

Question bias, private beliefs and common knowledge

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Workshop

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Agenda for today

- ▶ **Empirical focus:** 'biased questions', part of a family of linguistic devices that channel information about the speaker's beliefs & communicative intentions
- ▶ **Goal:** offer a shift from discourse-based approaches to a purely doxastic view rooted in belief revision
- ▶ **Aspiration:** highlight relevance for research on the construction of belief & knowledge in conversation
- ▶ **Guiding parallel:** how research on generic language enhances our understanding of generic thought, stereotype formation and social reasoning (Bosse 2022; Cimpian et al. 2010; Neufeld et al. forth.; Reuter et al. 2025; van Rooij and Schulz 2019; Sterken 2015, a.o.)
 - (1) a. Vulcans value logic.
 - b. Heffalumps are scary.

Questions I

- ▶ Canonical view: questions are inquiries for information (cf. Searle 1969 and much later work)
 - ▶ Some core properties (a tricky semantics/pragmatics interface issue; Farkas and Roelofsen 2017, a.o.)
 - ▶ **Sincerity**: Sp wants to have an answer
 - ▶ **Ignorance**: Sp does not know the answer
 - ▶ **Neutrality**: Sp has no expectations/preferences
 - ▶ **Competence**: Sp expects Ad to know the answer
 - ▶ **Compliance**: Sp expects Ad to provide the answer
- (2) *Approaching a stranger on the street:*
Is there a public library around here?

Questions II

- ▶ Question forms (aka ‘interrogative sentences’): many departures from the canonical uses
 - ▶ To wit: interactions with your students
- (3) a. What is ‘p value’?
- b. What are the key tenets of Gricean pragmatics?
- ▶ Burgeoning interest within linguistics: non-canonical questions (stay tuned for Eckardt, Walkden, and Dehé in prep.)
 - ▶ they lack some of the standard properties
 - ▶ they are often expressed through dedicated words and constructions (=they are marked compared to ‘canonical’ questions)

Questions III

- ▶ **Rhetorical questions:** ignorance suspended, aim at making a point/eliciting a commitment (Biezma and Rawlins 2017; Caponigro and Sprouse 2007; Farkas 2023; Rohde 2006)

- (4) a. Am I good or am I good? [English]
- b. Was hätte ich schon tun können?
what have.1SG.CONJ I SCHON do.INF can.INF
≈ 'After all, what could I have done?'
(adapted from Biezma and Rawlins 2017:311; see Meibauer 1986)

- ▶ **Non-intrusive questions:** no pressure to respond (Farkas 2022; closely related to conjectural questions; Eckardt 2020; Littell et al. 2010)

- (5) *Maria to Paul, after a knock on the door in the middle of the night:*
- Oare cine e la ora asta? [Romanian]
OARE who is at hour this
≈ 'Who could it be at this hour, I wonder.'
(adapted from Farkas 2022:301)

Questions IV

- ▶ **Focus today:** another member of the non-canonical family,
biased questions
 - ▶ core properties
 - ▶ common approaches
 - ▶ empirical challenges & novel conceptualization
 - ▶ connection to belief formation?

Biased questions I

- ▶ **Question bias:** the speaker's attitude towards the truth/liability of the prejacent of a polar question (see overview in Romero 2024)
- ▶ **Key feature:** non-neutrality (notoriously bad/rude out of the blue, e.g., in visa forms, job interviews)
- ▶ **Source of non-neutrality:** matter of debate, putting aside for now (e.g., is it hard-wired or arises pragmatically; see especially Farkas and Roelofsen 2017; Goodhue 2022; Rudin 2022)

Biased questions II

- (6) **Bias for p :** *Friend takes me to a bakery, I ask them to order for me, they thought I was perfectly capable to doing so myself.*
- Negation (high) (Goodhue 2022; Ladd 1981; Romero 2020; Romero and Han 2004; Romero et al. 2017)
Don't you speak German?
 - Tags (some) (Bill and Koev forth.; Ladd 1981; Malamud and Stephenson 2015; Reese and Asher 2007; Romero 2020)
You speak German, don't you?
- (7) **Bias against p :** *Friend takes me to a bakery and is ready to order for me, but then I go ahead and boldly do so myself.*
- Rising intonation in declaratives (Büring and Gunlogson 2000; Gunlogson 2003, 2008; Jeong 2018; Rudin 2022)
You speak German?
 - Really (Bill and Koev 2022; Domaneschi et al. 2017; Romero and Han 2004)
Do you really speak German?

