8

Biased Polar Questions in English and Japanese

Yasutada Sudo

8.1 Introduction

The non-truth-conditional (or 'use-conditional') aspects of the meanings of declarative sentences, e.g. presuppositions, conventional implicatures, etc., have been extensively discussed in formal semantics and pragmatics, but in my opinion, those of question meanings are much less understood. This paper focuses on one particular non-truth-conditional aspect of question meanings: biases associated with different kinds of polar (or *yes/no*) questions (henceforth PQs).

In the standard analysis of questions in formal semantics (Hamblin, 1958; Hamblin, 1973; Karttunen, 1977; Groenendijk and Stokhof, 1984; Krifka, 2001), what is being asked by a question is analyzed in relation to the truth-conditions of its (possible) answers, under the slogan "Knowing the meaning of a question is knowing its (possible) answers". Therefore, according to this idea, the truth-conditional aspect of the meaning of a question is simply the set of the truth-conditional meanings of the (possible) answers to the question. However, questions may also convey information regarding the questioner's *bias* towards a particular answer, which is not amenable to an analysis solely based on the meanings of possible answers (Ladd, 1981; van Rooy and Šafářová, 2003; Romero and Han, 2004; Asher and Reese, 2007; Reese, 2007). In this paper I focus on inferences regarding biases conveyed by various types of PQs in two historically unrelated languages, English and Japanese. My main objective in this paper is to propose and motivate a novel feature-based description system that is fine-grained enough to characterize various flavors of biases that different forms of PQs encode in natural languages.

The organization of the paper is as follows. I will first review in Section 2 Ladd's (1981) dichotomy of positively and negatively biased PQs in English, and claim that although correct, it is not detailed enough to characterize the intricacy of the biases involved in various kinds of PQs in English. Building on Büring and Gunlogson's (2000) analysis, I submit that two major types of

bias should be recognized, each of which can be positive or negative, and put forward a feature-based theory, which will be shown to successfully describe the biases of basic kinds of PQs in English. I will then present in Section 3 further empirical support for the proposed system from Japanese PQs, some of which have biases that are not observed with simple forms of PQs in English. Section 4 concludes the paper.

8.2 Two Kinds of Bias in English PQs

In English, and perhaps in all languages, distinct forms of PQs may have the same truth-conditional meaning, or in other words, they can be used to ask about the same thing. For example, consider the following pair of sentences.

(**1**) (a) Did John come to the party?

(b) Didn't John come to the party?

What these questions are asking about is exactly the same, namely whether or not John came to the party. However an interpretive difference between them is glaring. Simply put, negative polar questions with inverted negation (henceforth NPQs) such as (1b) obligatorily carry some information about the questioner's bias towards one of the answers that positive polar questions (henceforth PPQs) like (1a) do not. Because what is being asked by the two PQs is identical, this difference should lie in a non-truth-conditional aspect of their meanings.[1]

In this section, I will closely examine inferences involved in basic kinds of PQs in English such as those in (1), and claim that two qualitatively distinct kinds of bias must be recognized. I will first introduce Ladd's (1981) important classification of NPQs, and then motivate my own view that is more complex than Ladd's (1981).

[1] English has other means of forming biased PQs such as tag questions, epistemic *really*, strong NPIs and marked intonation (Ladd, 1981; Romero and Han, 2004; Asher and Reese, 2007; Reese, 2007). I put these aside in this paper, hoping that they are amenable to the analysis put forward here. Also, I do not discuss negative PQs with *in situ* negation, which appear to be similar to PPQs with respect to the kind of bias they are associated with (see below). See also Asher and Reese (2007) for relevant discussion on negative PQs with *in situ* negation.

8.2.1 ON- and IN-NPQs

Ladd (1981) makes an important observation that there are two readings of NPQs, which he calls *Outside-Negation (ON) reading* and *Inside-Negation (IN) reading*. The following examples modeled after Ladd's (1981) demonstrate that the exact same NPQ can have 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?**

Here are intuitive characterizations of the meanings of the NPQs in these examples. In (2), the NPQ suggests that the speaker thinks there is probably a vegetarian restaurant around where she is, and is wondering whether this expectation is correct or not. On the other hand, the string identical NPQ in (3) implies that contrary to the speaker's initial expectation, she now thinks that there might not be a vegetarian restaurant, and asks for a confirmation of this negative supposition. In a nutshell, in (2), the speaker is biased toward the positive answer, while in (3), toward the negative answer.

