Pronouns at the right frontier: discourse structure affects accessibility of final appositives

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Introduction: ARCs & At-Issueness

❑ Appositive, or non-restrictive, relative clauses (ARCs), as in (1), have been categorized as *Not At-Issue* content since Potts (2005)

(1)   Petra, who bikes to work every day, loves soccer.

❑ One of the diagnostics to determine the At-Issueness status of a meaning component is *direct denial*:

(2)   A: Petra, who bikes to work every day, loves soccer.
        B_{mc}:   No, she doesn't. She didn't even watch the World Cup.
        B_{arc}:   ??No, she doesn't. She usually takes the bus.

❑ However, it has been noted by Anderbois et al. (2010) that the result of this diagnostic is sensitive to the position of the ARC, with sentence-final ARC being (more) available for denials:

(3)   A: Barbara shares an office with Florian, who bikes to work every day.
        B_{mc}:   No, she doesn't. She works at the House of Prominence.
        B_{arc}:   No, he doesn't. He usually takes the bus.

Introduction: Syrett & Koev (2015), I

❑ This positional effect has been investigated experimentally by Syrett & Koev (2015) in two experiments:

❑ In their Experiment 2, the authors had participants choose between two denials targeting either the content of the main clause or that of the ARC, varying the position of the latter:

(4) A: My friend Sophie, who performed a piece by Mozart,
            is a classical violinist.
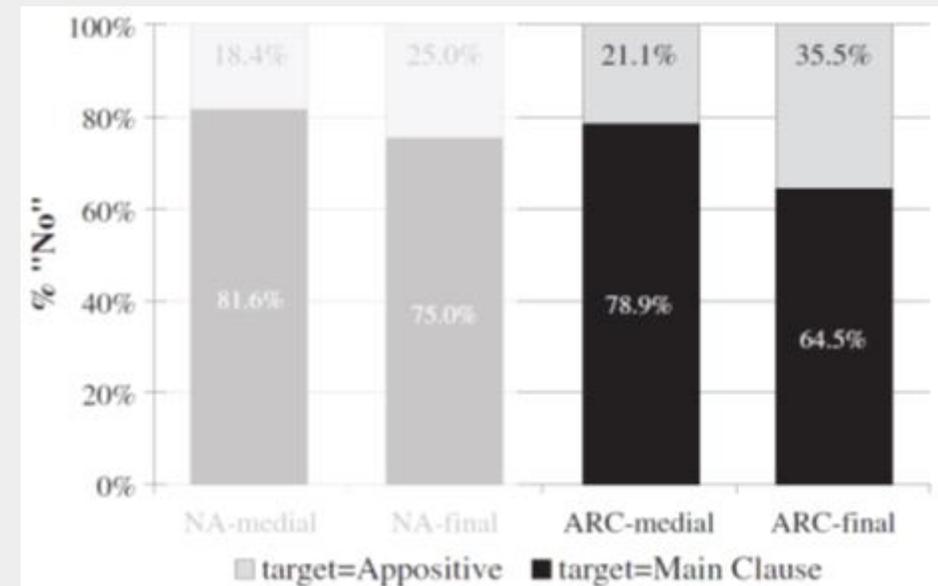 B_1: No, she's not. (TARGET: main clause)
      B_2: No, she didn't. (TARGET: appositive)

(5) A: The symphony hired my friend Sophie,
            who performed a piece by Mozart.
      B_1: No, she didn't. (TARGET: appositive)
      B_2: No, they didn't. (TARGET: main clause)

➤ Final ARCs were targeted 14% more than medial ARCs

Introduction: Syrett & Koev (2015), II

❑ In their Experiment 3, participants were given a *Why?* question with two responses choices, again targeting either main clause or ARC content:

(6)   a. Chloe, <u>who decided to dress in a classical ballet style</u>,
           has been chosen to audition for the 'All Stars' Dance Company.
      b. The 'All Stars' Dance Company has chosen to audition Chloe,
           <u>who decided to dress in a classical ballet style</u>.

