Two Approaches to Biased *Yes/No* Questions[1]

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1 Introduction

Two main kinds of epistemic bias in *yes/no* (*yn*-)questions have been discussed in the recent literature.

The first type of epistemic bias can be illustrated with positive *yn*-question with the particle *really*. (1S'), for example, necessarily conveys an epistemic bias, namely it conveys that the speaker originally believed the correct answer to that question to be in the negative. The corresponding version without *really* does not necessarily carry this bias and it is thus acceptable in unbiased scenarios like (1), witness the contrast (1S)-(1S') (Romero and Han 2004).

(1) A: Jorge just visited Birgit and Jorn's newborn boy.
S: Did he bring a present for him?
S': # Did he really bring a present for him? (Original negative bias *He didn't bring a present*)

Similarly, a *yn*-question with preposed negation like *Doesn't he drink?* in (2S') necessarily conveys that the speaker believed the correct answer to be in the affirmative (Ladd 1981, Gunlogson and Büring 2000). The corresponding version (2S) with non-preposed negation does not necessarily carry this bias (Han 1999, Romero and Han 2004).

(2) Scenario: The speaker is organizing a party and she is in charge of supplying all the non-alcoholic beverages for teetotalers. The speaker is going through a list of people that are invited. She has no previous belief or expectation about their drinking habits.
A: Jane and Mary do not drink.
S: OK. What about John? Does he not drink (either)?
S': # OK. What about John? Doesn't he drink (either)? (Original positive bias *John drinks*)

This first type of epistemic bias has, thus, *opposite* polarities in the question and in the propositional content of the bias.

The second type of bias is the contextual evidence bias discussed in Gunlogson and Büring (2000). Here the polarity of the question itself and the polarity of the content of the bias are the *same*. The idea is that contextual evidence for p may prompt the speaker to ask the *yn*-question p*?* (e.g. *Is is raining?* in (3S)) rather than $\neg p$*?* or a similar alternative (e.g. *Is it sunny?* in (3S')):

(3) Scenario: Addressee enters Speaker's windowless computer room wearing a dripping wet raincoat.
S: What's the weather like out there? Is it raining? (Contextual evidence bias for *It is raining*)
S': # What's the weather like out there? Is it sunny?

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An analysis of the bias in (1)-(2) is developed in Romero and Han (2002) and Romero and Han (2004), who make crucial use of the operator VERUM and of the informal notion of "intent" of a question. A second approach has been pursued by Nilsenova and van Rooy (2003) and van Rooy and Safarova (2003) to cover the data (2)-(3) using Decision Theory. The goal of the present paper is to compare the VERUM approach and the Decision Theory approach and to argue that VERUM is needed to derive the data.

The paper is organized as follows. Section 2 presents the VERUM approach. Section 3 introduces the Decision Theory approach. The comparison between the two approaches is carried out in section 4. Section 5 summarizes the conclusions and discusses further issues.

2 The VERUM Approach

The key ingredient of the VERUM approach is the conversational epistemic operator VERUM defined in (4), where $Epi_x(w)$ is the set of epistemic alternatives of x at w and where $Conv_x(w')$ is the set of worlds where all the conversational goals of x in w' are fulfilled. This operator is introduced by the epistemic particle *really* in (1S'),[2] and, by hypothesis, by the preposing of negation in (2S').

(4) $[\![\text{VERUM}_i]\!]^{g x/i} = [\![\text{really}_i]\!]^{g x/i} =$
$\lambda p_{<s,t>} \lambda w. \forall w' \in \text{Epi}_x(w)[\forall w'' \in \text{Conv}_x(w')[p \in \text{CG}_{w''}]] =$
FOR-SURE-CG_x (abbreviation)

Though VERUM/*really* has an epistemic component, Romero and Han (2004) note that it is not a run-off-the-mill epistemic operator. Compare the plain epistemic *be sure* in (5a) with *really* in (5b). (5a) expresses certainty about the speaker's physical sensations, which is a bit strange. (5b) insists on the truth of the proposition p (p = "the speaker is tired") so that p is accepted and added to the common Ground (CG).

