

# *Biased questions: Perspectives from the Hierarchical Semantics Model*

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## **1. Introduction**

Declarative sentences are either positive or negative, and this difference is marked by the absence or presence of negative expressions such as *not* (*n't*), *no*, *neither*, *never*, etc.:

- (1) a. I have finished. [positive]
- b. I haven't finished. [negative]

Questions like (2) are grammatically positive in that no negative expression appears. They, however, can be “neutral”:

- (2) (Huddleston and Pullum (2002: 879)'s (32i))

Did you get any annuity, superannuation, or other pension?  
[neutral]

Huddleston and Pullum took this example from an income tax form, where it is addressed to individual taxpayers filling in the form. This question is neutral in that the questioner (the Income Tax Commissioner) has no bias toward either positive or negative answers.

Taking “biases” into account, the interpretations of questions are difficult to generalize. Note first that negative *y(es)-n(o)*-questions like (3a) and positive declarative questions<sup>1</sup> like (3b) are always biased, and, therefore, may never occur in the context for (2) (Huddleston and Pullum (2002: 881)):

- (3) a. Didn't you get any annuity? [negatively biased]
- b. You have got some annuity? [positively biased]

We see a form-meaning correspondence here. The negative question in (3a) is biased toward a negative answer, while the positive declarative question in (3b) a positive one.

Biased readings of questions are, however, not entirely predictable from the presence or absence of a negative expression:

- (4) (from Carlson (1997: 91))
  - a. Is it really important that you prove to your spouse that you are right and she is wrong? [negatively biased]
  - b. Does your preference of which restaurant or movie to go matter enough to argue over it? [negatively biased]
  - c. Wouldn't it be nice if we could try to extend this same loving-kindness toward everyone we meet? [positively biased]
  - d. Wouldn't we live in a more loving world if, when someone acted in a way that we didn't approve of, we could see their actions in a similar light as our teenagers' offbeat behavior? [positively biased]

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<sup>1</sup> For a detailed discussion on declarative questions, see Gunlogson (2001/2003).

The grammatically positive questions in (4a-b) are negatively-biased, and the grammatically negative questions in (4c-d) are positively-biased...What's going on?

## 2. Huddleston & Pullum (2002)

Huddleston & Pullum (2002: 879-886) give a concise summary of neutral and biased readings of non-*wh*-questions. Here I discuss three of their observations that are of our immediate concern and discuss more later.

First, positive *yn*-questions potentially have the three interpretations discussed above. They are either neutral (e.g. (5a)), positively-biased (e.g. (5b)) or negatively-biased (e.g. (5c)):

- (5) a. Did you get any annuity, superannuation, or other pension?
- b. Did you say something?
- c. Did you do anything at all to help her?

(5a) is the neutral “tax-form” example from section 1. In (5b) the speaker is inclined to a positive answer. This is so because *something* is a positive polarity item that generally gives positive bias to positive *yn*-questions (H&P: 884). In (5c), there is a strong epistemic bias toward a negative answer (I think you did nothing to help her). Note that this negative bias is not conferred by the negative polarity item *anything*. As in (5a), *any* and its compounds may occur in neutral positive *yn*-questions.

Second, negative *yn*-questions are always biased either toward positive answers (e.g. (6a)) or negative answers (e.g. (6c)) (H&P: 883). If positively-biased, they can be exclamatory remarks (e.g. (6b)). If negatively-biased, they often have a positive deontic modality or a *should*-reading (e.g. (6c)):

- (6) a. Isn't that a little personal?
- b. Isn't that nice!
- c. Aren't you ashamed of yourself?

In (6a), the epistemic positive bias (I think that is a little personal) is salient because positive polarity items such as *a little* are more likely to occur in negative *yn*-questions with positive bias than with negative bias (H&P: 885-886). (6b) is an indirect exclamation (How nice that is!), reflected in its falling intonation (H&P: 884). (6c) is epistemically biased toward a negative answer (You don't seem to be ashamed of yourself). But, at the same time, there is a deontic positive bias (You ought to be ashamed of yourself.) (H&P: 883-884).

