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Potential answer readings expected, missing

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Abstract. In Turkish, some attitude reports alternate in veridicality with embedded declaratives. These, however, are uniformly veridical with embedded questions, but given a generalization due to Spector and Egré (2015), we expect them to alternate there as well. I present this *puzzle of the missing potential answer reading* and argue that two known restrictions on the distribution of embedded questions do not account for it, namely one based on non-veridicality simpliciter, and the other, on neg-raising.

Keywords. clausal embedding, questions, veridicality, factivity, neg-raising

1. Introduction. A reading that we reasonably expect sentence (1) to have is missing. I argue that this is the case, explore (and set aside) two hypotheses as to why, and spell out the consequences for our understanding of embedded clauses—questions in particular. In (1), the Turkish attitude predicate bil- embeds a polar question. Like its translation, the sentence ascribes to the attitude holder a belief, which is the true answer to the question.

(1) *Su [Ay-ın parti-ye gid-ip git-me-diğ-in-i] bil-iyor.*
Su Ay-GEN party-DAT go-CONJ go-NEG-NMZ-3S.POSS-ACC BIL-PRES.3S
Su knows whether Ay went to the party. (#But she's wrong.)

In example (1), bil- and know are veridical with interrogatives (read, for now, involving true belief). The reading that (1) is expected to have, but does not, is non-veridical. It is paraphrased as "Su has a belief about whether Ay went to the party," one that need not be true. This is the potential answer reading, and the observation that it's missing, the puzzle of the missing potential answer reading.

It is rather *un*surprising that the English sentence has veridical truth conditions. After all, we learn that know introduces a relation that only holds between individuals and *true* propositions. That is, know is also veridical with respect to declaratives. One may doubt this in different ways, e.g., Hazlett (2010), but it is particularly clear that the Turkish predicate bil- does not necessarily require the truth of, i.e., it is not necessarily veridical with, the declaratives that it composes with (Özyıldız, 2017a). This difference is illustrated—schematically for Turkish until Section 3—in (2).

(2) Su #knows/✓*bil*s that Ay went to the party. . . But she's wrong.

In addition to this observation about bil-, a generalization by Spector and Egré (2015) states that a predicate is veridical with respect to interrogative complements if and only if it is veridical with respect to declarative complements. The veridical case was seen with know. Example (3) illustrates the non-veridical case with agree. (Potential counter-examples are discussed in due time.)

(3) Su and Öz agree that/on whether Ay went to the party. . . But they're wrong.

The availability of non-veridical truth conditions for bil- reports and Spector and Egré's generalization, lead us to expect examples like (1) to have a non-veridical reading, contrary to fact.

Why is this reading missing? It is too strong to assume that veridicality is contributed by the embedded question, in light of (3) (Karttunen, 1977). Two potential answers are found in the

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literature on the distribution of embedded questions. One, predicates like believe or think resist question embedding, as in (4a). As it turns out, there are ways of getting believe and think to embed questions, but I will not focus on this here (Roberts, 2019; Dayal, 2017; White, 2019). Two, predicates like be certain only seem to embed questions when negated, as in (4b).

(4) a. *Su believes/thinks whether Ay went to the party.
b. Su *is/isn't certain whether it's raining.

Theiler et al. (2017, 2019) and Mayr (2018) argue that some attitude reports have semantic properties—being neg(ative)-raising, for (4a), being non-veridical simpliciter, for (4b)—that sometimes result in deviance when combined with the semantics of questions. Here I explore the hypothesis that these properties might be the reason that the missing reading is missing. Finding, however, that the behavior of attitude reports introduced by predicates like bil- differ from ones that are neg-raising or non-veridical simpliciter, I conclude that we need an alternative explanation.

2. Background on Turkish embedded clauses. I focus on two ways of embedding clauses. The examples in (5) illustrate with declaratives and düşün-, 'think,' (düşün- patterns differently from bil- but it straightforwardly provides a fuller paradigm). Example (5a) involves a nominalized embedded clause with a genitive subject, and with nominalizing morphology, possessive agreement and case on the verb. Example (5b) involves a clause that looks like a root clause introduced by the morpheme diye, which derives from the verb de-, 'say.' These two reports happen to be synonymous.

(5) a. *Su [Ay-ın parti-ye git-tiğ-in-i] düşün-üyor.*
Su Ay-GEN party-DAT go-NMZ-3S.POSS-ACC think-PRES.3S
b. *Su [Ay parti-ye git-ti diye] düşün-üyor.*
Su Ay party-DAT go-PST.3S DIYE think-PRES.3S
Su thinks that Ay went to the party.

These two embedding strategies also introduce questions. Note that düşün- is compatible with questions, not an uncommon option for 'think'-like verbs cross-linguistically, but more restricted in English (Rajesh Bhatt, p.c., Dayal, 2017, Roberts, 2018, White, 2019). The synonymous examples in (6) involve polar questions, which I use throughout to sidestep issues about exhaustiveness. Nominalized polar questions require reduplicating the embedded predicate. This is possible but not obligatory with diye questions.[1] These require expressing the polar question marker mI.

(6) a. *Su [Ay-ın parti-ye gid-ip git-me-diğ-in-i] düşün-üyor.*
Su Ay-GEN party-DAT go-COORD go-NEG-NMZ-3S.POSS-ACC think-PRES.3S
b. *Su [Ay partiye git-ti mi diye] düşün-üyor*
Su Ay party-DAT go-PST.3S Q DIYE think-PRES.3S
Su is thinking (about) whether Ay went to the party.