Ladd furthermore observes that Positive Polarity Items (PPIs) and Negative Polarity Items (NPIs) disambiguate these readings: when a NPQ contains a PPI, it only has an ON reading and when it contains an NPI, it only has an IN reading. This is demonstrated by the following examples with a PPI *too* and an NPI *either* respectively.

(**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.

This observation strongly suggests that the ON and IN readings of NPQs are distinguished in grammar rather than in pure pragmatics. This surely begs the question of how the two readings are compositionally derived (cf. Romero and Han 2004), but in my opinion, the nature of the biases should be further clarified before going into a compositional semantic analysis. Thus, in the present paper, I will be mostly concerned with how to formally characterize biases encoded in various forms of PQs. In particular, I will show that the mere dichotomy of positive vs. negative biases is too coarse to capture the intricate inferences involved in biased PQs.

Instead, I put forward a feature-based theory of biases. Building on Büring and Gunlogson's (2000) analysis, I propose that there are two qualitatively distinct types of bias, which I call *epistemic bias* and *evidential bias*. Precise definitions of these notions will be provided below, but roughly put, an epistemic bias is about the speaker's private belief/expectation, while an evidential bias has to do with evidence available in the current conversational context and has to do with a belief that could in principle be shared among the discourse participants. In what follows, I will demonstrate with concrete examples that these two notions are necessary and also sufficient to characterize the biases that are obligatorily associated with three kinds of English PQs, PPQ, ON-NPQ and IN-NPQ.

8.2.2 PPQs and Evidential Bias

Let us start with PPQs. As Büring and Gunlogson (2000) observe, they are associated with a bias regarding evidence present in the conversational context, an inference that I call an evidential bias. As an illustration, consider the following example adapted from Büring and 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?

In the context of this example, it can be inferred from the wet raincoat that it is likely to be raining. Therefore the negative answer ("No, it's not sunny") is more likely for (5a) and the positive answer ("Yes, it's raining") is more likely

for (5b).[2] The infelicity of (5a) indicates that when evidence suggesting the negative answer (henceforth *negative evidence*) is available in the context, the questioner is not entitled to ask a PPQ. On the other hand, (5b) shows that a PPQ is compatible with the presence of evidence for the positive answer (henceforth *positive evidence*). Incidentally, PPQs are fine in neutral contexts where no evidence favoring either answer is available in the conversational context. This is shown in (3), which is originally due to Büring and 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?

Ladd's (1981) dichotomy of IN- and ON-NPQs is evidently not enough to capture this type of bias regarding what kind of evidence is available. Here I introduce the notion that has to do with incompatibility with positive/negative evidence, which I dub *evidential bias (−)*.

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

I adopt here the notion of *contextual evidence* due to Büring and Gunlogson (2000):

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

It should be stressed that an evidential bias is about evidence that is in principle available to all the participants in the current situation, rather than something that is only accessible to the speaker.[3]

[2] What I mean by 'positive' and 'negative' answers is the following. For a PPQ of the form '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 of the form '$\neg p$?', its positive answer entails p and its negative answer entails $\neg p$.

[3] An anonymous reviewer kindly provided the following example as a case where the relevant evidence is not mutually available, but the same contrast as still remains (cf. Clark and Marshall 1981).

The observation made above shows that English PPQs carry [−negative] evidential bias, and hence are incompatible with contextual evidence for the negative answer. It should be emphasized that the importance of contextual evidence for the characterization of biased PQs has already been pointed out by Büring and Gunlogson (2000), and in fact the descriptive generalizations proposed in this section about evidential bias can be regarded as a restatement of their proposal with new terminology. The innovative aspect of my analysis lies in the claim that there is another flavor of bias involved in PQs, to which I now turn.

