On the Evidence Condition of Yes/No Questions in English*

Tue Trinh
University of Wisconsin - Milwaukee

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Abstract

English can express the basic meaning of a yes/no question with or without sentential negation and with or without subject auxiliary inversion. In this talk, I discuss how the presence of contextual clue with respect to one or the other answer to a yes/no question determines which formal variants of the question are felicitous. I then derive these syntax-pragmatics interactions from the assumption that the lexicon of English contains a silent evidential marker which exhibits familiar semantic and morphological properties.

1 Two puzzles about English y/n questions

Hamblinian question semantics

Standard analyses of questions have been based on some version of Hamblin's postulate: knowing the meaning of a question is knowing what counts as an answer (Hamblin 1958, 1973).

(1) a. $[\![\text{who walked?}]\!] = \{\{w \mid x \text{ walked in } w\} \mid x \in E\}$
$= \{$that John walked, that Mary walked, that Bill walked, ... $\}$
b. $[\![\text{did John walk?}]\!] = \{\{w \mid \text{John walked in } w\}, W \backslash \{w \mid \text{John walked in } w\}\}$
$= \{$that John walked, that John didn't walk$\}$

The meaning of the yes/no question which has p and $W \backslash p$ as possible answers is the set $\{p, W \backslash p\}$.[1]

Typology of English y/n questions

(2)

	positive	negative
inverted	did John walk?	did John not walk? / didn't John walk?
non-inverted	John walked?	John did not walk? / John didn't walk?

Intuition: every sentence in (2) expresses the question in (3).

(3) $\{\{w \mid \text{John walked in } w\}, W \backslash \{w \mid \text{John walked in } w\}\}$

Intuition: y/n questions with different morpho-syntactic profiles have different felicity conditions.[2]

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[1] Or some semantic object constructed from this set. Thus, Karttunen (1977) takes $[\![?p]\!]^w$ to be the set $\{p, W \backslash p\} \cap \{q : q(w) = 1\}$, while Groenendijk and Stokhof (1982, 1984) equates $[\![?p]\!]^w$ with the proposition $\bigcap(\{p, W \backslash p\} \cap \{q : q(w) = 1\})$. I abstract away from these differences since they do not matter for the discussion to follow. I will also leave aside questions concerning the response particles **yes** and **no** (cf. Krifka 2013 and references therein).

[2] See Ladd (1981), Büring and Gunlogson (2000), Gunlogson (2002, 2003), Han and Romero (2002), Romero and Han (2004), Rooy and Safarova (2003), Safarova (2005, 2007), Truckenbrodt (2006), Trinh and Crnic (2011), Krifka (2012a,c,b), Sudo (2013).

Evidentially biased contexts

Suppose speaker S sees John writing with his left hand and want to double check or express surprise at what he sees, S can then use the questions in (4a) but not those in (4b).

(4) Context: Speaker sees John writing with his left hand
   a. John is left-handed? / Is John left-handed? / John is not right-handed? / Is John not right-handed? / John isn't right-handed? / Isn't John right-handed?
   b. #John is right-handed? / #Is John right-handed? / #John is not left-handed? / #Is John not left-handed? / #John isn't left-handed? / #Isn't John left-handed?

Biased Context Generalization (BCG): A sentence expressing the question $\{p, W\backslash p\}$ is infelicitous if the prejacent of the question is $W\backslash p$ and there is contextual evidence that p is true

Here is another example.

(5) Context: Speaker sees John wearing a wedding ring
   a. John is married? / Is John married? / John is not single? / Is John not single? / John isn't single? / Isn't John single?
   b. #John is single? / #Is John single? / #John is not married? / #Is John not married? / #John isn't married? / #Isn't John married?

Evidentially neutral contexts

Suppose John is seen sleeping on the couch and there is absolutely no contextual clue as to whether John is left- or right-handed. It seems that in such a situation, an inquiry about John's handedness can be made with the sentences in (6a) but not with any of the ones in (6b-f).

(6) Context: neutral
   a. Is John left-handed? / Is John right-handed?
   b. #Is John not left-handed? / #Is John not right-handed? #Isn't John left-handed? / #Isn't John right-handed? / #John is left-handed? / #John is right-handed? / #John is not left-handed? / #John is not right-handed? / #John isn't left-handed? / #John isn't right-handed?

Neutral Context Generalization (NCG): In contexts where there is neither evidence for p nor evidence for $W\backslash p$, a y/n question denoting the set $\{p, W\backslash p\}$ is only felicitous if it is an inverted positive question

Here is another example.

