Do fragments behave differently depending on their antecedent type?
Results from an acceptability judgment study on German

James Griffiths, University of Tübingen
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1. Introduction: The Syntactic Question approach (SQA) to fragments

- Griffiths (2019); Griffiths, Güneş & Lipták (2023)

1.1. An in-situ sententialist approach to fragments[1]

(i) If a head H bears the [E] feature, then ellipsis applies to HP
(ii) FOC phrases are shielded from ellipsis
(iii) Phrases that A′-move in nonelliptic environments A′-move under ellipsis
(iv) There is **no** ellipsis-driven A′-movement
(v) Ellipsis does not (ordinarily) bleed syntactic movement

(1) A: Lucy ate something yesterday.
B: Yes, [$_{HP}$ H$_{[E]}$ she ate [$_{FOC}$ a fruit sâlad] yesterday].
B′: Really? Do you know [$_{HP}$ H$_{[E]}$ [$_{FOC}$ whât]$_1$ she ate t_1 yesterday]?

1.2. A hybrid approach to the recoverability condition on clausal ellipsis

(vi) Clausal ellipsis is licensed by the maxQUD[2]
(vii) If the immediately preceding utterance in the discourse (the *PRU*) is not an interrogative, then a suitable wh-question antecedent must be accommodated, to act as the maxQUD.
(viii) The recoverability condition on clausal ellipsis in syntactic in nature: it compares two phrase markers[3]
(ix) (vii) and (viii) together = antecedent accommodation (AA) involves accommodating a syntactically well-formed wh-question (i.e., an LF).

(2) A: Lucy ate something yesterday.
B: Yes, [$_{HP}$ H$_{[E]}$ she ate [$_{FOC}$ a fruit sâlad] yesterday].

Step 1: Generate a wh-question AA from (2A), substituting the fragment in (2B) for a wh-phrase that the fragment could be an answer to
[$_{FOC}$ *What*] *did Lucy eat* <[$_{FOC}$ *what*]> *yesterday*?

Step 2: Compare phrase marker of AA with the phrase marker of the elliptic clause: For every elided terminal, is there a parallel terminal in AA? **Yes**.

[1] For other sententialist in-situ approaches to fragments, see Reich 2007, Abe 2015, 2016, 2022, Ott & Struckmeier 2018, Stigliano 2022.

[2] See Ginzburg & Sag 2001, Ginzburg & Cooper 2004, Ginzburg 2012 for a QUD-approach to fragments in a nonsententialist approach to fragments. See Krifka 2006, Reich 2007, Barros 2014, Weir 2014, Kotek & Barros 2019, Griffiths 2019, Overfelt 2021, Griffiths, Güneş & Lipták 2023, Griffiths to appear for a QUD-based licensing condition in the sententialist framework.

[3] This idea has a very long history. For recent proposals, see Rudin 2019 and Anand et al. 2021.

Upshot 1

- The SQA accounts for the A′-properties of non-wh fragments in wh-movement languages without postulating that non-wh fragments undergo exceptional A′-movement:

(3) A: Anna hat mit jemandem gesprochen.
B: * Ja, Anna hat mit [Ihrem Vater] gesprochen.[4]

Step 1: Generate a wh-question AA from (3A), substituting the fragment in (3B) for a wh-phrase that the fragment could be an answer to
[$_{FOC}$ *Wem*] *hat Hans mit* <[$_{FOC}$ *wem*]> *gesprochen*?
!! Failure = AA is ungrammatical !!
∴ No suitable antecedent available for recovering ellipsis in (3B)
∴ (3B) is judged as unacceptable / degraded

Upshot 2

- The SQA predicts that a non-wh fragment does not exhibit the hallmarks of A′-movement if
  - The utterance that immediately precedes it in the discourse is a question Q, and
  - Q isn't generated by overt or covert A′-movement
- This prediction is borne out for
  - Reprise fragments in English (Griffiths, Lipták & Güneş 2023)
  - Standard fragments antecedent by alternative questions (AltQs)

(4) **Major Constituent constraint, declarative antecedent** [5]

a.	A:	Lisa will tilt the image.	B: ??	No, [$_{V}$ revôlve].
b.	A:	Under the bed is the best hiding place.	B: *	No, [$_{P}$ în].
c.	A:	A psycholinguist just passed by.	B: *	No, [$_{Pref}$ nêuro].