8.2.3 ON-NPQs and Epistemic Bias

In this subsection I will examine ON-NPQs with the notion of evidential bias proposed above, and claim that a different notion of bias is necessary to capture the intricacy of inferences associated with ON-NPQs. Recall that an ON-NPQ strongly suggests that the speaker is inclined toward the positive answer, as shown by (2), repeated here:

(2) 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?

What kind of evidential bias does an ON-NPQ have? As the following examples show, ON-NPQs are incompatible with positive evidence. In these examples, the positive polarity item *too* forces the ON-NPQ construal of the NPQ, whose additive presupposition is satisfied in the given context.

(**9**) [Context: For a psychological experiment, we are looking for some left-handed subjects. We have asked some of our friends, but only Mary was left-handed so far. To my surprise, John is using a pencil with his left hand]

(i) [Context: You find a letter by a funding agency on the work desk of your colleague, and quickly glancing at it you can't help spotting words like *happy, grant sum*, etc. Your colleague has been away and is just coming back. You don't know that the letter was placed while he was away.]

(a) Is it good news?
(b) #Is it bad news?

Although it is true that the evidence is yet not accessed by the hearer in the given context, notice that it is readily accessible to her. I take this contrast to be showing that the mere availability of the evidence is enough for it to count as contextual evidence, and it does not have to be consciously recognized by all the participants.

(a) #Isn't John left-handed too?

(b) Isn't John right-handed too?

In (9) that John is using a pencil with his left hand is positive evidence for (9a), while it is negative evidence for (9b). The infelicity of (9a) indicates that an ON-NPQ is incompatible with positive evidence, or in our terms, has a [−positive] evidential bias. For the sake of completeness, consider the neutral context given in (10) where no evidence favoring either answer is present. The ON-NPQ is just fine in such a situation.

(**10**) [Context: We just learned that Mary is left-handed, and are wondering who else is. I think John, who is not here, is probably left-handed too, but I am not sure.]
Isn't John left-handed too?

Thus, ON-NPQs are associated with a [−positive] evidential bias. However, I would like to point out that the [−positive] evidential bias is just one kind of inferences that ON-NPQs are obligatorily associated with. More specifically, ON-NPQs also typically imply that the speaker has or had an expectation compatible with the positive answer. Conversely put, in a context where the speaker does not have such a positive expectation, an ON-NPQ becomes infelicitous. This is demonstrated by (11).[4]

(**11**) [Context: We just learned that Mary is left-handed, and are wondering who else is. Given its rarity, I believe that Mary is the only left-handed person among us, so I think it's very likely that John, who is not around, is right-handed.]

#Isn't John left-handed too?

Just as in (10), there is no contextual evidence about John's dominant hand, as he is not present in the context. The crucial difference between (10) and (11) is the speaker's expectation: in (11), the speaker thinks that the negative answer ('John isn't left-handed') is probably true, and the ON-NPQ is infelicitous, while in (10), the speaker has an expectation for the positive answer ('John is left-handed').

More generally, an ON-NPQ of the form '*Isn't* p*?*' necessarily implies a positive expectation on the speaker's part that p. This is obviously a separate

[4] I thank an anonymous reviewer for pointing out the inadequacies of the example in an earlier draft.

bias from the [−positive] evidential bias, which is an obligatory component of the meaning of an ON-NPQ. Thus, an ON-NPQ carries two different kinds of bias at the same time. One way to look at them is that the two biases of an ON-NPQ express the conflict between the speaker's belief/expectation that p, and the lack of mutually available evidence supporting p.

Importantly, the speaker's positive expectation is obligatorily present with ON-NPQs but not with PPQs. This is illustrated by the contrast below.

(**12**) [Context: You told me that you went to the party yesterday. I have absolutely no idea who else did]

(a) Did John go to the party too?

(b) #Didn't John go to the party too?

Here, the context makes it clear that the speaker's epistemic state is neutral with respect to who came to the party, and hence is incompatible with a positive expectation. The infelicity of (12b) indicates that it is an obligatory component of the meaning of ON-NPQ. Furthermore the felicity of (12a) shows that it is not a bias that all PQs are associated with.

