

# 'Negation und subjective Veridicality'

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## 1. Preliminaries

### 1.1. What this talk is about

- (1) a. # Xanthippe doesn't love Socrates and he (does **not**) know(s) **that** she loves him.  
b. ✓ Xanthippe doesn't love Socrates and he (does **not**) know(s) **if** she loves him.
- (2) Socrates is **\*(not)** sure/convinced **if** Xanthippe loves him.

⇒ Embedded interrogatives are sensitive to negation and sometimes may even be licensed by negation.

### 1.2. Classification of polar interrogative embedding predicates

- Responsiveness?

Normally, sentences containing embedded questions have meanings involving "the answer to the question". (Huddleston 1994: 415)

- (3) *Responsive predicates* (Spector/Egré 2015: 1734)

(i) Syntactic property: they take both declarative and interrogative complements.

(ii) Semantic property: they express a relation between the holder of an attitude and a *proposition* which is an answer to the embedded question.

- (4) a. Sokrates weiß, dass Xanthippe ihn liebt.  
b. Sokrates weiß (die Antwort auf die Frage), **ob** Xanthippe ihn liebt.

- Deontic predicates optionally selecting *if*-clauses are not about a true answer but about the truth conditions themselves (cf. Öhl 2018; 2019). Even though paraphrasing by "answer to the question if" makes sense, it is not what the sentence denotes.

- (5) a. **That/** (#the answer to the question) **if** I find Linguistics exciting is my decision.  
b. The library has determined **that/** (#the answer to the question) **if/whether** books can be returned on Sundays.

- *if*-clauses may parallel sets of answers but do not necessarily denote sets of answers

- (6) a. determine  
b. = restrict a set of worlds by defining the truth conditions  
c. ≠ select the true answer(s)

⇒ Reference to questions or to sets of answers are just options of interpreting the logical properties of complementisers like *if* and *ob*.

⇒ *if*-clauses are chosen whenever there is a choice of *alternative sets of worlds*.

### 1.3. Readings of clauses embedded by epistemic predicates

(7) a.  $i = \langle w, t \rangle$   
 b.  $a = \langle w^a, t^a \rangle$  (actual index; evaluation index of the truth value)

(8) a. that zero is a prime number  
 b.  $p(i) = \lambda i. \text{prime-number}'(i, \text{zero}')$   
 c.  $[[ \text{zero is prime number} ]]^a = 0$

• Interrogative semantics (cf. Groenendijk/Stokhof 1984):

(9) a. Is zero a prime number?  
 b.  $\lambda i \lambda a [\text{prime-number}'(i, \text{zero}') = \text{prime-number}'(a, \text{zero}')] ]$

⇒ The meaning of the sentence consists in the set of indices  $i$  where the truth of zero being a prime number corresponds to the truth of zero being a prime number at any actual index  $a$ .

• *Intensional reading* (sets of sets): also valid for worlds where zero is a prime number.

⇒ The worlds in question are epistemic worlds, not alethic ones. Whereas in alethic modality, the definition of prime numbers yields an absolute truth by means of the accessibility relation between possible worlds, epistemic worlds may diverge. Otherwise, asking this question wouldn't make sense or would even be impossible.

• Such an "index dependent proposition" is mapped to a syntactic object that can be embedded.

(10) a. Homer wonders if zero is a prime number.  
 b.  $\text{wonder}'(\text{Homer}', \lambda i \lambda a [\text{prime-number}'(i, \text{zero}') = \text{prime-number}'(a, \text{zero}')] ])$  (intensional)

• In certain epistemic contexts, embedded *wh*-clauses are *extensionalised*.

(11) a. Homer knows if zero is a prime number.  
 b.  $\text{know}'(\lambda i [\text{prime-number}'(i, x) = \text{prime-number}'(a, x)] )$  (extensional)

⇒ The meaning of the embedded clause consists in the set of indices  $i$  where the truth of  $x$  being a prime number corresponds to the truth of  $x$  being a prime number at the actual index  $a$ .

⇒ The actual index is fixed.

### 1.4. Questions

- What determines the choice between *if* and *that*?
- When are extensional *if*-clauses excluded?
- What role does negation play?
- Can the choice of an intensional *if*-clause be uniformly modelled?