Third, declarative questions are strongly biased and their biases are predictable and constant. Positive declarative questions are positively-biased (e.g. (7a)), negative declarative questions negatively-biased (e.g. (7b)) (H&P: 881):

- (7) a. *They have finished?*
- b. *They haven't finished?*

In (7a) there is an epistemic bias toward a positive answer (I think you have finished, right?). (7b) has a negative bias toward a negative answer (I thought you have finished, but obviously you have not.)

### **3. Theoretical Assumptions**

I will use the *H(ierarchical) S(emantics) M(odel)* to characterize the neutral and biased readings of questions.

The HSM is proposed by Nakau (1984-1986, 1992, 1994) and the

version in the current paper includes revisions by Omura (2008). To give explanations to linguistic phenomena, the HSM represents the sentence meaning with three essential components - *discourse modality* (DM), *subjective modality* (SM) and *proposition* (P). The prototypical “templates” for declarative, interrogative, imperative and exclamative sentences are as follows:

**(8) Prototypical HSM-templates (cf. Nakau (2002), Omura (2008))**

- a. declarative: [<sub>DM</sub> I-say][<sub>SM</sub> I-believe][<sub>P2</sub> POS / NEG [<sub>P1</sub> ... ]]
- b. question: [<sub>DM</sub> I-ask][<sub>SM</sub> I-wonder][<sub>P2</sub> POS / NEG [<sub>P1</sub> ... ]]
- c. imperative: [<sub>DM</sub> I-order][<sub>SM</sub> I-want] [<sub>P2</sub> POS / NEG [<sub>P1</sub> ... ]]
- e. exclamative: [<sub>DM</sub> I-express-excitement, admiration, shock, or anger][<sub>SM</sub> I-believe] [<sub>P2</sub> POS / NEG [<sub>P1</sub> ... ]]

The DM houses abstract “performative” expressions (e.g. *I-say*, *I-ask*, *I-order*, *I-express-excitement...*, etc). Expressions in the SM (e.g. *I-believe*, *I-wonder*, *I-want*, etc), on the other hand, convey the “subjective modality”, which Nakau defines as follows based on Lyons (1977, 1995):

**(9) (based on Nakau (1992)’s (4))**

Subjective modality is defined prototypically, as (i) a mental attitude, (ii) on the part of the speaker (iii) only accessible at the time of utterance, where the time of utterance is further characterized as the instantaneous present (as opposed particularly to the durational present and the past).

The DM and the SM have no “scope” relation. That is, neither contains the other and they generally take P<sub>2</sub> as their objects. The proposition has a

layered, “hierarchical” structure. The topmost proposition ( $P_2$ ) is broken down into the “neutral” proposition ( $P_1$ ) and either the negative marker (NEG) or the positive marker (POS):

(8a-d) are flexible prototypes, and non-prototypical representations are also possible as far as they are not gibberish. Divergence from the prototypes, especially from (8b), will be crucial in my characterization of interrogative biases. In particular, I will propose that in biased questions, *I-wonder*, reserving truth judgment, is replaced by expressions of truth commitment with varying degrees of strength (e.g. *I-guess*, *I-believe*, etc.)

#### 4. Representing the neutral and biased readings in the HSM

In Watanabe (2009), I propose semantic representations, based on the HSM, for negative *yn*-questions. In this section, I would like to extend the analysis to positive *yn*-questions and declarative questions. The “templates” are as follows:

(10) a. NEUTRAL READING:

[<sub>DM</sub> I-ask-if- $P_1$ ][<sub>SM</sub> I-wonder][<sub>P2</sub> POS/NEG [<sub>P1</sub> ...  
(PPI/NPI) ... ]]

b. POSITIVELY-BIASED READING:

[<sub>DM</sub> I-ask-if- $P_1$ ][<sub>SM</sub> I-guess/I-believe][<sub>P2</sub> POS [<sub>P1</sub> ...  
(PPI) ... ]]

c. NEGATIVELY-BIASED READING:

[<sub>DM</sub> I-ask-if- $P_1$ ][<sub>SM</sub> I-guess/I-believe][<sub>P2</sub> NEG [<sub>P1</sub> ...  
(NPI) ... ]]

Neutral and biased readings are expressed jointly by either the positive marker POS or the negative marker NEG, and expressions of subjective modality (e.g. *I-wonder*, *I-guess*, and *I-believe*). The degrees (from weak

to complete) and kinds (i.e., epistemic, deontic, desiderative) of biases<sup>2</sup> are encoded in SM-expressions as well. *I-guess* and *I-believe* are both ‘epistemic’, and the latter is stronger than the former. These are again flexible prototypes from which derivatives are developed. The DM and SM-expressions may be modified or replaced so as to fully express the construction-specific meanings of the non-*wh*-questions.

In the neutral reading (10a), POS or NEG may appear. Their meanings are however practically cancelled or “neutralized” by *I-wonder*, which reserves truth judgment.

As for the choice between *I-guess* and *I-believe* in (10b-c), the former is for the inverted *yn*-question, while the latter, with stronger truth-commitment, is for the declarative question. I’ll come back to this distinction later.

Following Nakau (1984), it is also assumed that P(ositive) P(olarity) I(tem)s and N(egative) P(olarity) I(tem)s are licensed by POS and NEG, respectively. Therefore both PPIs and NPIs are potentially allowed in the neutral reading. The positively-biased reading licenses PPIs but not NPIs, and the inverse is true of the negatively-biased reading.

It is well-known that English non-*wh*-questions, whether neutral or biased, generally elicit answers in the constant patterns: <YES, POSITIVE CLAUSE> and <NO, NEGATIVE CLAUSE>. This fact is reflected in *I-ask-if-P<sub>1</sub>*, which targets the questioning toward P<sub>1</sub>. P<sub>1</sub> being uniform in that it has no alterations between negative and positive, answers based on P<sub>1</sub> will also be in the constant forms:<sup>3</sup>

Having introduced fundamental concepts and notations, in Table 1 the examples in section 2 are associated with their HSM-representations:

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<sup>2</sup> For details about the degrees and kinds of interrogative biases, see Huddleston & Pullum (2002: 880-887).

<sup>3</sup> See Nakau (1984) for details.

| QUESTION TYPE                       | BIAS              | EXAMPLE   | HSM-REPRESENTATION   |
|-------------------------------------|-------------------|---|--|
| POSITIVE<br>YN-QUESTION             | NEUTRAL           | <i>Did you get any annuity, superannuation, or other pension?</i> | [ <sub>DM</sub> I-ask-if-P <sub>1</sub> ] [ <sub>SM</sub> I-wonder] [ <sub>P2</sub> NEG [ <sub>P1</sub> you got any annuity...]]             |
|                                     | POSITIVELY-BIASED | <i>Did you say something?</i>                                     | [ <sub>DM</sub> I-ask-if-P <sub>1</sub> ] [ <sub>SM</sub> I-guess] [ <sub>P2</sub> POS [ <sub>P1</sub> you said something]]                  |
|                                     | NEGATIVELY-BIASED | <i>Did you do anything at all to help her?</i>                    | [ <sub>DM</sub> I-ask-if-P <sub>1</sub> ] [ <sub>SM</sub> I-guess] [ <sub>P2</sub> NEG [ <sub>P1</sub> you did anything at all to help her]] |
| NEGATIVE<br>YN-QUESTION             | NEUTRAL           |   |  |
|                                     | POSITIVELY-BIASED | <i>Isn't that a little personal?</i>                              | [ <sub>DM</sub> I-ask-if-P <sub>1</sub> ] [ <sub>SM</sub> I-guess] [ <sub>P2</sub> POS [ <sub>P1</sub> this is a little personal]]           |
|                                     | NEGATIVELY-BIASED | <i>Isn't that nice!</i>   | [ <sub>DM</sub> I-express-excitement] [ <sub>SM</sub> I-believe] [ <sub>P2</sub> POS [ <sub>P1</sub> that is nice]]                          |
| POSITIVE<br>DECLARATIVE<br>QUESTION | NEGATIVELY-BIASED | <i>Aren't you ashamed of yourself?</i>                            | [ <sub>DM</sub> I-ask-if-P <sub>1</sub> ] [ <sub>SM</sub> I-guess] [ <sub>P2</sub> NEG [ <sub>P1</sub> you are ashamed of yourself]]         |
|                                     | NEUTRAL           |   |  |
|                                     | POSITIVELY-BIASED | <i>They have finished?</i>  | [ <sub>DM</sub> I-ask-if-P <sub>1</sub> ] [ <sub>SM</sub> I-believe] [ <sub>P2</sub> POS [ <sub>P1</sub> they have finished]]                |
| NEGATIVE<br>DECLARATIVE<br>QUESTION | NEGATIVELY-BIASED |   |  |
|                                     | NEUTRAL           |   |  |
|                                     | POSITIVELY-BIASED |   |  |
|                                     | NEGATIVELY-BIASED | <i>They haven't finished?</i>                                     | [ <sub>DM</sub> I-ask-if-P <sub>1</sub> ] [ <sub>SM</sub> I-believe] [ <sub>P2</sub> NEG [ <sub>P1</sub> they have finished]]                |