3. Veridicality alternates with declaratives. With predicates like düşün-, the choice between a nominalization and a diye clause does not make any difference in terms of *veridicality*. (An attitude report is veridical iff it entails the embedded proposition.) Both examples in (5) are non-veridical. However, with some predicates including bil- and hatırla-, this choice does make a difference:

[1]Elsewhere, the morpheme -(y)Ip *conjoins* verbs. It would rather be analyzed as *disjunction* in embedded questions.

(7) a. *Su [Ay-nin parti-ye git-tiğ-in-i] bil-iyor/hatırl-ıyor.*
Su Ay-GEN party-DAT go-NMZ-3S.POSS-ACC know-PRES.3S/remember-PRES.3S
Su knows/remembers that Ay went to the party.

b. *Su [Ay parti-ye git-ti diye] bil-iyor/hatırl-ıyor.*
Su Ay party-DAT go-PST.3S DIYE know-PRES.3S/remember-PRES.3S
Su has the belief/recollection that Dilara was at the party.

Sentence (7a), with a nominalization, has a veridical (in fact, a *factive*) understanding. (That is, the sentence *presupposes* the embedded proposition aside from or in addition to entailing it.) Sentence (7b), with a diye clause, is non-veridical: It neither presupposes nor entails the embedded proposition. I have studied this phenomenon elsewhere under the name of the factivity alternation (Özyıldız, 2016, 2017a,b), but I prefer the terms *veridicality alternation* here. Truth entailments apply to declaratives and questions, but I do not know whether presupposition has any role to play regarding the present facts. (It might turn out to be otherwise. See Saebø (2007) and Guerzoni and Sharvit (2007) who do make use of factivity in the realm of embedded questions.)

In Turkish, the veridicality alternation is conditioned by at least two factors on top of attitude predicate choice. The first factor, which applies to attitude reports with nominalized clauses, is the position of main sentential prominence (Yağmur Sağ, p.c., tells me that there might be variation here). As in (8), prominence on the matrix predicate brings out the veridical understanding (denying the embedded proposition feels contradictory), and prominence on embedded material, the non-veridical one (the denial is consistent). I show elsewhere that the veridical alternant is also factive (Özyıldız, 2017a), but veridicality suffices for present purposes.[2]

(8) *Su [Ay'ın partiye gittiğini] BİLİYOR/HATIRLIYOR #ama gitmedi.*
Su [Ay'ın partiye GİTTİĞİNİ] biliyor/hatırlıyor ✓ama gitmedi.
Su Ay party go.NMZ know/remember but she didn't go
a. Su knows/remembers that Ay went to the party #but she didn't go. (matrix)
b. Su thinks/has the memory that Ay went to the party ✓but she didn't go. (embedded)

The second factor is using a diye clause. Diye clauses necessarily give rise to a non-veridical interpretation, regardless of the position of main sentential prominence. This is illustrated in (9), where the continuation denying the embedded proposition is consistent in both cases.

(9) *Su [Ay partiye gitti diye] BİLİYOR/HATIRLIYOR ✓ama gitmedi.*
Su [Ay partiye GİTTİ diye] biliyor/hatırlıyor ✓ama gitmedi.
Su Ay party went DIYE know/remember but she didn't go
Su has the belief/recollection that Ay went to the party ✓but she didn't go.

Such alternations are explored in a number of languages (Moulton (2009); Bondarenko (2018); Djärv (2017), a.o.). But, does veridicality also alternate with embedded questions?

4. Interrogative veridicality and Spector and Egré's generalization. (Non-)veridicality also describes some attitude reports with embedded questions, e.g., under know and agree in (10). These sentences entail that the attitude holders believe an *answer* to the question, i.e., that Ay was

[2]The suggestion that the pre-continuation strings in (8) are ambiguous between veridical and non-veridical might be confounded depending on how prosody is taken to play a role here. Veridical truth conditions entail non-veridical ones and only postulating the latter suffices (Reinhart, 1976; Ruys, 2001, Katerina Vostrikova, p.c.). This worry pops up again with (non-)veridicality with questions, but should not affect my main point.

at the party or that not. (Because these are belief predicates, the relation between the attitude holder and the answer is belief. With other predicates the relation is different, e.g., tell.) But, know and agree differ in that know entails that that belief is true, agree does not: The continuation in (10) is contradictory after know, but consistent with agree. I assume the preposition on to be semantically vacuous (Elliott, 2017 cf. Rawlins, 2013; Égré, 2008; Mayr, 2018).

(10) Su and Öz #know/✓agree on whether Ay was at the party. . . But they're wrong.

Attitude reports that entail that the attitude holder is related to the true answer to an embedded question are veridical, and those that do not are non-veridical. The latter relate an individual to *potential* answers to the question. Some, e.g., Mayr (2018), distinguish between d(eclarative)- and i(nterrogative)-veridicality. I use these terms where a confusion between the two might arise.

Spector and Egré (2015) propose that i-veridicality and d-veridicality are correlated. This is only possible for *responsive* predicates, ones compatible with declaratives and questions alike (know, agree, etc.). This class is opposed to the *rogatives*, which only embed questions (wonder), and to the *anti-rogatives*, only declaratives (believe).[3] Their generalization goes as follows:

> [A] responsive predicate is *veridical* with respect to its interrogative complement (like *know* + question = knowing the true answer to the question) if and only if it is veridical with respect to its declarative complements as well (*know* + declarative entails—in fact presupposes—that the declarative is true). (Spector and Egré, 2015, p. 1732)

Both know and agree are well-behaved with respect to this generalization. The former is both declarative- and interrogative-veridical, the latter is neither.

