

Re-opening QUDs: Which alternatives play a role?

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Introduction

- German *noch* (= ‘still’) can have an additive reading similar to that of *auch* (= ‘also’, ‘too’) (1) ¹. How do they differ?
- (1) Otto hat **auch/noch** einen SCHNAPS getrunken.
Otto has PRT a Schnaps drunk.
“Otto also drank a SCHNAPS.”
→ Otto had something else
- MAIN CLAIM: both indicate that a previously partially answered question under discussion (QUD) is re-opened, but:
 - *auch*: QUD reopened with respect to new focus alternatives,
 - *noch*: *QUD reopened with respect to a new topic situation*
 - We present the results of an experiment testing this latter claim

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¹In the examples, SMALL CAPS are used to indicate stress (where relevant), **bold font** and *italics* are used for highlighting the important parts of the example. # is used for infelicity, ?? and ? for marginal felicity.

1 Background

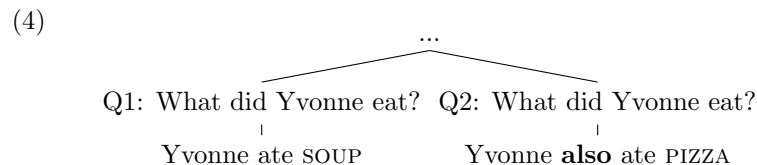
1.1 Additive particles and the QUD

- *Auch* and *noch* contribute an additive presupposition in (2).
 - They are *focus-sensitive*²(Beaver & Clark 2008, i.a.): Their meaning contribution changes when the placement of the focus changes³.
- (2) a. Dann hat Jan **auch/noch** BILL Susi vorgestellt.
then has Jan PRT Bill Susi introduced.
“Then, Jan also introduced BILL to Susi.”
PRESUPP: *Jan had introduced somebody else to Susi.*
- b. Dann hat Jan Bill **auch/noch** SUSI vorgestellt.
then has Jan Bill PRT Susi introduced.
“Then, Jan also introduced Bill to SUSI.”
PRESUPP: Jan had introduced Bill to somebody else.
- Focus indicates alternatives (Rooth 1992, i.a.), (3-a)
 - They can be modelled as alternative answers to a *question under discussion* (QUD, Roberts 1996/2012) (3-b)
- (3) Yvonne ate PIZZA
- a. *Focus alternatives*: {Yvonne ate pizza, Yvonne ate spaghetti, Yvonne ate soup, ...}
- b. *Question under discussion*: What did Yvonne eat?

²There is also a stressed variant of *auch*, which associates with preceding out-of-focus constituents (Krifka 1999). We will not discuss this variant here.

³In contrast to *also*, *auch* prefers to be as close to the focus as possible (see Büring & Hartmann 2001’s Closeness Principle).

- Under a QUD account, **additive particles** indicate that the current QUD is already partially answered in the recent context (e.g. Beaver & Clark 2008, Jasinskaja & Zeevat 2009).



1.2 Differences between ‘auch’ and additive ‘noch’

- **Eckardt (2007), Umbach (2012), Grubic (2018)**: *auch* and *noch* differ with respect to the nature of the re-opened QUD
 - unstressed *auch*: further alternatives included, i.e. in (4), *pizza* was not a considered alternative in Q1
 - **However, disagreement on *noch*!**

- **Eckardt 2007**: *Noch* involves a ‘fixed and stable’ domain of alternatives — odd in (5) as soon as it becomes clear that the speaker is randomly listing even numbers.⁴

(5) 2 ist eine gerade Zahl, 4 ist noch gerade, 6 ist noch gerade, #78 ist noch gerade...
 ‘2 is an even number, 4 is ‘noch’ even, 6 is ‘noch’ even, 78 is ‘noch’ even..’.

- Eckardt’s proposal: *noch* indicates that a QUD is re-opened with respect to a subset of the previous alternatives (6)

(6) Q1: What (of 1-10) is an even number?
 Q2: What (of 3-10) is an even number?

- **Umbach (2012)**: the domain of alternatives is extended with *noch*, too. She argues that this can be seen in questions (7):
 - *noch* is standard (extends the domain of alternatives)

⁴Note that she compares this with stressed AUCH, see (i).

(i) 2 ist eine gerade Zahl, 4 ist auch gerade, 6 ist auch gerade, 78 ist auch gerade...
 ‘2 is an even number, 4 is even too, 6 is even too, 78 is even too..’

- *auch* is marked (suggests that the questioner knows the answer)

(7) (Little Lisa tells her mother what happened when she visited the zoo with Auntie.)

