretation is summarized in the following table.

	Interrogative	Declarative
Rising	ungrammatical	tag question ('right?')
Falling	self-addressing question ('I wonder'/'Let's think')	statement ('I have a bias'/'I bet')

Conversation as a negotiation game

- Merin (1994) characterizes a conversation as a **negotiation game** among agents on **what enters Common Ground**.
- Each negotiation is executed by an Elementary Social Act
- An Elementary Social Act is a transition from one negotiation state to another:
 - 1 Claim
 - 2 Concession
 - 3 Retract
 - 4 Denial

Example

- (13) Ego: The bridge is closed. (Merin, 1994)
- Discourse Participants: Ego (the speaker), and Alter (the hearer)
 - The proposition at issue: 'The bridge is closed'
 - Ego prefers the proposition 'The bridge is closed' to enter the Common Ground.
 - The claim for credibility is supported by Ego's evidence or Ego's social power.
 - The game of whether 'The bridge is closed' should enter the Common Ground is initiated by Ego.

Parameters

(13) Ego: The bridge is closed. (Merin, 1994)

- Each negotiation state is instantiated by a 5-tuple, $\langle S, O, P, D, I \rangle$.
 - S Actor-role
 - O Issue orientation
 - P Preference
 - D Dominance
 - I Initiator-role
- Claim: $\langle E_S, \theta_O, E_P, E_D, E_I \rangle$

Ego's Concession

- (14) a. Alter CLAIMs θ 'the bridge is closed'.
b. Ego CONCEDEs θ 'the bridge is closed'.

Merin (1994)

The default for 'concession' is of something granted reluctantly in response to a claim.

- Actor-role: Ego
- The proposition at issue: 'The bridge is closed'
- **Alter** prefers the proposition θ . (Ego prefers $\neg\theta$)
- Dominance is set to **Alter**.
- The game of whether θ should enter the Common Ground is initiated by **Alter**.
- Concession: $\langle E_S, \theta_O, A_P, A_D, A_I \rangle$

Parameter setting

The parameter setting of each Elementary Social Act is summarized in the following table (simplified from Merin (1994)):

	S	O	P	D	I
Claim	E	θ	E	E	E
Concession	E	θ	A	A	A
Denial	E	θ	A	E	A
Retraction	E	θ	E	A	E

“(re-)allocation of [D]-parameter value’

Employing Merin’s (1994) model, Merin and Bartels (1997) characterize intonation as “(re-)allocation of [D]-parameter value”:

- (15) Final Rise (Merin and Bartels, 1997)
in asking, Ego is alienating choice among alternatives (sets of possible worlds) to Alter i.e. making a **Concession**.
- (16) Final Fall (Merin and Bartels, 1997)
in requiring an answer from Alter, Ego is forcing Alter to commit himself to one mutually binding alternative (thus banning others from inclusion in the CG) and is thereby making a **Claim**.

Example: Final Rise

The Final Rise indicates shift of the authority of choice from Ego (the speaker) to Alter (the hearer).

- (17) I didn’t know John took a job all the way over in Redwood City.
Does he have a car now?
H* H-H%
(Merin and Bartels, 1997)

- Concession: $\langle E_S, \theta_O, A_P, A_D, A_I \rangle$

Example: Final Fall

the Final Fall in (18) indicates Ego’s demand to Alter for commitment:

- (18) John did good work for us last year. But I doubt that we could still have him going round on his bicycle.
Does he have a car now?
H* L-L%
(Merin and Bartels, 1997)

- Claim: $\langle E_S, \theta_O, E_P, E_D, E_I \rangle$

Summary

- Intonation sets Dominance value.

	Interrogative
Rising	$\langle E_S, \theta_O, A_P, A_D, A_I \rangle$
Falling	$\langle E_S, \theta_O, E_P, E_D, E_I \rangle$

rising declarative

Nilsenova (2002)

- examines distinctions between rising interrogatives and rising declaratives and
- extends Merin and Bartels's (1997) model

Proposal by Nilsenova (2002)

A rising declarative specifies Initiator-role as E (the speaker), and Dominance as A (the addressee):

Example

- The game of whether a proposition θ should enter the common ground is initiated by Ego (the speaker).
- Dominance is set to Alter. This is either
 - because Ego does not have necessary information to make a commitment or
 - because Ego gives up the authority of choice to Alter in order to indicate his politeness.

