A uniform representation of German embedded polar interrogatives, a typology of their embedding predicates and adaptors

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The talk will present a typology of German *ob*-predicates like *argwöhnen* 'suspect' as in (1), that is, of predicates that embed *ob*-clauses, a uniform analysis of *ob*-clauses and quantifiers that adapt *ob*-clauses to different verb classes.

(1) ... die Gesundheitsbehörden müssen stets *argwöhnen*, ob sich eine neue Epidemie anbahnt. ZDB 898: DWDS TS 2003
'The health authorities always have to suspect whether a new epidemic is looming.'

The typology is based on the ZAS Data Base of German clause embedding predicates which contains about 1790 synchronical annotated and exemplified predicates including 666 *ob*-predicates – cf. Stiebels et al. (2017). The typology is more exhaustive than Wunderlich's (1976) and Karttunen's (1977) characterizations since it also contains predicates that embed reports of indirect speech acts – see (5) below. It is more elaborated since its classification is more fine-grained and includes the compositionally derived Logical Form of each construction type. The talk will show that the majority of *ob*-predicates denote eventualities that are located on a 'route' from an individual's α question state QS_α 'α wants [(α knows that σ) ∨ (α knows that ¬σ)]' to her or his answer state AS_α '(α knows that σ) ∨ (α knows that ¬σ)'. There is an interactive and a non-interactive epistemic route as well a deontic route.

Interactive epistemic route: $QS_\alpha > QA_\alpha > AA_\beta > BS_\alpha > AS_\alpha$

The interactive epistemic route includes, in addition to QS_α and AS_α, a question act QA_α, an answer act AA_β of the addressee β and a believe state BS_α of the question state holder α. The answer act is either a proper answer act pAA_β – the addressee of the question act believes to render the true answer – or an improper answer act $ipAA_\beta$ – an act where the addressee reacts, but does not render a believed true answer.

Question states are denoted by predicates like *sich fragen* 'wonder' or *argwöhnen* 'suspect' – see (1). Question acts are related to by predicates like *fragen* 'ask' or *nachhaken* 'ask further questions'. Proper answer acts pAA are denoted by verbs like *ankündigen* 'announce' or *gestehen* 'confess'. Generally, they embed declaratives, but they also occur with *ob*-interrogatives in particular contexts – see (2).

(2) …, dass der französische Verkehrsminister Jean-Claude Gayssot und sein britischer Kollege in Le Bourget ankündigt, ob und wann die Concorde wieder fliegen darf. ZDB 551: DWDS BZ 2001
'… that the French minister of transport ... will announce whether … the Concorde is allowed to fly.'

Improper answer acts ipAA can be related to by predicates like *verheimlichen* 'conceal', *egal sein* 'do no care' or *nicht sicher sein* 'be not sure' – see (3a, b).

(3) a. *Es ist mir egal, ob ich berühmt bin oder nicht*. ZDB 3233: DWDS BZ 2005
'I do not care if I'm famous or not.'

b. Noch ist nicht einmal sicher, ob das von ihm vermittelte Gespräch zwischen dem israelischen Außenminister Peres und Palästinenserpräsident Arafat überhaupt zu Stande kommt und wann oder wo es stattfindet. ZDB 7896: DWDS BZ 2001

Depending on whether the question state holder believes the answer given by the answer act of the addressee and whether the answer is true, the question state holder is in an answer state AS_α. The latter is denoted by predicates like *wissen* 'know'.

As for the non-interactive epistemic route, it contains – instead of QA_α and AA_β – the research act of the question state holder RsA_α and his or her result state ReS_α.

Non-interactive epistemic route: $QS_\alpha > RsA_\alpha > ReS_\alpha > BS_\alpha > AS_\alpha$

Research acts are denoted by predicates like *abwägen* 'ponder' or *ausprobieren* 'test'. Result states are related to by predicates like *herausfinden* 'find out' or *folgern* 'conclude'.

Whereas the truth of σ or $\neg\sigma$ of the epistemic question-answer routes is decided on with respect to the actual world, the validity of σ or $\neg\sigma$ of the deontic question-answer route is determined with respect to a deontic world.

