

Session 4A Abstracts

Prosody and Semantics in Disjunctive Questions: The Open List Case

Erlinde Meertens, University of Konstanz

ISSUE While Polar questions (PolQs-(1b)) and alternative questions (AltQs-(1a)) have gathered considerable attention in the field, less is known about *Class Questions* (ClQs): disjunctive questions with an rise on, and lengthening of each disjunct (1c).

- (1) a. Did you eat MEAT↑ or FISH ↓? [**AltQ**]
 b. Did you eat meat or FISH ↑? [**PolQ**]
 c. Did you eat MEAT...↑ or FISH...↑? [**ClQ**]

GOAL This paper is concerned with the semantics and pragmatics of ClQs. Based on a comparison with PolQs, I propose that the prosodic structure of ClQs introduces a class of alternatives, rather than a specific set of alternatives.

CLQS ARE SIMILAR TO POLQS ClQs pattern with PolQs with respect to three properties: (i) exhaustivity, (ii) felicity in different contexts, and (iii) their composition crosslinguistically. Concerning (i), a crucial difference between PolQs and AltQs is that the latter denotes an exhaustive set of alternatives, whereas the former does not (B & R 2012). ClQs behave like PolQs, and do not exhaust the set of alternatives.

- (2) a. **A:** Did you make STEW ↑ or SOUP ↓? [**AltQ**] **B:** # I made pasta.
 b. **A:** Did you make stew or SOUP ↑? [**PolQ**] **B:** ✓No, I made pasta.
 c. **A:** Did you make STEW ↑ or SOUP ↑? [**ClQ**] **B:** ✓I made pasta.

Concerning (ii), it is known that AltQs are banned under (i) preposed negation (H & R 2004), multiple questions with a *wh*-phrase (B & K 2002), and *what about*. These embedding contexts do allow for PolQs, and, as shown in (3), also for ClQs.

- (3) a. Didn't Ramona teach syntax or semantics? [✓PolQ/ # AltQ / ✓ClQ]
 b. Who taught syntax or semantics? [✓PolQ / # AltQ / ✓ClQ]
 c. What about meeting on friday or saturday? [✓PolQ / # AltQ / ✓ClQ]

Concerning (iii), consider Turkish, in which AltQs and PolQs differ morpho-syntactically (usage of the particle *mi*), and are composed with a different lexical item for disjunction.

- (4) a. Ali iskambil **mi** (oyradi) yoksa futbol **mu** oynadi?
 Ali cards **Q** play.past or football **Q** play.past?
 'Which of the following things did Ali play: cards or football?' [**AltQ**]
 b. Ali iskambil veya futbol oynadi **mu**?
 Ali cards or football play.past **Q**?
 'Is it true that Ali played cards or football?' [**PolQ**]

In Turkish, ClQs are composed by the same prosodic pattern as English ClQs, but with PolQ morphosyntax (one Q-particle) and the disjunctive item used in PolQs (*veya*).

- (5) a. Ali iskambil...↑ **mi** (oyradi) yoksa futbol...↑ **mu** oynadi?
 Ali cards **Q** play.past or football **Q** play.past? [**#ClQ/✓AltQ**]
 b. Ali iskambil...↑ veya futbol...↑ oynadi **mu**↑?
 Ali cards or football play.past **Q**? [**✓ClQ**]

DIFFERENCES WITH POLQS In light of these observations, a tempting route would be to analyze ClQs as PolQs. Yet, this is not a viable proposal, as suggested by several crucial differences between ClQs and PolQs. Firstly, in contrast to PolQs, ClQs require the

presence of at least one unpronounced alternative that is not the negation of the proposition.

(6) **context:** A party where the host only serves beer and wine.

a. Do you want wine or BEER ↑? [PolQ]

b. # Do you want WINE...↑ or BEER...↑? [ClQ]

Such an unpronounced alternative is a felicitous answer to an ClQ, but not to a PolQ.

(7) a. A: Do you want a muffin or a croissant ↑? B: No, ✓a doughnut / ✓a burger

b. A: Do you want a MUFFIN...↑ or a croissant...↑? B: ✓a doughnut / # a burger

Secondly, it is known that the possible answers to AltQs, PolQs and ClQs differ. So far, the following paradigm is considered in the literature (Roelofsen & G).

