

WHITHER ‘WHETHER’, AND WHENCE*

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1 Introduction

Interpretation and pronunciation of ‘whether’ – Suppose that the morphology of ‘whether’ in yes/no questions is not accidental and, hence, that ‘whether’, like other wh-phrases, denotes an existential quantifier and moves to the C-domain from inside of TP, triggering T-to-C movement in matrix but not in embedded clauses.¹ Just as ‘who’ means ‘some person’,² ‘whether’ would mean ‘some polarity’, where polarities are $\lambda p. p$ (‘yes’) and $\lambda p. \neg p$ (‘no’).³

(1) INTERPRETATION

$$\llbracket \text{whether} \rrbracket = \lambda Q_{\langle \langle \text{st}, \text{st} \rangle, t \rangle}. \exists f_{\langle \text{st}, \text{st} \rangle}. f \text{ is a polarity} \wedge Q(f)$$

(2) Did John talk to Mary?

- a. OP λp_{st} [CP whether $\lambda f_{\langle \text{st}, \text{st} \rangle}$ [C' [C Q t_p] [TP t_f [John talked to Mary]]]]
- b. $\llbracket (2a) \rrbracket = \lambda p. \exists f. f \text{ is a polarity} \wedge p = f(\text{John talked to Mary})$
 $= \{\text{John talked to Mary}, \neg \text{John talked to Mary}\}$

The fact that we do not hear ‘whether’ in (2) would be captured by the generalization in (3).⁴

(3) PRONUNCIATION

The wh-phrase ‘whether’ is audible only if it is dominated by TP

Previous work – It has been claimed that PRONUNCIATION was not valid for earlier stages of English, in which unembedded questions with overt ‘whether’ are attested. A number of

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¹For an account of T-to-C movement in matrix but not in embedded wh-questions see Pesetsky and Torrego (2001).

²Specifically, $\llbracket \text{who} \rrbracket = \lambda P_{\langle e, t \rangle}. \exists x_e. x \text{ is a person} \wedge P(x)$.

³I adopt the structure of interrogative CPs proposed in von Stechow and Heim (2016). Danny Fox, in various class notes, has suggested that OP is the ANS operator of Dayal (1996). For present purposes I will assume that OP is semantically empty.

⁴Note that (3) covers cases of subject whether-questions, e.g. ‘whether John talked to Mary is another question’.

works in historical linguistics propose that ‘whether’ started out as a regular wh-phrase which moves from TP to [Spec,C] but was then reanalyzed as base-generated in [Spec,C] (van Gelderen, 2009, Ukaji, 1997, Parra-Guinaldo, 2013). Eckardt and Walkden (2022) argues that ‘whether’ was never a C head, and provided textual evidence from Old English for ‘whether’ scoping out from embedded clauses. Most analyses of modern English assume that overt ‘whether’ is base-generated in [Spec,C] (Karttunen, 1977, Chomsky, 1981, Groenendijk and Stokhof, 1982, Kayne, 1991, Rizzi, 1990, Chomsky, 1995), with the exception of Chomsky (1986) who suggests that it is base-generated in C and then undergoes short movement to [Spec,C]. A silent ‘whether’ in unembedded yes/no questions is proposed in several works (Bennett, 1977, Grimshaw, 1993, Roberts, 1993, Radford, 2004), all of which assume that ‘whether’ is base-generated in the C-domain and thus does not move from TP. Müller (2010) presents a theory of movement which implies that ‘whether’ ‘is never base-generated in the position in which it shows up, but undergoes movement to a C head just like other wh-items’ (Müller, 2010:15). However, Müller does not explore this implication further, noting only that the question arises as to ‘where exactly is ‘whether’ externally merged’, i.e. where it is base-generated, and that he ‘take[s] it that answers can be given that are relatively straightforward’. If I had to guess, I’d say that Müller thinks it is quite ‘straightforward’ that ‘whether’ should be based-generated at scope sites, i.e. as sister to propositional constituents (e.g. VP, TP).