## 2. Proposal

### 2.1. Operations blocking extensionalisation

- If predicates are underspecified whether to embed an *if*-clause or a *that*-clause, the grammatical, the logical or even the pragmatic context may decide about the choice of an *if*-clause.

! NB: If the predication is modified by an operator like NEG, the extensionalisation of the embedded proposition seems to be blocked.

- (12) a. It isn't clear if zero is a prime number.
- b.  $\llbracket \neg \text{clear}'(\lambda i \lambda a [\text{prime-number}'(i, \text{zero}) = \text{prime-number}'(a, \text{zero})]) \rrbracket = 1$
- c. "It is true that the question of zero being a prime number hasn't been clarified."

⇒ *if* is grammatically licensed

! NB: the choice of *if* vs. *that* seems to correlate with the scope of the negative operation.

- (13) a. It isn't clear that zero is a prime number.
- b.  $\llbracket \text{clear}'[\text{prime-number}'(a, \text{zero})] \rrbracket = 0$  (sentence negation)
- c. "It is not true that zero is clearly a prime number."

• Narrow scope of NEG in German prefers *ob*, wide scope yields markedness of *ob* as compared to *that*.

- (14) es ist [unsicher **ob**/?dass Null eine Primzahl ist. ] [<sub>V</sub> un-V [<sub>CP</sub> ob . . . ]]

- (15) a. Es ist [schon seit JEher] nicht sicher, **ob**/?dass Null eine Primzahl ist.
- b. Es ist nicht [schon seit JEher] sicher, **dass**/#ob Null eine Primzahl ist.

• complex *Vorfeld*: preference for *ob*

- (16) a. Unklar ist, **ob**/#dass das stimmt.
- b. Nicht klar ist, **ob**/dass das stimmt.
- c. Klar ist NICHT, **dass**/ob das stimmt.

⇒ Evidence for immediate composition of NEG+PRED ("coherent negation"; Öhl 2007: 420ff.)?

- (17) a. Wir sind uns nicht darüber einig, dass/ob Null eine Primzahl ist.
- b. Wir sind uns darüber nicht einig/ uneineig, ob/#dass Null eine Primzahl ist.

- (18) Wahrscheinlich hat er
  - a. \*ein Verkehrsschild nicht erkannt, sondern ein Werbeplakat (angeschaut)
  - b. ✓kein Verkehrsschild erkannt, sondern ein Werbeplakat (angeschaut)

• sentence negation vs. predicate modification in English:

- (19) a. He did not tell **that** he would come. → It is not true that he
- b.  $\llbracket \text{told}(\text{he}, [\text{come}(\text{he})]) \rrbracket = 0$  told that he would come.

- (20) a. He did not tell **if** he would come. → It is true that he did not tell (i.e. he concealed)
- b.  $\llbracket \neg \text{told}(\text{he}, [\text{come}(\text{he}) \vee \neg \text{come}(\text{he})]) \rrbracket = 1$  whether he was planning to come or not.

⇒ The accessibility of the complementary set of alternative worlds as in (9) is decisive for the *if*-clause to be licensed. The relevant operations are operations *on the predicate*.

• More evidence: scope of modals

- (21) a. [<sub>VP</sub> sicher sein, **dass**/#**ob** das stimmt] soll es angeblich bereits (wide scope; epistemic)
- b. [<sub>CP</sub> #**dass**/**ob** das stimmt] hat erstmal sicher sein sollen (narrow scope; deontic)

• Other modifiers of the predication (cf. Adger/Quer 2001: 110; 112; Öhl 2007: 417)

- (22) a. Time will make clear **if** zero is a prime number. (FUT)
- b. I wished I could make clear **if** zero is a prime number. (IRR)
- c. He seems to have made clear **if** zero is a prime number. (POT)
- d. He must make clear **if** zero is a prime number. (DEON)
- e. . . .

