Topichood and temporal interpretation of DPs guide clause-internal, causal coherence[1]

Runyi YAO — *University of Oxford*
E. Matthew HUSBAND — *University of Oxford*
Daniel ALTSHULER — *University of Oxford*

Abstract. Most studies of discourse coherence focus on relations like Result (cause-effect) and Explanation (effect-cause) that are established between two discourse units whose size is at least a single clause. Such relationships may, however, also be clause-internal. The current study explores clause-internal coherence triggered by resultative adjectives in examples like *The broken window got struck with a stone* ⤳ 'the window was broken because of the stone.' Based on the results of two comprehension tasks, we propose that topichood, signaled by definiteness and subjecthood, permits and constrains plausible causal inferences clause-internally. This analysis suggests a tighter relationship between (morpho)syntax and coherence than is currently assumed.

Keywords: Coherence relations, QUDs, nominal temporality, topichood, definiteness, experimental pragmatics.

1. Introduction

Coherent discourse emerges from signaled or inferable relations among adjacent discourse units. These relations are known as *coherence relations* (Hobbs, 1979).[2] Most studies of coherence focus on inter-sentential relationships, as exemplified in (1a), where language users can infer an Explanation (effect-cause) relation between two sentences in both offline comprehension and online processing (e.g., Rohde, 2008; Grüter et al., 2018; Köhne and Demberg, 2013; Mak and Sanders, 2013). Some recent studies have also investigated coherence relations between relative clauses and their main clauses; for example, in (1b) readers can still obtain the causal inference that the employee was praised because he has made lots of money for the company.

(1)   a.   Diane praised the employee. He has made lots of money for the company.
      b.   Diane praised the employee who has made lots of money for the company. (Hoek et al., 2021b)

These studies indicate that linguistic elements traditionally considered too small to be discourse units, such as relative clauses, can also enter coherence relations (Hoek et al., 2021a, b). Indeed, coherence relations may be more widespread than previously recognized, as clause-internal coherence has also been observed (Anscombe, 1979; Hobbs, 1990; Webber, 1991; Cohen and Kehler, 2021; Sasaki and Altshuler, 2022, 2023). For example, comprehenders often infer that the individual in (2a) was hit by the car while jogging, an unfortunately common event,

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[1] We would like to thank Kelsey Sasaki and the audiences at Sinn und Bedeutung 28 and XPrag 2023 for their questions and comments on this work. Any errors are ours.

[2] See also terms like 'rhetorical relations' and 'discourse relations' which are often used interchangeably with 'coherence relations.' For recent overviews of coherence relations, see, e.g., Kehler (2019), Jasinskaja and Karagjosova (2019), Altshuler and Truswell (2022: Ch.5), Hunter and Thompson (2022).

but do not make a similar inference in (2b) as individuals are unlikely to be hit by cars while teaching. Similarly, clause-internal coherence can also be triggered by adjectives. For example, comprehenders may establish a Result (cause-effect) relation between *loud* and *annoyed* in (3), and an Explanation (effect-cause) relation between *drenched* and *water balloon* in (4).

(2)   a.   The jogger was hit by a car.   (Hobbs, 2010)
       b.   The teacher was hit by a car.

(3)   The loud student annoyed everyone.   (Hoek et al., 2021a)

(4)   A drenched child got hit by a big water balloon.   (Sasaki and Altshuler, 2023)

However, clause-internal coherence is still understudied, and it is unclear at present what elements permit or constrain such inferences (Cohen and Kehler, 2021). The current study explores a particular context, resultative adjectives (e.g., *drenched*) in definite subjects, that permits clause-internal coherence. We adopt an experimental approach to secure native speaker judgments, and propose that topichood, signaled by definiteness and subjecthood, permits and constrains plausible causal inference.