One famous counter-example to the 'if interrogative-veridical, then declarative-veridical' direction of the implication is tell. It appears to be non-veridical with declaratives, but veridical with questions, as in (11) (Karttunen (1977), cf. Tsohatzidis (1993, 1997); Holton (1997)).

(11) Su told Öz ✓that/#whether Ay was at the party. . . But she lied.

A recent counter-example to the 'if declarative-veridical, then interrogative-veridical' direction are predicates of relevance like care and matter (Elliott et al., 2017). I leave these aside here.[4]

5. The missing potential answer reading. From the observation that veridicality alternates with declaratives and the assumption that Spector and Egré's generalization holds, the expectation arises that veridicality should also alternate with embedded questions. But this expectation is not satisfied.

Attitude predicates that alternate in declarative veridicality also embed questions, as in (12). When they do, the attitude reports entail that the attitude holder believes an answer to the embedded question, unlike, e.g., wonder or ask. This suggests that these predicates are responsive, and that they are covered by Spector and Egré's generalization.

(12) a. *Su [Ay'ın partiye gid-ip git-me-diğ-in-i] biliyor/hatırlıyor.*
Su Ay party go-COORD go-NEG-NMZ-3S.POSS-ACC know/remember
Su knows/remembers whether Ay went to the party.

b. *Su [kimin partiye git-tiğ-in-i] biliyor/hatırlıyor.*
Su who party go-NMZ-3S.POSS-ACC know/remember
Su knows/remembers who went to the party.

[3]Estonian mõtlema (Roberts, 2018), düşün- (exx. (5)/(6)), and think (White, 2019), take declaratives *and* questions. But with questions, they entail that their subject is agnostic. Such predicates are 'hybrid,' in that the first property is shared with canonical responsives, the second, with rogatives. Spector & Egré's generalization would not apply here.
[4]Many thanks to Lucas Champollion for discussion.

Furthermore, these attitude reports require that the attitude holder believe the true answer to the embedded question. They are i-veridical. Evidence is that following up the examples in (12) with (13a), or asserting them in context (13b) gives rise to a contradiction. Both the continuation and the context entail that the attitude holders are mistaken in their belief about the answer to the question.

(13) a. . . . *ama yanılıyorlar.* [contradictory with (12)]
. . . but they're mistaken.

b. *Su'yla Öz partiye Ay'ın gittiğini sanıyor, ama yanılıyorlar.* [contradictory with (12)]
Su and Öz believe that Ay was at the party, but they're wrong.

Section 3 showed that the declarative veridicality alternation was conditioned by two factors: The position of main sentential prominence with nominalized clauses, and the choice of a diye clause. These manipulations do not affect the veridicality of attitude reports with embedded questions.

Prominence is placed on the matrix verb and on the embedded predicate in (14). Both sentences are veridical. The tests in (13) give rise to a contradiction. Prominence position makes a difference in question answer congruence: The first sentence is felicitous out of the blue; The second has narrow focus on the embedded clause and is an acceptable answer to, e.g., "What does Ay know?"

(14) *Su [Ay'ın partiye gidip gitmediğini] BİLİYOR.*
Su [Ay'ın partiye gidip GİTMEDİĞİNİ] biliyor.
Su Ay party GOCOORD GO.NEG.NMZ know
Su knows whether Ay went to the party.

As seen in (15a), diye questions are compatible with merak et-, 'wonder,' sor-, 'ask,' or düşün- 'think.' Yet, as in (15b), they are ungrammatical with predicates that participate in the veridicality alternation. While this contrast raises its own puzzles to explore, they cannot be pursued here. It suffices to note that diye clauses do not give rise to non-veridical readings with questions either.[5]

(15) a. *Su [Ay partiye gitti mi diye] {merak ed-iyor, sor-du, düşü-nüyor}.*
Su Ay party went Q DIYE wonder-PRES.3s ask-PST.3s think-PRES.3s
Su wonders/asked/is thinking (about) whether Ay was at the party.

b. **Su [Ay partiye gitti mi diye] {bil-iyor, hatırl-ıyor}.*
Su Ay party went Q DIYE know-PRES.3s remember-PST.3s
Int. Su knows/remembers whether Ay was at the party.

In sum, predicates that alternate in veridicality with declaratives do not alternate in veridicality with questions: Only veridical readings are available. The strategies that (descriptively) give rise to non-veridicality in declarative embedding do not bring out non-veridical readings with questions.[6]

Some argue that veridicality is contributed by the embedded question itself (Karttunen, 1977). But just like English agree, Turkish has predicates like hemfikir ol- ('to be of the same opinion') that do not give rise to i-veridical interpretations. Attitude reports where they introduce questions can be continued by (13a) and they can be asserted in contexts like (13b) without contradiction.

[5] Diye questions with predicates like bil- or hatırla improve when these are further embedded under 'want' or 'try.' This is reminiscent of embedded root phenomena with questions (McCloskey, 2006; Dayal and Grimshaw, 2009).

