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Against Low Negation in Japanese Questions

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Abstract
This study introduces new data on the Japanese truth-based answering system. I use such new data to compare the empirical coverage of two existing approaches in the literature. A scopal one from Krifka (2013) and a featural one from Servidio et al. (2018). Although their discussion focuses on polarity-based languages, they both suggest that their analysis can be extended to truth-based languages. I show that the former approach, which relies on the scope relation between NegP and TP to capture crosslinguistic variation, fails to account for the fact that Japanese maintains the truth-based system for questions with different negation scope. I further show that a featural approach, which does not refer to structure below the CP-level, can be straightforwardly extended to the novel Japanese data. I further show that a featural analysis fares better with answers to high-negation questions in Japanese and English.

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Against Low Negation in Japanese Questions

Giulio Ciferri Muramatsu*

1 Background

Despite recent contributions, we seem to be far from reaching agreement on the nature of yes-no answers. This study introduces new data from Japanese, a language employing a truth-based system. Taking a closer look at this system, which has arguably received less focus than its polarity-based counterpart, gives us important insight into how languages form answers to yes-no questions.

When answering yes-no questions with polar particles, there are two different systems for languages to employ.

[Polarity-based system]

(1) Did he go? [English]
   a. Yes (he did).
   b. No (he didn’t).

(2) Didn’t he go?
   a. No (he didn’t).
   b. Yes ?!(he did).1
      (Pope (1972))

[Truth-based system]

(3) John wa hashitte imasu ka. [Japanese]
   John TOP running is Q
   ‘Is John running?’
   a. Hai (John wa) hashitte imasu.
      yes John TOP running is
      ‘Yes, John is running.’
   b. Iie (John wa) hashitte imas-en.
      no John TOP running is-not
      ‘No, John is not running.’

(4) John wa hashitte imas-en ka
   John TOP running is-not Q
   ‘Isn’t John running?’
   a. Hai (John wa) hashitte imas-en.
      Yes John TOP running is-not
      (Lit.) ‘Yes, John isn’t running.’
   b. Iie, (John wa) hashitte imasu.
      No John TOP running is
      (Lit.) ‘No, John is running.’
      (Yabushita (1998))

In (1) and (2), particles match the polarity in the following answer, while in (3) and (4) they express whether the answer confirms or denies what the question asks. In this study, I follow Holmberg (2013) and Holmberg (2015) in calling the system here represented by English a polarity-based

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1English has been reported to show a degree of variability in answers to negative questions, especially in denying answers. (see Holmberg (2013), Holmberg (2015)). As for experimental findings, Goodhue and Wagner (2018) report that their participants uniformly preferred no for confirming answers, but showed no preference between yes and no for denying answers. Despite this variability, the general picture presented here holds. English employs a polarity-based system, as opposed to Japanese employing a truth-based system.
system, while the one represented by Japanese a truth-based system. The last 20 years have seen a rise in the attention on these answering systems both from semantic and syntactic approaches. In the next chapter I present two of the analyses found in the literature.

2 Previous Approaches

2.1 Anaphoric Approach

Krifka (2013) analyzes answer particles as propositional anaphors picking up a discourse referent from the question.

\[(5)\]  
\[
\begin{array}{l}
\text{a. [ActP did_j,QUEST [TP Ede_j t_j [vP t_i steal the cookie]]]}
\text{b. [ActP yes], = ASSERT(d)}
\end{array}
\]

(from Krifka (2013), (35))

Particles *yes* and *no* pick a propositional discourse referent, the former asserting the referent and the latter asserting its negation. Positive particle *yes* in (5b) picks up TP in (5a) as its discourse referent, and it asserts it. Answering *yes* to the question thus asserts that Ede indeed stole the cookie. Krifka further introduces a pragmatic constraint on saliency, in his analysis of answers to negative questions. Since particles pick up a discourse referent of propositional level, in principle, either NegP or TP could be their referent.

\[(6)\]  
\[
\begin{array}{l}
\text{Does [NegP John_i not [TP t_i drink]]?}
\text{a. Yes, he does. (John drinks.)}
\text{b. No, he doesn’t. (John doesn’t drink.)}
\end{array}
\]