(7)   <u>Choices for answer to *Why?* question</u>
      a. Main clause target:
      Because they think Chloe could be a
      good addition to their company.
      b. Appositive target:
      Because she wants to be taken
      seriously as a classical ballet dancer.

➢ Final ARCs were targeted 37% more than medial ARCs
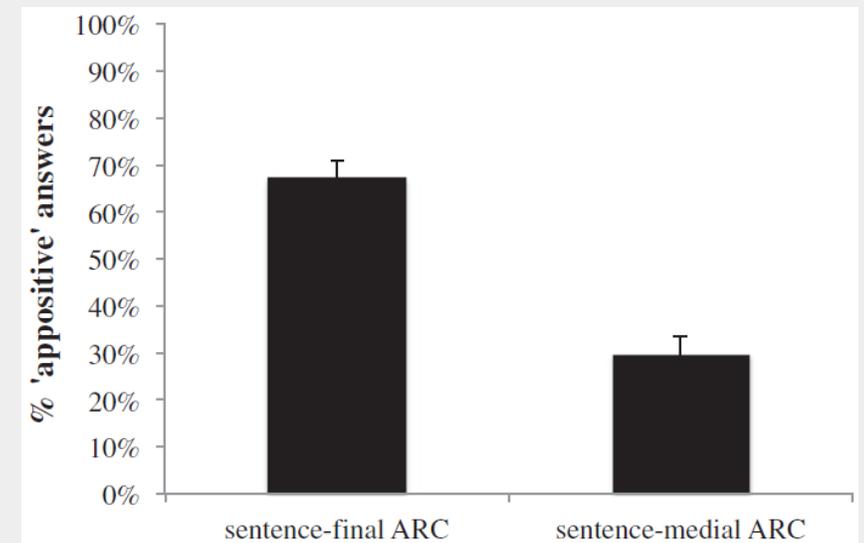
Introduction: Approaches to the Positional Effect

❑ There exist two approaches to the difference between medial and final ARCs in the literature

❑ Frazier et al. (2017) argue that ARCs contribute quasi-independent speech acts, thus constituting the most recent speech act in sentence-final position:

(8)   <u>Speech Act Approach</u> (Frazier et al. 2017)
        Final ARCs differ from medial ARCs in contributing the most recent speech act and are therefore available for discourse continuations.

❑ Alternatively, Jasinskaja (2016) and Hunter & Asher (2016) propose that final ARCs can appear on the right edge of a discourse graph and are thereby accessible for discourse continuations

(9)   <u>Discourse Structure Approach</u> (Jasinskaja 2016, Hunter & Asher 2016)
        Final ARCs differ from medial ARCs in contributing discourse segments that are available for discourse continuations at the right frontier.

❖ The goal of this talk is to test these two – not mutually incompatible – approaches experimentally

Background: Discourse Structure

❑ Theories of discourse structure like Segmented Discourse Representation Theory (SDRT, Asher & Lascarides 2003) assume that discourse can be represented as units – loosely corresponding to clauses – that are connected to each other via particular discourse relations

❑ These relations not only differ in their semantics but also in the hierarchical structure they give rise to, namely in being either *subordinating* or coordinating, which has been argued to play a role for the accessibility of a given unit for discourse continuations, captured as the Right Frontier Constraint (Polanyi 1988):