(8)	a. AltQ (1a)	b. PolQ (1b)	c. ClQ (1c)
	✓meat/fish	✓yes (meat/fish/both)	✓yes (meat/fish/both)
	# both/neither	# no	# No
	# yes/no		

I want to add two points to this paradigm. First of all, the infelicity for the *yes* answer to ClQs as observed by R&R (2013) is not straightforward. A pilot study by Arendt (2017) suggests that there are contexts in which the *yes* answer is a felicitous answer to an ClQ.

(9) A: I have to make notes later, will you bring a pen or a pencil? B: ✓Yes

Further, there is a difference between PolQs and ClQs concerning answering with a salient alternative. For PolQs, the alternative is preceded by a *no*, for ClQ, by a *yes*.

(10) a. A: Do you want a muffin or a croissant ↑?

B: ✓No, a doughnut / # Yes, a doughnut

b. B: Do you want a muffin...↑ or a croissant...↑?

B: ?No, a doughnut / ✓Yes, a doughnut

Finally, it has been argued that AltQs presuppose minimality, exclusivity and exhaustivity (B & R 2012). PolQs however, do not presuppose any of these things. This is different for ClQs, that presuppose minimality (at least one of the (silent) alternatives must be true).

(11) a. I am not sure whether you ate something. ✓Did you eat meat or FISH ↑?

b. I am not sure whether you ate something. #Did you eat MEAT...↑ or FISH...↑?

(12) Did you eat FISH...↑ or STEAK...↑?

a. B: ✓Well/✓Actually/✓Hey, wait a minute, I didn't eat anything.

ANALYSIS I follow B& R (2012) and take exhaustivity as the result of a closure operator, signalled by the final fall. This correctly predicts non-exhaustivity for PolQs and ClQs.

(13) **Closure operator** (Biezma and Rawlins 2012)

$[[[Q]\alpha] H *L-L\%]]^c = \text{def } [[[Q]\alpha]]^c$

defined only if $\text{SalientAlts}(c) = [[[Q]\alpha]]^c$

I propose the mandatory presence of an unpronounced alternative results from the focus values in ClQs, that differ from PolQs.

The negation as a salient alternative is ruled out for ClQs, following from the focus values. For (14a), {you don't want coffee or tea} is a salient alternative, whereas for (14b), it is not. This analysis correctly predicts the differences between ClQs and PolQs.

REFERENCES Biezma & Rawlins (2012). Responding to alternative and polar questions. ♦ Han & Romero (2004) The syntax of *whether/Q...or* questions: ellipsis combined with movement. ♦ Roelofsen & Van Gool (2010). Disjunctive questions, intonation, and highlighting.

An Experimental Investigation of Anti-presuppositions

Nadine Bade *University of Tuebingen*

Florian Schwarz *University of Pennsylvania*

Summary The aim of this paper is to assess whether inferences resulting from violating the principle *Maximize Presupposition* behave differently from presuppositions and implicatures, thus testing predictions of theories which separate those inferences out from these more well-studied aspects of meaning (Sauerland 2008, Percus 2006). We present data from a picture selection task on the English indefinite/definite determiner. Based on the findings we argue that 1) the epistemic status of anti-uniqueness inferences is much weaker than the uniqueness presupposition of the definite or implicature raised by the indefinite, and 2) drawing these inferences requires more effort than not drawing it or calculating presuppositions or implicatures.

Theory It has been observed that presupposition triggers have to be used if their presupposition (PSP) is fulfilled in the context. Heim (1991) proposed an account based on the principle *Maximize Presupposition* (MP). According to theories working with MP, PSP triggers are ordered on a scale of a presuppositional strength with their non-presuppositional counterparts (Percus 2006, Chemla 2008). One of these scales orders the definite and indefinite determiner. The indefinite yields the inference that the PSP of the definite is false (“anti-uniqueness”) due to this competition, which is why it is infelicitous in (1).