(5) a. ? I am sure I am tired.
b. I really am tired.

VERUM derives the following data.

First, using the lexical entry for the *Q*-morpheme in (6), regular *yn*-interrogatives like (1S)-(2S) introduce a balanced partition of shape $\{ p, \neg p \}$, as illustrated in (7) (see Groenendijk and Stokhof 1985). In contrast, a *yn*-interrogative with VERUM produces an unbalanced partition of shape $\{$ VERUM $p, \neg$ VERUM $p \}$, as in (8). This unbalanced partition questions the validity of adding p to the Common Ground. By conversational economy, this is allowed only when there are reasons to question such addition, e.g., when an epistemic conflict would arise from such addition. This derives the existence of a previous epistemic bias for (1S')-(2S').

(6) $[\![Q]\!] = \lambda p_{<s,t>} \lambda w_s \lambda q_{<s,t>} \; [q = p \;\; \vee \;\; q = \neg p]$

(7) a. Did Jorge bring a present?
b. LF: $[_{CP}\ Q$ [Jorge brought a present]]
c. $[\![Jorge\ brought\ a\ present]\!] = \lambda w.\ Jorge\ brought\ a\ present\ in\ w$
d. $[\![Q\ Jorge\ brought\ a\ present]\!](w_o)$
$= \lambda q\ [q = \lambda w.\ Jorge\ brought\ a\ present\ in\ w \;\; \vee$
$\quad q = \lambda w.\ \neg(Jorge\ brought\ a\ present\ in\ w)]$
$= \{$"that Jorge brought a present", "that Jorge did not bring a present"$\}$

[2] Intensifier *really*, as in (1a), needs to be distinguished from epistemic *really*, in (1b).

(1) a. Sandra is really clever.
b. Sandra really is clever.

(8) a. Did Jorge really bring a present?

b. LF: [$_{CP}$ Q [VERUM [Jorge brought a present]]]

c. $[\![Jorge\ brought\ a\ present]\!] = \lambda w.\ Jorge\ brought\ a\ present\ in\ w$

d. $[\![VERUM\ \ Jorge\ brought\ a\ present]\!]$ =
FOR-SURE-CG($\lambda w.\ Jorge\ brought\ a\ present\ in\ w$)

e. $[\![Q\ VERUM\ \ Jorge\ brought\ a\ present]\!](w_o)$
= λq [q = FOR-SURE-CG ($\lambda w.\ Jorge\ brought\ a\ present\ in\ w$) $\vee$
q = $\neg$FOR-SURE-CG ($\lambda w.\ Jorge\ brought\ a\ present\ in\ w$)]
= {"that we are sure we should add to CG that Jorge brought a present", "that we are not sure we should add too CG that Jorge brought pr."}

Second, VERUM derives certain intuitive ambiguity in preposed negation *yn*-questions observed by Ladd (1981). Consider the question *Isn't Jane coming?*, which carries the speaker's original bias towards p (= "that Jane is coming"). While keeping this original bias, Ladd notes that the question can be used to double-check p or to double-check $\neg p$. To see this, compare the examples (9) and (10), where some context and particles have been added to disambiguate the readings:

(9) A: Ok, now that Stephan has come, we are all here. Let's go!
S: Isn't Jane coming too?

(10) Scenario: Pat and Jane are two phonologists who are supposed to be speaking in our workshop on optimality and acquisition.
A: Pat is not coming. So we don't have any phonologists in the program.
S: Isn't Jane coming either?

Intuitively, the speaker in (9) originally believed p, and, after the addresee's utterance contradicting this expectation, the speaker double-checks her proposition p. The speaker in (10) originally expected p as well, but after the addressee's utterance she wants to double-check the proposition $\neg p$ implied by the addressee.