Deontic route: $QS_\alpha > QA_\alpha > AA_\beta > AS_\alpha$

Question acts on a deontic route are denoted by predicates like *bitten* 'ask' or *fragen* 'ask'. Proper answer acts are related to by predicates like *bestimmen* 'determine' or *entscheiden* 'decide'. Improper answer acts are related to by predicates like *verantworten müssen* 'have to account for' or *egal sein* 'do not care' – see (4).

(4) Er ***mag*** es selbst ***verantworten***, ob er sich zum Richter über Leben und Tod aufschwingt. ZDB 8574: DWDS Zeit 2005
'He must account for if he rules over life and death.'

Beside *ob*-predicates denoting an eventuality on a question-answer route, there are *ob*-predicates relating to indirect speech acts or beliefs. Their embedded *ob*-clause often contains a modal particle:

(5) Paul Ehrenfest hat … ***vorgeschlagen***, ob man ***nicht*** so etwas wie Teilchen der Strahlung definieren könnte, ... ZDB 11562: DWDS Zeit 2004
'Paul E. has proposed whether it isn't possible to define particles of radiation ...'

Indirect speech acts are related to by predicates like *vorschlagen* 'propose', *verspotten* 'mock', and *bitten* 'ask'. Indirect beliefs can be related to by verbs like *fürchten* 'fear', *eingestehen* 'admit' or *daran denken* 'think of'.

Like Adger & Quer (2001) in their analysis of unselected *if*-clauses (6), the talk represents *ob*-clauses uniquely as questions that correspond to the set of propositions $\{\sigma, \neg\sigma\}$ – cf. (6iv). As far as unselected *ob*-clauses are concerned, which are only licensed in negative contexts, Adger & Quer suggest that they are a complement of a non-overt determiner Δ that applies them to their matrix clause – see (6v-viii).

(6) The bar tender$_j$ does [$_{XP}$ not [$_{VP}$ [$_{\Delta P}$ Δ [$_{CP}$ if the costumer was drunk]]$_i$ [$_{VP}$ t_j admit t_i]]]

i. $[\![V]\!]$ = $\lambda p\, \lambda x$ [admit (p, x)]
ii. $[\![VP]\!]$ = λr [admit (r, bar tender)]
iii. $[\![\textit{if}]\!]$ = $\lambda p\, \lambda q$ [(q = p) $\vee$ (q = $\neg$p)]
iv. $[\![\textit{if}\text{-CP}\ ]\!]$ = λq [(q = come m) $\vee$ (q = $\neg$ come m)]
v. $[\![\Delta]\!]$ = $\lambda R\, \lambda P\, \exists q$ [Rq $\wedge$ Pq]
vi. $[\![\Delta P]\!]$ = $\lambda P\, \exists q$ [[(q = come m) $\vee$ (q = $\neg$ come m)] $\wedge$ Pq]
vii. $[\![VP']\!]$ = $\exists q$ [[(q = come m) $\vee$ (q = $\neg$ come m)] $\wedge$ [admit (q, bar tender)]]
viii. $[\![XP]\!]$ = $\neg\exists q$ [[(q = come m) $\vee$ (q = $\neg$ come m)] $\wedge$ [admit (q, bar tender)]]

Whereas Adger & Quer regard Δ as a polarity sensitive generalized quantifier, the talk extends it to a neutral generalized quantifier Ψ, which can be applied to an *ob*-clause that is embedded by a predicate like *wissen* 'know' or *sicher sein* 'be certain' – cf. (7) and (8).

(7) Frank weiß, ob Maria kommt.
'Frank knows whether Maria will come.'

[$_{CP}$ … [$_{\mathbf{vP}}$ [$_{VP}$ Frank [$_{V'}$ r [$_{V}$ weiß]]] [$_{\Psi P}$ Ψ [$_{CP}$ *ob* [$_{TP}$ Maria kommt]]]]

i. ⟦V⟧ = $\lambda p_{p \in \mathcal{F}}\ \lambda x\ \lambda e$ [know (p, x, e)]

ii. ⟦VP⟧ = $\lambda r\ \lambda e$ [know (r, frank, e)]

iii. ⟦*ob*⟧ = $\lambda q_{q \in \mathcal{P}}\ \lambda p_{p \in \mathcal{P}}$ [(q = p) ∨ (¬q = p)]