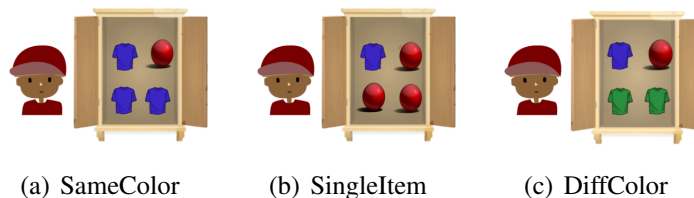
(1) {The / # A} father of the victim came.

Anti-presuppositions have been argued to be distinct from both PSPs and implicatures since they are epistemically weak and project out of negation (Sauerland 2008). The weak status of anti-uniqueness is reflected by the fact that while the use of an indefinite in (1) allows for the inference that it is not certain that there is exactly one father, this cannot be strengthened to mean that it is certain there is not exactly one father. Alternative views on the competition between the definite and indefinite are that they both come with their own context restrictions, i.e. that the indefinite comes with a novelty condition (Heim 1982) or its own PSP of anti-uniqueness (Kratzer 2004). These make different predictions for the processing profiles associated with anti-uniqueness.

Experiment The first factor manipulated for the study was the type of DETERMINER used in the sentences and had four levels, see (2): In addition to indefinites and definites, numerals were included in both focused and unfocused versions, both to provide another point of comparison and for future cross-linguistic extensions.

(2) {A/ The/ One/ ONE } shirt in Benjamin’s closet is blue.

Determiner-type was a between subjects factor to avoid intra-experimental competition effects. Sentences were presented auditorily along with one of three display conditions. Each display contained two of the three critical pictures below (SAMECOLOR, SINGLEITEM, DIFFCOLOR), as well as a distractor. Critical pictures varied in whether they satisfied a uniqueness presupposition (b vs. a,c), an implicature that there be at most one relevant item of the mentioned color (b,c vs. a), and an anti-uniqueness inference that there is more than one relevant item (a,c vs. b).



Condition A paired SAMECOLOR and SINGLEITEM, picture condition B had SINGLEITEM and DIFFCOLOR and condition C had SAMECOLOR and DIFFCOLOR. The distractor showed 4 other identical items. The participants' task was to choose the picture that best fit the sentence they heard. In addition to responses and reaction times, eye movements were recorded for a more detailed perspective on the unfolding of various components of interpretation. 120 students of the University of Pennsylvania participated in the experiment for credit.

The results were analysed with linear mixed effect models using the lmer function in R. We first looked at rates of picture choices and reaction times. For condition A, participants chose picture SINGLEITEM over SAMECOLOR at ceiling level across determiners (with no significant RT differences), in line with the definite's uniqueness presupposition and the indefinites' implicature that there be only one blue shirt.

Det	SAMECOLOR	SINGLEITEM	RT
the	6%	94%	3230
A	2%	98%	3180
one	5%	95%	3288
ONE	3%	97%	3290

Condition A

Det	DIFFCOLOR	SINGLEITEM	RT
the	5%	95%	3470
A	25.4%	74.6%	3950
one	42.6%	57.4%	3870
ONE	45.5%	54.5%	3228

Condition B

In condition B, SINGLEITEM was chosen at ceiling levels for the definite, in line with its uniqueness presuppositions. The percentage of DIFFCOLOR choices over SINGLEITEM choices in condition B differed significantly from definites for all indefinites ($p < .01$). Moreover, compared to condition A the percentage of SINGLEITEM choices for indefinites went down significantly in condition B where the competitor was DIFFCOLOR. This effect was more pronounced for "one" than for "a". Choosing DIFFCOLOR over SINGLEITEM is, of course, in line with anti-uniqueness. An additional relevant effect emerged in RTs, such that the choice of picture DIFFCOLOR took significantly longer than the choice of SINGLEITEM for all indefinites. Choosing SINGLEITEM with indefinites also took significantly longer in condition B than it did in condition A. Together, these points suggest that choosing the picture verifying anti-uniqueness involved additional effort. This is also supported by preliminary analysis of the eye-tracking data, which suggest that looks to the target stabilized faster in condition A than in condition B. For condition C, DIFFCOLOR was chosen over SINGLEITEM at ceiling levels for all determiners, with no differences in RT.