(5) **Major Constituent constraint, AltQ antecedent** [6]

a.	A:	Should he revôlve or tîlt the gyroscope?	B:	[$_{V}$ Revôlve], of course.
b.	A:	Is în or ûnder the bed the best hiding place?	B:	[$_{P}$ Ûnder], I reckon.
c.	A:	Did a nêuro or psŷcholinguist just pass by?	B:	[$_{Pref}$ Nêuro].
d.	A:	Are you travelling tô or frôm Africa?	B:	[$_{P}$ Tô].

(6) **P-stranding generalization, declarative antecedent** (see Merchant 2004)
A: De plant staat naast de bânk in die kamer.
The plant stands next.to the sofa in the room.
'The plant stands next to the sofa in the room.'
B: ?? Nee, de tâfel.

[4] Adapted from Merchant 2004:686; his acceptability judgment. Note that, in research from the same time period, Reich (2007:§5) judges similar German fragments as only mildly degraded (?).

[5] Hankamer 1979, Morgan 1989, Merchant 2004:675. The examples comes from Griffiths, Güneş & Lipták 2023.

[6] (5a-c) come from Griffiths 2019:26, (5d) comes from Zwicky 1982:7.

(7) **P-stranding generalization, AltQ antecedent** (Griffiths, Güneş & Lipták 2023)

A: Staat de plant naast de bânk of de tâfel?
stands the plant next.to the sofa or the table
'Is the plant next to the sôfa or the tâble?'

B: De bânk.
the sôfa

Issue:

Judgments on fragments are subtle and subject to substantial interspeaker variation;[7] armchair judgments not representative[8]

Aim of experiments reported below:

- To see if armchair judgments are replicated under experimental conditions, in another language

2. Two preliminary experiments

- Conducted in August 2022 by Jan Kuhlemann (BA thesis research, Uni Tübingen)
- Unsupervised, hosted on *PsychoPy3*
- Participants: 32 German natives, aged 18-23, sourced via social media; unpaid
- Participants judged 72 test items
- Background assumptions about acceptability, mostly from Featherston 2005, 2007:
  - Problemless sentences are fully acceptable (6-7)
  - Every problem causes a degradation ($\downarrow_{\mathbb{Q}}$)
  - Some problems cause more degradation than others (*weighted*)
  - Degradation is cumulative
- Background pragmatic assumption
  - Fragmentary responses to PolQs involves antecedent accommodation of a wh-question

(8) A: Did Lucy eat something yesterday? B: Yes,
(*What did Lucy eat yesterday?*) Lucy ate [FOC a banâna] yesterday.

2.1. Experiment 1

- 3 x 4/2 factorial design; ANT (*altq*, *decl*, *polq*), FRAG (*AP*, *DP*, *P*, *V*) / CONST (*AP+DP* / *P+V*)
- 36 targets, 36 fillers

2.1.1. Experiment 1: Sample stimuli for each condition

(9) a. A: Glaubt Hans, dass Peter schwach oder stark ist? [altq, AP]
'Does Hans believe that Peter is weak or strong?'
B: Schwach.

b. A: Hans glaubt, dass Peter fröhlich ist. [decl, AP]
B: Nein, traurig.

[7] See Merchant et al. 2013, Molampakis 2019, Lemke 2021, Cortés Rodríguez 2022a,b, Cortés Rodríguez & Griffiths 2022.

[8] For recent documentation of this fact, see Ronai & Stigliano 2022.

c. A: Glaubt der Doktor, dass Peter krank ist? [polq, AP]
B: Nein, gesund.

(10) a. A: Denkt Hans, dass Peter den Stuhl oder das Sofa weggeworfen hat? [altq, DP]
'Does Hans think that Peter has thrown away the chair or the sofa?'
B: Den$_{ACC}$ Stuhl.

b. A: Ich glaube, dass Hans den Rotwein gekauft hat. [decl, DP]
B: Nein, den$_{ACC}$ Weißwein.

c. A: Denkt Peter, dass Hans den Rotwein gekauft hat? [polq, DP]
B: Nein, den$_{ACC}$ Weißwein.