Biased questions III



- (8) Kann das Trennen nicht die KI machen?
can DEF separation NEG DEF AI make.INF?
≈ 'Can't the AI do the separation?'
(Separate yourself from bad excuses. Separate your trash. City of Vienna's campaign.)

Biased questions IV

- ▶ Approaches to bias:
 - ▶ operators updating discourse commitments of the interlocutors (Gunlogson 2003; Krifka 2015; Malamud and Stephenson 2015; Xu 2017)
 - ▶ operators that allow the speaker to mediate, and possibly manipulate, the common ground (Repp 2013; Romero and Han 2004; Silk 2019)
 - ▶ Common thread:
 - ▶ bias as an ultimately discourse notion
 - ▶ expressions of bias hard-wire certain conversational moves
- Q Can we derive discourse effects by appealing to beliefs instead?

Biased questions V

- ▶ Another dimension: presence of contextual evidence (see Korotkova 2023, submitted for detailed discussion of evidential bias through the prism of evidence in language)
- (9) English polar questions with positive prejacent
- ✓ **Context 1: no evidence**
Talking to friend elsewhere on the phone.
- ✓ **Context 2: evidence for p**
Asking a friend who came in soaking wet.
- #**Context 3: evidence against p**
Asking a friend who has flushed cheeks, is taking off sunglasses and carrying snowshoes.
- Is it raining outside?

Biased questions VI

- ▶ **Common parameterization** (see especially Domaneschi et al. 2017)
 - ▶ Original bias: the speaker's prior attitude, e.g., belief or preference (Romero and Han 2004)
 - ▶ Contextual bias: mutually available evidence (Büring and Gunlogson 2000; Kamali and Nakamura 2024; Sudo 2013)
 - ▶ Polarity: positive, negative, neutral
- ▶ **Combinatorics (simplified)** (cf. Gärtner and Gyuris 2017, 2023)

		Contextual		
		neut	p	$\neg p$
<i>Original</i>	neut	?	?	?
	p	?	?	?
	$\neg p$?	?	?

Negative bias & belief revision I

- ▶ **Focus:** negative epistemic bias (prior belief that $\neg p$)
- ▶ **Current approaches:** a conversational crisis stemming from the speaker's denial to accept some information/actions (formalized through the FALSUM operator; Frana and Rawlins 2019; Repp 2013; Repp and Geist forth)
- ▶ **Goals:**
 - ▶ link negative bias to non-monotonic belief revision
 - ▶ derive conversational moves as a by-product

NB English: too many confounds, so we're going to look at two Russian particles, *razve* and *neuzheli* (Korotkova 2023, submitted)

Negative bias & belief revision II

- ▶ **Neutral epistemic:** We just met, go out for lunch.
 - # **Neutral contextual:** I order, check with you beforehand.
 - # **Positive contextual:** You order beetroot hummus.
 - # **Negative contextual:** You avoid all beet mezze.
- ▶ **Positive epistemic:** I was sure you like beets.
 - # **Neutral contextual:** I invite you over, check before cooking.
 - # **Positive contextual:** We go out, you order beetroot hummus.
 - # **Negative contextual:** We go out, you avoid all beet mezze.
- ▶ **Negative epistemic:** I was sure you hate beets.
 - # **Neutral contextual:** I invite you over, check before cooking.
 - ✓ **Positive contextual:** We go out, you order beetroot hummus.
 - # **Negative contextual:** We go out, you avoid all beet mezze.

(10) **Razve/neuzheli** ty liubish' sveklu?
RAZVE/NEUZHELI you.NOM love.2SG.PRS beet.ACC.SG
≈ 'Do you like beets?'