## 2.2. Subjectivity and veridicality

• *Subjectivity* as an element of the predicate function

- (23) a. Homer is happy that zero is (not) a prime number. (emotive)  
 b. Homer knows that zero is #(not) a prime number. (→ *know* is veridical)
- (24) a. Homer is not happy that zero is a prime number (ambiguous)  
 b. Homer is unhappy that zero is a prime number. (unambiguous)  
 c. Homer is not unhappy that zero is a prime number. (unambiguous)

• *Veridical* predicates may scope over *propositions* that are presupposed as true *or* maybe just as truth-accessible for the subject of the matrix.

- (25) a. Homer knows that/if zero is (not) a prime number.  
 b. Homer does not know if zero is a prime number.

⇒ Predicate negation may block the presupposition.

• vs. 'factives' (Kiparsky/Kiparsky 1970: 144ff.); vs. 'semifactives' (vgl. Karttunen 1971: 63; 65)

- (26) a. Er *streitet* (nicht) *ab*, dass/\*ob etwas an der Sache dran ist. (factive, nonveridical, non-emotive)
- (27) a. John did not realize that he had not told the truth. (factive)  
 b. If I realize that I have not told the truth, I will confess it to everyone. (non-factive)

**Def.:** *veridicality* = property of *utterances* or *perceptions* to be assumed as true or real (abstracted from Borchert 2006, Encyclopedia of Philosophy 7: 188; 193)

• Montague's (1969) concept of veridicality (Giannakidou 2013: 119):

- (28) a.  $\llbracket \text{I see a unicorn} \rrbracket = 1$   
 b.  $\Rightarrow$  There are unicorns.  
 c.  $\rightarrow$  'see' is a veridical predicate.

(29) I am afraid of unicorns.

(30) **Def. objective veridicality:** A function  $F$  is veridical if  $Fp$  entails  $p$ . (Giannakidou 2013: 119)  
 (...) a subjective version of (non)veridicality is necessary, one that allows veridicality to depend on what epistemic agents know or believe to be true. (ibd.)

(31) *Epistemic model of an individual  $i$*  (Giannakidou 1998: 45)  
 An epistemic model  $M(i) \in M$  is a set of worlds associated with an individual  $i$  representing worlds compatible with what  $i$  believes or knows.

(32) *Veridicality and Nonveridicality* (Giannakidou 2013: 121)

- i. A propositional operator  $F$  is veridical iff  $Fp$  entails or presupposes that  $p$  is true **in some individual's model**  $M(x)$ ;  $p$  is true in  $M(x)$ , if  $M(x) \subset p$ , i.e. if all worlds in  $M(x)$  are  $p$ -worlds.
- ii. If (i) is not the case,  $F$  is nonveridical.
- iii.  $F$  is *antiveridical* iff  $Fp$  entails *not  $p$  in some individual's model*: iff  $M(x) \cap p = \emptyset$

(33) *Subjective veridicality and agent commitment* (ibd.)

- i. Truth assessment is relativized to epistemic agents.
- ii. In unembedded sentences the epistemic agent is the speaker.
- iii. In embedded sentences, possible epistemic agents are the speaker and the embedding clause subject. In embedded sentences generally the number of epistemic agents is +1 from the base case.
- iv. In texts, an additional epistemic agent is the hearer/reader.

? Lahiri (2002: 287): predicates like *certain*, *sure*, *convinced*, *agree on*, *conjecture* should be classified as nonveridical because they do not give access to an objective evaluation of the truth value of the embedded proposition.

! Whenever an *if*-clause is licensed by a nonveridical operation, it is acceptable.

- (34) a. (Not) being sure **that/(\*)if** zero was a prime number, Homer failed the exam.  
 b. It is not yet clear (to everyone) **if** zero is not a prime number. (→ narrow scope of *NEG*)