Conclusion: We found first experimental evidence for anti-presuppositions ("anti-uniqueness"). Our data support views that theoretically separate these inferences from PSPs and implicatures. First, the picture choices suggest that the epistemic status of anti-presuppositions is much weaker than that of implicatures or PSPs. Participants relatively rarely based their picture selection on anti-uniqueness being fulfilled, compared to implicatures and PSPs, which were quite consistently considered. Second, both the RT and preliminary eye-tracking data suggest that drawing this inference is cognitively more demanding than calculating PSPs or implicatures. We also found that anti-uniqueness effects are stronger for numerals than indefinites, raising the question of what additional factors, beyond the competition with the definite, play a role in deriving these inferences.

Selected References • Bade 2016. *Obligatory Presupposition Triggers in Discourse*. PhD.thesis • Heim 1991. Artikel und Definitheit. In *Handbook of Semantics*. • Percus 2006. Antipresuppositions. In *Theoretical and Empirical Studies of Reference and Anaphora* • Sauerland 2008. Implicated presuppositions. In *Sentence and Context*, DeGruyter.

Simultaneous Present-under-Past in Relative Clauses: Evidence from Fronted VPs

Intro. It is standardly believed that, in English, Present tense morphology embedded under Past in a relative clause (RC) can only have an *indexical* interpretation, i.e. overlap the utterance time (UT) (Abusch, 1994; Stechow, 1995, a.o.). I show that fronted VP constructions reveal previously unobserved and currently unpredicted *simultaneous* readings of Present-under-Past in RCs, according to which the embedded eventuality overlaps the time indicated by the matrix Past but not the UT. I propose an account in which RCs can be *tenseless*, the default morphology on the embedded verb in that case is Present and the embedded verb's temporal interpretation is dependent on the matrix tense.

Data. It is a well-known fact that (1) cannot have a simultaneous reading, whereas (2) can. In (1), being hungry has to overlap the UT. So, (1) and (2) cannot be synonymous.

- (1) John met a boy who **is** hungry. (2) John met a boy who **was** hungry.

But, the relation between an embedded Present and a matrix Past is unexpectedly different in fronted VP constructions. Native speakers report that the embedded Present in (3b) need not overlap the UT and, thus, (3b) and (2) can be synonymous. *Novel data:*

- (3) a. At this time last Friday, John was looking for a hungry person, and, finally,...
b. Meet a boy who is hungry, John did.

In appropriate contexts, simultaneous readings can also be obtained for sentences like *Meet a boy who is a participant, John did* and *Meet a boy who lives in Paris, John did*. So, simultaneity does not arise only with predicates like *be hungry*. Still, Present-under-Past in fronted constructions does not always result in a simultaneous reading. Consider:

- (4) Meet the boy who is hungry, John did. (5) A boy who is hungry, John met.

In both (4) and (5), the state of being hungry must overlap the UT.

Discussion. Standard tense semantics that requires that Present in an RC overlap the UT cannot predict the simultaneous reading in (3b). (Alxatib & Sharvit, 2017) who recently suggested the existence of a bound zero-tense in RCs cannot account for (3b) either, because they also require Present-under-Past to overlap the UT.

There are three other related problems. *Problem 1.* The contrast between (3b) and (1): how come VP-fronting licenses a simultaneous reading unavailable in (1)? Under the assumption that fronted VPs reconstruct at LF, the LF of (3b) should be identical with that of (1). Yet, (3b) has a reading that makes it equivalent to (2) and (1) does not. *Problem 2.* The contrast between (3b) and (4): why does the presence of the definite determiner block the simultaneous reading? (See (Anand & Hacquard, 2007) for a similar observation in a different environment.) *Problem 3.* The contrast between (3b) and (5): why does DP-fronting not allow for a simultaneous reading?

Proposal. In my account, I make four main assumptions.

Assumption 1: English RCs do not have a local temporal anchor and tenses in RCs are always indexical (in accordance with most of the literature on tense).

Assumption 2: There is feature transmission (FT) in English at a pre-PF level of syntactic representation (Kratzer, 1998) that I call 'PF' here, for short.

Assumption 3: Indefinites can have a predicative interpretation with a later existential closure (EC) (Heim, 1982). In object position, an indefinite with a predicative interpretation combines with a verb by *Predicate Restriction* (Chung & Ladusaw, 2007).