(10)   Right Frontier Constraint (simplified)
         Only discourse units at the right edge
         of a discourse tree are available for
         discourse continuations.
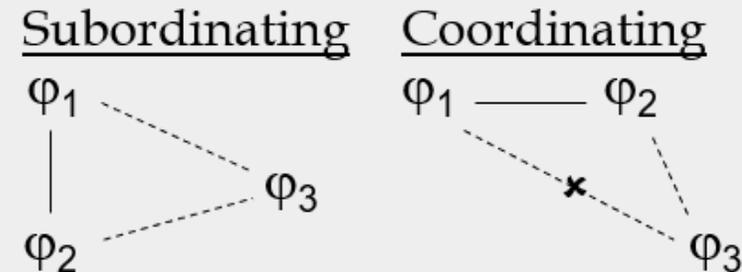
❖ While I take the question what's underlying the subordinating vs coordinating distinction – and the Right Frontier Constraint – to be far from solved, I will assume the observed effects as an empirical generalization that can be utilized and tested experimentally

Predictions & Implementation, I

❑ With these assumptions in place, we can turn to the predictions that the Speech Act Approach and the Discourse Structure Approach make and how to implement them experimentally

Factor #1: *Relative Clause-Type*

➢ The Speech Act Approach assumes that ARCs differ from restrictive relative clauses (RRCs) in their status as a quasi-independent speech act, predicting that the special status of final ARCs is specific to appositives but not RRCs

➢ On the Discourse Structure Approach, it seems at least imaginable that any clause may contribute a discourse unit, even though it is in principle able to take syntactic-pragmatic information into account

❑ We can implement the RELATIVE CLAUSE-TYPE as a first factor by manipulating the relative pronoun and the presence or absence of a comma to indicate a prosodic boundary.

(12) The real estate lady haggled with the potential tenants…
that the landlady was selling some furniture to.   (RRC)
, who the landlady was selling some furniture to.   (ARC)

Predictions & Implementation, II

Factor #2: *Discourse Relation*

➢ The Discourse Structure Approach critically predicts that coordinating relations should make the main clause less accessible due to the Right Frontier Constraint, while subordinating relations should allow equal access to both

➢ The Speech Act Approach, on the other hand, is agnostic about the different discourse relations

❑ I will follow Jasinskaja (2016) in assuming that an unmarked relative clause expresses an ELABORATION by default, which is considered the stereotypical subordinating relation by Asher & Vieu (2005)

❑ Asher & Vieu furthermore take NARRATION to be the stereotypical coordinating relation, which I will mark via adverbs like *then*, in addition to perfective aspect to indicate narrative progression

(13) The real estate lady haggled with the potential tenants(,) {that/who}
         the landlady **was selling** some furniture to.   (subordinating)
         the landlady **then sold** some furniture to.   (coordinating)

Predictions & Implementation, III

Factor #3: *Pronoun Type* (exploratory)

➢ On the Speech Act Approach, we might assume that the quasi-independent speech act contributed by an ARC is of a propositional type and may thus only affect anaphoric expressions of the same type, while it may not play a role for entities whether they are introduced in an ARC or RRC

➢ For the Discourse Structure Approach, in contrast, the default assumption seems to be that the Right Frontier Constraint applies to all anaphoric expressions

❑ To explore this issue, I will look at two types of pronominal expressions, regular personal pronouns like *she*, and propositional *that*

      (14)   The real estate lady haggled with the potential tenants(,)
                      {that/who} the landlady {then sold/was selling} some furniture to.
                            {She/That} was lucky.   (personal/propositional)

❖ Notably, *that* allows for the possibility to refer to larger chunks of text which I will assume as the default for a main clause choice and focus on divergences from this default

Design & Methods

(15)   ***Sample Item*** (N=24, plus 24 fillers)

Restrictive/Appositive – <u>Subordinating/Coordinating</u> – *Personal/Propositional*

At the open house, the real estate lady haggled with the potential tenants**(,)** **{that/who}** the landlady {<u>was selling/then sold</u>} some furniture.
{She/That} was geemish.