[6] The veridicality inference can be suspended with questions by explicitly qualifying the truth of the belief with adverbs like yanlış, 'falsely,' or doğru, 'truly' (see Baç and Irmak, 2011). This raises questions about the nature of the inference. This resembles mis- in, e.g., misremember, which may take questions with a false belief meaning (Holton, 2017). Here too, if remember entails truth and misremember is compositional, why is the predicate not systematically contradictory?

(16) *Su-yla Öz [Ay'ın partiye gid-ip git-me-diğ-in-de] hemfikirler*
Su-with Öz Ay party go-COORD go-NEG-NMZ-3S.POSS-LOC agree
Su and Öz agree on whether Ay went to the party.

Two worries arise in checking Spector and Egré's predictions for declarative veridicality alternating reports. First, the formulation of the generalization assumes that veridicality is a lexical property of attitude predicates ("[A] responsive predicate is veridical. . . "). But, veridicality *alternates* in the reports we are concerned with, such that it is unclear whether the predicates involved are lexically to be veridical or not. Both are valid analytical options, provided that one explains why the inference appears sometimes to be absent in one case, or present in the other.

While the empirical facts remain the same either way, the explanandum changes depending on our stance on the matter. If one assumes that the attitude predicates are non-veridical, my latest official stance on the matter (Özyıldız, 2017a, 2018), what is surprising is that the non-veridical reading is missing with questions. If, on the other hand, one assumes that they are veridical, the missing reading is not that surprising. What becomes surprising (again) is the possibility of getting non-veridical readings with declaratives (many thanks to an anonymous reviewer for highlighting this point). On a programmatic note, the absence of an interrogative veridicality alternation could be used as an argument against Spector and Egré's generalization (Lucas Champollion, p.c.), or, instead, to argue for the lexical factivity of the predicates that participate in the alternation.

This issue can be sidestepped by reformulating the generalization by making reference to inferences associated with sentences, rather than to lexical properties of attitude predicates that they contain. Vincent Homer (p.c.) and an anonymous reviewer point out that a precise reformulation is difficult to give, as we are dealing with embedded declaratives and questions, which are objects of a different nature: Sentences that contain one may differ from sentences containing the other in various ways other than the substitution of one object for another. An intuition is provided in (17). (This still would not capture the behavior of predicates like think, see fn. 3.)

(17) Modified Spector and Egré's generalization (non-lexicalist reformulation)
An attitude report of the form "Subject Verb Interrogative" is veridical with respect to its interrogative complement if and only if "Subject Verb Declarative" is veridical with respect to its declarative complement (all else being equal and the verb, a responsive).

Spector and Egré focus on English predicates that embed *that* clauses and do not need this version. But even in English, alternations exist. The meaning of attitude reports, and in particular whether they are veridical, is in part determined by the syntax of the clause that they embed. I have in mind alternations like John knows that he took out the trash vs. John knows to take out the trash.

The second worry is homophony. Perhaps Turkish alternating attitude reports do not obey the generalization because there are two predicates bil-: One, a non-veridical anti-rogative like believe; The other, a veridical responsive like know. (Every alternating predicate would be so duplicated.) Now both are well-behaved with respect to the generalization: Non-veridical bil- does not embed questions, so a non-i-veridical reading is not observed; Veridical bil- behaves as predicted, being both d- and i-veridical. Even assuming homophony, the puzzle remains, though in another guise: Why does non-veridical bil- not embed questions? This is what I turn to next.

6. Why the missing reading could be missing. Perhaps attitude reports that could give rise to potential answer readings happen to be anti-rogative. If so, they should pattern like other such embeddings and fall under the same explanations of their anti-rogativity.

One condition for anti-rogativity is thought to be neg-raising. This is a phenomenon where, in some multiclausal structures, negation is pronounced in a higher clause, but understood in a lower one (Fillmore, 1963, p. 220). Negated think or believe, in (18a) license the inference indicated by '$\rightsquigarrow$,' where negation scopes below the attitude predicate. In contrast, negated know or say, in (18b), do not license a parallel inference. Example (18c) shows that neg-raising reports are anti-rogative.

(18) a. Su doesn't think/believe that it's raining. $\rightsquigarrow$ Su thinks/believes that it's not raining.
b. Su doesn't know/didn't tell us that it's raining. $\not\rightsquigarrow$ Su knows/told us that it's raining.
c. Su doesn't *think/*believe/know/tell us whether it's raining.

To derive the inference, some propose that neg-raising predicates trigger the *excluded middle* presupposition that the attitude holder either believes the embedded proposition or its negation ($Bp \vee B\neg p$). Asserting $\neg Bp$, in (18a), negates the first disjunct. It follows that $B\neg p$ (Bartsch, 1973; Gajewski, 2005). Theiler et al. (2017, 2019) and Mayr (2018) (as forshadowed in Égré, 2008, fn. 3) derive anti-rogativity from the excluded middle: Omitting technical details and summarizing Mayr for concreteness, the definedness/truth conditions of believe with a polar question are in (19):

(19) ⟦Su doesn't believe that it's raining⟧
a. is defined only if Su either believes that it's raining or that it's not.
b. if defined, is true if and only if Su either believes that it's raining or that it's not.

The definedness conditions and the truth conditions are equivalent, which means that whenever the sentence is defined, it is true. This is a kind of logical triviality that Gajewski (2002; 2009) proposes we perceive as ungrammaticality. Hence, neg-raising predicates do not embed questions.

