

Biased Polar Questions and Japanese Question Particles

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1 Introduction

Questions have very complex meanings that are different from declarative sentences. Since the advent of the Hamblin semantics for questions (Hamblin, 1958, 1973, Karttunen, 1977) their truth-conditional meanings are widely modeled as sets of answers. However, questions may also convey non-truth-conditional information regarding the questioner's *bias* about possible answers (Ladd, 1981, van Rooy & Šafářová, 2003, Romero & Han, 2004, Asher & Reese, 2007, Reese, 2007). In this paper we deal with biases in polar (or *yes/no*) questions (PQs) and the way they are linguistically encoded.

The objectives of this paper are primarily descriptive. Above all we claim that Ladd's (1981) dichotomy of biased questions is correct but not enough to correctly characterizes the inferences involved (Büring & Gunlogson, 2000), and that two kinds of bias have to be recognized. Secondly, we demonstrate that the proposed descriptive system can characterize biased polar questions in Japanese, which encodes various kinds of bias in question particles.

2 Two Kinds of Bias in English Polar Questions

English negative polar questions with inverted negation (NPQs) carry extra inferences about the questioner's bias towards either of the answers.¹ (1a) is a positive polar question (PPQ), whose NPQ counterpart is (1b).

- (1) a. Did John come to the party?
b. Didn't John come to the party?

The semantic difference between these two PQs is glaring, but what these questions are asking about is exactly the same, namely whether John came to the party. Thus the difference should lie in the non-truth-conditional part of their meanings. The previous studies analyze (1b) as involving an additional inference regarding the questioner's expectation, or bias. In this section,

¹As discussed by Ladd (1981), Romero & Han (2004), Asher & Reese (2007) and Reese (2007), English has other means of expressing biased PQs such as tag questions, epistemic *really*, strong NPIs and marked intonation. We put those aside in the present paper, but they should be analyzable under the system proposed here. Also, we do not discuss negative PQs with *in situ* negation in this paper, which appear to be similar to PPQs with respect to the bias (See Asher & Reese (2007) for a discussion).

we will look at such inferences involved in English PQs and claim that two kinds of bias that are qualitatively different must be distinguished. Before doing so, we introduce Ladd's (1981) important classification of NPQs on which our analysis will be based on.

2.1 ON- and IN-NPQs

Ladd (1981) points out that there are two readings of NPQs, which he calls *Outside-Negation (ON) reading* and *Inside-Negation (IN) reading*. The following examples adapted from Ladd (1981) demonstrate that the exact same NPQ can carry different flavors of bias.

(2) *ON reading*

A: You guys must be starving. You want to go get something to eat?

B: Yeah, **isn't there a vegetarian restaurant around here?** Moosewood or something like that?

(3) *IN reading*

A: I'd like to take you guys out to dinner while I'm here.

B: But there's not really any place to go in Hyde Park.

A: Oh, really, **isn't there a vegetarian restaurant around here?**

In (2), the NPQ in boldface implies that the speaker thinks that there is probably a vegetarian restaurant, and she asks whether that expectation is correct or not. In contrast the same NPQ in (3) implies that contrary to the speaker's initial expectation, she now thinks that there might not be one, and asks for a confirmation of this new supposition.

Interestingly, Ladd (1981) observes that Positive Polarity Items (PPIs) and Negative Polarity Items (NPIs) disambiguate these readings. That is, when a NPQ contains a PPI, it only has an ON reading and when it contains an NPI, it only has an IN reading.

(4) a. Didn't John come to the party **too**?

⇒ John probably came to the party.

b. Didn't John come to the party **either**?

⇒ (I thought he did but) John might not have come to the party.

In the remainder of this section, we argue that this dichotomy of ON and IN readings is too coarse to capture the intricate inferences involved in PQs (cf. Büring & Gunlogson, 2000). Instead, we propose two different kinds of bias, which we call *epistemic bias* and *evidential bias*, in characterizing different kinds of biased PQs. Simply put, epistemic bias is about the speaker's belief/expectation or what she takes to be a norm, while evidential bias has to do with evidence available in the current context of conversation. Thus we claim that PQs carry information regarding not only what the questioner thinks, but also what kind of evidence is available to in the current conversational context (Büring & Gunlogson, 2000).