▪ each clause contained one antecedent of matching gender, which were both subjects, while the head of the relative clause was excluded as potential antecedent due to a number mismatch

▪ the target sentence contained a nonce word as predicate to avoid plausibility confounds

▪ a frame adverbial (e.g. *at the open house*) was added to ensure that main clause and relative clause were interpreted as part of the same situation, especially for the SUBORDINATING condition

▪ participants (N=48, MTurk) were presented with each item and then had to indicate the referent of the pronoun by answering a question such as *Who/What was geemish?* by forced choice

Results

☐ The results were analyzed via a mixed effects logistic regression model:

- more RC-choices for ARCs than RRCs

- more RC-choices for coordinating relations than subordinating relations

- higher increase of RC-choices of coordinating relations for ARCs

- more RC-choices for propositional pronouns than personal pronouns
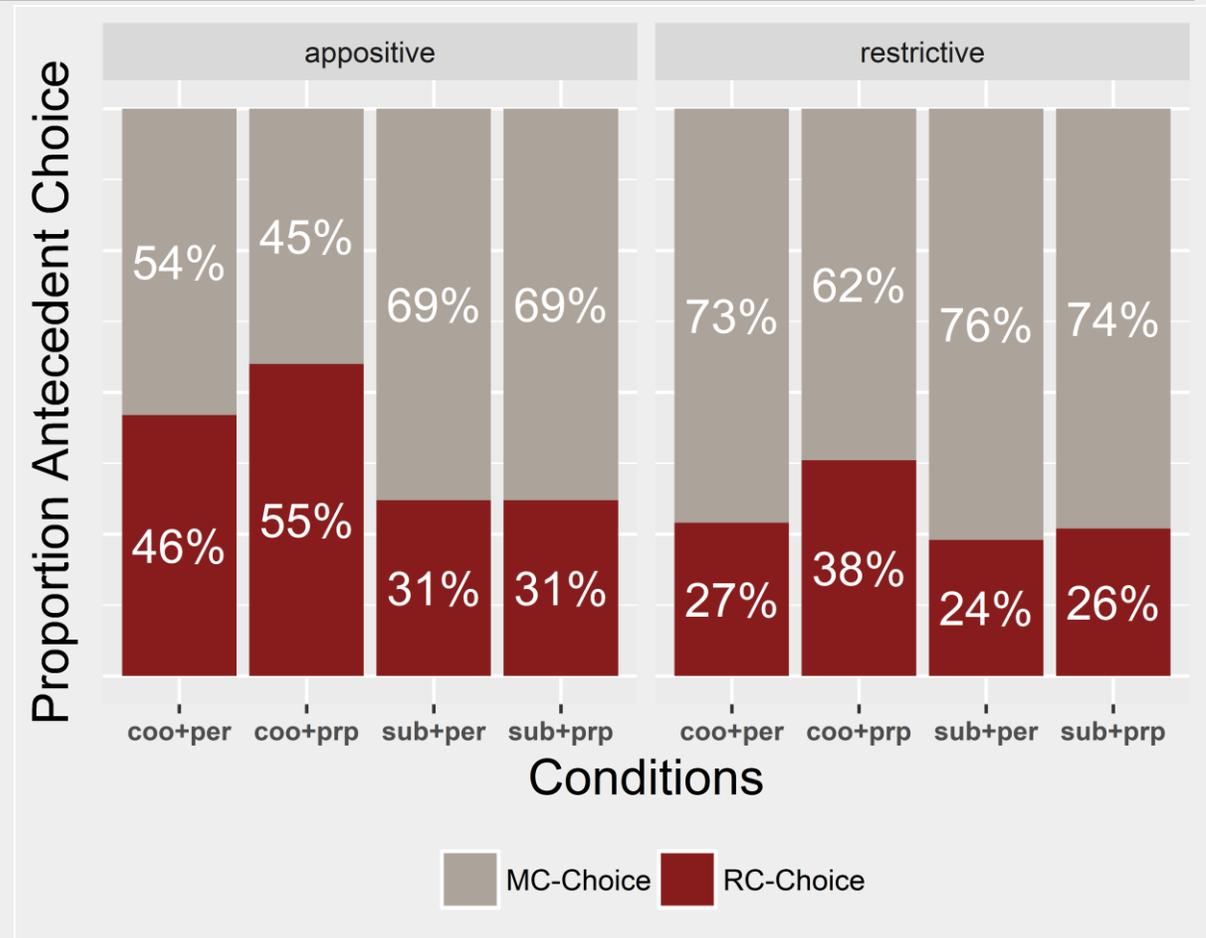
Discussion I