Thus I conclude that ON-NPQs necessarily carry not only a [−positive] evidential bias, but also a positive bias based on the speaker's belief or expectation. I call this type of bias *epistemic bias*.

(**13**) *Epistemic Bias*
If a PQ carries an implication compatible with the positive (resp. negative) answer based on what the speaker believes, the PQ is said to carry positive (resp. negative) epistemic bias.

The main difference between evidential and epistemic bias lies in how the inference arises: Evidential bias is about contextual information available to all conversational participants, and hence is inherently public, while epistemic bias is rooted in the speaker's private beliefs, and need not be shared by other conversational participants.

One might wonder if evidential bias implies epistemic bias, as it is certainly conceivable that having some contextual evidence influences what the speaker believes.[5] I suggest here that the epistemic bias does not have to be based

[5] I thank an anonymous reviewer for bringing my attention to this point.

on the speaker's current belief state, but can be relative to what she believed before acquiring the contextual evidence. This is indeed the case in (9) above.

It should also be noted that the 'modal flavor' of the epistemic bias is not always relative to the speaker's belief *per se*. For example, there are ON-NPQs that imply a positive expectation stemming from the norm/rules (deontic) or what the speaker desires (bouletic), rather than what the speaker believes to be true. Examples of these cases are given in (14), which are taken from Asher and Reese (2007) who attribute them to Huddleston and Pullum (2002).

(**14**) (a) *Deontic*
Aren't you ashamed of yourselves?

(b) *Bouletic*
Don't you like it?

(14a) can be felicitously uttered in a context in which the addressees broke some rule. In such a context, the speaker's expectation that they should be ashamed of themselves is most naturally taken to be relative to the norms of the society, rather than what she thinks is true. Similarly, one can ask the question in (14b) expecting that the addressee likes the referent of *it*, without holding beliefs about the addressee's preference. In this case, the expectation is based on what the speaker wants, rather than what they believe. Thus an epistemic bias is not strictly specified for the modal flavor, and can be epistemic, deontic or bouletic. Rather, what is essential about an epistemic bias is that it is based on the speaker's internal and private state, rather than something publicly shared by the conversational participants.

To summarize the discussion so far, we have introduced two crucial notions, evidential and epistemic bias, and we described the biases of English PPQs and ON-NPQs as follows:

(**15**)

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

8.2.4 IN-NPQs

In the final part of the present section we will examine IN-NPQs. Recall that as Ladd (1981) points out, an IN-NPQ suggests that the speaker expects the negative answer to be true. The example in (3) is repeated here.

(**3**) 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?**

I will demonstrate below that the bias involved in an IN-NPQ can basically be characterized by the same two parameters, evidential and epistemic bias, but are associated with a stronger notion of evidential bias than [−positive/negative]. That is, IN-NPQs are not only compatible with the presence of negative evidence but also require it. Firstly observe the contrast in (16).

(**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 in front of us.]

(a) #Isn't John right-handed either?

(b) Isn't John left-handed either?

The fact that John is using a pen with his right hand is positive evidence for (16a), but negative evidence for (16b). This contrast shows that an IN-NPQ is incompatible with positive evidence but compatible with negative evidence. Furthermore, IN-NPQs are infelicitous in the absence of any contextual evidence, demonstrated by the following example with a neutral context.

(**17**) [Context: In the same context as (16), I think that I have seen Chris, who is not around right now, use a pen with his right hand]

#Isn't Chris left-handed either?

Recall that ON-NPQs are only incompatible with contextual evidence for the positive answer and are perfectly felicitous in neutral contexts where no contextual evidence supporting either of the answers is available (cf. (10)). On the other hand, IN-NPQs require contextual evidence for the negative answer and are therefore infelicitous in neutral contexts, as in (17). To capture this, I introduce the notion of *evidential bias (+)*:

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

Notice that [+positive] is not equivalent to [−negative]. [+positive] means that positive evidence must be present and [−negative] means that negative evidence must not be present.