In addition to yes/no questions, ‘whether’ also occurs in alternative questions such as ‘whether Mary sang or danced’ or, in fact, ‘whether Mary sang or not’. Larson (1985), Han and Romero (2004), Wu (2021, 2022) claim that ‘whether’ in alternative questions is the interrogative variant of ‘either’. As such, it is base-generated locally to the first disjunct of a disjunction and moves from there to [Spec,C]. Larson (1985) seems to take it for granted that this is the same ‘whether’ as the ‘whether’ in embedded yes/no questions, but discusses neither embedded nor unembedded yes/no questions. The view that ‘whether’ in yes/no questions and ‘whether’ in alternative questions are one and the same item is espoused in Guerzoni and Sharvit (2014), who claim that ‘whether ϕ ’ is just an elliptical version of ‘whether ϕ or not ϕ ’. Han and Romero (2004) profess non-commitment as to whether there is one ‘whether’ or two. Wu (2022) assumes that there are two, i.e. that English has a yes/no ‘whether’ and an alternative ‘whether’. For this paper, I will adopt Wu’s view. That is, I will assume that yes/no ‘whether’ is different from alternative ‘whether’.⁵ And it is the yes/no ‘whether’, henceforth simply ‘whether’, that will be the topic of my discussion.

Guiding question – More specifically, this paper addresses the following question.

(4) Guiding Question

To what extent can we derive the distribution of yes/no questions from INTERPRETATION and PRONUNCIATION?

In what follows I discuss yes/no questions containing quantifiers, modal adverbs, focusing adverbs, and propositional attitude verbs. I also discuss multiple questions one of whose wh-phrases is ‘whether’. In each case, I spell out auxiliary hypotheses needed to account for the observations in addition to INTERPRETATION and PRONUNCIATION, and state which observations I cannot explain and must therefore leave for future work.

⁵For interpretive differences between yes/no questions and alternative questions see Biezma and Rawlins (2012), Biezma (2019), Beltrama et al. (2020).

2 Quantifiers

Everyone – Given INTERPRETATION, we expect that ‘whether’ can be base-generated at any scope site, but the facts seem to show that it must be base-generated at the highest scope site, i.e. one which is closest to its derived position. Consider (5).⁶

(5) Did everyone leave?

- a. $[\text{CP whether}_1 [\text{TP } t_1 [\text{TP everyone}_2 [\text{VP } t_2 \text{ left}]]]] = \{\text{everyone left, someone stayed}\}$
- b. $*[\text{CP whether}_1 [\text{TP everyone}_2 [\text{VP } t_1 [\text{VP } t_2 \text{ left}]]]] = \{\text{everyone left, everyone stayed}\}$

Let’s assume that ‘yes’ and ‘no’, as responses, are sentential pronouns: ‘yes’ refers to the positive answer, i.e. one in which the trace of ‘whether’ is replaced by $\lambda p. p$, and ‘no’ refers to the negative answer, i.e. one in which it is replaced by $\lambda p. \neg p$ (Krifka, 2013, Roelofsen and Farkas, 2015). There are two scope sites in (5): [Spec,V] and [Spec,T]. If ‘whether’ could move from either, we expect a ‘no’ answer to (5) to be ambiguous between ‘someone stayed’ and ‘everyone stayed’. It is clear, however, that a ‘no’ answer to (5) can only mean ‘someone stayed’, which is evidence that ‘whether’ must be base generated in [Spec,T]. My account of this fact, and several others below, will have as crucial ingredient a felicity condition on questions proposed and motivated in Fox (2019, 2020): Partition by Exhaustification, or PbE for short.⁷

(6) Partition by Exhaustification (PbE)

A question Q is felicitous in a context C only if elements of Q, once exhaustified with respect to Q, partition C

The low scope reading of ‘whether’, i.e. the parse in (5b), yields the set {everyone left, everyone stayed}. These propositions are contraries. PbE requires that the context not contain worlds where both are false, i.e. that the context be homogeneous. But it is known that grammar militates against quantifiers in favor of definites in homogeneous contexts (Löbner, 1985, Heim, 1991, Magri, 2009, 2011). The question ‘did the Argentinians win’ is acceptable, but ‘did every Argentinian win’ is not, in the context of a soccer game where either every Argentinian won or none of them did. We can derive this preference from Maximize Presupposition (MP), assuming that ‘the(A)(B)’ presupposes that either every A is B or no A is B, while ‘every(A)(B)’ does not (Heim, 1991, Sauerland, 2008). Thus, (5b) either violates PbE or MP.

Someone – What about existential quantifiers, e.g. ‘someone’? Consider (7).

(7) Did someone leave?