Krifka argues that a pragmatic constraint on particles imposes them to pick a salient referent. Typically for a negative expression to be uttered, the non-negated counterpart must be already salient in the discourse. In order to utter a proposition such as *John didn’t steal the cookie*, the non-negated proposition *John stole the cookie* must be salient. Thus in (6), positive particle asserts TP *John drinks*, while negative particle *no* asserts its negation. By forcing answer particles to pick a non-negated proposition as their discourse referent, this analysis captures how answer particles match the polarity of the following answer. In (1) and (2), for instance, *yes* always asserts that he went, while *no* asserts that he didn’t, regardless of the polarity of the question. This analysis is then extended to an answering pattern shift found in polarity-based languages. Namely, an exceptional truth-based system used in English for questions containing adverbs of frequency.

\[(7)\]  
\[
\begin{array}{l}
\text{Does John [sometimes [TP not have breakfast]]? (sometimes >−)}
\text{a. Yes. (‘John sometimes does not have breakfast.’)}
\text{b. No. (‘It’s not the case that John sometimes does not have breakfast.’)}
\end{array}
\]

(example from Holmberg (2015))

Note how a positive particle *yes* in (7a) asserts a proposition containing negation. In Krifka (2013), it is suggested that different answering systems arise due to different scope relations between TP and negation. Indeed, following this suggestion regarding negation and adverbs, the analysis can account for the system shift as below. In (7), negation is outscoped by sometimes. Krifka argues that negation outscoped by adverbs is an instance of predicate negation, and that it does not project NegP. Since negation is contained within TP, answer particles have to pick up propositions containing negation as their referent. Note how a positive particle asserts a proposition without negation in (6a), while the same positive particle asserts a proposition with negation in (7a).

2.2 Featural Approach

Servidio et al. (2018) takes answer particles to be spell out of features located in the left periphery. Discussing data from Italian, they argue that answer particles in polarity-based languages are bundles
of two features, namely REL and POL. These features can be assigned a positive value, as REL and POL in (8b), or a negative value, as REL in (8c).

(8)  a. Gianni è arrivato?
   John is arrived
   ‘Did John arrive?’
   b. Sì/[REL:+][POL:+].
   ‘Yes (John arrived).’
   c. No/[REL:–][POL:+].
   ‘No (John didn’t arrive).’
   (adapted from Servidio et al. (2018), (16) and (17))

REL licenses a discourse move; it is valued positive for confirmation and negative for denial. Or more exactly, it is valued positive when the polarity of the intended answer matches that of the question, and negative otherwise. POL is assigned a value through Agree with the inherently valued polarity in the elliptical sentence radical of the question.

(9)  a. Gianni non è arrivato?
   John  NEG is arrived
   ‘Did John not arrive?’
   b. No/[REL:+][POL:–].
   ‘No (John didn’t come).’
   (adapted from Servidio et al. (2018), (16) and (17))

In (9b), the inherent polarity of the elliptical sentence radical assigns a negative value to POL via Agree. And as the speaker confirms the negative proposition in the question, REL encodes confirmation, and is valued positive.

(10)  Value assignment on POL in (9b))

![Diagram](image_url)

Checking the value of these two features REL and POL, answer particles are realized following a realization rule.

(11)  a. [REL:–][POL:+], or [REL:+][POL:–] ⇒ no
     b. [REL:+][POL:+], or [REL:–][POL:–] ⇒ sì

When one of the two features is valued negative, the negative particle no is realized. Otherwise, namely when they are assigned the same value, a positive particle sì is realized. In (9b), the featural configuration of the particle is [REL:+][POL:–]. It is thus spelled out as no. In a denying answer, since both REL and POL are valued negative, the answer particle would be realized as sì.
This analysis can also account for (7) with relativized minimality (Rizzi (2010)). Servidio et al. (2018) discusses a different similar instant of system shift found in Italian. Questions with fronted focus are answered with a truth-based system. They argue that fronted focus blocks the value assignment on POL. Since POL, Neg and Foc are all quantificational features in Rizzi’s classification, value assignment on POL is blocked by the Foc feature. This blocking effect can be argued to occur in (7) as well. Sometimes, which is an adverb of frequency, is classified as a quantificational feature, and thus causes a blocking effect for POL. Since POL cannot be assigned negative value, the featural configuration of the answers is changed. Answer particles are spelled out following the realization rule in (11)$^2$. Confirming answer (7a) has the configuration [REL:+][POL:+] and is realized as yes. Denying answer (7b) has the configuration [REL:-][POL:+] and is realized as no.