In addition to the [+positive] evidential bias, IN-NPQs are obligatorily associated with a positive epistemic bias. For example, (16) above necessarily implies that the questioner expects that John is lefty on some grounds. To put this in a different way, an IN-NPQ of the form '*Isn't p?*' expresses a conflict between the speaker's expectation that p, and contextual evidence suggesting that $\neg p$.

The table below summarizes our discussion of English PQs.

(**19**)

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

Evidently this table does not exhaust the possible combinations of the values of the two parameters. As mentioned in fn.1, English has other means of creating biased questions, and I believe that they fill in at least some of the gaps in the paradigm. However, instead of discussing other forms of PQs in English, I will turn to Japanese PQs in the next section in order to demonstrate that the present system is capable of describing biases of various forms of PQs in historically and typologically diverse languages. This constitutes further evidence for the claim that biases PQs in natural language come in two basic categories, evidential and epistemic bias, regardless of their syntactic and morphological forms.

8.3 Japanese PQs and Their Biases

Japanese PQs can be formed from declarative sentences purely intonationally, i.e. with a rising intonation towards the end, or with the combination of a rising intonation and a question particle. There are a variety of question particles in this language, but in the present paper, I especially focus on two of them, *-no* and *-desho*, and contrast them with PQs without a particle. In (20a) is a declarative sentence whose PQ counterparts look like (20b).

(**20**) (a) *Mary-ga* *kita*
Mary-nom came
»Mary came«

(b) *Mary-ga* *kita-{∅, no, desho}?*
Mary-nom came-Q

»Did Mary come?«

The three PQs in (20b) share the truth-conditional meaning in that they all ask about the same thing, namely whether or not Mary came. Yet native speakers perceive clear interpretive differences among them, which, I claim, stem from the biases these PQs are associated with.

Before proceeding to the concrete data of biased PQs in Japanese, it should be noted that Japanese also has a distinction between two readings of negative PQs, just like English has ON- and IN-NPQs.[6] Moreover, as Aihara (2009) points out, PPIs and NPIs disambiguate tease apart the readings, just in the case of English. Abusing Ladd's (1981) terminology for English, I call them ON-NPQs (forced by PPIs) and IN-NPQs (forced by NPIs), 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.[7]

In the remainder of this section, I will closely examine PQs without a particle and those with *-no* and *-desho* in this order. 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.

8.3.1 PQs without a Particle

The following table summarizes the types of bias that Japanese PQs without a particle obligatorily carry. Notice that none of these combinations of the values appears in the table for English at the end of the previous section.

(**21**)

∅	Evidential Bias	Epistemic Bias
PPQ	−negative & −positive	none
ON-NPQ	−negative	positive
IN-NPQ	+negative	none

[6] Given the morphological and syntactic differences between Japanese and English negative PQs, we cannot regard Japanese negative PQs as the same construction as English NPQs. In particular, the position of the negation morpheme is fixed in Japanese, at least on the surface, and the distinction between inverted and non-inverted negation does not arise.

[7] Wh-*mo* is often called a negative concord item rather than an NPI, and semantically inherently negative. Following the literature, I will gloss it as *nobody* in the examples to follow. I thank an anonymous reviewer for asking for a clarification on this point.

As shown here, Japanese PPQs without a particle do not carry any epistemic bias, but have a different flavor of evidential bias from their English counterparts. That is, they are [−negative] and [−positive] at the same time. Notice that these two biases are not logically incompatible with each other. What this combination means is that the PQ is only felicitous in the absence of contextual evidence for either of the answers, i.e. they are only licensed in neutral contexts. This is illustrated by the following examples. Please 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 question particle. They are infelicitous in negative contexts but fine in neutral and positive contexts. Also they obligatorily carry positive epistemic bias. For example, (24a) and (24c) necessarily

imply that the questioner wants to go to a good restaurant and to a Japanese restaurant respectively.[8]

(**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*
[Context: At a student meeting. A is the student representative and knows who will be present today. B is another student.][9]

A: We are all here 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?«

Here *doko-ka* 'where-KA' is a PPI and forces the ON-NPQ construal of the negative PQs.