- a. $[\text{CP whether}_1 [\text{TP } t_1 [\text{TP someone}_2 [\text{VP } t_2 \text{ left}]]]] = \{\text{someone left, everyone stayed}\}$
- b. $*[\text{CP whether}_1 [\text{TP someone}_2 [\text{VP } t_1 [\text{VP } t_2 \text{ left}]]]] = \{\text{someone left, someone stayed}\}$

⁶I take ‘x stayed’ to be equivalent to ‘ $\neg x$ left’. In what follows I will omit OP, C and the λ -binders from LF representations.

⁷To illustrate PbE, consider question ‘which girl left’, under the assumption that singular which-phrases quantify over atomic elements in the extension of their NP complement. The set of answers would be propositions of the form ‘x left’ where x is a singular girl. PbE requires each world w in the context to be such that exactly one of these propositions is true in w. Thus, PbE predicts that the question presupposes that exactly one girl came, as observed. For other applications of PbE see Fox (2019, 2020), Katzir (2023), Trinh (2025), Trinh et al. (2026a).

Intuitively, a ‘no’ answer to (7) means ‘no one left’, not ‘someone stayed’ (Guerzoni, 2003). Thus, (7b) is not a possible parse. The answers derived from this parse, ‘someone left’ and ‘someone stayed’, are subcontraries. PbE requires that the context not contain worlds where both are true, which means, again, that it requires that the context be homogeneous. Thus, (7b) has the same problem with MP as (5b) does. In addition, such a context makes ‘someone left’ equivalent to ‘everyone left’, and we know that when ‘some’ is contextually equivalent to ‘every’, the use of ‘some’ is infelicitous (Magri, 2009). The general constraint is proposed in Bar-Lev and Fox (2023) as Fatal Competition (FC): a sentence is infelicitous if it has logically stronger but contextually equivalent formal alternative. Thus, (7b) violates either PbE or both MP and FC.

More than half – What about quantifiers such as ‘more than half of the people’? Consider (8).

(8) Did more than half of the people leave?

- a. $[\text{whether}_1 [t_1 [\text{more than half of the people}_2 [t_2 \text{ left}]]]] = \{\text{more than half of the people left, not more than half of the people left}\}$
- b. $*[\text{whether}_1 [\text{more than half of the people}_2 [t_1 [t_2 \text{ left}]]]] = \{\text{more than half of the people left, less than half of the people left}\}$

Intuitively, a ‘no’ answer to (8) means ‘not more than half of the people left’, not ‘less than half left’. Thus, (8b) is not a possible parse. As in the case of (5b), the answers derived from (8b) are contraries. PbE requires that the context not contain worlds where both are false, i.e. worlds where half of the people left. Now, it seems that the following descriptive generalization is true.

(9) More-than-X

The expression ‘more than X’ is odd in contexts where ‘X’ is presupposed to be false

To illustrate More-than-X, suppose that John has seven children. It would be quite odd, in this context, to say ‘more than half of John’s children are blond’. Similarly, it is odd to say ‘do you have more than eleven chopsticks’ if it is known that the number of chopsticks is even.⁸ Thus, (8b) violates either PbE or More-than-X.

3 Modal adverbs

Certainly – We have discussed quantifiers over individuals. Let us now turn to quantifiers over worlds, specifically to modal adverbs. Consider (10).⁹

(10) Did John certainly win?

- a. $[\text{whether}_1 [t_1 [\text{certainly} [\text{John won}]]]] = \{\Box\text{John won}, \Diamond\text{John lost}\}$
- b. $*[\text{whether}_1 [\text{certainly} [t_1 [\text{John won}]]]] = \{\Box\text{John won}, \Box\text{John lost}\}$

A ‘no’ answer to (10) means ‘it is possible that John lost’, not ‘it is certain that John lost’. This is corroborated by the intuition that as a follow-up to such an answer, ‘why do you think he might have lost’ is natural, but ‘why do you think he must have lost’ is quite odd. Thus, (10b) is not a possible parse. As in the case of (5), the answers derived from this parse are contraries, and

⁸A parallel argument can be made for ‘less than half’.

⁹I assume that ‘x lost’ is equivalent to ‘¬x won’.

PbE requires that the context not contain worlds where both are false, i.e. that it be presupposed that it is either certain that John won or certain that John lost. Now, there seems to be a preference for S against $\Box S$ in contexts which are ‘opinionated’ about S, i.e. contexts where either $\Box S$ is true or $\Box \neg S$ is true. The question ‘can you look out the window and tell me whether it is raining’ is natural, while ‘can you look out the window and tell me whether it is certainly raining’ is quite odd, unless we are philosophers who agree that the senses may deceive (von Fintel and Gillies, 2010). This is because the local context of the second conjunct is opinionated with respect to ‘it is raining’: after you look out the window, you are either certain that it is raining, or certain that it is not raining. The parse in (10b), then, violates either PbE or the preference for non-modalized sentences in opinionated contexts.