(7) Context: neutral
   a. Is John married? / Is John single?
   b. #Is John not married? / #Is John not single? #Isn't John married? / #Isn't John single? / #John is married? / #John is single? / #John is not married? / #John is not single? / #John isn't married? / #John isn't single?

Goal of the talk

To derive the BCG and the NCG

Previous observations

Most works to date on bias in y/n questions either (i) contrast inverted positive and inverted negative questions or (ii) contrast inverted positive and non-inverted positive questions.[3]

(8)

	positive	negative
inverted	did John walk?	didn't John walk?
non-inverted	John walked?	John didn't walk?

cf. Büring and Gunlogson (2000), Van Rooy and Šafářová (2003), Romero and Han (2004), Asher and Reese (2005), Reese (2006), Venhuizen (2011)

(9)

	positive	negative
inverted	did John walk?	didn't John walk?
non-inverted	John walked?	John didn't walk?

cf. Gunlogson (2002, 2003), Safarova (2005, 2007)

To the extent that the observations made about y/n questions in the above cited works can be understood as pertaining to the evidence condition, they largely agree the BCG/NCG. To the best of my knowledge, (10) is the only dissenting claim in the literature (cf. Büring and Gunlogson 2000, Romero and Han 2004, Roelofsen et al. 2013).

(10) The Büring-Gunlogson claim
A negative question can be felicitous in an evidentially neutral context

We believe (10) results from experimental error and will discuss it in section 3.

The difference between BCG and NCG

The BCG relates context and meaning: what determines the felicity of the question is the propositional content of the prejacent. The NCG relates context and form: what determines the felicity of the question is its morpho-syntactic profile (i.e. whether it involves subject auxiliary inversion and contains negation)

Despite the seemingly fundamental difference between these two conditions, I will argue that they are two sides of the same coin.

On "salience" as a non-starter

While the NCG looks hopelessly bizarre, the BCG seems susceptible to an analysis in terms of salience, the intuition being (i) that the prejacent is salient and (ii) that questioning the evidence for p should be done in such a way as to make p salient. But what does it mean to say that a proposition p is salient?

Hypothesis 1: p is salient if p is relevant (Fox and Katzir 2011)
⇒ Problem: a yes/no question makes both the prejacent and its negation relevant.

(11) Who saw Mary?
a. John saw Mary
b. #John saw Sue

(12) Is John left-handed?
a. Yes. John is left-handed.
b. No. John is right-handed.

Hypothesis 2: p is salient if it is denoted by a consituent of an expression uttered in the discourse context (Fox and Katzir 2011)
⇒ Problem: negative questions contain constituents which denote both the prejacent and its negation

(13) Is John not left-handed?
$[_{CP}$ ... is ... $[_{TP}$ John t_{is} $[_{NegP}$ not $[_{XP}$ t_{John} left-handed]]]]

[3] The only author I know who treats all types of y/n questions in the same theoretical framework is Krifka (Krifka 2012a,b,c).

Hypothesis 3: Hypothesis 2 + 'traces do not count'
⇒ Problem: inverted negative question

(14) Isn't John left-handed?
[$_{CP}$ ... isn't ... [$_{TP}$ John $t_{isn't}$ [$_{NegP}$ $t_{n't}$ [$_{XP}$ t_{John} left-handed]]]]

2 Resolving the puzzles

The evidential marker E

The meaning of a yes/no question in English is the result of composing TP with a C head, Q, which maps a proposition p to the question meaning 'whether p' (cf. Katz and Postal 1964, Jacobs and Rosenbaum 1968, Baker 1970, Karttunen 1977).

(15) Semantics of Q
$[\![Q]\!](p) = \{p, W \backslash p\}$

I assume that the English lexicon contains a silent evidential marker E which is also a C head and which is purely presuppositional.

(16) Semantics of E
$[\![E]\!](p)$ = p if there is contextual evidence for p, undefined otherwise[4]

Given that E must combine with a propositional constituent, y/n questions are analyzed as either (17a) or (17b).

(17) a. [$_{CP}$ Q [$_{TP}$ ...]]
b. [$_{CP}$ Q [$_{CP}$ E [$_{TP}$ ...]]]

Q is affixal, while E comes in two varieties, affixal and non-affixal. Thus, Q must and E can trigger head movement.[5] We then have the following scenarios.

(18) Questions without E
[$_{CP}$ T+Q [$_{TP}$ ... t_T ...]] "will John buy the book?"

(19) Questions with E
a. Non-affixal E
[$_{CP}$ E+Q [$_{CP}$ t_E [$_{TP}$ ... T ...]]] "John will buy the book?"
b. Affixal E
[$_{CP}$ T+E+Q [$_{CP}$ t_{T+E} [$_{TP}$ ... t_T ...]]] "will John buy the book?"