TABLE 1. The examples from section 2 and their HSM-representations

## 5. The deontic positive bias

Recall that negative *yn*-questions are biased toward a negative answer often have a positive deontic interpretation (H&P: 880). An example is reproduced in (11a) with its informal paraphrase in (11b) and its HSM-representation in (11c):

- (11) a. Aren't you ashamed of yourself?  
b. You don't seem ashamed of yourself, are you? *But you should.*  
c. [<sub>DM</sub> I-ask-if-P<sub>1</sub>][<sub>SM</sub> I-guess][<sub>P2</sub> NEG [<sub>P1</sub> you are ashamed of yourself]]

I suggest that this reading is a pragmatic inference associated with the epistemic negative bias *You don't seem ashamed of yourself*. It is not difficult to imagine how this latter statement gives rises to the 'deontic implicature'. That is, if *You should be ashamed of yourself* arises in the mind of the hearer as an implicature, *You don't seem ashamed of yourself* can be readily understood as a rebuke for his ill behavior.

## 6. Confidence markers

Of the non-*wh*-questions discussed above, only the declarative question licenses what H&P (2002: 882) calls "confidence markers", e.g. *no doubt, of course, surely, and I take it*:

- (12) (H&P's (39): 882)
- a. They *no doubt* misunderstood her intentions?
  - b. And the manager has been informed, *of course*?
  - c. You're *surely* not going to agree?
  - d. There isn't any chance of her changing her mind, *I take it*?

The confidence markers are excluded in the corresponding inverted questions:

- (13) a. \*Did they *no doubt* misunderstand her intentions?  
b. \*Has the manager been informed, *of course*?  
c. \*Aren't you *surely* going to agree?  
d. \*Isn't there any chance of her changing her mind, *I take it*?

This contrast indicates that the declarative question is epistemically stronger than the inverted *yn*-question.

In the HSM, this fact is reflected in the different abstract SM-expressions in the declarative question (*I-believe*) and the inverted *yn*-question (*I-guess*):

- (14) a. declarative question: [<sub>DM</sub> I-ask-if-P<sub>1</sub>][<sub>SM</sub> I-believe][<sub>P2</sub> ... ]  
b. biased inverted *yn*-question: [<sub>DM</sub> I-ask-if-P<sub>1</sub>] [<sub>SM</sub> I-guess][<sub>P2</sub> ... ]

The confidence markers are expressions of subjective modality which express, like *I-believe*, the speaker's strong commitment to the truth of P<sub>2</sub>. The confidence markers are compatible with *I-believe*, but they are epistemically too strong and incompatible with *I-guess*:

- (15) a. declarative question: [<sub>SM</sub> I-believe { *no doubt, of course, surely, I take it* }]  
b. biased inverted *yn*-question: \* [<sub>SM</sub> I-guess { *no doubt, of course, surely, I take it* }]

## 7. Declarative questions and their answers

To the negative declarative question, an unusual answer is possible

where *yes* is followed by a negative clause.<sup>4</sup> Consider (16):

(16) Q: There isn't any chance of her changing her mind?