2.2 PPQs and Evidential Bias

The relevance of contextual evidence has already been suggested by Büring & Gunlogson (2000). They point out that positive polarity questions (PPQs) are also biased and their biases have to

do with what they call contextual evidence (see below). As an illustration, consider the following example adapted from Büring & Gunlogson.

- (5) [Context: My officemate enters the windowless computer room wearing a dripping wet raincoat]
What's the weather like out there?
a. #Is it sunny?
b. Is it raining?

What this example shows is that when evidence for the negative answer (henceforth *negative evidence*) is available in the context, the questioner is not entitled to ask a PPQ as in (5a), while a PPQ is perfectly compatible with evidence for the positive answer (henceforth *positive evidence*) as the felicity of (5b) indicates.² Incidentally, PPQs are fine in neutral contexts where there is no particular evidence as shown in (6), which is also adapted from Büring & Gunlogson (2000).

- (6) [Context: We're talking long-distance on the phone.]
What's the weather like out there?
a. Is it sunny?
b. Is it raining?

We call this type of bias regarding what kind of evidence is available to the conversational participants *evidential bias*. Here, we introduce the notion of incompatibility with positive/negative evidence and call it *evidential bias* (–).

- (7) *Evidential Bias* (–)
If a PQ is incompatible with contextual evidence for the positive (negative) answer, the PQ is said to carry a [–positive] ([–negative]) evidential bias.

We adopt the notion of *contextual evidence* due to Büring & Gunlogson (2000):

- (8) *Contextual Evidence*
Evidence that has just become mutually available to the participants in the current discourse situation.

Thus, English PPQs carry [–negative] evidential bias, and are incompatible with contextual evidence for the negative answer. To repeat, this point was already pointed out by Büring & Gunlogson (2000), and in fact the descriptive generalizations we will draw in this section regarding evidential bias can be regarded as a restatement of their proposal with a new technical jargon. However, we further claim that there is another kind of bias, *epistemic bias* involved in PQs.

²It should be clarified what is meant by 'positive' and 'negative' answers here. For a PPQ $p?$, its positive answer is the one that entails p and its negative answer is the one that entails $\neg p$. Likewise, for a negative PQ $\neg p?$, its positive answer entails p and its negative answer entails $\neg p$.

2.3 ON-NPQs and Epistemic Bias

Let us now turn to ON-NPQs. As the following examples show, they carry [–positive] evidential bias and are incompatible with positive evidence. Again the example is adapted from Büring & Gunlogson.

- (9) [Context: For a psychological experiment, we have hired several left-handed subjects, and are looking for some more. We have asked many people already, but none was left-handed. To my surprise, John is using a pencil with his left hand]
- a. #Isn't John left-handed too?
 - b. Isn't John right-handed too?

ON-NPQs are fine in contexts without contextual evidence.

- (10) [Context: Mary is left-handed. We are wondering who else is. I think I have seen John use a pencil with his left hand]
- Isn't John left-handed too?

However [–positive] evidential bias is just one part of the inference that an ON-NPQ generates. That is, it also implies that the questioner possesses some expectation compatible with the positive answer. Thus, in the same context as (10), the following question is infelicitous.

- (11) [The same context as (10)]
- #Isn't John right-handed too?

In a nutshell, an ON-NPQ *Isn't ϕ ?* implies that the speaker thinks/thought ϕ is/was likely (epistemic), expects/expected ϕ (bouletic), or thinks/thought ϕ should be the case according to some rule/law (deontic). The cases of bouletic and deontic inferences are demonstrated by the example below taken from Asher & Reese (2007) attributed to Huddleston & Pullum (2002).

- (12) a. *Deontic*
Aren't you ashamed of yourselves?
- b. *Bouletic*
Don't you like it?

This epistemic/bouletic/deontic bias is always present with ON-NPQs but not with PPQs, as illustrated by the contrast below.