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 counterparts in that they are not associated with any epistemic bias. For example, (24b) below does not necessarily imply that the questioner thinks there should or should not be someone else coming. Rather, it is just

[8] These are bouletic readings. Epistemic and deontic readings are also available in appropriate contexts, but relevant examples are omitted for the sake of space.

[9] I thank an anonymous reviewer for clarifying the importance of a context for this example.

asking whether the negative evidence (A's utterance here) is true or not. In these examples, *doko-mo* 'where-MO' forces the IN-NPQ reading.

(**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*
[Context: At a student meeting. A is the student representative and knows who will be present today. B is another student.]

A: We are all here 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?«

8.3.2 PQ-no

The biases of PQs with the particle *-no* are summarized in the following table.

(**25**)

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

Comparing this table with the table at the beginning of the previous subsection, one notices that adding a question particle changes the biases entirely. But it does not affect the truth-conditional meaning, so what is being asked stays the same. Generally, a question particle is void of truth-conditional import, but operates on a non-truth-conditional dimension of the meaning.

With the question particle *-no*, PPQs require positive evidence, unlike PPQs without particles. This is illustrated by the following data. The following examples reuse the contexts from the previous subsection, and the PQs here are minimally different in that they have a 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 but obligatorily associated with a positive expectation on the speaker's part.

(**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*
[Context: At a student meeting. A is the student representative and knows who will be present today. B is another student.]

A: We are all here 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*
[Context: At a student meeting. A is the student representative and knows who will be present today. B is another student.]

A: We are all here 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?«

8.3.3 PQ-desho

Finally, let us turn to PQs with the particle *-desho*.

(**29**)

-Desho	Evidential Bias	Epistemic Bias
PPQ-desho	none	positive
ON-NPQ-desho	−positive	negative
IN-NPQ-desho	none	negative

The particle *-desho* changes the biases in a different way from *-no*. For example, 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 just imply that the speaker expects that the positive answer should be the case. For instance, 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 redundant to some extent.

(**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. For instance, (31a) implies that the questioner thinks that Daniel probably does not know any good restaurant. The most natural reading of (31b) is a bouletic one, where the speaker wants no one else to show up, which is a negative expectation. Due to the availability of the negative contextual evidence, (31b) sounds redundant in some sense, but could be perfectly felicitously used to stress the expectation.

(**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*
[Context: At a student meeting. A is the student representative and knows who will be present today. B is another student.]

A: We are all here 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* are 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/hopes that the negative answer is true.[10]

(**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*
[Context: At a student meeting. A is the student representative and knows who will be present today. B is another student.]

A: We are all here 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?«

8.3.4 Discussion

The biases associated with the three kinds of PQs in Japanese are summarized in the following table.

[10] As an anonymous reviewer pointed out to me, the English NPQ in the context of (31a)/(32a) may be considered (almost) insulting. The exact same connotation can arise for the Japanese PQs. This is expected as the negative epistemic biases in these situations can be taken as reflecting the speaker's rude attitude.

(**33**)

	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

As mentioned already, the question particles do not add anything to the truth-conditional meaning of the PQ, and operate exclusively on non-truth-conditional dimensions of meaning, which I believe is a general feature of Japanese particles occurring in all types of sentences. Admittedly, I cannot offer a compositional analysis of the meanings of these question particles that uniformly accounts for the biases of the three kinds of PQs, but the complexity of the present phenomenon strongly suggests that at least part of the biases is grammatically encoded in the meanings of those particles, rather than derived from general pragmatic principles (contra van Rooy and Šafářová 2003; Romero and Han 2004 for English PQs; see Reese 2007 for a similar claim).

8.4 Conclusions

The data presented in this paper suggest that all English PQs are biased in one way or other, as previously suggested by Büring and Gunlogson (2000), and furthermore that the same holds in Japanese. Despite the morpho-syntactic diversity of PQs in these languages, however, their biases are all characterized by the proposed feature-based system with two different types of bias, evidential bias and epistemic bias.