(12) Blocking effect on POL in (7)

\[
\text{FocP} \\
\text{Foc} \\
\text{TP} \\
\text{POL (unvalued)} \\
\text{NP} \\
\text{John} \\
\text{Adv} \\
\text{sometimes} \\
\text{NegP} \\
\text{Neg} \\
\text{VP} \\
\text{not} \\
\text{have breakfast}
\]

In this chapter we have seen that the two approaches, despite their rather different nature, both seem to capture answering systems and pattern shifts in polarity-based languages. The next chapter will attempt to extend these two approaches to truth-based languages, attempting to compare their empirical coverage.

3 Extension to a Truth-Based Language

3.1 Anaphoric Analysis of Japanese Answers

Both approaches introduced above suggest that their analysis can be extended to truth-based languages. In this chapter, I consider their extension to Japanese, showing that the anaphoric approach, which parameterizes lower structure, faces empirical issues. The featural approach, which parameterizes higher structure, does not suffer from this problem.

Krifka (2013) suggests that truth-based languages can be accounted for with the same analysis as that for (7). In these languages negation never projects, and thus answer particles for negative answers pick up a negative discourse referent. Following this suggestion, Japanese answers would be analyzed as below.

$^2$In this case POL is assigned value by a default rule. According to this rule, POL is valued positive whenever there is no negation to assign negative value to it.
(13) Taro osake noma nai no?
  Taro alcohol drink NEG PRT
  ‘Does Taro not drink alcohol?’
  a. Un (noma nai).
     yes drink NEG
     (Lit.) ‘Yes, he doesn’t.’
  b. Uun (nomu yo).
     no drink PRT
     (Lit.) ‘No, he does.’

(14) [ActP QUEST [TP Taro [vP osake noma-nai]](no)]?
  a. [ActP un], = ASSERT (d)
  b. [ActP uun], = ASSERT (~d)

Here the positive particle un and the negative particle uun both pick up TP Taro osake nomanai as their discourse referent. un thus asserts a proposition with negation, while uun negates it. This way, the answering pattern in Japanese can be accounted for by positing a difference in lower structure. This seems straightforward, especially considering that many of the truth-based languages, such as Cantonese or Japanese, have been argued to have predicate negation for independent reasons. However, Japanese employs the same truth-based system where the anaphoric analysis predicts a polarity-based system, namely where negation outscopes an adverb. Now recall (7), where negation being outscoped by a frequentative adverb causes a system shift.

In Japanese, negative sentences containing an NPI and a frequentative adverb such as yoku show a subject-object asymmetry in scope interpretation.

    John-TOP often no-one praise-NEG
    ‘John often doesn’t praise anyone.’ (often >~ >∃, ??~ >∃ >often)
  b. Dare-mo yoku John-o home-nai.
    No-one often John-ACC praise-NEG
    ‘No one praises John often.’ (?ifrequentative >~ >∃, ~ >∃ >often)

The scope relation shows that negation is higher in (15b) than in (15a). Namely, it outscopes the adverb only in (15b) but not in (15a). Given this asymmetry, the scopal analysis predicts that Japanese should employ different systems to questions with these two structures. Japanese data, however, does not confirm this prediction.

(16) John-wa yoku dare-mo home-nai no? (often >~ >∃)
    John-TOP often no-one praise-NEG PRT
    ‘Does John often not praise anyone?’
  a. Un, daremo home-nai.
     (Lit.) ‘Yes, he never praises anyone.’
  b. Uun, yoku Mary-o homeru.
     (Lit.) ‘No, he often praises Mary.’

(17) Dare-mo yoku John-o home-nai no? (~ >∃ >often)
    No-one often John-ACC praise-NEG PRT
    ‘Does no one praise John often?’
  a. Un, dare-mo home-nai.
     (Lit.) ‘Yes, no one praises him often.’
  b. Uun, Mary-wa yoku homeru.
     (Lit.) ‘No, Mary praises him often.’