Maximize Presupposition

Heim (1991) proposes an economy principal which adjudicates between linguistic forms that have the same "logical meaning" but differ with respect to their presuppositions.

(20) a. The sun is shining
b. #A sun is shining

(21) $[\![$the sun is shining$]\!] = [\![$a sun is shining$]\!]$ if there is exactly one sun, undefined otherwise

(22) a. $[\![\text{the sun is shining}]\!] = \dfrac{\exists x.\text{sun}'(x) \wedge \text{shining}'(x)}{|\text{sun}'| = 1}$

b. $[\![\text{a sun is shining}]\!] = \dfrac{\exists x.\text{sun}'(x) \wedge \text{shining}'(x)}{\top}$

[4] Thus, E presupposes what epistemic *must* asserts (cf. Fintel and Gillies 2010).

[5] This this respect, E resembles the sentential negation in English which is either affixal (*n't*) or non-affixal (*not*).

(23) Maximize Presupposition
φ is infelicitous if there exists another sentence ψ such that
(i) $[\![\varphi]\!] = \frac{p}{q}$ and $[\![\psi]\!] = \frac{p}{q'}$
(ii) q' is stronger than q
(iii) q' is true

Deriving the BCG

Proof

Let c be a context where there is evidence that p is true and φ be a sentence expressing the question $\{p, W\backslash p\}$ whose prejacent is $W\backslash p$. Thus, φ is either (24a) or (24b).

(24) a. $[Q\ TP_{W\backslash p}]$
b. $[Q\ [E\ TP_{W\backslash p}]]$

Suppose φ = (24a). Then $\varphi = \frac{\{p, W\backslash p\}}{\top}$, which means φ violates MP since there exists $\psi = [Q\ [E\ TP_p]]$ such that $[\![\psi]\!] = \frac{\{p, W\backslash p\}}{\text{there is contextual evidence that p}}$.

Suppose φ = (24b). Then $[\![\varphi]\!] = \frac{\{p, \neg p\}}{\text{there is evidence that } W\backslash p}$, which means φ has a false presupposition.

Example

(25) Context: John is seen writing with his left-hand.
a. $[_{CP}$ Q [E [John is left-handed]]]
b. #$[_{CP}$ Q [E [John is right-handed]]] $\Rightarrow$ presupposition failure
c. #$[_{CP}$ Q [John is right-handed]] $\Rightarrow$ violates MP due to (25a)
d. #$[_{CP}$ Q [John is left-handed]] $\Rightarrow$ violates MP due to (25a)

The Maxim of Manner

Grice (1967) proposes a preference principle, "Be brief," which favors simpler expressions over more complex ones. Let us take it to mean the following.

(26) Maxim of Manner
Do not use φ if there is an equally good φ' which is simpler than φ[6]

I adopt the intensional characterization of simplicity proposed in Katzir (2007), Fox and Katzir (2011).

(27) $\varphi' \in$ ALT(φ) if φ' can be derived from φ by replacing constituents of φ with (i) lexical items or (ii) constituents uttered in the discourse context
$\Rightarrow \varphi'$ is simpler than φ iff $\varphi' \in$ ALT(φ) and $\varphi \notin$ ALT(φ')

(28) U = "John kissed Mary or Sue"
a. ALT(U) = {John kissed Mary, John kissed Sue, John kissed Mary and Sue}
b. John kissed Mary but not Sue $\notin$ ALT(U)

[6] For the purpose of this discussion, let us say that φ and φ' are "equally good" iff (i) they are semantically equivalent and (ii) they both satisfy MP.

Deriving the NGC

Proof

Let c be a context where there is evidence for neither p nor W\p, and let φ be a sentence expressing the y/n question $\{p, W\backslash p\}$.

Suppose φ does not exhibit subject auxiliary inversion. Then φ must contain E which itself moves to Q and which blocks T-to-C movement by the Head Movement Constraint (Travis 1984). In other word, φ must be analyzed as (29).

(29) $[_{CP}$ E+Q $[_{CP}$ t_E $[_{TP}$ Subj T ...]]]

This means that φ presupposes that there is contextual evidence for $[\![TP]\!]$ and hence is a presupposition failure.

Suppose φ contains negation, i.e. of the form in (30).

(30) $[_{CP}$ Q $[_{TP}$ Subj T $[_{NegP}$ not VP]]]

The φ violates Manner since there exists a simpler and semantically equivalent $\varphi' =$ (31) which is derivable from φ by replacing NegP with VP.