(11) a. A: Glaubt Hans, dass Peter mit oder ohne seine Freundin kommen wird? [altq, P]
'Does Hans believe that Peter will come with or without his girlfriend?'
B: Ohne.

b. A: Hans glaubt, dass Peter aus Afrika reist. [decl, P]
B: Nein, nach.

c. A: Glaubt Hans, dass Peter gegen den Bürgermeister ist? [polq, P]
B: Nein, für.

(12) a. A: Glaubt Peter, dass Hans das Buch geschrieben oder illustriert hat? [altq, V]
B: Illustriert.

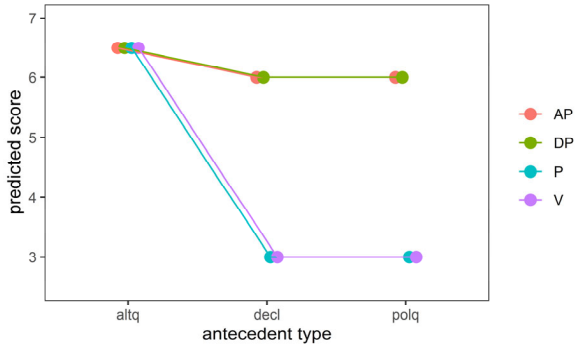
b. A: Ich glaube, dass Peter das Haus verkauft hat. [decl, V]
B. Nein, vermietet.

c. A: Denkt Hans, dass Peter den Stuhl weggeworfen hat? [polq, V]
B: Nein, repariert.

2.1.2. Experiment 1: Predictions

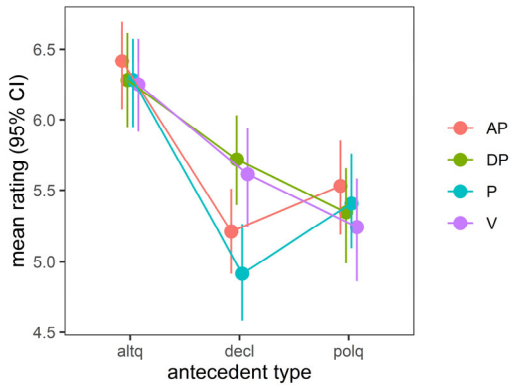
- Processing burden related to antecedent accommodation = $\downarrow_{0.5}$
- Recoverability condition not satisfied = $\downarrow_{3}$

Figure 1. Predicted ratings for experiment 1



2.1.3. Experiment 1: Results

Figure 2. Mean ratings for experiment 1



2.1.4. Experiment 1: Inferential statistics

- Best fitting LLM for z-scored ratings for exp1 = zscore ~ ant + (1 | item) + (ant | subject)
- Pairwise contrasts of EMMs:
  - altq vs. decl t = 3.595 p = 0.0024
  - altq vs. polq t = 3.489 p = 0.0032
  - decl vs. polq t = -0.398 p = 0.9166

NB: I tested both FRAG (AP, DP, P, V) and CONST (AP+DP, P+V). I also fitted CLMMs to the raw ratings. The same statistical results were obtained each time.

2.1.5. Experiment 1 summary: Predictions versus results

- Range of ratings smaller than expected; degradation milder than expected
- The predicted main effect of CONST was **not** observed
- The observed main effect of ANT was not predicted

2.2. Experiment 2

- 4 x 2 factorial design; ANT (*altq*, *decl*, *polq*, *whq*), PP (*retention = y, omission = n*)
- 30 targets, 40 fillers

2.2.1. Experiment 2: Sample stimuli for each condition

(13) a. A: Hat Sarah mit ihrem Vater oder ihrer Mutter gesprochen? [altq]
B. (Mit) ihrem.$_{DAT}$ Vater.

b. A: Sarah hat mit ihrer Mutter gesprochen. [decl]
B: Nein, (mit) ihrem.$_{DAT}$ Vater.