Possibly – What about existential modals? Consider (11).

(11) Did John possibly win?

- a. $[\text{whether}_1 [t_1 [\text{possibly} [\text{John won}]]]] = \{\Diamond \text{John won}, \Box \text{John lost}\}$
- b. $*[\text{whether}_1 [\text{possibly} [t_1 [\text{John won}]]]] = \{\Diamond \text{John won}, \Diamond \text{John lost}\}$

A ‘no’ answer to (11) means ‘it is not possible that John won’, not ‘it is possible that John lost’, as evidenced by the fact that as a follow-up to ‘no’, ‘why do you think he must have lost’ is natural but ‘why do you think he may have lost’ is odd. Thus, (11b) is not a possible parse. The explanation is the same as that of (7). Given PbE, the context required for (11b) to be felicitous must be such that either John must have won or he must have lost. In this context, ‘John possibly won’ is equivalent to ‘John certainly won’, which means (11b) is ruled out by FC.

Probably – Finally, let us consider a modal case parallel to ‘more than half’. Consider (12).

(12) Did John probably win?

- a. $[\text{whether}_1 [t_1 [\text{probably} [\text{John won}]]]] = \{P(\text{John won}) > 0.5, P(\text{John won}) \leq 0.5\}$
- b. $*[\text{whether}_1 [\text{probably} [t_1 [\text{John won}]]]] = \{P(\text{John won}) > 0.5, P(\text{John lost}) > 0.5\}$

A ‘no’ answer to (12) means ‘it is not probable that John won’, not ‘it is probable that John lost’, which means (12b) is not a possible parse. Suppose we analyze ‘probably’ as ‘there is more than 50% chance’, as is intuitive, this case can be accounted for in terms of More-than-X just as (8) was. Given PbE, (12b) is only felicitous in a context which excludes the possibility that there is 50% chance of John having won. But in that context, the use of ‘more than 50% chance’ is odd due to More-than-X, in the same way ‘more than half’ is odd in a context where ‘half’ is excluded.

4 Focusing adverbs

Only – I now turn to a discussion of the focusing adverbs ‘only’, ‘also’, and ‘even’. Following Hirsch (2017, 2020), I assume that there is a covert, interpreted ONLY at LF which merges with propositional constituents and stands in certain structural relationship with the overt, non-interpreted ‘only’.¹⁰ For present purposes I assume $[\text{ONLY}_C] = \lambda p. \lambda w : p(w). \forall q \in C. q(w) \rightarrow p \subseteq q$. Consider (13).

¹⁰And I will assume the same for ‘also’ and ‘even’ later on.

- (13) Did John only talk to Mary_F?
- a. [whether₁ [_t₁ [ONLY_C [John talked to Mary_F]]]] = {John only talked to Mary_F, John did not only talk to Mary_F}
 - b. [whether₁ [ONLY_C [_t₁ [John talked to Mary_F]]]] = {John only talked to Mary_F, John only did not talk to Mary_F}

A ‘no’ answer to (13) means ‘John did not only talk to Mary_F’, not ‘John only did not talk to Mary_F’ (Guerzoni, 2003). A natural account of this fact seems to be this: since the presupposition of ‘only’ projects universally in questions, (13b) is deviant because it presupposes a contradiction: its positive answer presupposes that John talked to Mary while its negative answer presupposes that John did not talk to Mary. But this account, as it turns out, cannot be correct: the presupposition of ‘only’ does not project universally in questions, as evidenced by (14a), which denotes (14b) but certainly does not presuppose that John ate crepes and croissants ... in Paris.¹¹

- (14) a. What₁ did John only eat _t₁ in Paris_F?
 b. {John only ate crepes in Paris_F, John only ate croissants in Paris_F, ...}

Note a structural parallel between (14a) and (13b): both involve a wh-trace intervening between ‘only’ and its focus associate. This is represented schematically in (15).

- (15) wh_i ... only ... _t_i ... X_F

As argued in Well et al. (2026), this configuration makes a congruent answer to (14a) ineffable: no matter how we pronounce (16a), our utterance will not be understood as responding to (14) (Schwarzschild, 2004). To answer (14), we have to cleft the main focus, as in (16b).