❑ The results provided evidence for both approaches:

➢ ARCs received more RC-choices than RRCs, in line with the predictions of the Speech Act Approach and suggesting that the quasi-independent speech act contributed by ARCs makes them more accessible for anaphoric reference

➢ coordinating relations received more RC-choices than subordinating relations, providing empirical support for the role of discourse structure and the Right Frontier Constraint

➢ moreover, the two factors interacted with each other, suggesting that syntactic-pragmatic properties play a role for constructing a discourse or determining a particular relation

➢ suggestive evidence for this point comes from an exit poll where participants were shown an item in both the ARC and the RRC version, and had to indicate whether they interpreted the main clause option of the propositional pronoun as referring to only the main clause or the whole sentence

➢ of 41 data points, there were 26 complex interpretation responses for the RRC, compared to 20 for the ARC, suggesting that ARCs are more likely perceived as separate discourse units

Discussion II

❑ A more surprising result concerned the increased RC-choice for propositional pronouns compared to personal pronouns in the absence of a significant interaction

❑ An increase of RC-choice for propositional pronouns in ARCs would have been compatible with the Speech Act account, but it rather seems like the effect is restricted to coordinating relations

❑ While the interaction of Discourse Relation and Pronoun Type is not quite significant (p = .1086), this might have been due to a power issue

❑ Moreover, a post-hoc item analysis for possible causal readings showed that – at least for the ARCs – the pronoun effect only occurred with those lacking any causal relation

	app-coo-per	app-coo-prop	app-sub-per	app-sub-prop	res-coo-per	res-coo-prop	res-sub-per	res-sub-prop
Explanation (4)	46%	42%	29%	33%	25%	12%	37%	17%
Result (8)	44%	46%	27%	29%	33%	44%	21%	29%
Non-Causal (12)	47%	65%	34%	32%	24%	43%	21%	26%

Conclusion & Future Directions

➢ In this talk, I presented evidence for the influence of syntactic-pragmatic properties and discourse structure on the accessibility of clauses and entities in a discourse

➢ With respect to the initial question to what extent these factors contribute to At-Issueness, it seems worthwhile to keep this notion apart from anaphoric availability, on which the direct denial test relies

➢ Regarding the unexpected pronoun difference, a potential path of inquiry might be one that takes into account what kinds of representations the anaphor types pick up on, for instance hypothesizing that propositional pronouns involve reference to the syntax in addition to the discourse

➢ The pronoun effect might also be of most interest with respect to the topic of this conference, since it might not suffice to investigate the factors that contribute to prominence but also to what extent these factors differ for specific representations, thus telling us more about our linguistic inventory

➢ For future research, I intend to investigate the pronoun difference and the potential interaction with the discourse structure, as well as to what extent the discourse structure raises expectations for upcoming segments that may affect online processing

Thank you!

References

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Appendix: Logistic Mixed Effects Model

	β	SE	|z|	p
(Intercept)	0.84	0.19	4.51	**>.001*****
Discourse Structure	0.75	0.18	4.21	**>.001*****
RC-Type	0.66	0.15	4.34	**>.001*****
PN-Type	-0.32	0.15	2.06	**.0393***
DS x RC	-0.56	0.28	1.98	**.0473***
RC x PN	-0.16	0.28	0.55	.581
DS x PN	0.45	0.28	1.60	.1086
DS x RC x PN	0.02	0.68	0.03	.9770

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