iv. ⟦*ob*-CP ⟧ = $\lambda p_{p \in \mathcal{P}}$ [(p = come maria) ∨ (p = ¬come maria)]

v. ⟦Ψ⟧ = $\lambda R_{R \in \mathcal{Q}}\ \lambda P_{P \in pAP}\ \exists q\ \exists e$ [(P (p, e)) ∧ (R (p))]

vi. ⟦ΨP⟧ = $\lambda P_{P \in pAP}\ \exists q\ \exists e$ [(P (p, e)) ∧ ((p = come maria) ∨ (p = ¬come maria))]

vii. ⟦VP⟧ = $\exists q\ \exists e$ [(know (p, frank, e)) ∧ ((p = cm) ∨ (p = ¬cm))]

viii. ⟦**VP**⟧ = $\exists q\ \exists e$ [((know (p, f, e)) ∧ (p = cm)) ∨ ((know (p, f, e)) ∧ (p = ¬cm))

Ψ relates the *ob*-clause to a predicate like *wissen* 'know', which relates to the set of facts ($\mathcal{F}$) – cf. Hintikka (1976) and Groenendijk & Stokhof (1984). These predicates are objectively veridical (OVP) in terms of Giannakidou (2003) or Schwabe & Fittler (2014). Predicates like *sicher sein* 'be certain' are subjectively veridical (SVP) – cf. Öhl (2016) and Giannakidou (2003). The talk suggests that the derivation of the Logical Form of constructions with a subjectively veridical predicate like (8) is similar to the derivation of constructions with an objectively veridical predicate like (7). Since predicates like *sicher sein* 'be certain' are not objectively veridical, an affirmative context would lead to pragmatic inappropriateness. If, however, (8vii) is in the scope of a non-veridical operator, a felicitous representation results – cf. (8viii).

(8) Frank ist nicht sicher, ob Maria kommt.
'Frank is not certain if Maria will come.'

[$_{CP}$ … [nicht [$_{\mathbf{vP}}$ [$_{VP}$ Frank [$_{V'}$ r [$_{V}$ weiß]]] [$_{\Psi P}$ Ψ [$_{CP}$ *ob* [$_{TP}$ Maria kommt]]]]

i. ⟦V⟧ = $\lambda p_{p \in \mathcal{P}}\ \lambda x\ \lambda e$ [be certain (p, x, e)]

ii. ⟦VP⟧ = $\lambda r\ \lambda e$ [be certain (r, frank, e)]

iii. ⟦*ob*⟧ = $\lambda q_{q \in \mathcal{P}}\ \lambda p_{p \in \mathcal{P}}$ [(q = p) ∨ (¬q = p)]

iv. ⟦*ob*-CP ⟧ = $\lambda p_{p \in \mathcal{P}}$ [(p = come maria) ∨ (p = ¬come maria)]

v. ⟦Ψ⟧ = $\lambda R_{R \in \mathcal{Q}}\ \lambda P_{P \in pAAP \cup ipAAP}\ \exists p\ \exists e$ [(P (p, e)) ∧ (R (p))]

vi. ⟦ΨP⟧ = $\lambda P_{P \in pAAP \cup ipAAP}\ \exists p\ \exists e$ [(P (p, e)) ∧ ((p = cm) ∨ (p = ¬cm))]

vii. ⟦**VP**⟧ = $\exists p\ \exists e$ [(be certain (r, frank, e)) ∧ ((p = cm) ∨ (p = ¬cm))]

viii. ⟦CP⟧ = $\neg\exists p\ \exists e$ [(be certain (r, frank, e)) ∧ ((p = cm) ∨ (p = ¬cm))]

A predicate like *glauben* 'believe', which is also subjectively veridical, reveals that subjective veridicality is not a sufficient condition for a subjectively veridical predicate to embed an *ob*-clause.

The predicate has additionally to be antonymous, that is, it must be consistent with (9a) as well as with (9b), while (9b) corresponds to (6viii) or (8viii). However, *glauben* 'believe' is complementary if there is any epistemic activitiy involved. That is, it is only consistent with (9a), which, by the way, implies neg-raising.