Negative bias & belief revision III

- ▶ **First approximation:** family resemblance to English *really* (Romero and Han 2004), Italian *mica* (Frana and Rawlins 2019), German *etwa* (Xu 2017)

	Cont: neut	Cont: p	Cont: $\neg p$
Epi: neut	#	#	#
Epi: p	#	#	#
Epi: $\neg p$	#	✓	#

- ▶ **Reminder:** such markers treated as signalling a conversational crisis

Negative bias & belief revision IV

NB Both particles can express desires in addition to beliefs, but only the epistemic component is hard-wired (cf. Bulygina and Shmelev 1997:274)

- (11) *We're in what we thought was a non-smoking bar. Another guest lights a cigarette.*

✓**Context 1: Positive bouletic**

An avid smoker, I am delighted to be mistaken.

✓**Context 2: Negative bouletic**

An adamant non-smoker, I am dismayed to be mistaken.

✓**Context 3: Neutral bouletic**

I have no preference either way.

Razve/neuzheli zdes' mozhno kurit'?
RAZVE/NEUZHELI here can.PRED smoke.INF
'Can one smoke here?'

Negative bias & belief revision V

Key idea

- ▶ Negative bias marks stages of non-monotonic belief revision
 - ▶ Sp considered p unlikely
 - ▶ There is current evidence to the contrary
-
- ▶ Razve
 - ▶ Credence in p may have increased due to new evidence, but not enough to accept p
 - ▶ **Conversational uses:**
 - information-seeking: Sp presently unopinionated about p
 - challenging: Sp holds on to belief that $\neg p$
 - ▶ Neuzheli
 - ▶ Upward trending credence in p , up to full belief
 - ▶ **Conversational uses:**
 - positively biased: Sp leaning towards p but isn't sure
 - polar exclamatives: Sp astonished that p

Negative bias & belief revision VI

- ▶ **Razve**: evidence strong enough to entertain *p*, but not too strong to accept it (additionally, *razve* only abductive inferences)

- (12) *We're above the tree line on what should be a fine day.*
- #/?**Context 1:** weak *Cumulus clouds form in the distance.*
- ✓**Context 2:** sufficient *Your companion dons raingear.*
- #**Context 3:** too strong *Large rain drops are falling.*

Razve budet dozhd'?

RAZVE be.3SG.FUT rain.NOM.SG

'Will there be rain? (I thought there wouldn't be.)'

- ▶ **Neuzheli**: permits stronger evidence

- (13) *Opening the door to someone you never expected to see again.*
- ✓**Neuzheli/#razve eto ty?**
- NEUZHELI/RAZVE this you.NOM
- 'I can't believe this is you!'

Negative bias & belief revision VII

- ▶ **Information-seeking questions:** presently unopinionated speaker, open to revising beliefs

(14) *A friend thanks the waiter in Turkish at a coffee shop.*

- a. **Razve ty govorish po-turetski?**
RAZVE you.NOM speak.2SG.PRS Turkish
'Do you speak Turkish? (I thought you didn't.)'
≠ 'Do you really speak Turkish?'
- b. **Ia ✓dumala / ??dumaiu, chto net.**
I.NOM think.F.SG.PST think.1SG.PRS COMP be.NEG
'I thought / (??) think that you didn't.'

- ▶ Not predicted by current approaches

Negative bias & belief revision VIII

- ▶ **Challenging questions:** opinionated speaker, unwilling to revise beliefs

(15) *According to the Chukchi ritual, offerings were left in the snow for the spirits, but a city boy refers to it as a 'buried meat'.*

Razve tak mozhno nazyvat' sviashchennuiu zhertvu?
RAZVE so can.PRED call.INF sacred.FEM.ACC.SG offering.ACC.SG
≈‘How dare you call a sacred offering this way! (Literally: Can one call a sacred offering this way?)’