Using VERUM, Romero and Han (2002) derive Ladd's intuitive ambiguity as scopal ambiguity between VERUM and negation, as schematized in (11). The reading where the speaker is double-checking p –called p-reading in Romero and Han– arises when negation scopes over VERUM, as in (12). The reading where the speaker is double-checking $\neg p$ –called $\neg p$-reading– obtains when VERUM scopes over negation, as in (13). Both cases give rise to unbalanced partitions, hence to epistemic biases. But in (12) the proposition under FOR-SURE-CG$_x$ and thus double-checked is p (= $\lambda w.\ Jane\ is\ coming\ in\ w$), whereas in (13) the proposition under FOR-SURE-CG$_x$ and double-checked is $\neg p$ (= $\lambda w.\neg(Jane\ is\ coming\ in\ w)$). This derives Ladd's intuitive ambiguity in the VERUM approach.

(11) Schema:

[Not [VERUM p]]	$\Longrightarrow$	p-reading (9), (12).
VERUM [not p]]	$\Longrightarrow$	$\neg p$-reading (10), (13).

(12) Isn't Jane coming too?
LF: [$_{CP}$ Q not [VERUM [$_{IP}$ Jane is coming too]]]
$[\![.]\!](w_o) = \lambda q$ [q = FOR-SURE-CG ($\lambda w.\ Jane\ is\ coming\ in\ w$) $\vee$
q = $\neg$FOR-SURE-CG ($\lambda w.\ Jane\ is\ coming\ in\ w$)]

(13) Isn't Jane coming either?
LF: [$_{CP}$ Q VERUM [not [$_{IP}$ Jane is coming] either]]
$[\![.]\!](w_o) = \lambda q$ [q = FOR-SURE-CG ($\lambda w.\neg(Jane\ is\ coming\ in\ w)$) $\vee$
q = $\neg$FOR-SURE-CG ($\lambda w.\neg(Jane\ is\ coming\ in\ w)$)]

3 The Decision Theory Approach

The key ingredient of the Decision Theory approach is the notion of utility value of a proposition, defined in (14):

(14) A proposition p has a high utility value if:

i. its becoming true brings the speaker closer to her goal, or

ii. its addition to the speaker's epistemic state would trigger a wide revision of it.[3]

As we have seen, a *yn*-question $r?$ (where r can have a positive form p or a negative form $\neg p$) is an instruction to partition the CG in two cells: the cell r and the cell $\neg r$. Nilsenova and van Rooy (2003) and van Rooy and Safarova (2003) argue that which of the two cells is pronounced is important:

(15) Out of a question partition, the speaker pronounces the cell whose utility value is higher. Both cells have equal utility values in r *or not?*.

With utility values and without VERUM, this approach accounts for the following data.

First, it accounts for Bolinger's extended paradigm using case (14i). A request for p can only be posited by asking $p?$, and not by asking its alternative question version p *or* $\neg p?$ (Bolinger 1978) nor by asking its negative question version $\neg p?$, as illustrated in (16). This is because p becoming true, but not $\neg p$ becoming true, would bring the speaker closer to her goal. The same holds for conversation starters. If the speaker's goal is to start a conversation about golf, she will ask $p?$ in (17a) rather than p *or* $\neg p?$ in (17b) or $\neg p?$ in (17c), since p being true brings the speaker closer to her goal.

(16) Request for help:

a. Will you (please) help me?

b. # Will you (please) help me or not?

c. # Will you (please) not help me?

(17) Trying to start a conversation on golf (with no bias):

a. Do you like golf?

b. # Do you like golf or not?

c. # Do you not like golf?