- (13) I have absolutely no idea who went to the party yesterday other than you.
- a. Did John come to the party too?
 - b. #Didn't John come to the party too?

We call this type of bias regarding the questioner's belief, desire or rules/laws *epistemic bias*.

- (14) *Epistemic Bias*
- If a PQ carries an implication compatible with the positive (negative) answer based on the speaker's (prior) epistemic state, her wishes or some rules, the PQ is said to carry positive (negative) evidential bias.

PPQs carry no epistemic bias, while ON-NPQs carry positive epistemic bias. Intuitively, ON-NPQs *not p?* are used when the questioner thinks *p* on some grounds but has no contextual evidence supporting it. The following table is a summary so far.

(15)

	Evidential Bias	Epistemic Bias
PPQ	–negative	none
ON-NPQ	–positive	positive

2.4 IN-NPQs

Lastly, let us look at IN-NPQs. Their biases can basically be characterized by the same two parameters but with a stronger notion of evidential bias. Namely, IN-NPQs are not only compatible with but also necessitate negative evidence. (16) shows that a IN-NPQ is compatible with negative evidence but incompatible with positive evidence.

- (16) [Context: Bill is right-handed and Mary is left-handed. We’re wondering who else is lefty. John is using a pen with his right hand]
- #Isn’t John right-handed either?
 - Isn’t John left-handed either?

Furthermore, (17) suggests that IN-NPQs are infelicitous in the absence of any evidence.

- (17) [Context: In the same context as (16), I thought that I have seen Chris, who is not around, use a pen with his right hand.]
- #Isn’t Chris left-handed either?

Recall that ON-NPQs are just incompatible with contextual evidence for the positive answer and fine in neutral contexts, while IN-NPQs require contextual evidence for the negative answer and are infelicitous in neutral contexts as shown in (17). To capture this, we introduce the notion of *evidential bias (+)* that indicates what kind of evidence a PQ requires.

- (18) *Evidential Bias (+)*
 If a PQ requires contextual evidence for the positive (negative) answer, the PQ is said to carry a [+positive] ([+negative]) evidential bias.

In addition, IN-NPQs carry positive epistemic bias, and (16b) necessarily implies that the questioner thinks that John is lefty on some grounds.

Thus an IN-NPQ requires negative evidence and carries positive epistemic bias. The intuition here is that the questioner asks an IN-NPQ, when there is a conflict between what she thought should be the case and some evidence present in the context of utterance.

The summary of the above discussion is found in the table in (19):

(19)

	Evidential Bias	Epistemic Bias
PPQ	–negative	none
ON-NPQ	–positive	positive
IN-NPQ	+negative	positive

This table does not exhaust the possible combinations of the values of the two parameters. In the next section, we shall see that Japanese PQs encode various kinds of bias in question particles, and show more variation.

3 Japanese Question Particles and Their Biases

Japanese PQs are formed from declarative sentences purely intonationally with a rising intonation towards the end, or with a rising intonation and a question particle at the very end. There are a variety of particles, but in this paper, we primarily look at *no* and *desho* and contrast them with PQs without a particle. In (20a) is a declarative sentence whose PQ counterpart looks like (20b).

- (20) a. Mary-ga kita
 Mary-NOM came
 'Mary came'
 b. Mary-ga kita- $\{\emptyset, \text{no}, \text{desho}\}$?
 Mary-NOM came-Q
 'Did Mary come?'

Before going to the data, it should be noted that Japanese also has a distinction between two readings of negative PQs. As Aihara (to appear) points out, PPIs and NPIs disambiguate them just in the case of English. Thus, we call them ON-NPQs (forced by PPIs) and IN-NPQs (forced by NPIs), abusing Ladd's (1981) terminology (unlike in English, the position of the negation morpheme is fixed), and treat them separately in the following discussion. In the examples to follow, we use *dareka* 'somebody' and other *wh-KA* phrases as PPIs and *daremo* 'nobody' and other *wh-MO* phrases as NPIs.