This data proves problematic for an approach based on scope relations. Note how the same positive particle un asserts a negative proposition both in (16) and (17). (16) contains predicate negation in Krifka’s terms, being outscoped by yoku. It follows from the analysis that this is answered with
a truth-based system. In (17) on the other hand, negation outscopes yoku, and is expected to project NegP. Polarity particles here should pick up TP as their discourse referent, thus picking up a positive proposition. Based on this, a scopal analysis predicts a polarity-based system, contrary to what we find in (17). Recall from (6) and (7) that an adverb outscoping negation leads to a shift in the answering system. This is not observed in (17). In order to salvage the analysis from this problem, one could argue that in (17) NegP is more salient than TP and thus is picked up as discourse referent. It is not clear why NegP should be more salient here, since the very reason the saliency constraint was introduced for polarity-based languages was to avoid particles to pick up NegP as referent. It seems problematic for the anaphoric approach to account for this data without losing its simplicity. By positing crosslinguistic difference in lower structure, this approach fails to account for the fact that Japanese employs the same system for questions with different lower structure.

3.2 Featural Analysis of Japanese Answers

In extending their analysis to truth-based languages, Servidio et al. (2018) suggest a parametric difference in higher structure. The suggestion is that truth-based languages lack POL, and their answer particles only carry REL. I follow their suggestion and show that Japanese particles are indeed spell out of REL. Following their proposal, I argue for the following realization rules for Japanese answer particles.

(18) Japanese: REL: [+] ⇒ (un), [-] ⇒ (uun)

Rule (18) accounts for the answering patterns we find in (16) and (17). (16a) and (17a) are confirming answers, so REL is valued positive. In denying answers (16b) and (17b), REL is valued negative. While frequentative adverbs cause a blocking effect in polarity-based languages, they do not in truth-based languages. In polarity-based languages, they block the value assignment on POL, because of relativized minimality. In truth-based languages, there is no POL in the first place. Note how the analysis won’t be any different for questions with simpler structures. Confirming answers use the same positive particle when answering positive question, negative questions, or negative questions with adverbs. By positing crosslinguistic difference in the featural configuration of particles rather than the lower structure, this analysis captures the fact that Japanese consistently employs the same system for questions with different lower structure.

4 Further Issues

4.1 Variation in English Answers

As noted in footnote 1, English shows variability in answers to negative yes-no questions.

(19) Didn’t he go?
   a. No (he didn’t).
   b. Yes (he did).
   c. No (he did).

This variation is not surprising if we consider the featural configuration of answer particles. Below I present a spell out rule for English particles following Servidio et al. (2018).

(20) English Spell-out rule

<table>
<thead>
<tr>
<th>REL \ POL</th>
<th>+</th>
<th>–</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>–</td>
<td>no</td>
<td>??yes</td>
</tr>
</tbody>
</table>
As Servidio and his colleagues admit, such a spell-out rule is somewhat stipulative in that it is not immediately evident why the featural configuration [REL:–][POL:−] should be spelled out as a positive particle. They hint that is the reason some languages employ a special particle for the answer (French *si* or German *doch*). This argument can be extended to English. That English does not have a special particle could be the reason for this mixture of the two systems in English answers.\(^3\) It is a challenge for both the featural and anaphoric analysis to account for this variability. However, while the featural analysis seems to at least suggest why we find this variation, that is not the case for the anaphoric one. For the anaphoric approach, one would have to posit either that there is variability in the saliency constraint, or in whether negation projects NegP. On the other hand, it follows from the realization rule proposed in the featural approach that answers with the configuration [REL:–][POL:−] can show variation even within speakers of the same language. I here simply introduce this issue of variability, and leave a detailed analysis for future research.

### 4.2 High Negation Questions

In the previous section we saw the variability problem found in answers to low-negation question in English. High-negation questions, show no such variability in answers.

(21) Isn’t she lovely?
   a. Yes (she is lovely / *she is not lovely).
   b. No (*she is lovely / she is not lovely).

This is straightforwardly accounted for if negation moves out of the sentence radical of the question. I follow the line of Romero and Han (2004), and Romero (2014), which analyzes high negation in questions as introducing an epistemic operator. Putting aside the exact nature of the operator, (whether it is VERUM or FALSUM, for instance), the idea is that negation moves to the left periphery and contributes a non-at-issue meaning. Based on this, I propose that negation moves too high in the question that it cannot be copied in the answer.

\(^3\)Spelling out particles in denying answers to negative questions is problematic in many polarity-based languages. For instance, Italian speakers show a preference for an emphatic structure for this answer.