Second, using case (14ii), utility values derive the epistemic bias for Ladd's readings. The reading obtained depends on the epistemic state checked, namely, the current epistemic state of the speaker or a previous epistemic state of hers. In (18) –repeated from (9)–, the speaker had an original bias for p (= "that Jane is coming") and currently holds that bias for p. Hence, the utility of learning the opposite proposition $\neg p$ is high at the current state, and thus the $\neg p$-cell of the question partition is pronounced. In (19) –repeated from (10)–, the speaker had an original bias for p, but after the addressee's utterance she is hesitant. Hence, the utility of learning the opposite proposition $\neg p$ was high at a previous state, leading again to the pronunciation of the $\neg p$-cell. This account is schematized in (20):

(18) A: Ok, now that Stephan has come, we are all here. Let's go!
S: Isn't Jane coming too?

(19) Scenario: Pat and Jane are two phonologists who are supposed to be speaking in our workshop on optimality and acquisition.
A: Pat is not coming. So we don't have any phonologists in the program.
S: Isn't Jane coming either?

(20) Schema:

Utility of $\neg p$ at CURRENT state	$\Longrightarrow$	Current-p-bias reading (18).
Utility of $\neg p$ at PREVIOUS state	$\Longrightarrow$	Previous-p-bias reading (19).

[3] The intuition behind case (14ii) is that learning that an unexpected proposition p is true –i.e., learning "big news"– has a high utility value.

4 Comparison Between the Two Approaches

The question is: How is labor divided between VERUM and utility values? While Romero and Han use both VERUM and the notion of "intent"of a question (an informal version of utility value), van Rooy and Safarova claim that only utility values are needed. The present paper argues that...

We still need VERUM.

With utility values and without VERUM, van Rooy and Safarova (2003)'s account fails to derive the following three empirical patterns.

First, Ladd's ambiguity must be correlated with the use of Positive Items (PIs) and Negative Items (NIs). However one may decide to characterize the semantic difference between the two readings from Ladd, that difference must be correlated with the use of PIs like *too, some* and *already* versus NIs like *either, any* and *yet*. Examples (21), (23) and (25a) with PIs unambiguously have the reading double-checking p (p-reading in Romero and Han (2004), current-p-bias reading van Rooy and Safarova (2003)). Examples (22), (24) and (25b) with NIs unambiguously have the reading double-checking $\neg p$ ($\neg p$-reading or previous-p-bias reading).

(21) A: Ok, now that Stephan has come, we are all here. Let's go!
S: Isn't Jane coming **too**? (PI-question double-checking p)
LF: [$_{CP}$ Q not [VERUM [$_{IP}$ Jane is coming too]]]

(22) Scenario: Pat and Jane are two phonologists who are supposed to be speaking in our workshop on optimality and acquisition.
A: Pat is not coming. So we don't have any phonologists in the program.
S: Isn't Jane coming **either**? (NI-question double-checking $\neg p$)
LF: [$_{CP}$ Q VERUM [not [$_{IP}$ Jane is coming] either]]

(23) A: You guys must be starving. You want to get something to eat?
S: Yeah, isn't there **some** vegetarian restaurant around here – Moosewood, or something like that? (PI-question double-checking p)

(24) Scenario: A and S are vegetarian.
S: I'd like to take you out to dinner while I'm here -we'd have time to go somewhere around here before the evening session tonight, don't you think?
A: I guess, but there is really no place to go to in Hyde Park.
S: Oh, really, isn't there **any** vegetarian restaurant around here?
(NI-question double-checking $\neg p$)

(25) a. Isn't Peter helping you **already**? (PI-question double-checking p)
b. Isn't Peter helping you **yet**? (NI-question double-checking $\neg p$)

In the VERUM approach, the distribution of PIs and NIs follows from the way the two readings are devired. When negation scopes over VERUM in (21LF), the p-reading obtains and PIs are licensed since they are not in the immediate scope of negation (Ladusaw 1980, Linebarger 1987) . When VERUM scopes over negation in (22LF), the $\neg p$-reading arises and NIs are licensed under the immediate scope of negation.[4]

[4]Romero and Han (2004) give the examples in (i) to illustrate the intervention effect in declaratives. The PI *too* is licensed in (ia) because the operator *be certain* intervenes between it and negation. The NI *either* in (ib) is not licensed because it requires the opposite configuration: it must select a negative IP as its sister (Rooth 1992), or it is an NPI (Rullmann 2003) and thus must have immediate scope under its licenser.