Assumption 4: RCs can be tensed (of type $\langle e, t \rangle$) or tenseless expressions (of type $\langle e, it \rangle$). In a tenseless clause, the default morphology on the verb is Present.

Accounting for Problem 1. By Ass.4, the embedded clause in (3b) can be either tensed or tenseless. When it is tensed, the state of being hungry overlaps the UT (but not necessarily the meeting time). When it is tenseless, the state of being hungry overlaps the meeting time (but not necessarily the UT). The “tenseless” LF for (3b) is given in (6):

(6) $[\exists [\lambda 0 \text{ [TP Past}^0_1 \text{ [VP John [VP meet [DP [a boy]_{\langle e, it \rangle} \text{ [RC who } [\lambda 3 [t_3 \text{ be hungry]]}]]]]]]]]$

In (6), because RC is tenseless, the temporal argument slot on *be hungry* is not saturated within the embedded clause and is allowed to percolate up. RC is, thus, of type $\langle e, it \rangle$. Under a predicative interpretation, *a boy* is also of type $\langle e, it \rangle$. They combine by Predicate Modification (Heim & Kratzer, 1998) to yield DP (of type $\langle e, it \rangle$). DP combines with *meet* by a version of Predicate Restriction to yield a complex predicate *meet a boy who is hungry* of type $\langle e, \langle e, it \rangle \rangle$ (the temporal arguments of *meet* and *a boy who is hungry* are identified). Its three arguments are then saturated by “John”, “Past” and the EC.

If a tenseless RC occurs in a non-fronted VP, FT applies and the embedded VP surfaces with Past tense morphology. This is why (3b) and (2) can be synonymous (they can share the LF in (6)). The difference between (3b) and (2) is at PF: FT does not apply in (3b) but it does in (2). This is why the embedded tense morphology in (3b) and (2) is different.

As for the contrast between (3b) and (1), observe that, in (1), VP is c-commanded by the matrix Past at PF but FT has not applied. This can only happen if RC is tensed because, in that case, the embedded Present is independent of the matrix Past and is indexical.

Accounting for Problem 2. Unlike indefinites, definite DPs cannot have a predicative interpretation in argument position and, therefore, the mechanism that applied to (3b) cannot apply to (4). The RC must be tensed and the Present tense can only be indexical.

Interestingly, if a definite embedded in a VP-fronted structure contains a bound variable in a fronted construction, then a simultaneous reading suddenly becomes available:

(7) Meet the man who loves her mother, every girl did five years ago.

Native speakers say that, unlike (5), (7) does allow for loving not to overlap the UT. According to the present proposal, this would mean that the presence of a bound variable inside the RC in (7) allows the definite DP to have a predicative interpretation.

Accounting for Problem 3. Fronted DPs leave a copy of type e interpreted as a definite description (Fox, 1999). Under this assumption, a simultaneous reading is not predicted for (5) because the lower copy of the definite will not have a predicative interpretation.

Further issues: the Progressive. There is another case of Present inside a RC in a fronted VP construction, for which I could not get clear judgments. For most speakers I consulted, (8) does not have a simultaneous reading: the smoking must overlap the UT.

(8) Meet a man who is smoking a cigar, John did.

However, if preceded by the context in (9), the simultaneous reading of (8) becomes available for some speakers.

(9) In our club, we smoke cigars on Fridays. So, everyone in our smoking room last Friday had a cigar in his mouth. This was when John, who wanted to meet someone smoking a cigar and take a picture of him, entered the room. And, yes... (8).

The availability of a simultaneous reading for at least some speakers suggests that it is not impossible. Evidence from VP-Ellipsis explored in (Alxatib & Sharvit, 2017) also suggests such a possibility. Finally, it seems that the more easily a progressive construction can be seen as expressing a property than an ongoing action, the easier it is to interpret it as tenseless: compare (8) with (10). Here, I am leaving this issue unresolved.

(10) Meet a man who is living with his mother, Mary did.