A second sufficient condition for anti-rogativity is non-veridicality simpliciter, but only under negation. Hence, the contrast in (20) with be certain. While Mayr generalizes the effect to downward entailing environments, van Gessel et al. (2018) find that only negation might be effective.

(20) Su ??is/isn't certain whether it's raining.

Mayr (2018) argues that positive be certain with a polar question has the assertion and the alternatives in (21a). And that the assertion is obligatorily exhaustified at the root node. Because both alternatives entail the assertion, this amounts to conjoining the assertion with the negated alternatives, in (21b). This is a contradiction, of a kind which is again perceived as ungrammaticality.

(21) a. **Assertion**: $Bp \vee B\neg p$ **Alternatives**: $\{Bp, B\neg p\}$
b. $Exh(Bp \vee B\neg p, \{Bp, B\neg p\}) = Bp \vee B\neg p \wedge \neg Bp \wedge \neg B\neg p = \bot$

Negated be certain has the assertion and alternatives in (22). The alternatives no longer entail the assertion and exhaustification has no effect. We end up with the, well-formed, original assertion.

(22) **Assertion**: $\neg Bp \wedge \neg B\neg p$ **Alternatives**: $\{\neg Bp, \neg B\neg p\}$

7. Not neg-raising. If neg-raising is the reason behind the missing reading, the inference should be detectable in attitude reports where veridicality alternating predicates compose with declaratives. The four tests for neg-raising in this section suggest that this expectation is not borne out: Strict NPI licensing (Zwarts, 1996; Gajewski, 2005), cyclicity (Fillmore, 1963; Gajewski, 2005), the "Do you agree?" (Collins and Postal, 2014), and an—I believe—novel denial of unopinionatedness tests.

Strict NPIs like punctual ona kadar, 'until ten (o'clock),' are licensed in nominalizations under negated düşün-, 'think,' and iste-, 'want,' but ungrammatical under negated söyle-, 'tell.' When

a doxastic embeds a bouletic, negation can be understood in the lowest clause. Strict NPIs are licensed there with düşün- or iste-, but not with söyle-. This is **cyclicity** test.[7]

(23) a. *Su [Ay'ın ona kadar partiye gittiğini] düşünmüyor/*söylemiyor.*
Su Ay until ten party go.NMZ think.NEG/tell.NEG
Su doesn't think/*tell X that Ay went to the party until ten.

b. *Su [Ay'ın ona kadar partiye gitmesini] istemiyor.*
Su Ay until ten party go.INF want.NEG
Su doesn't want Ay to go to the party until ten.

c. *Su [Ay'ın [ona kadar partiye gitmek] istediğini] düşünmüyor/*söylemiyor.*
Su Ay until ten party go want think.NEG/tell.NEG
Su doesn't think/*tell X that Ay wants to go to the party until ten.

Any/ever NPIs differ from strict ones: The former can be licensed across clause boundaries, but the licensing of the latter is local—initial evidence that negation is pronounced high, but is in fact low.

(24) a. *Kimse partiye git*(me)di.*
anyone party go.NEG
Nobody went to the party.

b. *Ay partiye ona kadar git*(me)di.*
Ay party until ten go.NEG
Ay didn't go to the party until ten.

c. *Su [kimse-nin partiye gittiğini] düşün*(m)üyor/söyle*(m)iyor.*
Su anyone party go.NMZ think.NEG/tell.NEG
Su doesn't think/tell X that anyone was at the party.

"**Do you agree?**" and **denial of unopinionatedness** test the felicity of neg-raising reports in conversation. In (25a), A asserts "Su doesn't think p," and then, "Do you agree?" This is understood as whether B agrees that not p, rather than whether they agree that it is not the case that Su thinks p. This is why B's reply in (25b) is felicitous. Replacing 'think' with 'tell' results in incongruence.

(25) a. A: *Su [Ay'ın partiye gittiğini] düşünmüyor/#söylemiyor. Sen de katılıyor musun?*
Su Ay party go.NMZ think.NEG/tell.NEG do you agree
A: Su doesn't think that Ay went to the party. Do you agree?

b. B: *Evet, git-me-diğ-in-e katıl-ıyor-um.*
yes go-NEG-NMZ-3.POSS-DAT agree-PRES-1S
B: Yes, I agree that she didn't go.

For denial of unopinionatedness, A asserts that the attitude holder is unopinionated as to the truth of proposition p. B denies A's assertion using a neg-raising report with the same attitude holder.

(26) a. A: *Su'nun [Ay'ın partiye gidip gitmediği] hakkında bir dşünce-si yok.*
Su Ay party go.COORD go.NEG.NMZ about a thought-3S NEG.EXIST
A: Su doesn't have any thoughts on whether Ay was at the party or not.

b. A: *Hayır var. [Ay'ın partiye gittiğini] düşün-m-üyor.*
no EXIST Ay party go.NMZ think-NEG-PRES.3S
A: Yeah she does. She doesn't think that Ay was at the party.

[7]Cyclicity is named the syntactic view that negation moves cyclically out of embedded clauses (Fillmore, 1963; Collins and Postal, 2014). Neg-raising is not observed with doxastics under bouletics (Horn, 1972; Gajewski, 2005).

The truth conditions of (26a) are $\neg B_S p \wedge \neg B_S \neg p$: Su believes neither p or not p. The success of B's denial relies on understanding (26b) as $B_S \neg p$, with low negation. The weaker $\neg B_S p$ would have resulted in infelicity, as A's assertion already entails $\neg B_S p$. This is brought out by 'tell.'