(1) Gianni non è arrivato?
   John NEG is arrived
   ‘Did John not arrive?’
   a. No, non è arrivato.
      ‘No, he didn’t arrive.’
   b. ?? Sì, è arrivato.
      ‘Yes, he arrived.’
   c. Sì che è arrivato.
      (emphatic form of (b))
Since negation in not in the copied content, it cannot assign a value to POL. Unlike cases like (7), however, that value assignment on POL ends unsuccessful does not result in an answering-pattern shift. That is because the movement of negation, changing the at-issue content, has effects on the value assignment on REL.

(23) Value of REL in answers to different questions, when the speaker wants to assert that she is lovely
   a. Is she lovely? (at issue content: p or ¬p)
      confirmation ⇒ [REL:+]
   b. Is she not lovely? (at issue content: ¬p or ¬(¬p))
      denial ⇒ [REL:–]
   c. Isn’t she lovely? (at issue content: p or ¬p)
      confirmation ⇒ [REL:+]

If we posit that high-negation questions have the same propositional content as that of positive questions, the featural configuration of the particles follows the pattern of that of answers to positive questions.


The featural analysis can thus straightforwardly account for the discrepancy regarding variability found in English between answers to low-negation questions and high-negation questions. Denying answers to low-negation questions have the featural configuration [REL:–][POL:–], posing problems in spell out. Answers to high-negation questions have either the configuration [REL:+][POL:+] or [REL:–][POL:+] and cause no problem in spell out. The argument that high-negation does not

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4The answers to high-negation questions themselves are not problematic for the anaphoric account. Krifka himself provides an analysis for high-negation questions.

(1) (from Krifka (2013))
   a. Didn’t Ede steal some cookie?
   b. [ActP did-REQU [NegP not [ActP ASSERT [TP Ede steal some cookie]]]]

This is very similar to the analysis presented above. Negation moves to a position high in the left periphery and is no longer part of the propositional content of the question. However, the anaphoric approach cannot straightforwardly account for why we find speaker variation in answers to low-negation questions, but not in answers to high-negation questions.
contribute at-issue meaning admittedly appears to be somewhat stipulative. (see Goodhue (2022) for discussion.) However, answers to Japanese high-negation questions show that this is the right track. Japanese employs an exceptional polarity-based system when answering high-negation questions.

(25) Context: Ichiro and Kaoru made a cake together. Since it was their first time, they didn’t expect it to taste good. However, as taking his first bite, Ichiro finds it surprisingly good and wants to make sure by asking Kaoru.

a. Kore oisiku nai?  
   ‘Isn’t this delicious?’

b. Un, oisii.  
   ‘Yes, it is.’

c. Uun, oisiku nai.  
   ‘No, it’s not.’

Note that here a positive particle asserts a positive proposition, even though it is answering a negative question. This follows from the switch in the value of REL presented in (23). In Japanese, particles do not carry POL and thus a switch on REL directly leads to a switch in the answering pattern. In polarity-based languages, the answering pattern does not tell us whether negation has moved out of the propositional content. If negation moves, the value of both REL and POL switch, and as a result, the answering pattern does not shift. In truth-based language on the other hand, the movement of negation has a visible consequence on the spell out of answer particles.

5 Concluding Remarks

In this study I compared an anaphoric approach and a featural approach for answering systems. I showed that the latter approach, which parameterizes the featural configuration of particles in the CP layer, has wider empirical coverage. A scopal approach fails to account for the fact that Japanese maintains its truth-based system for questions with different lower structure. A featural approach, by positing crosslinguistic difference in higher structure, can straightforwardly account for the fact that Japanese employs the same system to questions with different lower structure. I argued that truth-based particles have an impoverished featural status compared to their polarity-based counterparts. It followed from this assumption that Japanese uses a truth-based system for answers to questions with frequentative adverbs, where a scopal approach predicts a system shift.

I also discussed the variability problem found in English, namely that there is variability in answers to low-negation questions, but not in those to high-negation questions. This poses a challenge for both analyses. I however argued that the featural approach is more promising than the anaphoric one in that this variability is consistent with its assumptions. The proposed featural configuration for English answer particles, together with the assumption that high-negation has no contribution to at-issue content, can account for the facts. I finally showed that the exceptional polarity-based system employed for Japanese high-negation questions follows from the above assumptions. Since Japanese answer particles have an impoverished featural status, the difference in at-issue-content is directly reflected in the answering system.

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