Quantifier raising derives factivity and its prosody

Deniz Özyıldız · UMass, Amherst

Introduction. In Turkish, the prosodic structure of factive attitude reports (ARs) differs from that of non-factives. I derive the factive inference in the syntax-semantics by Quantifier Raising (QR) the embedded clause. A structural difference ensues, which the phonology is sensitive to.

(1) Non-factives:

[Att.-Holder [_{VP} CP Att.-Verb]]

[(1)] = *believes'*(*p*)(*a*)

(2) Factives:

[Att.-Holder [[Q CP] [λ₈ [_{VP} φ₈ Att.-Verb]]]]

[(2)] = *p* ∧ *believes'*(*p*)(*a*)

Independent evidence suggests that QR does affect prosodic structure, even when string vacuous.

Empirical contribution I. In out of the blue, broad focus utterances of non-factive ARs the prosodic nucleus—indicated by caps—falls on a default position within the embedded clause; For factives, it falls on the matrix verb. Pre-nuclear syntactic constituents are parsed as phonological phrases (Φ), post-nuclear material appears deaccented and dephrased (Kamali 2011, a.o.).

(3) a. (alara)_Φ (LIMONLUYA yurudugunu düşünuyor)_Φ [non-factive, broad focus]

Alara Limonlu.DAT walk.NMZ think

Alara thinks that she's walking to Limonlu.

b. (alara)_Φ (limonluya yurudugunu)_Φ (BILİYOR)_Φ [factive, broad focus]

Alara Limonlu.DAT walk.NMZ know

Alara knows that she's walking to Limonlu.

The evidence as to whether this is expected is mixed. Kallulli (2006, 2010) suggests the positive: Presupposition makes clauses discourse-given. This shifts the nucleus away, explaining (3). But others argue that presupposition and givenness are independent dimensions of meaning (Wagner 2012, Rochemont 2016, Büring 2016). I side with the latter, and propose an alternative explanation.

Empirical contribution II. Some ARs alternate between factive and non-factive readings. Then, prosody disambiguates: (4) is string identical to (3b), the difference is that the nucleus is embedded.

(4) (alara)_Φ (LIMONLUYA yurudugunu biliyor)_Φ [non-factive, broad]

Alara believes that she's walking to Limonlu.

The difference in nucleus position makes an interpretive difference: (3b) is factive, (4) is not. To my knowledge, contrasts like (3b) and (4) have not been observed in the literature. Though prosody is known to affect presupposition projection (indirectly), it is not thought relate to triggering (Beaver 2010, Simons et al. 2017). On the other hand, growing evidence suggests that the factive inference must be encoded in the composition, which the contrast between (3b) and (4) supports, but no link yet exists with prosody (Kratzer 2006, recently: Bochnak and Hanink 2017).

Analysis. The difference in prosodic structure is caused by the availability of the factive inference, rather than the other way around. And ARs like (3b) have a factive semantic representation ('LF') in addition to a non-factive one, rather than simply being *compatible* with contexts where the embedded proposition is true. Ex. (5a) not factive, even though the matrix verb is the nucleus.

(5) a. (alara)_Φ (limonluya yurudugunu)_Φ (DUSUNUYOR)_Φ [non-factive, narrow or verum]

Alara thinks that she's walking to Limonlu.

b. Alara's walking to Limonlu and ... [ok before (3b); # before (5a)]

c. ... but she isn't walking to Limonlu. [ok after (3a), (4) and (5a); # after (3b)]

The anti-presupposition test in (5b) (Percus 2006) and the non-deniability of entailments test in (5c) suggests that ARs introduced by *düşün-* are non-factive regardless of prosody, but that ARs *bil-* are non-factive when the nucleus is embedded and factive when the nucleus is the matrix verb.

Proposal I: Deriving factivity. Attitude verbs uniformly have non-factive Hintikkan entries, like (6a). To derive the factive inference embedded clauses in factive ARs compose with Q, defined in (6b). Q takes a proposition and a predicate of propositions. It asserts the existence of an evaluation-world situation that satisfies the proposition, and feeds the proposition into the predicate. If natural language propositions are assumed to be persistent, this lexical entry is equivalent to asserting the truth of p at w . Nominalized complement clauses denote regular propositions, as in (6c).