- ? If these predicates were nonveridical, why should an additional nonveridical operation yield the option of embedding an *if*-clause?
- ⇒ Öhl (2017: 385ff.; 2019): among the *epistemic* predicates, *subjectively veridical predicates* (Öhl 2007, 412: factive epistemic predicates) constitute a proper subclass by denoting the interpretation of the truth value relatively to the *model* of the subject of the matrix clause. This makes them accessible to nonveridical operations.
- supporting evidence: discourse markers (vgl. Jacobs *to appear*)
- (35) a. Ich bin sicher/überzeugt, dass Null *sehr wohl* eine Primzahl ist.  
b. Ich ?hoffe/\*befehle, dass Null *sehr wohl* eine Primzahl ist.
- *subjective* vs. *objective* veridicality
- (36) a. Homer is convinced that/\*if 39.719 is a prime number.  
b. Homer is sure that/\*if 39.719 is a prime number.
- ⇒ The the matrix subject as an epistemic agent has *committed* him/herself to the truth of p(a); an *if*-clause is
- paradoxal, since the commitment is marked by *that*
  - therefore also uninformative, since there isn't reported anything
- First person identifies the subject AND the speaker as the epistemic agent.
- (37) a. #I am sure/ he is sure that he knows that zero is a prime number.  
b. I am sure that he knows if zero is a prime number.  
c. Ich bin mir nicht sicher/ darüber im klaren #dass/ob null eine Primzahl ist.
- Why isn't *believe* subjectively veridical?
- (38) a. #I know that zero isn't a prime number but I am not sure about it.  
b. #I am sure that zero isn't a prime number but I believe it.
- (39) a. I believe that zero is a prime number but I am not sure about it.  
b. I am sure that zero isn't a prime number but I don't know it.
- scope/ informativeness
- (40)a. He has found out if 39.719 is a prime number.  
b. He has told me if 39.719 is a prime number.
- ⇒ The truth of p(a) is known to the matrix subject, it may be known to the speaker, but it is not reported to the hearer (which is decisive for the use of *if*).
- (41)a. [[ 39.718 is a prime number ]] = 0  
b. ≠> [[ he is sure/convinced that 39.718 is a prime number ]] = 0  
c. ⇒ [[ he has found out that 39.718 is a prime number ]] = 0
- ⇒ The truth of [[ he has found out if 39.718 is a prime number]] depends on the truth of [[ 39.718 is a prime number]]; the *if*-clause is informative (cf. Eckardt 2007: 462).
- negation cancels veridicality in both cases
- (42) a. He has not found out if 39.719 is a prime number.  
b. He is not sure if 39.719 is a prime number.
- ⇒ The matrix subject as an epistemic agent has neither access nor committed him/herself to the truth of p(a); the embedded proposition is intensionalised (s. above 2.1) .
- *tell*
- (43) He did not tell me if he was a Trekki.
- ⇒ The speaker as an epistemic agent does not have access to the truth of p(a).
- (44) a. He told me that he was a Trekki. (*tell* is ambiguously ±ver)  
b. He told me that he was a Trekki but he wasn't. (-ver)  
c. He told me if he was a Trekki (\*but he wasn't)

### 3. Prosit

- Complementisers like *if* (resp. Gm. *ob*) yield propositional disjunction by relating complementary sets of possible indices to possible evaluation indices *a* ( $\rightarrow$  sets of complementary sets; intensional).
- Veridical predications may fix the evaluation index *a*, which means extensionalisation ( $\rightarrow$  complementary sets).
- Nonveridical operations on the predication, like NEG, may block the extensionalisation. In this case, *if*-clauses are grammatically licensed.
- Subjectively veridical predications denote commitment of the matrix subject to the truth of the embedded proposition. *if*-clauses are grammatically licensed by nonveridical operations over the predicate..