- (16) a. John only ate crepes in Paris
 b. It’s crepes that John only ate in Paris

Going into the details of Well et al.’s (2026) argument would take us beyond the scope of this squib.¹² For the purpose at hand, which is to explain why a ‘no’ answer to (13) cannot be understood as ‘John only did not talk to Mary_F’, i.e. as the negative answer of (13b), it suffices to claim that ‘no’ cannot represent the cleft structure in (17).

- (17) It is $f = \lambda p. \neg p$ that ONLY_C(f (John talked to Mary_F))

We could say that response particles must stand for natural English sentences. Note that this means that a ‘yes’ answer to (13) is understood as the positive answer of (13a), not (13b): it signals that the ‘no’ answer means ‘John did not only talk to Mary’, not ‘John only did not talk to Mary’. We can also explain why (14b) is available as the reading of (14a) but (13b) is not intuitively available as a reading of (13): to answer (14a), the cleft option can be resorted to, while there is really no way to answer (13) under the reading (13b).

¹¹Example (14) is taken from Well et al. (2026).

¹²The basic idea of the argument is that the congruent answers to a question of the form in (15) vary not only on the main focus but also on the domain of ‘only’, C, and since C, having no phonological (or, perhaps, even syntactic) representation, cannot receive prosodic prominence, there is no way to pronounce an answer which can signal that each of the other answers has a different C. When the main focus is clefted, this is no longer the case.

Also – The same reasoning applies in the case of ‘also’ which, like ‘only’, is a focus sensitive operator: $\llbracket \text{ALSO}_C \rrbracket = \lambda p. \lambda w : \exists q \in C. q \neq p \wedge q(w). p(w)$. Consider (18).

(18) Did John also talk to Mary_F?

- a. $\llbracket \text{whether}_1 [t_1 [\text{ALSO}_C [\text{John talked to Mary}_F]]] \rrbracket = \{\text{John also talked to Mary}_F, \text{John did not also talk to Mary}_F\}$
- b. $\llbracket \text{whether}_1 [\text{ALSO}_C [t_1 [\text{John talked to Mary}_F]]] \rrbracket = \{\text{John also talked to Mary}_F, \text{John also did not talk to Mary}_F\}$

A ‘no’ answer to (18) is understood as the negative answer in (18a) (‘John did not also talked to Mary_F’), not as the negative answer in (18b) (‘John also did not talk to Mary’) (Guerzoni, 2003). Since (18b) instantiates (15), we can run the same argument for (18b) as we did with (13b).

Even – With ‘even’ the situation is a bit more complicated. Following Karttunen and Peters (1979), I assume that $\llbracket \text{EVEN}_C \rrbracket = \lambda p. \lambda w : \forall q \in C. p \leq_c q. p(w)$, i.e. that $\text{EVEN}_C(p)$ presupposes that p is less likely than all other members of C and asserts that p .¹³ And following Rooth (1985), I assume that English has another operator, $^{\text{NPI}}\text{EVEN}$, which is also pronounced as ‘even’, but which has the opposite presupposition: $\llbracket ^{\text{NPI}}\text{EVEN}_C \rrbracket = \lambda p. \lambda w : \forall q \in C. p \geq_c q. p(w)$. This means $^{\text{NPI}}\text{EVEN}_C(p)$ presupposes that p is more likely than all other members of C and asserts that p .¹⁴ Distributionally, $^{\text{NPI}}\text{EVEN}$ must occur in a downward-entailing context, e.g. the scope of negation.¹⁵ With these assumptions, consider (19). I distinguish between presuppositional and assertive content by underlining the former.

(19) Did John even pass phonology_F?

- a. $\llbracket \text{whether}_1 [t_1 [\text{EVEN}_C [\text{John passed phonology}_F]]] \rrbracket = \{\text{phonology is hard} \wedge \text{John passed phonology}, \text{phonology is hard} \wedge \text{John did not pass phonology}\}$
- b. $\llbracket \text{whether}_1 [\text{EVEN}_C [t_1 [\text{John passed phonology}_F]]] \rrbracket = \{\text{phonology is hard} \wedge \text{John passed phonology}, \text{phonology is easy} \wedge \text{John did not pass phonology}\}$
- c. $\llbracket \text{whether}_1 [t_1 [^{\text{NPI}}\text{EVEN}_C [\text{John passed phonology}_F]]] \rrbracket = \{\text{phonology is easy} \wedge \text{John passed phonology}, \text{phonology is easy} \wedge \text{John did not pass phonology}\}$
- d. $\llbracket \text{whether}_1 [^{\text{NPI}}\text{EVEN}_C [t_1 [\text{John passed phonology}_F]]] \rrbracket = \{\text{phonology is easy} \wedge \text{John passed phonology}, \text{phonology is hard} \wedge \text{John did not pass phonology}\}$