(27) a. *Su [Ay'ın partiye gidip gitmediği] hakkında bişi söylemedi.*
Su Ay party go.COORD go.NEG.NMZ about something tell.NEG
Su didn't say anything about whether Ay was at the party.
b. *#Hayır söyledi. [Ay'ın partiye gittiğini] söylemedi.*
no tell Ay party go.NMZ tell.NEG
#Yeah she did. She didn't say that Ay was there.

These tests reveal that nominalizations under düşün- (or that clauses under think) systematically differ from corresponding structures with söyle-, or tell. This is because the neg-raising inference is available with the former, but not the latter. In what follows, I apply these tests to the non-veridical alternants of veridicality alternating reports and find that they behave as if they were not neg-raising.

Attitude reports with diye—one path to non-veridicality—fail these tests across the board, regardless of whether the predicate is veridicality alternating, or one, like düşün-, that is elsewhere neg-raising. In (28a), strict NPIs are not licensed inside diye clauses with negated düşün- or bil-. Cyclicity fails too, in (28b). As a control, in (28c), weak NPIs *are* licensed in the same environment. This militates against the possibility that these reports are (in fact) neg-raising, but that diye disrupts certain NPI licensings. Rather, the pattern follows canonical non-neg-raising constructions.

(28) a. **Su [Ay ona kadar partiye gitti diye] düşünmüyor/bilmiyor.*
Su Ay until ten party go DIYE think.NEG/know.NEG
Int. Su doesn't think that Ay has gone to the party until ten.
b. **Su [Ay [ona kadar partiye gitmek] istiyor diye] düşünmüyor/bilmiyor.*
Su Ay until ten party go.INF want DIYE think.NEG/know.NEG
Int. Su doesn't think that Ay wants to go to the party until ten.
c. *Su [kimse partiye gitti diye] düşünmüyor/bilmiyor.*
Su anyone party go DIYE think.NEG/know.NEG
Su doesn't think that anyone was at the party.

Example (29) shows that these reports fail the "Do you agree?" test. B's answer in (29b) can be interpreted as an agreement that it is not the case that Su thinks p, but not an agreement that not p.

(29) a. *Su [Ay partiye gitti diye] düşünmüyor/bilmiyor. Sen de katılıyor musun?*
Int. Su doesn't think that Ay went to the party. Do you agree?
b. *Evet, #gitmediğine katılıyorum.*
Int. Yes, I agree that she didn't go.

Finally, (30) shows that diye with negated düşün- or bil- cannot serve to deny unopinionatedness.

(30) a. *Su'nun [Ay'ın partiye gidip gitmediği] hakkında bir düşüncesi/bilgisi yok.*
Su doesn't have any thoughts/information on whether Ay went to the party or not.
b. *#Hayır var. Gitti diye düşünmüyor/bilmiyor.*
Int. No she does. She doesn't think that she did.

Why do diye clauses not give rise to neg-raising inference, even with düşün-? I do not know, but there is a lesson here.[8] Sections 2–3 had shown that diye questions were compatible with düşün-, but not bil-. What regulates the distribution of diye questions might then not be neg-raising: Neither düşün- nor bil- are neg-raising with diye. The former embeds diye questions, the latter does not.

The second test case are non-veridical readings with nominalizations, which persist when the the main predicate is negated. Two complications arise however. First, intonation is a factor that (dis)favors non-veridicality in the affirmative. But with negation, intonation patterns change. An accurate description is impossible here, but observe that the verb is prominent in (31b) as opposed to embedded material, which would have been expected in the affirmative. The second is brought out by the attempt to elicit the relevant non-veridical readings. In (31), negated bil- with the nominalization p answers the question 'p?' Given the question, it would be an odd (though not impossible) discourse move to presuppose p, suggesting that the report is non-factive. However, it is also an odd move to reply to a direct question by asserting somebody's ignorance about the answer. The felicity of the answer suggests, however, that (31b) has a stronger understanding, one that implies that Su believes not p. Could this be the neg-raising raising inference?

(31) a. *Ay partiye gitti mi?*
Did Ay go to the party?

b. *Su [gittiğini] BİLmiyor.*
Su doesn't think that she did.

While the existence of this stronger reading seems undeniable, its source might be conversational.[9] Importantly attitude reports of the form in (31) do not pass our four neg-raising tests. In (32), strict NPIs are not licensed in nominalizations under bil-, but weak NPIs are, and the reports fail cyclicity.[10]

(32) a. **Su [Ay'ın ona kadar partiye gittiğini] bilmiyor.*
Int. Su doesn't think that Ay has been to the party until ten.

b. *Su [kimsenin partiye gittiğini] bilmiyor.*
Su doesn't think that anybody went to the party.

c. **Su [Ay'ın [ona kadar partiye gitmek] istediğini] bilmiyor.*
Int. Su doesn't think that Ay wants to go to the party until ten.

Example (33) suggests that they fail the "Do you agree?" test, and (34), denial of opinionatedness.

(33) a. *Su [Ay'ın partiye gittiğini] bilmiyor. Sen de katılıyor musun?*
Int. Su doesn't think that Ay went to the party. Do you agree?

b. *Evet, #gitmediğine katılıyorum.*
Int. Yes, I agree that she didn't go.

[8] Clause type, mood, or aspectual properties of the matrix verb affect neg-raising (Prince, 1976; Bervoets, 2014).