(i) a. It is not certain [that Jane is coming too].
b. * It is not certain [that Jane is coming either].

In the Decision Theory approach by van Rooy and Safarova (2003), we saw that for one reading the utility value is computed with respect to the speaker's current information state, and for the other reading the utility value corresponds to a previous state. It is not obvious how the temporal anchoring of the utility value may correlate with the distribution of PIs and NIs.

Another possibility within the Decision Theory approach would be to abandon the temporal anchoring analysis and to argue that the purpose of *any* in (24) is to turn a settled question into an unsettled one, in the spirit of van Rooy (2003). One could then account for the licensing and effect of the NPI *any* in (24) as follows. The speaker originally assumed p (= "there is a vegetarian restaurant near here"), the addressee's utterance implies $\neg p$ for a possibly restricted set of vegetarian restaurants, and S's question with *any* formulates the unsettled question $\neg p'$*?* for a *wider* set of vegetarian restaurants, as schematized in (26):

(26) Schema, where $p \subseteq p'$:
Utility of $\neg p$ (at current state) $\Longrightarrow$ p-bias reading
Utility of $\neg p'$ (at current state) $\Longrightarrow$ p'-bias reading

However, this analysis cannot extend to *either*, which is not the widening counterpart of *too*. Nor can the analysis extend to *yet*, which is not the widening counterpart of *already*.[5]

Not only Ladd's readings double-checking p and $\neg p$ must be correlated with the distribution of PIs and NIs. Scenario types must be correlated with the use of PIs and NIs as well. Romero and Han (2004) note that a PI-question double-checking p can be used in a scenario without contradiction to suggest p as an answer to a *wh*-question, as in (27S), where p is "Frege is a senior scholar that has reviewed for us". But an NI-question double-checking $\neg p$ cannot be used to suggest $\neg p$, as in (28) (nor can it be used to suggest p as in (27S')):

(27) Dialog between two editors of a journal in 1900:
A: I'd like to send this paper out to a senior reviewer, but I'd prefer somebody who has experience with our regulations.
S: Hasn't Frege already reviewed for us? He'd be a good one.
S': # Hasn't Frege reviewed for us yet? He'd be a good one.

(28) Dialog between two editors of a journal in 1900:
A: I'd like to send this paper out to a senior reviewer, but I'd prefer somebody new.
S: # Hasn't Frege reviewed for us yet? He'd be a good one.

According to the VERUM approach, the LF configuration [$\neg$ VERUM p] is the common source of three effects: (i) it generates the reading double-checking p, (ii) it licenses PIs, and (iii) pronouncing this cell of the partition amounts to asking the addressee for any doubts about p, which is compatible with the speaker's suggesting p as an answer to the addressee's *wh*-question. The LF [VERUM $\neg p$] is responsible for the corresponding three results: (i) it gives rise to the reading double-checking $\neg p$, (ii) it licenses NIs, and (iii) pronouncing this cell amounts to asking the addressee for complete evidence for $\neg p$. But the addressee cannot possibly provide that evidence if he himself posited the *wh*-question. Hence, the NI-question is infelicitous in a suggestion scenario.

[5]The original Decision Theory analysis and the variant sketched above also leave the licensing of PIs unexplained. Recall that there is no VERUM in the Decision Theory approach, and thus negation in PI-questions directly negates the proposition p. It is unclear why PIs that do not tolerate immediately c-comanding negation in declaratives (unless metalinguistic), as in (i), can be licensed here. See, however, Ladusaw (1980), Szabolcsi (2004) and Schwarz and Bhatt (2004) for other environments that unexpectedly license this configuration. I leave the question open for future research.