(The Time of Melting Snows, Yuri Rytkheu)

- ▶ Current approaches only predict such uses

Negative bias & belief revision IX

- ▶ **Positively biased:** Sp leaning towards p but isn't sure

(16) *Soviet diplomat Volodin has long been contemplating contacting a foreign ministry about the Soviet Atomic Program. Initially he considers an anonymous call safe but after nerve-wrenching deliberations he is becoming convinced otherwise.*

Neuzheli **uznaiut** **po telefonnomu** **sdavlennomu**
NEUZHELI identify.3PL.PRES by phone.M.SG.DAT muffled.M.SG.DAT
golosu?
voice.SG.DAT

'Surely they couldn't identify a muffled voice over a telephone?'
(Literally: Will they identify a muffled voice over a telephone?)
(*In The First Circle*, Aleksandr Solzhenitsyn; translated by H. Willets)

Negative bias & belief revision X

- **Exclamative:** Sp astonished that *p*, cf. English 'can't believe' (\neq *don't believe*; Roberts 2019)

(17) *A reader's first encounter with Hawking's multiverse theory.*

Neuzheli vokrug nashego mira zerkalami
NEUZHELI around our.M.GEN.SG world.GEN.SG mirror.INSTR.PL
rasstavleny drugie miry?
put.PTCP.PL other.NOM.PL world.NOM.PL
≈ 'I can't believe that there are other worlds put like mirrors
around ours'. (Magazine *Knowledge is power*)

NB *neuzheli* isn't always veridical (unlike markers of surprise/violated expectations, Zhuang 2023) neither does it require a gradable property (unlike e.g. wh-exclamatives; cf. *that*-exclamatives across Germanic, Grosz 2012)

Negative bias & belief revision XI

Bottom line

- ▶ Current typology not fine-grained enough
- ▶ A doxastic approach fares better (and puts bias in a larger context of attitudinal operators)
- ▶ No need to hard-wire conversational moves

Negative bias & belief revision XII

- ▶ **Existing feature typology:** epistemic bias and contextual bias viewed as independent notions
- ▶ **Incorrect prediction:** existence of markers that only encode negative bias
- ▶ **No-negative-bias conjecture:** negative bias always coupled with positive evidence

Negative bias & belief revision XIII

(18) *In the morning, I burned a cake in the kitchen and had to leave the window wide open to get rid of the nasty smell. I am at work and check with my spouse that they did not close the window. I expect they didn't.*

- a. **Mica** *hai chiuso la finestra?* [Italian]
MICA have close DEF window
'You didn't close the window, right?' (cf. Frana and Rawlins's (2019) ex.36)
- b. **#Razve/neuzheli** *ty zakryl okno?* [Russian]
RAZVE/NEUZHELI you close window
- c. **#Hast du ETWA das Fenster zugemacht?** [German]
have you ETWA DEF window close
- d. **#Nandao ni guan-shang chuangu le ma?** [Mandarin]
NANDAO you close-up window INC Q

- ▶ *Mica*: not a marker of bias in questions, it can be used in assertions

Negative bias & belief revision XIV

- ▶ **Lexical gaps:** instrumental in the understanding of cognitive underpinnings of language & underlying concepts (**nall* for 'no ... and ...', Enguehard and Spector 2021; **grue* for 'a thing is grue exactly if it is examined before the year 2100 and is green, or otherwise is blue', Goodman 1955)
- ▶ **Belief revision:** costly from a cognitive standpoint (see, for example, vast literature on 'belief bias'; Evans et al. 1983 and later work), reflected in all formal systems (AGM etc; see overview in Hansson 2022)
- ▶ **Utility perspective on bias** (cf. Van Rooij and Šafářová 2003): only expected that natural language will have dedicated expressions for inquiries signalling belief revision potential, but not just negative epistemic bias

Outlook I

- ▶ **Biased questions:** a linguistic phenomenon whereby the speaker channels their pre-existing beliefs
- ▶ **Nature of the attitude:** not necessarily violated expectations, can be backgrounded beliefs (cf. occurrent/salient beliefs vs. dispositional/backgrounded beliefs; Bartlett 2018)
- ▶ **Overall role:** to what extent can biased questions express bias?

(19) *To a person speaking with an accent:*
You're not from here, are you?

Outlook II

- ▶ Can biased questions be ‘bad language’? (cf. Cappelen and Dever 2019)
 - ▶ Like any benign discourse strategy, they can be co-opted towards nefarious goals
 - ▶ Case in point: ‘what about’ questions that signal a lateral QUD-shift (Bledin and Rawlins 2021)
- (20) A: Where should we go on vacation?
B: What about Albania?

Thank you!

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