In the subsequent subsections, we will look at PQs without a particle and those with *-no* and *-desho* one by one. Each subsection starts with a summary table of the biases of PPQ, ON-NPQ and IN-NPQ followed by a set of data verifying them. The reader can skip the data part entirely without missing the arguments.

3.1 PQs without a Particle

(21)	\emptyset	Evidential Bias	Epistemic Bias
	PPQ	–negative & –positive	none
	ON-NPQ	–negative	positive
	IN-NPQ	+negative	none

What is remarkable in this table is that just as in the case of English PPQs, Japanese PPQs without a particle do not carry epistemic bias, but have a different flavor of evidential bias from their English counterparts. In fact, they are [–negative] and [–positive] at the same time. These two features are not logically incompatible, and what this combination means is that the PQ is only felicitous in the absence of contextual evidence for either of the answers. This is illustrated by the following examples (note that the English translations of the Japanese examples in this section are only approximate since the biases involved are different).

- (22) a. *Neutral Context*

[Context: We're looking for a left-handed person. I'm wondering about John who is not around]

John-wa hidarikiki?

John-TOP lefty

'Is John lefty?'

b. *Negative Context*

[Context: My friend has just entered our windowless office wearing a dripping wet raincoat]

#ima hareteru?

now sunny

'Is it sunny now?'

c. *Positive Context*

[Same context as (22b)]

#ima ame futteru?

now rain is.falling

'Is it raining now?'

Now let us turn to ON-NPQs without a particle. They are infelicitous in negative contexts but fine in neutral and positive contexts. Also they carry positive epistemic bias, and (23a) and (23c) necessarily imply that the questioner wants to go to a good restaurant and to a Japanese restaurant respectively.³

(23) *ON-NPQs without a Particle*

a. *Neutral Context*

[Context: I am in Osnabrück for the first time. My friend Daniel might or might not have been to this city before.]

doko-ka oisii resutoran sir-anai?

where-KA good restaurant know-NEG

'Don't you know some good restaurant?'

b. *Negative Context*

A: We are all now. Shall we begin the meeting?

B: #dare-ka hokani ko-nai?

who-KA else come-NEG

'Isn't someone else coming?'

c. *Positive Context*

A: (Looking at a guidebook) There are all sorts of restaurants around here

B: doko-ka nihon-shoku nai?

where-KA Japanese-food not.exist

'Isn't there some Japanese restaurant?'

IN-NPQs without a particle have [+negative] evidential bias and only felicitous in negative contexts, just like English IN-NPQs. However, they differ from their English analogues in that they

³These are bouletic readings, but epistemic and deontic readings are also available in appropriate contexts. The relevant data are omitted for the sake of space.

are not associated with any epistemic bias. Thus, (24b) does not necessarily imply that the questioner thinks there should or should not be someone else coming. Rather, it is just asking whether the negative evidence (A's utterance here) is true or not.

(24) *IN-NPQs without a Particle*

a. *Neutral Context*

[Context: I am in Osnabrück for the first time. My friend Daniel might or might not have been to this city before.]

#doko-mo oisii resutoran sir-anai?
 where-MO good restaurant know-NEG
 'Don't you know any good restaurant?'

b. *Negative Context*

A: We are all now. Shall we begin the meeting?

B: dare-mo hokani ko-nai?
 who-MO else come-NEG
 'Isn't anyone else coming?'

c. *Positive Context*

A: (Looking at a guidebook) There are all sorts of restaurants around here

B: #doko-mo nihon-shoku nai?
 where-MO Japanese-food not.exist
 'Isn't there any Japanese restaurant?'

3.2 PQ-no

(25)	-No	Evidential Bias	Epistemic Bias
	PPQ-no	+positive	none
	ON-NPQ-no	none	positive
	IN-NPQ-no	+negative	positive

Adding a question particle changes the bias involved entirely, but not the truth-conditional meaning. With the question particle *-no*, PPQs require positive evidence, unlike PPQs without a particle. This is illustrated by the following data. In the following, we reuse the contexts from the previous subsection and minimally change the PQs by adding the question particle.