- Mother: Und was ist im Zoo NOCH passiert?
 ‘What else happened at the zoo?’
- Auntie: Und was ist im Zoo AUCH passiert?
 ‘What happened at the zoo, too?’ (# mother)

- Umbach (2012): The only difference between *auch* and *noch* is that alternatives are ordered (by time of mention) with *noch*.
- For example, according to Umbach (2012)
 - The alternatives are ordered by time of mention in (8-a)
 - ...but by ‘real time’ in (8-b).

(8) (Otto hat ein Bier getrunken. ‘Otto had a beer’)

- Dann hat er noch einen Schnaps getrunken.
- Dann hat er auch einen Schnaps getrunken.
 ‘Then he drank a schnaps in addition.’

(9) Q1: What (of water, beer) did Otto drink?
 Q2: What (of schnaps, wine) did Otto drink? (beer \prec_M schnaps)

- Grubic (2018): *Noch* indicates that the QUD is re-opened with respect to a new **topic situation** (10)⁵.
 - Topic situation = the situation that the sentence is about
 - roughly equated with Klein (1994)’s topic time, the interval about which the utterance makes a claim (Kratzer 2019:§3)
 - Temporal or locative adverbials provide further information about the topic situation (Klein 2008)

- No restriction placed on the domain of alternatives: it can remain the same or differ.

(10) Q1: In S1, what (of beer, wine, water, schnaps) did Otto drink?
 Q2: In S2, what (of beer, wine, water, schnaps) did Otto drink?

- This explains Umbach’s data, e.g.:

⁵This is reminiscent of the idea in Dimroth (2002) that stressed NOCH associates with the topic time, but differs in that the topic situation is not the associate of *noch*.

- A) *Noch* is most felicitous with e.g. *dann* ('then') because it shifts the topic situation
- (11) Otto had a beer.
- Dann* hat er **noch/auch** einen SCHNAPS getrunken.
"And he also drank a schnaps."
 - Er hat **auch/??noch** einen SCHNAPS getrunken
(intended:) "He also drank a schnaps."
- B) By reopening the same QUD with respect to different alternatives in (12-b), the speaker reminds the addressee that relevant alternatives were neglected in the first answer.
- (12) (Little Lisa tells her mother what happened when she visited the zoo with Auntie.)
- Mother: Und was ist im Zoo NOCH passiert?
'What else happened at the zoo?'
 - Auntie: Und was ist im Zoo AUCH passiert?
'What happened at the zoo, too?' (# mother)
- C) this account can also account for the possibility of combining *auch* and *noch*
- *Auch* requires an extended domain of alternatives (compatible with a shift in topic situation)
 - *Noch* requires a topic situation shift (compatible with an extended domain of alternatives)
- (13) Otto had a beer.
Otto hat **auch noch** einen SCHNAPS getrunken.
'Otto also drank a SCHNAPS.'
(PRESUPP: Otto drank something else (e.g. a beer))
- Summary of the previous accounts:
 - Unstressed *auch* extends the domain of considered alternatives
 - Different ideas for *noch*: its QUD involves...
 - * a subset of the antecedent QUD's domain of alternatives (Eckardt 2007)
 - * alternatives ordered by time of mention (Umbach 2012)
 - * a different topic situation than the antecedent QUD (Grubic 2018) (whereas *auch* usually involves the same topic situation)
 - In the following, a prediction made by the latter account will be discussed and tested.

2 Experiment

Unique **prediction** of Grubic (2018): difference between *auch* and *noch* when there is an **overt topic situation shift**.

- (14) (Last Saturday, Daniel cleaned the kitchen, the bedroom and the living room.)
Diesen Samstag hat er *auch* die anderen zwei Räume geputzt
this Saturday has he also the other two rooms cleaned
'This Saturday, he also cleaned the other two rooms.'
(Accommodated: This Saturday he cleaned the kitchen, the bedroom and the living room)

auch compatible with presupposition accommodation

Unique **prediction** of Grubic (2018): difference between *auch* and *noch* when there is an **overt topic situation shift**.

- (15) (Last Saturday, Daniel cleaned the kitchen, the bedroom and the living room.)
Diesen Samstag hat er *noch* die anderen zwei Räume geputzt
this Saturday has he also the other two rooms cleaned
'This Saturday, he additionally cleaned the other two rooms.'
(Not accommodated: This Saturday he cleaned the kitchen, the bedroom and the living room.)

noch incompatible with presupposition accommodation

2.1 Experimental setup

Main idea of our experiment:

- Systematically manipulate **how plausible** the interpretation **with/without accommodation** would be.
- Assumption: this will allow us to see whether accommodation is possible/necessary for the particles.

