

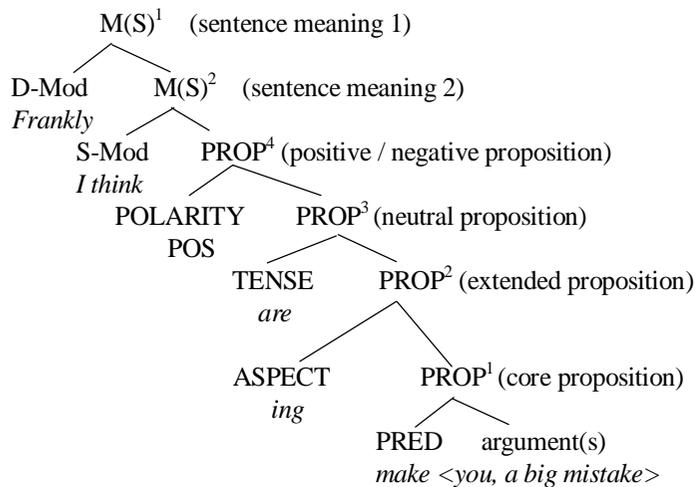
On negative *yes-no* questions: A view from the *Hierarchical Semantics Model*

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1. Introduction: Background and Objective

The Hierarchical Semantics Model (henceforth the HSM; Nakau (1979), (1984-1986), (1992), (1994)) proposes a “potentially universal framework” for sentence meaning and a definition of subjective modality. As illustrated in (1), sentence meaning is seen as an invariant hierarchical structure, incorporating both the subjective (i.e. modality) and the objective (i.e. propositional) aspects.

(1) Semantic structure of *Frankly I think you are making a big mistake.*



The HSM captures the interrelationships among (*discourse and sentence*) *modality*, *polarity*, *tense*, *aspect*, and *predicate-argument structure* in terms of a uniform <operator, scope> configuration. Subjective modality is defined as the speaker's mental attitude at the time of utterance, strictly construed as the instantaneous present.

Designed as a potentially universal infrastructure of sentence meaning, the HSM must provide principled explanations for a broad range of linguistic phenomena within and across languages. As a modest case study of this inquiry, this research aims to characterize some semantic properties of negative *yes-no* questions in terms of the HSM.

Negative questions, unlike positive ones, are never unbiased inquiries. They are either negatively biased (*Don't you listen!*) or positively biased (*Isn't that beautiful!*). Potentially ambiguous negative questions can be disambiguated by the contexts that they occur in, negative polarity items (*Aren't you guys scared at all?*) or positive polarity items (*Isn't it past your bedtime, too?*). Also, negatively-biased negative questions are often accompanied by “positive deontic modality” (Huddleston and Pullum (2002), also see Romero and Han (2004)) or a *should*-like interpretation (*Aren't you ashamed of yourself?* = *You are not ashamed of yourself, are you? But I think you should.*)

2. Proposal

Based on Nakau's (1984) convincing, yet less formal suggestions, I propose to formulate the biases as follows:

- (2) a. POSITIVE BIAS: [M I-GUESS][PROP4 POSITIVE[P3 ... (PPI) ...]]
- b. NEGATIVE BIAS: [M I-GUESS][PROP4 NEGATIVE [P3 ... (NPI) ...]]

In (2), the biases are conceived as a function of an expression of modality (*I-GUESS*, roughly) and the PROP⁴-level operators (i.e. POSITIVE and NEGATIVE). Since PPIs and NPIs ought to be licensed, respectively, by POS and NEG, they practically serve to disambiguate questions.

The negative *yes-no* question is never a neutral question. The HSM characterizes this fact by NOT giving the following representation to this type of question:

(3) UNBIASED, QUESTION READING:

[_M I ASK WHETHER P³ IS TRUE OR FALSE][_{P3} ...]

(N. B. The PROP⁴-level operators, *NEG* and *POS*, are absent)

For *yes-no* questions this interpretation is unmarked (i.e. basic, natural, more frequent, etc.), while the biased readings are marked (i.e. non-basic, less natural, less frequent). The positive *yes-no* question can mean either of (2a), (2b) and (3). The negative question, by contrast, always expresses the biases. The negative question is therefore regarded as a grammatical construction used specifically to convey the biases.

Negative questions with negative biases often generate a positive deontic modality or a *should*-like reading, as in the following example:

(4) Aren't you ashamed of yourself? = You are not ashamed of yourself, are you? But I think you should.

It is easy to incorporate this meaning into a semantic representation:

(5) [_M I-GUESS P⁴ but P³ **should be true**] [_{P4} NEGATIVE [_{P3} you are ashamed of yourself]]

Though simply adding the *should*-reading to the subjective component may seem rather unappealing, any semantic framework, as far as it seeks to characterize semantic properties of negative questions, must encode it in one way or another.

3. Implications

3.1 Answers to negative questions

This account sheds a light on the contrast between Japanese and English as to the forms of answers to negative questions.

English negative questions, whether negatively or positively biased, elicit constant patterns. *Yes* always introduces a positive statement, and *no* a negative statement.

Japanese exhibits a parallel pattern if negative questions have a positive bias (*Non-de nai?* 'I guess you are drunk'). By contrast, negative questions with a negative bias (*Non-de nai no?* 'I guess you are not drinking') elicit answers of a reverse pattern; *yes* introduces a negative statement (*Un, non-de-nai* 'Yes, I'm not'), while *no* a positive statement (*Iya, non-deru yo* 'No, I am').