The presupposition that it is less likely for John to have passed phonology than it is for him to pass the other subjects, say syntax and semantics, is represented as ‘phonology is hard’, and the opposite presupposition, that it is more likely for John to have passed phonology than it is for

¹³I ignore the ‘additive presupposition’ of EVEN , i.e. that one member of C other than p is true, as it plays no role in the present discussion.

¹⁴The relationship between EVEN and EVEN^{NPI} thus resembles that between ‘some’ and ‘any’. Simplifying massively, one can say ‘some’ is entailed by its subdomain alternatives while ‘any’ entails its subdomain alternatives. A reversal of scale is involved in both cases.

¹⁵In many languages, including Vietnamese (my native language), EVEN and $^{\text{NPI}}\text{EVEN}$ are realized differently. See Stechow (1991), Rullmann (1997), Herburger (2006) for evidence of this fact and other arguments supporting the view that there are two EVEN s in English. For arguments that there is only one EVEN in English see Wilkinson (1996). For an overview of the ‘one EVEN ’ vs. ‘two EVEN s’ debate see Hulse (2001), Guerzoni (2003).

him to have passed syntax and semantics, is represented as ‘phonology is easy’. Now, since there are two scope sites for ‘whether’ and two ‘even’s, we have four possible parses for (19). Among these, (19b) and (19d) can be excluded on the ground that they instantiate (15). That leaves us with (19a) and (19c). If (19) is parsed as (19a), the (accommodated) presupposition will be that phonology is harder than syntax and semantics, and there is no reason to prefer one answer over the other. If (19) is parsed as (19c), the (accommodated) presupposition will be that phonology is easier than syntax and semantics, and in this case, there is a reason to prefer the negative answer, given the requirement that ^{NPI}EVEN be in the scope of negation. What we predict, then, is that (19) is ‘neutral’ between ‘yes’ and ‘no’ if it is presupposed that phonology is hard, and ‘negatively biased’, i.e. biased towards the negative answer, if it is presupposed that phonology is easy.¹⁶ This prediction is correct, as has been noted in the literature.¹⁷

5 Propositional attitudes

Factive ‘know’ vs. non-factive ‘think’ – My discussion of the interaction between ‘whether’ and propositional attitudes will be limited to the factive verb ‘know’ and its non-factive counterpart ‘think’. First, note that the presupposition of ‘know’, unlike that of ‘only’, does project universally in questions, as evidenced by the unacceptability of (20) (Szabolcsi and Zwarts, 1992, Abrusán, 2007, Abrusán, 2014, Schwarz and Simonenko, 2018).¹⁸

- (20) *Who does Fred know is the tallest member of our team? = {Fred knows that John is the tallest, Fred knows that Mary is the tallest, ...}

Given this fact, we predict that (21) can be parsed as (21a) but not as (21b).

- (21) Does John know it’s raining?
 a. [whether_i [t_i [John knows [it’s raining]]]] = {John knows it’s raining, ¬John knows it’s raining}
 b. *[whether_i [John knows [t_i [it’s raining]]]] = {John knows it’s raining, John knows ¬it’s raining}

This prediction is correct: a ‘no’ answer to (21) can only be understood as ‘John does not know that it’s raining’, not as ‘John knows that it’s not raining’. The situation is different with ‘think’, which does not presuppose the truth of its complement. Consider (22).

- (22) Does John think it’s raining?
 a. [whether_i [t_i [John thinks [it’s raining]]]] = {John thinks it’s raining, ¬John thinks it’s raining}

¹⁶A difference between ^{NPI}EVEN and ‘any’, which does not incur negative bias in questions, would then be that ‘any’, when not pronounced, can be treated as ‘some’ (Sag, 1976), while such alternation is not possible with ^{NPI}EVEN and EVEN. The account proposed here also implies that a ‘yes’ answer to (19), when it is presupposed that phonology is easy, will have to be understood as answering a different question, specifically one without ‘even’, e.g. ‘did John pass phonology?’.