- (6) a. $\llbracket bil \rrbracket \approx \llbracket dusun \rrbracket \approx \lambda w_s. \lambda p_{st}. \lambda x_e. \forall w' [w' \in DOX_{x,w} \rightarrow p(w')]$
 b. $\llbracket Q \rrbracket = \lambda w_s. \lambda p_{st}. \lambda B_{st,t}. \exists s [s \leq w \wedge p(s) \wedge B(p)] \equiv p(w) \wedge B(p)$
 c. $\llbracket Limonluya \text{ yurudugu} \rrbracket = \lambda w_s. walk\text{-}to(w)(limonlu)(alara)$

Q composes with an evaluation world and a nominalized clause to yield a quantifier phrase:

- (7) $\llbracket Q \rrbracket(w)(\llbracket CP \rrbracket) = \lambda B_{st,t}. \exists s [s \leq w \wedge \llbracket CP \rrbracket(s) \wedge B(\llbracket CP \rrbracket)]$

As standardly assumed for the interpretation of quantifier phrases in object position (without type-shifting), the quantifier phrase (of type $\langle\langle st, t \rangle, t \rangle$) creates a type mismatch, and cannot compose with the attitude verb (looking for type st). It raises, leaving a trace of type st . Ex. (8) gives the structure and truth conditions of (3b): The embedded proposition is asserted, and believed. The factive entailment can be turned into a presupposition using familiar means (Abrusán 2011).

- (8) $[\lambda w_0 [\text{Dilara} [\lambda 3 [[Q\text{-}w_0 \text{ CP}] [\lambda 2 [_{vP} x_3 \phi_2 bil\text{-}w_0]]]]]]$
 $\llbracket (8) \rrbracket(w_0) = 1 \text{ iff } \exists s [s \leq w_0 \wedge walk\text{-}to(w_0)(limonlu)(dilara)$
 $\wedge \forall w' [w' \in DOX_{dilara, w_0} \rightarrow walk\text{-}to(w')(limonlu)(dilara)]$

For word order, the matrix subject raises above the embedded clause. In this configuration, the hierarchical relation between the subject and the embedded clause remains unchanged. Nothing special is required for deriving the truth conditions of non-factive attitude reports. Q is not used, so it does not trigger QR. The embedded clause in remains within the vP and is interpreted in situ.

Proposal II: Interface with phonology. Sentential stress is assigned to the highest item in v's spell out domain (Kahnemuyipour 2009, a.o.). In SOV languages, this means that in simple transitives like (9), the direct object is the nucleus. Pre-nuclear syntactic constituents are parsed into phonological phrases. In **non-factive ARs**, the embedded clause does not vacate the spell out domain of the vP phase: Sentential stress is correctly predicted to fall within the embedded clause. In **factive ARs**, QR makes the embedded clause vacate the vP phase. Sentential stress is assigned regularly within the the spell out domain. It falls on the sole non-null item there—the matrix verb.

Supporting evidence. Does QR affect the prosodic structure of Turkish sentences other than in factive ARs? Yes. When the direct object of a transitive is, e.g., a distributive universal quantifier phrase, the nucleus is no longer the direct object, but the verb. Such examples are straightforwardly analyzed by assuming that the QP raises, vacating the sentential stress assignment domain.

- (9)a. $(alara)_{\Phi} (\text{LIMONLUYA } yuruyor)_{\Phi}$ (10)a. $\#(alara)_{\Phi} (\text{her LIMONLUYA } yuruyor)_{\Phi}$
 b. $\#(alara)_{\Phi} (\text{limonluya } YURUYOR)_{\Phi}$ b. $(alara)_{\Phi} (\text{her limonluya})_{\Phi} (YURUYOR)_{\Phi}$
 Alara w/.lemon.DAT walks Alara \forall w/.lemon.DAT walks
 A. flirts with the man with a lemon. A. flirts with every man with a lemon.

Remaining issues. I. For QR to feed into phonology, it must happen in the syntax. This is not an issue, if it is assumed that syntax outputs all possible structures, which are filtered at the interfaces—in particular, ones with mismatching types are ruled out. II. If where the factive inference is encoded is the embedded clause, why are verbs like *düşün-* not observed with factive complements? I must assume that this is due to syntactic selection, which all competing theories must assume.