(26) *PPQs with -No*

a. *Neutral Context*

[Context: We're looking for a left-handed person. I'm wondering about John who is not around]

#John-wa hidarikiki-na no?
 John-TOP lefty-COP Q
 'Is John lefty?'

b. *Negative Context*

[Context: My friend has just entered our windowless office wearing a dripping wet raincoat]

#ima hareteru no?
now sunny Q
'Is it sunny now?'

- c. *Positive Context*
[Same context as (26b)]
ima ame futteru no?
now rain is.falling Q
'Is it raining now?'

ON-NPQs are interesting in that they do not have any evidential bias but just positive epistemic bias. Thus, all of the following are felicitous and associated with an expectation for the positive answer.

(27) *ON-NPQs with -No*

- a. *Neutral Context*
[Context: I am in Osnabrück for the first time. My friend Daniel might or might not have been to this city before.]
doko-ka oisii resutoran sir-anai no?
where-KA good restaurant know-NEG Q
'Don't you know some good restaurant?'
- b. *Negative Context*
A: We are all now. Shall we begin the meeting?
B: dare-ka hokani ko-nai no?
who-KA else come-NEG Q
'Isn't someone else coming?'
- c. *Positive Context*
A: (Looking at a guidebook) There are all sorts of restaurants around here
B: doko-ka nihon-shoku nai no?
where-KA Japanese-food not.exist Q
'Isn't there some Japanese restaurant?'

IN-NPQs with *-no* have the exact same flavor of evidential and epistemic bias as English IN-NPQs. Thus the English translations in (28) are largely accurate.

(28) *IN-NPQs with -No*

- a. *Neutral Context*
[Context: I am in Osnabrück for the first time. My friend Daniel might or might not have been to this city before.]
#doko-mo oisii resutoran sir-anai no?
where-MO good restaurant know-NEG Q
'Don't you know any good restaurant?'
- b. *Negative Context*
A: We are all now. Shall we begin the meeting?
B: dare-mo hokani ko-nai no?
who-MO else come-NEG Q

'Isn't anyone else coming?'

c. *Positive Context*

A: (Looking at a guidebook) There are all sorts of restaurants around here

B: #doko-mo nihon-shoku nai no?

where-MO Japanese-food not.exist Q

'Isn't there any Japanese restaurant?'

3.3 PQ-desho

(29)	<i>-Desho</i>	Evidential Bias	Epistemic Bias
	PPQ-desho	none	positive
	ON-NPQ-desho	-positive	negative
	IN-NPQ-desho	none	negative

The particle *-desho* introduces yet another set of biases. Namely, PPQs with *-desho* carry strong positive epistemic bias, but no evidential bias. Thus they are perfectly felicitous regardless of the nature of the contextual evidence, and imply that the speaker thinks that the positive answer should be the case. In particular, with the PPQ in (30c) the questioner is trying to confirm his expectation that it is raining now, but since there is positive contextual evidence, the question sounds a bit redundant.

(30) *PPQs with -Desho*

a. *Neutral Context*

[Context: We're looking for a left-handed person. I'm wondering about John who is not around]

John-wa hidarikiki desho?

John-TOP lefty Q

'Is John lefty?'

b. *Negative Context*

[Context: My friend has just entered our windowless office wearing a dripping wet raincoat]

ima hareteru desho?

now sunny Q

'Is it sunny now?'

c. *Positive Context*

[Same context as (30b)]

ima ame futteru desho?

now rain is.falling Q

'Is it raining now?'

Unlike PPQs with *-desho*, ON-NPQs with *-desho* have evidential bias against positive evidence. They also carry strong negative epistemic bias, and hence (31a) and (31b) imply that the questioner thinks that Daniel probably does not know any good restaurant, and that there is nobody else coming, respectively. Again, due to the availability of the negative contextual evidence, (31b) sounds like a redundant confirmation.