[9] Ex. (31b) has two possible LFs: the negated non-veridical ¬Bp and the negated veridical ¬(p ∧ Bp). In saying that negated bil- with a nominalization is non-veridical, I am suggesting that the sentence has the former LF. But, in fact, there is a confound here: ¬Bp entails ¬(p ∧ Bp) so we cannot tell whether (31) is the negation of a non-veridical attitude (strong), or the negation of a veridical one (weak). Important for present purposes is that (31) is not necessarily factive. I do not recall the references but English I don't know that also gives rise to unexpected stronger readings.

[10] Lee and Hong (2016) suggest that in Korean, which is also reported to have a veridicality alternation, non-veridical alternants are neg-raising. WooJin Chung (p.c.) reports that they might pass some of the tests for neg-raising-hood used in this section, though that the intuitions might ultimately be unclear.

(34) a. *Su'nun [Ay'ın partiye gidip gitmediği] hakkında bir düşüncesi/bilgisi yok.*
Su doesn't have any thought/information on whether Ay went to the party or not.
b. *#Hayır var. Gittiğini bilmiyor.*
Int. Yes she does. She doesn't think that she did.

To sum up, non-veridical alternants of veridicality alternating reports do not pattern like they are neg-raising and it is then reasonable to think that they are not. As a result, we cannot say that the missing embedded question reading is missing because the non-veridical alternants are neg-raising.

8. Not non-veridicality simpliciter. If non-veridicality simpliciter is behind the missing reading, alternating attitude reports should behave like other non-veridical reports in question embedding. The canonical case for the latter is be certain. But tell sets up a more accurate comparison because it is a predicate that is puzzling in much the same ways as bil-. Know will serve as the veridical control. While there is much to untangle, it will appear that bil- rather patterns like know.

Four cases are relevant for tell: veridical or not, with declaratives and questions. Tell is naturally non-veridical with declaratives, the denials in (35a) being consistent. Factive readings are argued to exist, in (35b) where "Hey wait a minute!" tests for presupposition (von Fintel, 2004). The natural reading with questions is veridical (Karttunen, 1977), the denial in (35c) being contradictory. Non-veridical readings are argued to exist, in (35d), where the denial is consistent (cf. know).

(35) a. Su told Öz that Ay was at the party. . . ✓but she lied/✓but Dilara wasn't there.
b. A: Sue told Jack that Fred is the culprit. (Spector and Egré, 2015, ex. 34)
B: ✓Hey wait a minute! I didn't know that Fred is the culprit.
c. Su told Öz whether Ay was at the party. . . #but she lied.
d. Every day the meteorologists ✓tell us/#know where it will rain the following day, but they are often wrong. (Spector and Egré, 2015, exx. 20–21)

The factive and non-veridical uses of tell are likely derived, but authors assume for simplicity that the predicate is ambiguous between factive and non-veridical variants, tell_{F} and tell_{NV} (Spector and Egré, 2015; Theiler, 2014; Uegaki, 2015; Mayr, 2018). I follow suit and, for the sake of compararison, also assume that bil- is ambiguous too between factive bil-_{F} and non-veridical bil-_{NV}.

Mayr (2018) predicts that question embedding with tell_{NV} is polarity sensitive like with be certain, possible only under negation. This prediction extends to bil-_{NV} too. Before going further, expectations about the truth conditions of negated (non-)veridical question embedders need to be spelled out. Assume the translation of a negated be certain+Q report to be of the form in (36).

(36) Su isn't certain whether p $\rightsquigarrow \neg Bp \wedge \neg B\neg p$

This predicts that negated non-veridical reports should be judged true in a context where the attitude holder is agnostic as to the answer to the question. They should be judged false, however, in contexts where the attitude holder has a false belief. Indeed, $p \wedge B\neg p$ is inconsistent with $\neg Bp \wedge \neg B\neg p$.

Assume the translation of a negated know+Q report to be of the form in (37). This requires Su to not have a true belief about the answer. Then, a negated veridical report should be true in *both* agnostic and false belief contexts (in neither does she have a true belief).

(37) Su doesn't know whether p $\rightsquigarrow \neg(p \wedge Bp) \vee \neg(\neg p \wedge B\neg p)$

The predictions for tell depend on whether tell_{F} or tell_{NV} was used, and are spelled out in (38).

(38) Verifying contexts for "Ay didn't tell us whether p" if

a. tell=tell$_{\text{non-veridical}}$: Ay neither says p, nor not p [cf. be certain]
b. tell=tell$_{\text{factive}}$: Ay neither says p, nor not p *or* Ay says p but lies [cf. know]

Two confounds are lurking. First, in a false report (cf. belief) context, X didn't tell Y whether p is true because tell$_{\text{F}}$ is available. But in a no report context, both tell$_{\text{F}}$ and tell$_{\text{NV}}$ lead to truth. So we cannot decide which was used. Negation, then, creates a confound that apparently keeps us from observing the non-veridical reading. Luckily, the facts are in our favor. The natural reading of negated tell, in (39b), is that Su neither said that Ay was at the party, nor that she was not. Moreover, this sentence is judged *false* in context (39a), which sets up a false report situation. This judgment is accompanied by the intuition that the sentence is false precisely because Su did say *something*.

(39) a. **Context**: Su says to us "Ay was at the party," but she lies. [falsifies ex. (39b)]
b. Su didn't tell us whether Ay was at the party.