These empirical observations naturally lead to several further questions. For example, why is it that all PQs are biased? In other words, why is there not a completely neutral question? One possible answer lies in 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 intention, which is highly context dependent. Given the context dependency, one can speculate that the evidential bias and/or epistemic bias of a PQ help the hearer infer what type of information the questioner is seeking for what reason.

Another interesting open question is the distinction between ON-NPQ and IN-NPQ and the relevance of PPIs and NPIs. As Aihara (2009) observes and

I replicated above, this distinction is not specific to English NPQs but can be observed in Japanese negative PQs. As the licensing of NPIs and PPIs is largely a grammatical issue, this suggests that it is not enough to just state what biases PQs have, but ultimately it should be explained how the biases arise in a compositional fashion (cf. Romero and Han 2004).

Lastly, I would like to mention that Japanese wh-questions have several options of question particles, just as PQs: without a particle, with *no* and with *ka*.

(**34**) *dare-ga kita {∅, no, ka}?*
who-nom came Q
»Who came?«

Just as in the case of PQs, the three versions of the wh-question are truth-conditionally equivalent, but their interpretive differences are prominent. This suggests that wh-questions, in addition to PQs, have some kind of bias. I leave it open for future research whether the analysis of PQs put forward in the present paper is applicable to wh-questions as well.

Acknowledgements I am especially indebted to the two anonymous reviewers for detailed comments and highly helpful suggestions, which greatly improved the quality of this paper. I would also like to thank the audience of the workshop *Expressives and Other Truth-Conditional Meaning* as well as Eric McCready for discussions and comments. All remaining errors are solely my own.

References

Aihara, Masahiko (2009). (un)biased negative yes-no questions in Japanese. *Proceedings of NELS*, **38**.

Asher, Nicholas and Reese, Brian (2007). Intonation and discourse: Biased questions. *Interdisciplinary Studies on Information Structure*, **8**, 1–38.

Büring, Daniel and Gunlogson, Christine (2000). Aren't positive and negative polar questions the same? Ms. USCS/UCLA.

Clark, Herbert and Marshall, Catherine (1981). Definite reference and mutual knowledge. In *Elements of Discourse Understanding* (ed. A. Joshi, B. Webber, and I. Sag). Cambridge University Press, Cambridge.

Ginzburg, Jonathan (1995). Interrogatives: Questions, facts and dialogue. In

The Handbook of Contemporary Semantic Theory (ed. S. Lappin), pp. 385–422. Blackwell, Oxford.

Groenendijk, Jeroen and Stokhof, Martin (1984). *Studies in the Semantics of Questions and the Pragmatics of Answers*. Ph.D. thesis, University of Amsterdam.

Hamblin, Charles Leonard (1958). Questions. *The Australasian Journal of Philosophy*, **36**, 159–168.

Hamblin, Charles Leonard (1973). Questions in montague grammar. *Foundations of Language*, **10**, 41–53.

Huddleston, Rodney and Pullum, Geoffrey K. (2002). *The Cambridge Grammar of the English Language*. Cambridge University Press, Cambridge.

Karttunen, Lauri (1977). Syntax and semantics of questions. *Linguistics and Philosophy*, **1**, 3–44.

Krifka, Manfred (2001). For a structured meaning account of questions and answers. In *Audiatur Vox Sapientia* (ed. C. Féry and W. Sternefeld), Number 52 in studia grammatica, pp. 287–319. Akademie-Verlag, Berlin.

Ladd, D. R. (1981). A first look at the semantics and pragmatics of negative questions and tag questions. *Chicago Linguistic Society*, **17**, 164–171.

Reese, Brian (2007). *Bias in Questions*. Ph.D. thesis, University of Texas at Austin.

Romero, Maribel and Han, Chung-hye (2004). On negative *yes*/*no* questions. *Linguistics and Philosophy*, **27**(5), 609–658.

van Rooy, Robert (2003). Negative polarity items in questions: Strength as relevance. *Journal of Semantics*, **20**, 239–273.

van Rooy, Robert and Šafářová, Marie (2003). On polar questions. *Proceedings of SALT*, **13**.