(31) *ON-NPQs with -Desho*

a. *Neutral Context*

[Context: I am in Osnabrück for the first time. My friend Daniel might or might not have been to this city before.]

doko-ka oisii resutoran sir-anai desho?

where-KA good restaurant know-NEG Q

'Don't you know some good restaurant?'

b. *Negative Context*

A: We are all now. Shall we begin the meeting?

B: dare-ka hokani ko-nai desho?

who-KA else come-NEG Q

'Isn't someone else coming?'

c. *Positive Context*

A: (Looking at a guidebook) There are all sorts of restaurants around here

B: #doko-ka nihon-shoku nai desho?

where-KA Japanese-food not.exist Q

'Isn't there some Japanese restaurant?'

Lastly, IN-NPQs with *-desho* is a mirror image of PPQs with *-desho* in that they do not have evidential bias but epistemic bias. All of the following suggest that the speaker thinks that the negative answer should be true.

(32) *IN-NPQs with -Desho*

a. *Neutral Context*

[Context: I am in Osnabrück for the first time. My friend Daniel might or might not have been to this city before.]

doko-mo oisii resutoran sir-anai desho?

where-MO good restaurant know-NEG Q

'Don't you know any good restaurant?'

b. *Negative Context*

A: We are all now. Shall we begin the meeting?

B: dare-mo hokani ko-nai desho?

who-MO else come-NEG Q

'Isn't anyone else coming?'

c. *Positive Context*

A: (Looking at a guidebook) There are all sorts of restaurants around here

B: doko-mo nihon-shoku nai desho?

where-MO Japanese-food not.exist Q

'Isn't there any Japanese restaurant?'

3.4 Discussion

The biases the three particle generate are summarized in the following table.

	Evidential Bias	Epistemic Bias
PPQ-∅	–negative & –positive	none
ON-NPQ-∅	–negative	positive
IN-NPQ-∅	+negative	none
PPQ-no	+positive	none
ON-NPQ-no	none	positive
IN-NPQ-no	+negative	positive
PPQ-desho	none	positive
ON-NPQ-desho	–positive	negative
IN-NPQ-desho	none	negative

It seems that it is not an easy task to characterize the meaning of each question particle in a simple and succinct way, and we do not try to do so here. However what this suggests is that at least part of the biases must be grammatically encoded in those particles rather than derived from pragmatic principles (contra van Rooy & Šafářová 2003, Romero & Han 2004; see Reese 2007 for a similar claim).

Lately, it should be noted that Japanese wh-questions have several options of question particles too. Namely, they appear without a particle, with *no* or with *ka*.

- (34) dare-ga kita {∅, no, ka}?
 who-NOM came Q
 'Who came?'

This might be taken to indicate that wh-questions in addition to PQs have some kind of bias, but we leave this open for future work.

4 Conclusions

We have seen in this paper that all PQs are biased in some way (Büring & Gunlogson, 2000), and the biases are always about contextual evidence (evidential bias) or the speaker's expectation (epistemic bias). We also observed that Japanese uses a different means from English in encoding different kinds of biases, namely it uses question particles.

Having established these observations, several theoretical questions arise. For example, why is it that all PQs are biased? In other words, why is there not a completely neutral question? One answer might be coming from the pragmatics of questions. As Ginzburg (1995) and van Rooy (2003) among others claim, asking a question demands the hearer to identify the questioner's intension that is highly context dependent. Given this, it might be able to speculate that the evidential bias and/or epistemic bias of a PQ allows the hearer to infer what type of information the questioner is seeking for what reason, and helps her answer the question.

Another interesting open question is the distinction between ON-NPQ and IN-NPQ and the relevance of PPIs and NPIs in biases. We observed that this distinction is not particular to English but can be observed in Japanese too, which are typologically unrelated (Aihara, to appear). This suggests that the bias is not just conventionally encoded but triggered by some semantic principle too (see Romero & Han 2004 for an account along these lines).

We cannot provide answers to these questions in this paper, but it should be emphasized

that those questions become truly meaningful only after correctly describing the facts and understanding their essential properties. We hope that this paper succeeded in expanding the basic observations as well as in deepening our understanding of the nature of the phenomenon.

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