- (19) a. At Tim's graduation. Tim is standing next to a woman in her sixties.
Jack: You are Tim's mother? (Nilsenova, 2002)
- b. Waiter (to customer): My name is Carl? I'll be your waiter tonight? (Gussenhoven and Chen 2000)

Summary

- A rising declarative specifies Initiator-role as E (the speaker), and Dominance as A (the addressee)

	Interrogative	Declarative
Rising	$\langle E_S, \theta_O, A_P, A_D, A_I \rangle$	$\langle E_S, \theta_O, A_P, A_D, E_I \rangle$

default parameter settings

- Integrating Merin and Bartels (1997), and Nilsenova (2002):
 - Intonation allocates Dominance value.
 - A rising declarative specifies Initiator-role as E (the speaker), and Dominance as A (the addressee)
- the classification of utterance types in terms of *default* parameter settings of Elementary Social Acts:

	Interrogative	Declarative
Rising	$\langle \bar{E}_S, \theta_O, A_P, A_D, A_I \rangle$	$\langle \bar{E}_S, \theta_O, A_P, A_D, E_I \rangle$
Falling	$\langle E_S, \theta_O, E_P, E_D, E_I \rangle$	$\langle E_S, \theta_O, E_P, E_D, E_I \rangle$

default parameter settings

	Interrogative	Declarative
Rising	$\langle \bar{E}_S, \theta_O, A_P, A_D, A_I \rangle$	$\langle \bar{E}_S, \theta_O, A_P, A_D, E_I \rangle$
Falling	$\langle E_S, \theta_O, E_P, E_D, E_I \rangle$	$\langle E_S, \theta_O, E_P, E_D, E_I \rangle$

Assumption

Preference is defeasible within morphosyntactic and prosodic classification of utterance types (i.e., without *darou*).

Specification

Proposal

the semantics of *darou*, i.e., the speaker's bias, lexically specifies the values of Preference and Initiator-role as Ego (the speaker).

$$(20) \quad \text{darou: } \langle E_S, \theta_O, E_P, (\cdot)_D, E_I \rangle$$

Let us go back to the interaction between the semantics of *darou* and the typology of utterance types.

rising interrogative

(21) *Yurie-wa wain-o nomu darou-ka[↑]
Yurie-Top wine-Acc drink DAROU-Q

- a rising interrogative is not compatible with *darou*.
- Merin and Bartels (1997) define a rising interrogative as a Concession:
- Ego (the speaker/the questioner) is ready to accept Alter's Claim to be in Common Ground.
- Therefore, the Initiator-role of a rising interrogative is Alter, which conflicts with the meaning of *darou*:
 - RI: $\langle E_S, \theta_O, A_P, A_D, A_I \rangle$
 - darou*: $\langle E_S, \theta_O, E_P, (\cdot)_D, E_I \rangle$

falling interrogative

(22) Yurie-wa wain-o nomu darou-ka↓
Yurie-Top wine-Acc drink DAROU-Q
'I wonder if Yurie drinks wine.'

- The falling interrogative is compatible with *darou*,
- which results in the interpretation that Ego is demanding commitment from himself:
 - FI with *darou*: $\langle E_S, \theta_O, E_P, E_D, E_I \rangle$

rising declarative

(23) Yurie-wa wain-o nomu darou↑
Yurie-Top wine-Acc drink DAROU
'Yurie drinks wine, right?'

- the rising declarative is also compatible with *darou*
- the combination yields the interpretation of a tag question,
- since *darou* indicates that Ego (the speaker) prefers the adoption of the proposition:
 - RD (default): $\langle E_S, \theta_O, A_P, A_D, E_I \rangle \rightarrow$
 - RD with *darou*: $\langle E_S, \theta_O, E_P, A_D, E_I \rangle$

Summary

The interaction between the lexical specification of *darou* and the meaning of utterance types is summarized below:

	Interrogative	Declarative
Rising	<i>darou-ka</i> ↑ ungrammatical	<i>darou</i> ↑ tag question ('right?') $\langle E_S, \theta_O, E_P, A_D, E_I \rangle$
Falling	<i>darou-ka</i> ↓ self-addressing question (‘I wonder’/‘Let’s think’) $\langle E_S, \theta_O, E_P, E_D, E_I \rangle$	<i>darou</i> ↓ statement (‘I have a bias’) $\langle E_S, \theta_O, E_P, E_D, E_I \rangle$

Conclusion

- We have looked at the influence of intonation and sentence types on interpretation of sentences with the Japanese modal particle *darou*.
- I integrated two previous studies on English intonation, Merin and Bartels (1997) and Nilsenova (2002), in order to provide parameter settings of different utterance types
- I propose that *darou* lexically specifies the values of Preference and Initiator-role as the speaker.
- my proposal correctly predicts the infelicity of the use of *darou* in rising interrogatives and distinct interpretations observed in rising declaratives, falling interrogatives and falling declaratives.

Remaining Questions

- there is no distinction between falling interrogative and falling declarative.
 - Merin and Bartels (1997): “choice-related aspects inherent to questions”
- Preference is defeasible. Conversational implicature?

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