A: *Yes, there is no chance at all.* (H&P 2002: 882)

Note that <YES, NEGATIVE CLAUSE> is unnatural for the biased inverted question:

(17) a. Q: Is there ANY chance of her changing her mind?

A: \*Yes, there is no chance at all. (H&P 2002: 882)

b. Q: Isn't there any chance of her changing her mind?

A: \*Yes, there is no chance at all. (H&P 2002: 882)

This contrast too follows, because the declarative question has stronger epistemic bias than the inversed *yn*-question. (18) and (19) are the HSM-representations of (16) and (17a-b), respectively:

(18) [<sub>DM</sub> I-ask-if-P<sub>1</sub>][<sub>SM</sub> I-believe][<sub>P2</sub> NEG[<sub>P1</sub> there is some chance of

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<sup>4</sup> More examples are given below (The parts in the parentheses are added by the author):

( i ) Jenny: I think Harvey and I might be soul mates and you said you only liked him as a friend, so you don't mind, right?

Sabrina: Yeah, sure (I don't mind).

(*Sabrina, the Teenage Witch*, Season 1-2)

( ii ) Toby: We really are not gonna do anything about this?

Leo: Yeah (we are not gonna do anything about this).

(*The West Wing*, Season 1-3)

( iii ) Joey: Oh, you weren't finished?

Rachel: Yeah (I wasn't finished)! (*Friends*, Season7-4)

- her changing her mind ]]
- (19) [<sub>DM</sub> I-ask-if-P<sub>1</sub>][<sub>SM</sub> *I-guess*][<sub>P2</sub> NEG[<sub>P1</sub> there is some chance of her changing her mind ]]

*I-believe* expresses a subjective attitude of the speaker ‘strong enough’ for the answerer to confirm by *yes* (or disconfirm by *no*). The affirmative answer to (18) then goes something like *Yes, you are right. There is no chance at all*. Here the confirmation is targeted at the questioner’s epistemic conviction about the truth of P<sub>2</sub>. The speaker attitude that *I-guess* expresses is on the other hand weak and feeble, so the confirmation by the questioner cannot not be targeted toward it.

On the other side of the same coin is that *no* can be followed by a positive clause in answers to the negative declarative question:<sup>5</sup>

- (20) Sidney: So you didn’t like it?  
Andy: No, I loved it. (*The American President*)
- (21) HSM-representation of ...*you didn’t like it?*  
[<sub>DM</sub> I-ask-if-P<sub>1</sub>][<sub>SM</sub> I-believe][<sub>P2</sub> NEG[<sub>P1</sub> you liked it]]

A parallel explanation is possible. By *no*, *Andy* dismisses *Sidney*’s insinuation that *Andy* didn’t like it (= the dinner that *Sidney* cooked for him): *No, I don’t think so. As a matter of fact I loved all the foods you made*.

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<sup>5</sup> Similar examples are given in (i) and (ii):

- ( i ) Sandy: You are not feeling well?  
Seth: No, I feel fine. (*The O.C.*, Season 1-12)
- ( ii ) Rachel: Are you asking me to move out? You don’t want me here?  
Joey: Oh no-no, no-no, I love living with you. (*Friends*, Season 8-14)

## 8. Conclusion

In this article, I showed that the Hierarchical Semantics Model, proposed in a series of work by Nakau, offers insight into semantic properties of non-*wh*-questions in English. Neutral and biased readings were incorporated in semantic representations, and to sample implications of the analysis, I discussed the positive deontic reading in negative *yn*-questions with negative bias, confidence markers, and the ‘unusual’ answers to declarative questions.

Hopefully I could demonstrate that the HSM enhances our understanding of natural language semantics. Designed as a potentially universal infrastructure of sentence meaning, the HSM ought to provide a principled explanation for a wider range of linguistic phenomena within and across languages. Along the way, the model must go through conceptual elaborations as well.

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### **Movies and TV-dramas**

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