¹⁷For example, by Guerzoni (2003, 2004). However, Guerzoni proposed a different explanation for the facts which assumes that there is only one EVEN and which allows a whether-question to have the structure in (15). The reader is invited to consult these works for details.

¹⁸Example (20) is taken from Schwarz and Simonenko (2018).

- b. [whether_i [John thinks [_{t_i} [it’s raining]]]] = {John thinks it’s raining, John thinks –it’s raining}

We expect that both (22a) and (22b) should be available parses of (22). I would argue that this expectation is borne out: a ‘no’ answer to (22) can be followed up with either ‘he has no opinion’ or ‘he thinks it’s not raining’.

A speculative note on neg-raising – Given PbE, (22b) requires accommodation of a context in which John is ‘opinionated’, i.e. thinks that it’s raining or thinks that it’s not raining. In such a context, ‘John does not think it’s raining’ would be equivalent to ‘John thinks it’s not raining’. Thus, one way to account for the ‘neg-raising’ reading of ‘John doesn’t think it’s raining’ is to say that it results from (22b) being the question under discussion.¹⁹ More generally, we might say that neg-raising cases are those in which ‘whether’ moves from an embedded clause. Note that this approach would immediately explain the observation, first made by Kiparsky and Kiparsky (1970), that there is no factive neg-raisers, assuming that factive verbs, like ‘know’, have presuppositions that project universally in questions.

The approach promises to avoid problems faced by Gajewski (2005) and Romoli (2012). Gajewski proposes that (23a) presupposes (23b), and Romoli, that (23a) has (23b) as an alternative.

- (23) a. John thinks it’s raining
b. Either John thinks it’s raining or he thinks it’s not raining (i.e. John is opinionated about whether it’s raining)

The problem for Gajewski, as pointed out by Romoli (2012) and acknowledged by Gajewski himself, is that (23b) does not seem to project the way presuppositions do: ‘if John thinks it’s raining, he will take an umbrella’ does not seem to presuppose that John is opinionated about whether it’s raining. The problem for Romoli is that his approach conflicts with the evidence that the set of alternatives should be a ‘good’ question, i.e. one which, when asked, does not sound odd (Hirsch and Schwarz, 2025, Trinh et al., 2026a). Both (24a) and (24b) are quite odd, to my ears.

- (24) a. #Does John think it’s raining or is he opinionated about it?
b. #Does John think it’s raining, or does he just either think it’s raining or think it’s not raining?

Also, if (23a) alternates with (23b), disjunct B in (25a) and (25b) should mean John thinks it’s not raining (Hurford, 1974, Chierchia et al., 2012). I don’t believe this is the case.

- (25) a. [_A John thinks it’s raining], or [_B he is just opinionated about it]
b. [_A John thinks it’s raining], or [_B he just either thinks it’s raining or thinks it’s not raining]

It remains to be seen whether this approach to neg-raising pans out. One challenge is posed by sentences such as ‘no one thinks it’s raining’. Romoli (2012) claims, and his theory predicts, that it has ‘everyone thinks it’s not raining’ as strengthened meaning. Assuming a simple analysis

¹⁹Note that ‘John doesn’t think it’s raining’ is not a formal alternative of ‘John thinks it’s not raining’ (Fox and Katzir, 2011). Thus, FC does not rule out the use of the former in contexts where it is equivalent to the latter.

in terms of a QUD with long-distance whether-movement, e.g. {no one thinks it's raining, no one thinks it's not raining}, only predicts 'someone thinks it's not raining' as implicature, given PbE. A more involved analysis, for this data point and several others, will have to be developed.

6 Multiple questions

Clausemate wh-phrases – An observation which speaks against treating 'whether' as a regular wh-phrase, modulo PRONUNCIATION, is that multiple questions containing 'whether' are not possible. This is evidenced by the severe degradedness of (26) which, if 'whether' means 'some polarity', should denote a set of propositions of the form 'John talked to x ' and their negated counterparts.²⁰

(26) *Did John talk to who?

[CP whether₂ [CP who₁ [TP t_2 John talked to t_1]]] =

{John talked to Mary, ¬John talked to Mary, John talked to Sue, ¬John talked to Sue, John talked to Mary and Sue, ¬John talked to Mary and Sue}

Suppose the context contain worlds where John talked to both Mary and Sue. Then PbE is violated, because 'John talked to Mary' and 'John talked to Sue', even when exhaustified, would still overlap due to symmetry. If the context contains no worlds where John talked to both Mary and Sue, then PbE is also violated, because one answer, 'John talked to Mary and Sue', would be a contextual contradiction, hence would denote no cell in the partition.