In the HSM, the difference between English and Japanese are seen as differing references to PROP³ and PROP⁴ in forming answers:

(6) a. NEUTRAL PROPOSITION: [_{PROP3} ...]

b. POSITIVE PROPOSITION: [_{PROP4} POSITIVE [_{PROP3} ...]]

c. NEGATIVE PROPOSITION: [_{PROP4} NEGATIVE [_{PROP3} ...]]

In English, the neutral proposition (6a) decides whether the answer is *yes* or *no*. In Japanese, on the other hand, either the positive proposition (6b) or the negative proposition (6c) determines *yes* or *no*, depending on whether the negative question is biased positively or negatively. (6a) and (6b) produce the "English" pattern. (6c) generates the reverse pattern; *yes* to the negative proposition means "negative", and *no* to the negative proposition "positive".

3.2 Interpretations of positive *yes-no* questions with NPIs

The HSM account of negative questions can be extended to the following property of positive questions with NPIs:

(7) Unlike negative questions, positive *yes-no* questions with NPIs can be unbiased.

Compare the following examples:

- (8) a. Is Steve here yet? (= I wonder if Steve is here yet.¹)
 b. Isn't Steve here yet? (= I guess Steve is not here yet.)

The neutral reading of (8a) is represented in (9):

(9) [_M I ASK WHETHER P³ IS TRUE OR FALSE][_{P3} Steve is here yet]

I said earlier that NPIs should occur in the scope of NEG to be licensed. This constraint needs to be relaxed for a class of “weak” NPIs, including *yet*.²

Following Kuno and Takami ((2007), 192), I assume that the weak NPI must not occur in the scope of POS. That is, this type of NPI can be licensed not only in the scope of NEG, but also in the neutral interpretation as in (9).

Recall that the negative *yes-no* question is necessarily biased. So (9) is not assigned to (8b), and the sentence is always negatively biased, as shown in (10):

(10) [_M I-GUESS][_{PROP4} NEGATIVE [_{P3} Steve is here yet]]

3.3 Strong NPIs

In contrast to “weak” NPIs (e.g., *any*, *even*, *yet*), “strong” NPIs (e.g., *a red cent*, *lift a finger*, *do a damn thing*) always induce negative biases in

¹ The negatively biased reading is also possible, especially when *yet* is stressed. See the next subsection for discussion.

² See 4.3 for the weak-strong distinction.

positive *yes-no* questions (Asher and Reese (2005), Borkin (1971)):

- (11) (adopted from Asher and Reese (2005))
 a. Did Fred contribute *a red cent* to the campaign?
 b. Did John *lift a finger* to help Mary?
 c. Does Fred *do a damn thing* at the office?

As discussed above, weak NPIs may occur in both the neutral and negatively biased readings. Strong NPIs may occur only in the latter. This difference is shown in (12):

- (12) a. UNBIASED, QUESTION READING:
 [_M I ASK WHETHER P³ IS TRUE OR FALSE][_{P3} ... weak-NPI / *strong-NPI ...]
 b. NEGATIVELY BIASED READING:
 [_M I-GUESS][_{P4} NEGATIVE [_{P3} ... weak-NPI / strong-NPI ...]]

Asher and Reese (2005) further note that emphatically stressed “weak” NPIs are indeed strong (= (13)) and that an intonation alone can convey negative bias (= (14)):

- (13) a. Did you find out YET? (Full House (1995), 4-3-18)
 b. Did Fred contribute ANY thing to the campaign? (Asher & Reese's (2005)(2b))
 c. Has John EVER voted for a democrat? (Asher & Reese's (2005)(4b))
 (14) (Asher and Reese's (4b)) Do you NEED that porkchop?
 [N. B. Capital letters are used to indicate prominent constituents.]

Thus it seems plausible that the only natural way of reading the strong NPIs above is to give them prosodic stress responsible for the negative bias in (13) and (14). I however do not have much to say about the exact nature

of the emphatic prosody at this time.

5. Concluding Remarks

In this article, I showed that the Hierarchical Semantics Model, proposed in a series of work by Nakau, offers insight into semantic properties of English (and Japanese) negative *yes-no* questions. More specifically, (negative and positive) biases and the positive deontic modality of negative questions were incorporated in semantic representations. To sample implications of the analysis, I discussed the difference between Japanese and English in forming answers to negative questions. It was proposed that the languages differ in whether PROP³ (English) or PROP⁴ (Japanese) is used in determining *yes* or *no*. The relation between NPIs and negative questions was also considered. Two types of NPIs, weak and strong, were distinguished in the model. The weak NPI may occur not only in the scope of NEG, but also in the neutral representation; the strong NPI can occur only in the former context. This distinction makes empirical predictions about the biases of both negative and positive *yes-no* questions with NPIs.

Hopefully it should be clear from the foregoing that the Hierarchical Semantics Model can enlarge our understanding of natural language semantics. Since it is designed as a potentially universal infrastructure of sentence meaning, it will have to be shown that the HSM can provide a principled explanation about a broader range of linguistic phenomena within and across languages. Along the way, each component of the model must go through empirical and conceptual elaborations.

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