Participants and procedure:

- web-based questionnaire

- context presented in written form
- target sentence presented auditorily
- two paired tasks:
 - felicity rating (1-5)
 - forced-choice question checking for accommodation (e.g., for (15): ‘how many rooms did Daniel clean last Saturday?’)
- option of providing a comment
- 24 native speakers of German, recruited via *Prolific*

Design and materials:

- 2 × 3: PARTICLE (auch/noch – within items) × PLAUSIBILITY (baseline/accplaus/accimpl – between items)
- plausibility was tested in a pre-test
- Latin-Square design
- 24 items, 24 fillers
- the experiment was preregistered before data collection: <https://osf.io/92wyg>

Three kinds of items: 1. baseline

Both readings (with/without accommodation) are plausible.

- (15) (Last Saturday, Daniel cleaned the kitchen, the bedroom and the living room. [Then he had to stop]. This Saturday...)
- hat er *auch/noch* die anderen zwei Räume geputzt
 has he also the other two rooms cleaned
 ‘he also cleaned the other two rooms’
 → Acc.: He cleaned 5 rooms this Saturday (**plausible**)
 → Non-acc.: He cleaned 2 rooms this Saturday (**plausible**)

Three kinds of items: 2. accplaus

The reading with accommodation is more plausible.

- (15) (Yesterday on her way to work, Lara rode her bike for the first 2km. [Then her bike broke down.] Today...)
- hat sie auch/noch die letzten drei Kilometer mit dem Fahrrad
 has she also/still the last three kilometers with the bike
 zurückgelegt
 covered

- ‘she also rode her bike for the last three kilometers.’
 → Acc.: She biked for 5km today (**plausible**)
 → Non-acc.: She biked for 3km today (**implausible**)

Three kinds of items: 3. accimpl

The reading with accommodation is implausible/impossible.

- (15) (During the summer holiday, Quentin drank five bottles from his wine supply. He kept two for later. In the winter holiday,)
- hat er auch/noch die letzten Flaschen ausgetrunken
 has he also/still the last bottles drunk.up
 ‘he (also) finished the last bottles.’
 → Acc.: In the winter holiday, he drank 7 bottles (**impossible**)
 → Non-acc.: In the winter holiday, he drank 2 bottles (**plausible**)

- **Felicity hypothesis:** when accommodation is plausible (*accplaus*), the acceptability ratings of *noch* should decrease in comparison to the baseline, while *auch* remains acceptable (interaction plausibility × particle).

baseline	acceptability	accommodation
auch	high	yes
noch	high	no

accplaus	acceptability	accommodation
auch	high	yes
noch	low	(?)

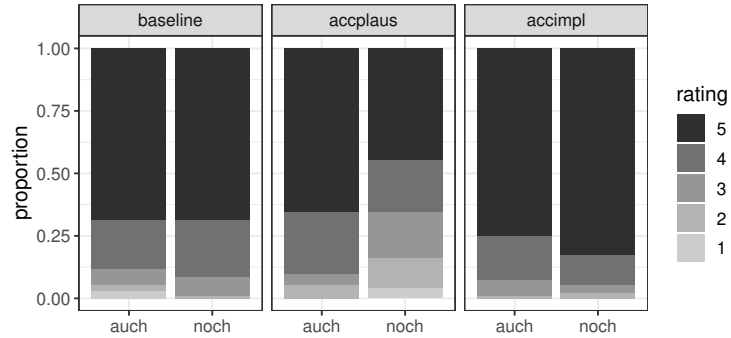
- **Accommodation hypothesis:** when accommodation is implausible (*accimpl*), the accommodation rate for *auch* should decrease in comparison to the baseline, while it stays low for *noch* (interaction plausibility × particle).

baseline	acceptability	accommodation
auch	high	yes
noch	high	no

accimpl	acceptability	accommodation
auch	high	no
noch	high	no

2.2 Results & Discussion

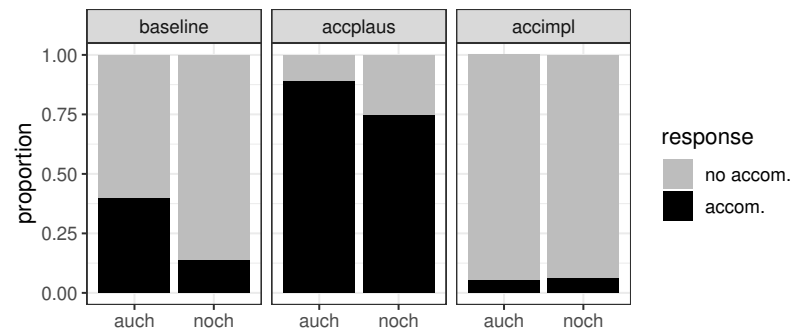
- Experiment results: rating task
- Ratings (5 = ‘very good’, 1 = ‘very bad’):



	baseline		accplaus		accimpl	
	auch	noch	auch	noch	auch	noch
ratings (median)	5	5	5	4	5	5