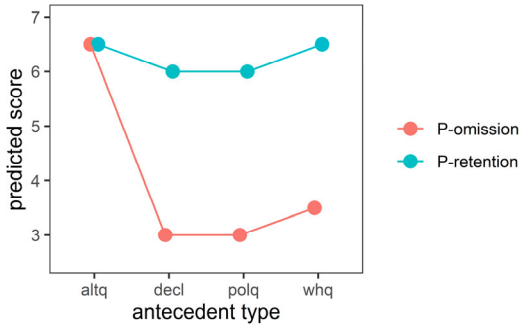
c. A: Hat Sarah mit ihrem Vater gesprochen? [polq]
B: Nein, (mit) ihrer.$_{DAT}$ Mutter.

d. A: Mit wem war Peter einkaufen? [whq]
B: (Mit) seinem.$_{DAT}$ Onkel.

2.2.2. Experiment 2: Predictions

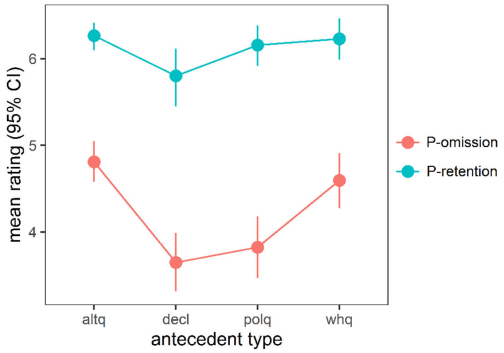
- Processing burden related to antecedent accommodation = $\downarrow_{0.5}$
- Recoverability condition not satisfied = $\downarrow_{3}$

Figure 3. Predicted ratings for experiment 2



2.2.3. Experiment 1: Results

Figure 4. Mean ratings for experiment 2



2.2.4. Inferential statistics

- Best fitting LLM for z-score ratings for exp2 = zscore ~ ant * pp + (1 | item) + (pp | subject)
- Pairwise contrasts of EMMs (grouped by factor *PP*):

Table 1. Pairwise contrasts of EMMs for experiment 2 (*t*-tests, Tukey)

	P-retained		t	p	P-omitted		t	p
clause-type$_{ANT}$	altq	decl	3.13	0.02	altq	decl	7.55	<.0001
	altq	polq	0.85	0.83	altq	polq	5.98	<.0001
	altq	whq	0.26	0.99	altq	whq	1.60	0.39
	decl	polq	-1.98	0.23	decl	polq	-1.36	0.54
	decl	whq	-2.49	0.09	decl	whq	-5.15	<.0001
	polq	whq	-0.51	0.96	polq	whq	-3.79	0.005

2.2.5. Experiment 2 summary: Predictions versus results

- Sig. difference between P-retention and P-omission in *altq* condition = **not** predicted
- In P-omission condition
  - Sig difference between *altq* and *decl* / *polQ* = predicted
  - Insig. difference between *altq* and *whq* = **not** predicted

3. A tentative explanation (and conclusion)

- **Confound** = contrastive / corrective focus. All stimuli in the *decl* and *polq* condition involved corrective focus.

(14) a. A: Ich glaube, dass Peter das Haus verkauft hat. [decl, V]
B. Nein, vermietet. (from exp1, see (12))

b. A: Sarah hat mit ihrer Mutter gesprochen. [decl]
B: Nein, (mit) ihrem$_{.DAT}$ Vater. (from exp2, see (13))

- Possibly, the requirement for a maxQUD antecedent is suspended when the discourse relationship between the fragment and the explicit previous utterance involves CONTRAST, rather than presentational focus (which involves a QUESTION-ANSWER discourse relationship)
- If so, there are no A′-movement constraints on *decl* and *polq* conditions in exp1 or exp2.
- Preliminary motivation for this "corrective focus suspends maxQUD requirement" analysis = impressionistically, *decl* or *polq* responses are worse with P and V fragments if corrective focus is absent; compare (15) and (16).

	A.	John has tîlted the gyroscope.	A:	John is travelling frôm Africa.
(15)	B.	No, revôlved.	B:	No, tô.
(16)	B.	Yes, and revolved, too!	B:	Yes, and tô, too!