(31) $[_{CP}$ Q $[_{TP}$ Subj T VP]]

Example

(32) Context: neutral
  a. $[_{CP}$ is+Q $[_{TP}$ John t_{is} left-handed]]
  b. #$[_{CP}$ E+Q $[_{CP}$ t_E $[_{TP}$ John is left-handed]]] ⇒ presupposition failure
  c. #$[_{CP}$ is+Q $[_{TP}$ John t_{is} not left-handed]] ⇒ violates Manner due to (32a)

3 Other issues

3.1 The Büring-Gunlogson claim

(33) The Büring-Gunlogson claim
A negative question can be felicitous in an evidentially neutral context

Büring & Gunlogson (2000)

B&G provide the following example to argue for (33).

(34) A and S want to go out for dinner. S has been to Moosewood a couple of years back.
  A: Where do you want to go for dinner?
  S: Isn't there some vegetarian restaurant around here?

⇒ To the extent that it is felicitous, the question seems to highlight the fact that A didn't mention any vegetarian restaurant, and S seems to be speaking as if this is a kind of "minimal evidence" against the existence of such a restaurant.

⇒ The question deteriorates when we modify the experimental set-up slightly.

(35) A and S want to go out for dinner. S has been to Moosewood a couple of years back.
  A: Where do you want to go for dinner. I have no idea what they have in this town.
  S: #Isn't there some vegetarian restaurant around here?

Romero & Han (2004)

Romero and Han (2004) provide such data as (36) as argument for the Büring-Gunlogson claim.

(36) Context: preparing for a party
A: Mary does not smoke.
B: What about John? Does he not smoke?

⇒ If the relevant NegP have been uttered in the discourse context, then the question without Neg will not be simpler than the equivalent one with Neg!

(37) Uttered: "Mary does not smoke"
a. does John smoke ∈ ALT(does John not smoke)
b. does John not smoke ∈ ALT(does John smoke)

Roelofsen et al. (2013)

Roelofsen et al. (2013) conducted an experiment which tests the felicity of y/n question variants in different discourse contexts. The result cited to support the Büring-Gunlogson claim is that (38b-i) is rated as a "natural" reaction to (38b-ii).

(38) a. Kate to Jennifier: "I'm going to get a cat. I've always wanted one."
b. (i) Rose to Jennifier: "Did you hear? Kate got a pet. I heard it's so cute!"
(ii) Jennifer to Rose: "Didn't she get a cat?"

⇒ Jennifer seems to be speaking as if Rose would know what pet Kate got and would have said "cat" if it was a cat.

⇒ The negative question deteriorates when we change the experimental set up slightly.

(39) a. Kate to Jennifier: "I'm going to get a cat. I've always wanted one."
b. (i) Rose to Jennifier: "Did you hear? Kate got a pet. I don't know whether it's a cat or a dog but I heard it's really cute!"
(ii) Jennifer to Rose: #"Didn't she get a cat?"

3.2 A "meta-linguistic" negation?

It has been argued that negative questions are special because the negation can be construed as "meta-linguistic" (Romero and Han 2004), scoping higher than the regular negation. The fact that positive polarity items can appear in negative questions is considered a strong argument for this position (Romero and Han 2004).

(40) a. Haven't you seen the film already?
b. Don't you have some money?

⇒ But both positive and negative polarity items can appear in both positive and negative questions!

(41) a. Haven't/have you seen the film yet/already?
b. Don't/do you have some/any money?

3.3 Speaker bias

It seems that inverted negative questions expresses a stronger surprise at the relevant evidence than non-inverted negative questions do. Thus, when there is no reason for the speaker to be surprised, the non-inverted variant is prefered. We currently have nothing to say about this fact!

(42) A: My friend John got sick from the bus ride to New York.
B: He doesn't have a car?
B: #Doesn't he have a car?

References

Asher, Nicholas, and Brian Reese. 2005. Negative bias in polar questions. In Proceedings of SuB9, 30–43.

Baker, C. L. 1970. Notes on the Description of English Questions: The Role of an Abstract Question Morpheme. Foundations of Language 6:197–219.

Büring, Daniel, and Christine Gunlogson. 2000. Aren't positive and negative polar questions the same? Unpublished manuscript, USCS .

Fintel, Kai von, and Anthony S Gillies. 2010. Must ... stay ... strong! Natural Language Semantics 18:351–383.

Fox, Danny, and Roni Katzir. 2011. On the characterization of alternatives. Natural Language Semantics 19:87–107.