Felicity hypothesis confirmed: significant interaction PLAUSIBILITY (baseline vs. accplaus) \times PARTICLE ($z = 3.23$, $p = 0.001$)

- Experiment results: question task



Accommodation hypothesis confirmed: significant interaction PLAUSIBILITY (baseline vs. accimpl) \times PARTICLE ($z = -2.43$, $p = 0.02$).

	baseline		accplaus		accimpl	
	auch	noch	auch	noch	auch	noch
accommodation	40%	14%	89%	75%	5%	7%

- The results support our two hypotheses:
 - *Noch* rated worse when accommodation is most plausible.
 - *Auch* acceptable in all items, interpretation (accommodation vs. non-accommodation) depended on plausibility.
- Conclusions:
 - *auch* can connect two sentences about the same topic situation (accommodation) or different topic situations (non-accommodation)
 - *noch* connects two sentences about different topic situations (non-accommodation).
- Open issue:
 - Even in the accplaus condition, relatively high ratings with *noch* (median: 4) — some infelicitous filler items (e.g. with presupposition failure) had much lower ratings.

3 Summary & Outlook

Summary:

- We presented the results of an experiment testing whether an overt change of the topic situation (using a temporal adverbial) plays a role for the behaviour of *auch* and *noch*.
- Findings are compatible with the predictions of Grubic (2018)
 - *Noch* most acceptable with a shift in topic situation
 - *Auch* acceptable in both cases (but the interpretation changes)

Outlook:

- Role of pragmatics (e.g. the Gricean maxim of manner) for particles like *auch*?
- Unified account of *noch* in its different uses as a scalar particle (e.g. Israel 1997)?

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Appendix A: Pretest Plausibility

- 36 items, 2 conditions (two possible continuations)
 - Forced-choice task: the continuation is...
 - Possible and plausible
 - Possible but implausible
 - Impossible
 - 3 kinds of items: both (a) and (b) plausible (baseline), only (a) plausible (accimpl), only (b) plausible (accplaus)
- (16) Yesterday on her way to work, Lara rode her bike for the first 2km. For the last 3km she unfortunately had to push her bike, because her bike broke down.
- Today on her way to work she rode her bike **for the last 3km** (i.e. only the part of the way that she didn't cycle yesterday)
 - Today on her way to work, she rode her bike **for the whole 5km** (i.e. including the way that she cycled yesterday)

	accplaus		accimpl		baseline	
	cont.	rep.	cont.	rep.	cont.	rep.
plausible	15%	89%	96%	3%	79%	86%
implausible	70%	10%	4%	5%	20%	14%
impossible	15%	1%	0%	93%	1%	0%

Appendix B: Fillers (main experiment)

- 12 items *wieder* vs. *nochmal* (both meaning 'again')
 - 4 x restitutive again (# nochmal, wieder ✓)
 - 4 x repetitive again (nochmal ✓, wieder ✓)
 - 4 x presupposition failure (# nochmal, # wieder)
 - Question always: How often ...? (once, several times)
- (17) (When Marie came to her office this morning, she opened the window. Then she grew cold.)
A few minutes later, she closed the window *again*.
- (18) (Two weeks ago, Michaela sent an e-mail to Henri. He didn't answer.)
Yesterday, she sent him an e-mail *again*.
- (19) (On Monday afternoon Gerd saw a documentary about Köln on TV. He regretted that he had never been there.)
On Monday evening, he booked a trip to Köln *again*.

	median rating (1-5)		% of first response ('once')	
	(a) <i>nochmal</i>	(b) <i>wieder</i>	(a) <i>nochmal</i>	(b) <i>wieder</i>
restitutive	2	5	59%	93%
repetitive	5	5	15%	15%
presupp. fail.	2	1	70%	76%

- 12 items *nur* ('only')
 - 4 x associate high vs. low on scale (low ✓, # high)
 - 4 x numerals, associate low (✓)
 - 4 x more impossible/implausible (#)
 - Question asking either about the first or the second situation
- (20) (In the exam last Monday Kevin got a B. This was the first of several exams.)
In the second exam he *only* got **a C / an A**
- (21) (Last month Lars read five novels. Then he didn't have so much time anymore.)
This month he *only* read **two novels**.
- (22) (Yesterday evening David destroyed 15 of 20 incriminating files. Then he was interrupted.)
Last night he *only* destroyed **the remaining files**.

	median rating (1-5)		% of first response	
	(a)	(b)	(a)	(b)
scale	3	5	96%	2%
numeral	5	5	94%	0%
remaining	4	4	46%	2%