(i) John didn't see some students. ?? $\neg\exists$ reading

In the Decision Theory approach by van Rooy and Safarova, the temporal anchoring of the utility value may explain why the previous-p-bias reading (= reading double-checking $\neg p$) cannot be used as a suggestion, since the question doesn't reflect what belief the speaker currently endorses. But, again, it is not clear how to tie this to the presence of PIs versus NIs.

Second, preposed negation questions with NIs in English need to be distinguished from non-preposed negation questions (which of course also license NIs). Preposed negation questions with NIs –like preposed negation questions with PIs– necessarily convey that the speaker had an original epistemic bias towards p. In contrast, non-preposed negation questions can be used in an unbiased way, as in (2), or as simply indicating contextual evidence bias for $\neg p$, as in (29). For example, (29S) may convey a mild bias towards $\neg p$ (= "that John does not drink alcohol") given the received contextual evidence, but (29S') necessarily conveys that the speaker originally expected p (= "that John drinks alcohol") before the contextual evidence was encountered.

(29) Scenario: At a party, A tells S that Mary doesn't drink alcohol. Then S realizes that what John is drinking next to them is water.
S: Does John not drink alcohol either? (Contextual evidence bias for $\neg p$)
S': Doesn't John drink alcohol either? (Original bias for p)

In the VERUM approach, preposed negation *yn*-questions necessarily have VERUM, contributed by the preposing of negation.[6] In contrast, non-preposed negation *yn*-question do not necessarily have VERUM. Since VERUM is the source of the original speaker bias, the former type is incompatible, but the latter is compatible, with neutral and contextual evidence contexts. The Decision Theory account in van Rooy and Safarova, not having VERUM, lumps together questions like (2S) and (2S') and like (29S) and (29S') and is not able to make the desired distinction.

Third and finally, given that epistemic *really* is a way of expressing VERUM in declaratives, as in (30), we need a VERUM account for *really*-questions. Once we have it, and since the epistemic effects in *really*-questions and in preposed negation questions are parallel (original bias of the speaker, opposite polarity between the question and the content of the bias), the same account can explain the behavior of preposed negation questions. Under the Decision Theory account, the parallel behavior of the two question types must be derived from different sources.

(30) Sandra really is clever.

5 Conclusions and Further Issues

Two approaches to bias in *yn*-questions have been compared: the VERUM approach in Romero and Han (2002) and Romero and Han (2004) and the Decision Theory approach in Nilsenova and van Rooy (2003) and van Rooy and Safarova (2003). It has been argued that, although the notion of utility value from the latter account is an important ingredient, the operator VERUM is still needed to devire the following three empirical patterns. First, VERUM is needed to explain the correlation among Ladd's (1981) readings double-checking p/$\neg p$, the use of Positive Items versus Negative Items, and scenario types. Second, VERUM distinguishes between preposed negation questions with NIs and non-preposed negation questions. Third, VERUM gives a unified account of the bias in *really*-questions and in preposed-negation questions.

One issue that remains open in the VERUM approach to *really*-questions and preposed negation questions is the answer pattern.[7] Consider the interrogative clause in (31Q) and its LF (31LF). The *yes*-answer might perhaps be argued to mean FOR-SURE-CG$_x$[$\lambda w.\ Jorge\ brought\ a\ present\ in\ w$]. But the *no*-answer certainly does not mean $\neg$ FOR-SURE-CG$_x$[$\lambda w.\ Jorge\ brought\ a\ present\ in\ w$]. That is, the *no*-answer in (31A') conveys the proposition "Jorge did not bring a present" rather than

[6] Romero and Han (2004) point out that the preposing of negative elements in declaratives like (i) also carries VERUM.

(i) Never has John lied.

[7] I thank Lance Nathan for raising this question.

the weaker proposition "It is not for sure that we should add to CG that Jorge brought a present". The same mismatch holds for the answers to (32): the *yes*-answer might arguably express the proposition FOR-SURE-CG$_x$[$\lambda w.\ Mary\ visited\ Sue\ in\ w$], but the *no*-answer does not mean ¬ FOR-SURE-CG$_x$[$\lambda w.\ Mary visited\ Sue\ in\ w$].[8]

(31) Q: Did Jorge really bring a present?
LF: [Q VERUM [Jorge brought a present]]
A: Yes (..., he did). A': No (..., he didn't).