The paper proceeds as follows. In §2, we motivate an experimental study that considers the availability and strength of clause-internal causal relations triggered by resultative adjectives when grammatical cues of Structure {Passive, Active} and Definiteness {Definiteness, Indefiniteness} are manipulated. In §3, we present comprehension tasks whose results suggest that resultative adjectives can induce causal inference within clauses, and this is strongest when they are embedded in definite subjects. We account for these results in §4, where we propose that the availability and strength of causal relations vary under different conditions due to the temporal (in)dependency of the determiner phrases (DPs) with the clauses in which they are embedded. We argue that clause-internal causal relations between DPs and their host clauses are supported when the DP is temporally independent from its host clause. We propose that definite subjects are often interpreted to be temporally independent because they are preferentially taken to be topics. We discuss the implications of this analysis in §5, where we also raise questions for further research.

2. Background

Coherence inferences may have single words as triggers; for example, it is well-known that 'too' is a cue of a Parallel relation (Asher and Lascarides, 1998) and that implicit causality verbs bias causal inference, perhaps because they give rise to a *Why*-type Question-Under-Discussion (QUD) (Kehler and Rohde, 2017). In the current study, we focus on resultative adjectives, which describes the result states of events – e.g. 'broken' describes the result state of a breaking event. We hypothesized that such adjectives have the potential to prompt a sub-QUD, 'what event caused this result state?'.[3] This invites inferences for causal explanations that establish coherence within the clause. We focus on contexts where there is a plausible relationship between a result state described by an adjective within a DP, and the event described by the main clause – e.g., one infers from (5a) that the window was broken because it was struck by a stone

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[3]For an overview of QUDs and how QUDs they may be structured, see, e.g., Beaver et al. (2017), Hunter and Abrusán (2017).

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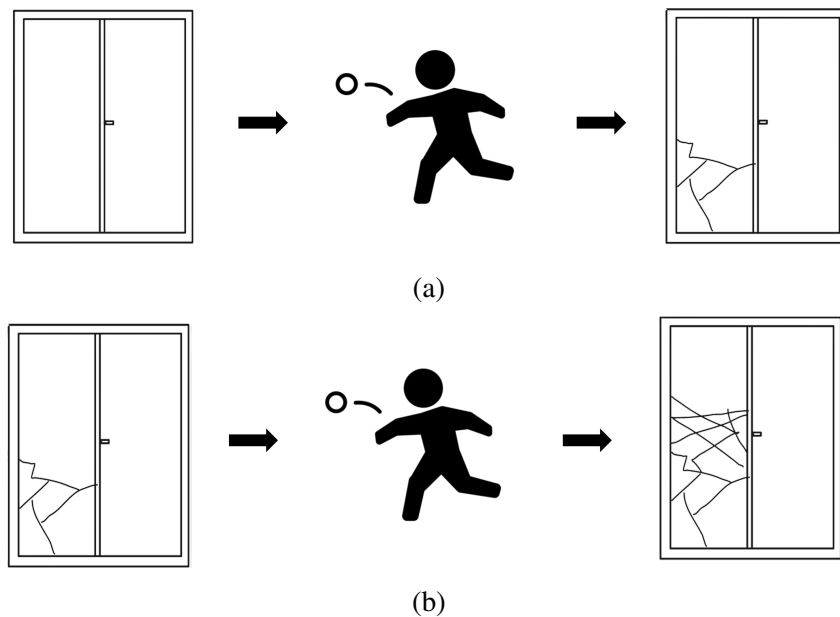

(a)

(b)

Figure 1: Possible situations described by (5a) - (5d)

(see Fig. 1a). This is so even though (5a) is compatible with a non-causal reading (the window was already broken when it was struck by a stone; see Figure 1b). Interestingly, the availability of the causal inference seems to be correlated with syntactic structure and definiteness. In comparison to (5a), (5b)-(5d) appear to be constrained to, or at least bias towards, the non-causal reading.

(5) a. The broken window was struck by a stone from the sidewalk next to the building.
     b. A broken window was struck by a stone from the sidewalk next to the building.
     c. Bethany struck the broken window with a stone from the sidewalk next to the building.
     d. Bethany struck a broken window with a stone from the sidewalk next to the building.