Grice, Paul. 1967. Logic and conversation. Reprinted in "Studies in the Way of Words".

Groenendijk, Jeroen, and Martin Stokhof. 1982. Semantic analysis of wh-complements. Linguistics and Philosophy 5:175–233.

Groenendijk, Jeroen, and Martin Stokhof. 1984. Studies on the Semantics of Questions and the Pragmatics of Answers. Doctoral Dissertation, University of Amsterdam.

Gunlogson, Christine. 2002. Declarative questions. Proceedings of Semantics and Linguistics Theory 12:144–163.

Gunlogson, Christine. 2003. True to form: Rising and falling declaratives as questions in English. Routledge.

Hamblin, C. 1973. Questions in Montague English. Foundations of Language 41–53.

Hamblin, Charles Leonard. 1958. Questions. The Australasian Journal of Philosophy 36:159 – 168.

Han, Chung-hye, and Maribel Romero. 2002. Verum focus in negative yes/no questions and Ladd's p/-p ambiguity. In Proceedings of SALT XII, ed. Brendan Jackson, 204–224. Cornell University, Ithaca, NY: CLC Publications.

Heim, I. 1991. Artikel und definitheit. Semantics: An International Handbook of Contemporary Research. Walter de Gruyter, Berlin 487–535.

Jacobs, Roderick, and Peter S. Rosenbaum. 1968. English Transformational Grammar. Blaisdell.

Karttunen, Lauri. 1977. Syntax and semantics of questions. Linguistics and Philosophy 1:3–44.

Katz, Jerrold J., and Paul Postal. 1964. An integrated Theory of Linguistic Descriptions. MIT Press.

Katzir, Roni. 2007. Structurally-defined alternatives. Linguistics and Philosophy 30:669–690.

Krifka, Manfred. 2012a. Fragen, Negation in Fragen und Beantwortung von Fragen in einer dynamischen Sprechakttheorie. Talk given at ZAS, Berlin .

Krifka, Manfred. 2012b. Negated polarity questions as speech act denegations. Talk given at Semantics and Linguistic Theory 22, University of Chicago .

Krifka, Manfred. 2012c. Questioning speech acts: An explanation of bias and negation in questions. Talk given at Workshop Fragen im Diskurs, 1. Netzwerktreffen, University Frankfurt/Main .

Krifka, Manfred. 2013. Response particles as propositional anaphors. Proceedings of Semantics and Linguistics Theory 23 .

Ladd, D. Robert. 1981. A first look at the semantics and the pragmatics of negative questions and tag questions. Proceedings of the Chicago Linguistics Society 164–171.

Reese, Brian. 2006. The meaning and use of negative polar interrogatives. In Empirical issues in syntax and semantics, ed. O. Bonami and P. Cabredo Hofherr, volume 6, 331–354.

Roelofsen, Floris, Noortje Venhuizen, and Galit Weidman Sassoon. 2013. Positive and negative polar questions in discourse. Proceedings of Sinn und Bedeutung 17 455 – 472.

Romero, Maribel, and Chung-Hye Han. 2004. On negative Yes/No questions. Linguistics and Philosophy 27:609–658.

Rooy, Robert van, and Marie Safarova. 2003. On polar questions. In Proceedings of SALT XIII, ed. Robert B. Young and Yuping Zhou, 292–309. Cornell University, Ithaca, NY: CLC Publications.

Safarova, Marie. 2005. The semantics of rising intonation in interrogatives and declaratives. In Proceedings of Sinn und Bedeutung 9, 355–369.

Safarova, Marie. 2007. Nucleus rise in update semantics. In Question in dynamic semantics, ed. Maria Aloni, Alastair Butler, and Paul Dekker. Elsevier.

Sudo, Yasutada. 2013. Biased polar questions in English and Japanese. In Beyond expressives: Explorations in use-conditional meaning, ed. Daniel Gutzman and Hans Martin Gaertner, number 28 in Current Research in the Semantics/Pragmatics Interface (CRiSPI). Leiden: Brill.

Travis, Lisa. 1984. Parameters and effects of word order variation. Doctoral Dissertation, MIT.

Trinh, Tue, and Luka Crnic. 2011. The rise and fall of declaratives. In Proceedings of Sinn und Bedeutung 15.

Truckenbrodt, Hubert. 2006. On the semantic motivation of syntactic verb movement to C in German. Theoretical linguistics 32:257–306.

Van Rooy, Robert, and Marie Šafářová. 2003. On polar questions. In Proceedings of SALT, volume 13, 292–309.

Venhuizen, Noortje Joost. 2011. Negation in questions .