(32) Q: Didn't Mary visit Sue?
LF: [Q (not) VERUM (not) [Mary visited Sue]]
A: Yes (..., she did). A': No (..., she didn't).

In the remaining of this section, I will sketch a possible avenue to account for the answer pattern within the VERUM approach.

Certain particles and constructions –e.g. German *ja* (Kratzer 1999), English *obviously* (von Fintel and Iatridou 2003), parentheticals (Potts 2002) and epithets (Potts (2003)– have been argued to contribute not to the propositional content in the standard way, but to the expressive meaning. A first diagnosis comes from sentence embedding: the semantic contribution of these expressions cannot be embedded under *because*. To see this, compare *obviously* in (33c) with *it is obvious that* in (33b). In (33b), the fact that Mary's detachment is obvious may be the cause of John being upset. Thus, the sentence is compatible with scenario (33a). In (33c), Mary's detachment itself –on which the speaker comments that it is obvious– has to be the cause. Thus the sentence is false in scenario (33a). Interestingly, *really* / VERUM patterns like these expressive items, as in (34).

(33) a. Scenario: John and Mary made the deal that they would pretend to be in love. In reality, they do not love each other nor care about each other's love.

b. John is upset because it is obvious that Mary doesn't love him.

c. John is upset because obviously Mary doesn't love him.

(34) Kate didn't show up because she really couldn't make it.

A second diagnosis is dissent dialogs, used in Papafragou (to appear) for certain epistemic modals, as in (35). The speaker S in (35) can be taken to be disagreeing with the embedded proposition "This professor is very smart", not with the modal proposition "This professor must be very smart". The same holds for *obviously* in (36). Note that *really* in (37) patterns the same way. That is, the content of expressive items cannot be challenged by another speaker; the challenge affects only the proposition embedded under the expressive item.

(35) A: This professor must be very smart.
S: That's not true. ⇒ ¬(he's very smart), ? ¬(he must be very smart)

(36) A: This professor is obviously very smart.
S: That's not true.

(37) A: This professor really is very smart.
S: That's not true.

Taking *really*/VERUM as an expressive item in the answers in (31) and (32), we can account for the answer pattern. The *no*-answer in (31A') does not negate the proposition FOR-SURE-CG($\lambda w.\ Jorge$

[8]This apparent mismatch is specific to the VERUM approach and does not arise in the Decision Theory account. If one makes the additional assumption that *yes*-answers necessarily express the 'pronounced' proposition, be it positive p or negative $\neg p$, then both the VERUM approach and the Decision Theory approach have a (further) problem with the answer pattern. Although I do not see why this assumption should be granted, the issue deserves further exploration and I leave it for future research.

$brought\ present\ in\ w$), but the embedded proposition $\lambda w.\ Jorge\ brought\ present\ in\ w$.[9] Similarly, the *yes*-answer in (31A) states agreement not with the VERUM proposition, but with the embedded proposition. The same behavior is found in (32). The *no*-answer in (32A') directly negates the embedded proposition $\lambda w.\ Mary\ visited\ Sue\ in\ w$, and the *yes*-answer in (32A) directly asserts that embedded proposition.

In sum, the answer pattern can be explained if we assume that *really*/VERUM behaves like an expressive item in *yes*- and *no*-answers.

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[9] Answers like *Not really* in (i) probably involve the 'in-actuality' *really* discussed in Romero and Han (2004) rather than VERUM. In languages that distinguish lexically between the two items, the answer in (iA) is expressed with the 'in-actuality' item (*en realidad* 'in reality' in Spanish) and not with the VERUM item (*de verdad* 'of truth').

(i) Q: Is John coming? A: Not really.

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