(9) a. $\exists p\,[(p = \sigma) \wedge (\text{verb } \sigma, \alpha)] \vee \exists p\,[(p = \neg\sigma) \wedge (\text{verb } \neg\sigma, \alpha)]$

b. $\forall p\,[[(p = \sigma) \Rightarrow (\neg \text{ verb } \sigma, \alpha)] \wedge [(p = \neg\sigma) \Rightarrow (\neg \text{ verb } \neg\sigma, \alpha)]]$

Ob-clauses that are embedded by verbs like *fragen* 'ask' or *bedenken* 'consider' relate to the question itself, that is, they embed question intensions. They are the complement of the quantifier Ω:

(10) Frank fragt, ob Maria kommt.

i. $[\![V]\!] = \lambda qu\, \lambda x\, \lambda e\, \lambda QA_x\,[\text{say } (qu, x, e) \wedge (e \in QA_x)]$

ii. $[\![VP]\!] = \lambda r\, \lambda e\, \lambda QA_x\,[\text{say } (qu, f, e) \wedge (e \in \lambda QA_x)]$

v. $[\![\Omega]\!] = \lambda R_{R \in \boldsymbol{\varrho}}\, \lambda P_{P \in QP}\, \exists p\, \exists qu\, \exists e\, \exists QA_x\,[P\ (qu, QA_x, e) \wedge ((Rp)(qu))]$

vi. $[\![\Omega P]\!] = \lambda P_{P \in QP}\, \exists p\, \exists qu\, \exists e\, \exists QA_x\,[P\ (qu, QA_x, e) \wedge ((mc\ (p) \vee \neg mc\ (p))\ qu)]$

vii. $[\![VP]\!] = \exists p\, \exists qu\, \exists e\, \exists QA_x\,[\text{say } (qu, f, e) \wedge (e \in \lambda QA_x) \wedge ((mc\ (p) \vee \neg mc\ (p))\ qu)]$

Returning to the question-answer routes, epistemic as well as deontic QS_α-, QA_α- and RsA_α-predicates are elements of the family of question predicates $\boldsymbol{QP}$, the set of sets of predicates directly relating to questions. They agree with ΩP. Proper AA_β-, ReS_α- and AS_α-predicates are elements of OVP, the set of objectively veridical predicates. Improper AA_β-predicates are elements of the intersection of subjectively veridical and antonymous predicates $SVP \cap AP$ ($ASVP$). Both, OVPs and ASVPs match with ΨP. ASVPs only agree with ΨPs in non-affirmative contexts. Predicates denoting indirect speech acts agree with ΩP.

References

Adger, D. & J. Quer. 1997. Subjunctives, Unselected embedded questions and clausal polarity items. *Proceedings of NELS* 27: 1-15.

Giannakidou, A. 2013. Inquisitive assertions and nonveridicality. In M. Aloni, M. Franke, & F. Roelofsen (eds), *The dynamic, inquisitive, and visionary life of phi, ?phi, and possibly phi*. A festschrift for J. Groenendijk, M. Stokhof and F. Veltman. 115-126.

Groenendijk, J. & M. Stokhof. 1984. Question. Studies in the Semantics of Questions and the Pragmatics of Answers. Dissertation, University of Amsterdam.

Hintikka, J. 1976. The Semantics of Questions and the Questions of Semantics. *Acta Philosophica Fennica* 28/4.

Karttunen, L. 1977. Syntax and Semantics of Questions. *Linguistics and Philosophy* 1, 3-44.

Öhl, P. 2016. THAT vs. IF – on the Semantics of Complementisers. Talk at ZAS Berlin, 16/04/04.

Schwabe, K. & R. Fittler. 2014. Über semantische Konsistenzbedingungen deutscher Matrixprädikate. Teil 1. *Sprachtheorie und germanistische Linguistik 24.1*. 45-75. Teil 2. *Sprachtheorie und germanistische Linguistik 24.2*. 123-150.

Stiebels, B., T. McFadden, K. Schwabe, T. Solstad, E. Kellner, L. Sommer & K. Stoltmann. 2017. *ZAS Database of Clause-embedding Predicates*, release 0.2 (Public Beta) in: OWID^{plus}, hg. v. Institut für Deutsche Sprache, Mannheim, http://www.owid.de/plus/zasembed2017.

Wunderlich, D. 1976. *Studien zur Sprechakttheorie*. Frankfurt am Main: Suhrkamp.