That this context falsifies the sentence suggests that veridical tell$_{\text{F}}$ is, for some reason, blocked under negation. I refer the reader to Mayr (2018) for an account.

When negated, bil-'s non-veridical alternant is judged false or odd in false belief contexts, in (40a), but felicitous and true in agnostic contexts, in (40b). This pattern resembles precisely what we expect if bil- is ambiguous like tell, with bil-$_{\text{NV}}$ available, and bil-$_{\text{F}}$ blocked under negation.

(40) a. #**Context**: *Ay Su'ya yalan söyleyip gitmedim dediği için, . . .* [false belief context]
Because Su lied to Ay and told her that she didn't go, . . .
b. **Context**: *Ay Su'le konusmadığı için, . . .* [no belief context]
Because Ay didn't talk to Su, . . .
c. *Su Ay'ın partiye gidip gitmediğini bilmiyor.*
Su Ay party go.COORD go.NEG.NMZ know.NEG
Su doesn't know whether Ay went to the party.

But a second confound keeps us from reaching this conclusion. Predicates like know, which we have no (!) reason to suspect should give rise to non-veridical truth conditions, are also reported deviant in false belief contexts, as shown in (41) (Paillé and Schwarz, 2018).[11]

(41)# Given that he lied to her about the outcome of his citizenship application, Aisha doesn't know whether Ben is Canadian. (Paillé and Schwarz, 2018, ex. 9a)

At first sight, then, we cannot decide between the hypotheses in (42). (It could also be that tell and know are out in false belief contexts for a same reason that has nothing to do with veridicality.)

(42) bil- is judged false in false belief contexts and true in no belief contexts because. . .
a. it patterns like be certain and tell in having a potential answer reading.
b. it patterns like know and the pattern is due to independent reasons.

It does seem possible to tease these hypotheses apart, however, and argue that bil- patterns like know rather than tell. First, our judgment for tell in false report contexts is that it is false. Our judgment for know in false belief contexts is that the report is odd. Finer grained fieldwork is in order here, but the initial intuition with bil- is that (40c) is odd, rather than false. This is the first observation that suggests that negated bil- patterns like know rather than tell. Second, there might

[11] Thanks to Bernhard Schwarz (p.c.) for clarification about the extent to which the authors think this effect is pervasive.

be contexts or environments where Paillé and Schwarz's confound can be alleviated. Certain *wh*-questions pattern differently from polar questions in whether they give rise to the inference that the attitude holder is agnostic. In examples (43a) and (43b), I compare 'how many' and 'who (pl.)' questions under bil- and söyle in false belief contexts.[12] In both pairs of examples, the judgment is that the tell report is false or odd. The know report, on the other hand, is felicitous and true.

(43) a. **Context**: *Gözlerimin önünde, Ay Su'ya yalan söyler ve tek bir kardeşim var der. . .*
Right in front of me, Ay lies to Su and tells her that she only has one sibling. . .
[Kaç kardeşi olduğunu] söylemedi sana / bilmiyorsun.
how many sibling.3s.POSS be.NMZ tell.NEG.3s you.DAT know.NEG.2s
She didn't tell you/You don't know how many siblings she has.

b. **Context**: *Gözlerimin önünde, Ay Su'ya yalan söyler ve sadece Ceren'le Mercan'la buluştuğunu söyler. Oysaki o gün, tam on farklı kişiyle buluştuğunu biliyorum.*
Right in front of me, Ay lies to Su and tells her that she only met with Ceren and Mercan. But, I know that she met with ten different people that day.
[Kim-ler-le buluştuğunu] söylemedi sana / bilmiyorsun.
who-PL-with meet.NMZ say.NEG.3s you.DAT know.NEG.3s
She didn't tell you/you don't know who she met with.

A final difference is that the same contrast between tell and know in the meteorologists frame replicates in Turkish. This is unexpected if bil- were patterning like söyle-.

(44) *Her gün meteorologlar [ertesi gün nereye yağmur yağacağını] söylüyorlar bize / #biliyorlar. Ama sık sık yanılıyorlar.*
every day meteorologists next day where rain precipitate.NMZ tell us know but often are mistaken
Every day the meteorologists tell us where it will rain the next day but they are often mistaken.

The discussion in this section raises more questions, perhaps, than it answers. Non-veridical alternants of veridicality alternating attitude reports do not, however, pattern like tell, our benchmark for non-veridical question embedding. They pattern like English know, veridical with declaratives and with questions. Non-veridicality simpliciter, then, does not explain the missing reading either.

9. Concluding remarks. I have tried to show that some Turkish predicates alternate in veridicality with declaratives, but that they do not with questions, only giving rise to veridical readings. And that two proposals as to what makes predicates *un*able to embed questions, namely neg-raising and non-veridicality simpliciter, are likely not responsible for the missing reading.

So what might account for it? It is possible that (non-)question embedders have characteristic properties that we are overlooking. A starting point that comes to my mind is a weaker notion of veridicality relativized to attitude holders, rather than speakers (Giannakidou, 1998) (thanks to Omar Agha for discussion here). White (2019) also suggests exploring event structural properties. Alternatively, a hypothesis that would account for the Turkish pattern involves going back to the idea that veridicality alternating predicates are, in fact, veridical (contrary to previous analyses). Then, what would be puzzling (again) would not be the absence of non-veridical readings with embedded questions, but rather their presence with embedded declaratives.

[12]To be entirely rigorous, one would (in the future) need to control for exhaustiveness here.

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