### References

1. Adger, David/ Joseph Quer (2001). The syntax and semantics of unselected embedded questions. *Language* 77/1, 107-133.
2. Borchert, Donald M. [Hrsg.] (2006): *Encyclopedia of Philosophy*, Vol. 7. Detroit [u.a.]: Macmillan Reference, Thomson Gale.
3. Eckardt, Regine (2007): The syntax and pragmatics of embedded yes/no questions. In: Kerstin Schwabe, Susanne Winkler (eds.): *On Information Structure, Meaning and Form*. Amsterdam: John Benjamins. 447-467.
4. Giannakidou, Anastasia (1998): *Polarity sensitivity as (non)veridical dependency*. Amsterdam, Philadelphia (PA): Benjamins.
5. Giannakidou, Anastasia (2013): Inquisitive assertions and nonveridicality. In Maria Aloni, Michael Franke, and Floris Roelofsen (eds.), *The dynamic, inquisitive, and visionary life of phi, ?phi, and possibly phi. A festschrift for Jeroen Groenendijk, Martin Stokhof and Frank Veltman*. Amsterdam: Institute for Logic, Language and Computation (ILLC). 115-126.
6. Groenendijk, Jerome/ Stokhof, Martin (1984): *Studies in the Semantics of Questions and the Pragmatics of Answers*. Dissertation, University of Amsterdam.
7. Jacobs, Joachim (to appear): Why the meaning of discourse particles is separated from focus-background structure. Gutzmann, Daniel/ Thurgay, Katharina (eds.), *Secondary Content*. CRISPI.
8. Karttunen, Lauri (1971): Some Observations on Factivity. *Papers in Linguistics* 4. 55-69.
9. Kiparsky, Carol/ Kiparsky, Paul (1970). Fact. Manfred Bierwisch/ Heidolph, Gustav (eds.). *Progress in Linguistics*. The Hague. 143-73.
10. Lahiri, Utpal (2002). *Questions and answers in embedded contexts*. Oxford studies in theoretical linguistics Oxford: Oxford University Press.
11. Mayr, Clemens (2017): *Predicting question embedding*. Robert Truswell (ed.), *Proceedings of Sinn und Bedeutung* 21, 1-18. University of Edinburgh: Edinburgh.
12. Montague, Richard (1969): On the nature of certain philosophical entities. *The Monist* 53: 159-94. Reprinted in 1974 in: *Formal Philosophy. Selected papers of Richard Montague*. ed. by R.H.Thomason. Yale University Press, New Haven, 148-87.
13. Öhl, Peter (2007): Unselected Embedded Interrogatives in German and English. S-Selection as Dependency Formation. *Linguistische Berichte* 212, 403-437.
14. Öhl, Peter (2017): Zur Akzeptanz der Einbettung von ob-Sätzen unter veridischen Prädikaten. Eine Hypothese bezogen auf epistemische Weltmodelle – mit einem Seitenblick auf das Persische. Nefedov, Sergej/ Grigorieva, Ljubov/ Bock, Bettina (Hg.), *Deutsch als Bindeglied zwischen Inlands- und Auslandsgermanistik. Beiträge zu den 23. GeSuS-Linguistik-Tagen in Sankt Petersburg, 22.–24. Juni 2015*. Hamburg: Kovač. (*Sprache und Sprachen in Forschung und Anwendung* 5). 385-394.
15. Öhl, Peter (2018): Veridicality and sets of alternative worlds. On embedded interrogatives and the complementisers *that* and *if*. Dimroth, Christine/ Sudhoff, Stefan (eds.), *The grammatical realization of polarity contrast. Theoretical, empirical, and typological approaches*. Amsterdam: Benjamins. 109–128. (*Linguistics Today/Linguistik Aktuell* 249)
16. Öhl, Peter (2019): Bedeutung und Funktion von Satzarten. In: Kegyes, Erika/ Kriston, Renate (Hgg.), *Sprachen, Literaturen und Kulturen im Kontakt. Beiträge der 25. Linguistik- und Literaturtage der GeSuS, Miskolc/Ungarn 2017*. Hamburg: Kovač. 229-238. (*Sprache und Sprachen in Forschung und Anwendung* 8)
17. Schwabe, Kerstin (im Ersch.): Typology of German Polar Clause Embedding Predicates. A Uniform Representation of Embedded Polar Interrogatives, and Operators. In: Durand, Marie-Laure/ Lefèvre, Michel/ Öhl, Peter (Hgg.), *Tradition und Erneuerung: Sprachen, Sprachvermittlung, Sprachwissenschaft. Beiträge der 26. Jahrestagung der Gesellschaft für Sprache und Sprachen, 05.-07. April 2018, Universität Montpellier/Frankreich*. Hamburg: Kovač. 69-86. (*Sprache und Sprachen in Forschung und Anwendung*)
18. Spector, Benjamin/ Egré, Paul (2015): A uniform semantics for embedded interrogatives: An answer, not necessarily the answer. *Synthese* 192, 1729-1784.