Q: If maxQUD requirement is suspended, why were all the fragments preceded by an assertoric or PolQ utterance judged as worse than those fragments antecedent by an AltQ in exp1? And why were P-omission fragments with whQ and AltQ antecedents judged the same in exp2?

A: In the *decl* and *polq* conditions, the hearer must determine what the correlate actually **is** in the PRU (17). This is extra work, so an acceptability-penalty is incurred. This extra work is not needed in the *altq* or whq condition, as the correlates are already salient (18).

(17) a. A: Hans glaubt, dass Peter aus Afrika reist. [decl, P]
B: Nein, nach.

b. A: Glaubt Hans, dass Peter gegen den Bürgermeister ist? [polq, P]
B: Nein, für.

(18) a. A: Glaubt Hans, dass Peter mit oder ohne seine Freundin kommen wird? [altq, P]
'Does Hans believe that Peter will come with or without his girlfriend?'
B: Ohne.

b. A: Mit wem war Peter einkaufen? [whq]
B: Seinem.$_{DAT}$ Onkel.

Q: Why was a main effect of P-omission observed in exp2?
A: If the maxQUD requirement is suspended under contrast, then this main effect arises for reasons unrelated to A′-movement.

Possibilities:

- Overt P required to license case on the NP complement [9]
- Structural persistence / frequency:[10]
  - Preference to reuse category of the wh-phrase, when *PRU* is a wh-question
  - German speakers have infrequent exposure to P-less DP responses
- Prosodic penalty on P-omission / P-drop [11]

Q: Do these findings (if reliable) render the SQA approach redundant?
A: Not if a difference does indeed obtain between corrective and noncorrective answers. Also, the SQA is needed to explain other A′-properties of standard fragments (e.g., island-sensitivity) and the differences between standard and reprise fragments.

Q: Can these findings (if reliable) be explained under the prevailing "move-and-delete" approach to clausal ellipsis?
A: I don't think so.

4. An alternative possibility: The experimental results from §2 are unreliable

- Judgments for P-retention and P-omission in the *whq* condition from exp2 are very similar to those reported in the previous literature:

	Merchant et al. 2013	Lemke 2021	exp2 from §2
P-retention	5.99	6.61	6.23
P-omission	4.76	4.42	4.59

[9] Barton & Progovac 2005. For experimental evidence that undermines this idea, see Lemke 2021:§3.

[10] See Nykiel 2017. For related ideas, see Nykiel & Hawkins 2020

[11] See Féry 2023 for discussion of the prosodic constraints on P-drop in German. See Colley & Bassi 2022:§4.1 for an analysis directly linking the P-stranding generalization to language-specific prosodic constraints. For analyses connecting P-omission under ellipsis to prosody in Russian, see Philippova 2014, Ionova 2020.

- Unacceptable fillers received quite low ratings:

(19) A: Wem hat Sarah mit gesprochen?
B: Mit ihrem Vater. [2.9]
B′: Ihrem Vater. [1.9]

- Therefore, there is no immediate indication of unreliability.
- But experiments should be rerun anyway, with more fillers and inclusion CONTRAST factor.

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Appendix: Mean ratings

Table 2. Mean ratings, experiment 1

Fragment	Antecedent type	Mean rating	St. dev
AP	alternative Q	6.42	1.64
	declarative	5.21	1.52
	polar Q	5.53	1.69
DP	alternative Q	6.28	1.76
	declarative	5.72	1.67
	polar Q	5.34	1.68
P	alternative Q	6.28	1.55
	declarative	4.92	1.73
	polar Q	5.41	1.63
V	alternative Q	6.25	1.60
	declarative	5.61	1.76
	polar Q	5.24	1.73

Table 3. Mean ratings, experiment 2

	Antecedent type	Mean rating	St. dev
P-retention in frag	alternative Q	6.27	1.16
	declarative	5.80	1.65
	polar Q	6.16	1.20
	wh-Q	6.23	1.24
P-omission in frag	alternative Q	4.81	1.64
	declarative	3.65	1.78
	polar Q	3.82	1.72
	wh-Q	4.59	1.64