What if we change 'who', which ranges over both atomic and plural individuals, to 'which person', which ranges over only atomic individuals? Consider question (27).

(27) *Did John talk to which person?

[CP whether₂ [CP which person₁ [TP t_2 John talked to t_1]]] =

{John talked to Mary, ¬John talked to Mary, John talked to Sue, ¬John talked to Sue}

If the context contains worlds where John talked to both, the problem of overlapping exhaustified answers persists. If the context contains no such world, there is no problem of any answer being a contextual contradiction. However, '¬John talked to Mary' and '¬John talked to Sue' would both mean 'John talked to no one', hence would overlap, and PbE is violated.²¹

One question that arises is whether the deviance of both (26) and (27) is due to the Maxim of Manner, specifically due to the fact that 'whether' is redundant, independently of PbE. The answer is no. Suppose PbE is not operative. Then the sentence 'John talked to Mary', exhaustified with respect to the question under discussion, would mean 'John talked to Mary but not Sue' when that question is 'who/which person₁ did John talk to t_1 ', and mean 'John talked to Mary or both Mary

²⁰I assume that 'who' is pronounced in its base position, given the ban against more than one wh-phrase in [Spec,C]. Note that (26) is acceptable as an 'echo question', in which case its meaning is something like 'who is the person x such that you just asked me whether John talked to x ' (Trinh et al., 2026b). This reading, of course, is not a 'multiple question', hence would be orthogonal to the point I'm making. Note, also, that when we embed (26), which allows 'whether' to be overt, the question is still unacceptable: 'I know whether John talked to who'.

²¹It should be noted that (26) is precisely what Guerzoni and Sharvit (2014) proposes as the underlying structure of 'who did John talk to' which derives the strongly exhaustive reading of this question. Guerzoni and Sharvit (2014) admit to having no explanation for the pronunciation of the question. In light of PbE, this account needs to be rethought.

and Sue’ when the question is ‘whether₂ who/which person₁ did t_2 John talk to t_1 ’. Thus, the presence of ‘whether’ does make a difference, hence is not redundant, and it is PbE that rules out (26) and (27), not the Maxim of Manner.

Non-clausemate wh-phrases – The cases we considered, (26) and (27), involve ‘whether’ and a clausemate wh-phrase. What about questions such as (28a), which would denote the set in (28b).

- (28) a. *Who thinks whether it’s raining?
 b. {John thinks it’s raining, John thinks it’s not raining, Mary thinks it’s raining, Mary thinks it’s not raining, John and Mary think it’s raining, John and Mary think it’s not raining, ...}

It’s clear that (28a) is severely degraded. I have no cogent account for this fact. My hunch is that (28a) is bad syntactically: in-situ ‘whether’ seems categorically excluded. One way to derive this observation is to say (i) that there is a ban in English on more than one pronounced wh-phrase in [Spec,C], (ii) that this ban is not violated if two wh-phrases undergo overt movement (i.e. movement which leaves a trace at the base position) to [Spec,C] but one of them is phonologically deleted at a later step, (iii) that among the wh-phrases in English only ‘whether’ can be phonologically deleted after it has moved overtly to [Spec,C], and (iv) overt movement is obligatory when possible. Then, (28) would violate (iv). But this is ad hoc.

Now, suppose we fix the syntax of (28a) and pronounce it as ‘who thinks it’s raining’. Would there be a problem with its semantics, i.e. (28b)? Given PbE, (28) requires a context in which either both John and Mary are opinionated or exactly one of them is. At this point, I do not know to what extent such a context is hard, or easy, to accommodate, and will have to leave cases like (28) to future work.

7 Conclusion

This paper is an attempt to see how far we can push the thesis that ‘whether’ is a regular wh-phrase, i.e. that it denotes an existential quantifier (over polarities) and moves to [Spec,C] from semantically appropriate positions inside of TP. I examine several cases where there is a lack of scopal ambiguity between ‘whether’ and other scope bearing elements (quantifiers, modals, focusing adverbs, and propositional attitude predicates) and argue that the observations can be explained on the basis of independently motivated constraints. I also suggest a new approach to neg-raising, and indicate that multiple questions containing ‘whether’ and a non-clausemate wh-phrase pose a serious challenge for the above mentioned thesis.

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