If we assume that comprehenders are less likely to establish clause-internal coherence relations than inter-sentential coherence relations (Cohen and Kehler, 2021), then it would not be surprising if the former were influenced by grammatical cues in a way that the latter are not. In our working example above, our hypothesis is that two factors constrain the temporal interpretation of the nominals: Structure {Passive, Active} and Definiteness {Definiteness, Indefiniteness}. This hypothesis, we think, is related to the independently motivated observation that the temporal location of a DP description need not be related to the temporal location of its clause (e.g., Enç, 1982, 1986; Musan, 1999; Tonhauser, 2002). For example, the time in which *widow* truthfully describes the subject referent in (6) is likely to be interpreted as being after the temporal location of the clausal event: a person becomes a widow only after their partner passes away (in this case, after the person kills her own husband[4]).

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[4]If the pronoun is used deictically, e.g., the speaker points to a salient woman in the context who is not the individual referred to as *the widow*, then we could would infer that the individual described as *the widow* was also truthfully described as a widow at the time of the killing.

(6)   The widow killed her husband.   (adapted from Anscombe, 1979)

Moreover, we know that presuppositional DPs are distinguished from non-presuppositional DPs according to their determiners and syntactic positions. In particular, the description time of presuppositional DPs does not necessarily overlap with the time of the clausal event, while the description time of non-presuppositional DPs tends to overlap the time of the clausal event (Musan, 1999, 1995; Tonhauser, 2002, 2020). For example, *many fugitives* in (7a) can be a temporally independent presuppositional DP[5], as shown in (8a). (7a) can thus be interpreted as saying that many former fugitives are now in jail. In contrast, when it occurs in the existential *there*-construction, as in (7b), *many fugitives* can only be a non-presuppositional DP that tends to be interpreted at the time of the verbal predicate, as in (8b). Therefore, (7b) is infelicitous because it is impossible for the individuals to be described as fugitives and to be in jail at the same time (unless they escaped from some other jail).

(7)   a.   Many fugitives are in jail.
        b.   # There are now many fugitives in jail.   (Musan, 1995)

(8)   a. $\exists t_{DP}(Many_x(fugitive'(x,t_{DP}))) \land \exists t_{VP}(in(jail',x,t_{VP})) \land t_{DP} < t_{VP}$
        b. $\exists t_{DP}(Many_x(fugitive'(x,t_{DP}))) \land \exists t_{VP}(in(jail',x,t_{VP})) \land t_{DP} = t_{VP}$

Returning to (5), we can further flesh out our hypothesis as follows: the manipulation of Structure {Passive, Active} and Definiteness {Definiteness, Indefiniteness} changes the presuppositional properties of the *broken window* DPs, which leads to their different temporal interpretations, only one of which is compatible with the causal event depicted in Figure 1a. This analysis, however, remains tentative until we have more solid evidence confirming that native speakers do, in fact, infer the aforementioned causal explanations clause-internally.[6] Therefore, we conducted a comprehension experiment to investigate whether resultative adjectives permit causal inferences within clauses, and if so, whether the causal inference is constrained by Structure {Passive, Active} and Definiteness {Definiteness, Indefiniteness}. We predicted that while resultative adjectives permit causal inferences within clauses, the availability and strength of causal inference are, in part, governed by the grammatical cues of Definiteness and Structure, with the Definite-Passive condition, as in (5a), biasing the strongest causal inference.

3. Experiment

We conducted two comprehension tasks, an initial study and a follow-up study, to confirm native speakers' intuition about clause-internal causal relations in different conditions. The designs of the two studies were very similar. In the initial study, we investigated whether resultative adjectives are more likely to enhance explanation coherence in the {Passive, Definite} condition than in other conditions. In the follow-up study, we specifically focused on a subcategory of resultative adjectives, namely deverbal resultative adjectives.

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[5]In (7a), *many*, as a weak determiner, is a presuppositional determiner under its partitive reading and is a non-presuppositional determiner under its cardinal reading (Musan, 1995). We only discuss the partitive reading of *many* in (7a).

[6]The only experimental research that we are aware of that tests coherence inferences clause-internally comes from Sasaki and Altshuler (2022, 2023), who – in related experiments – consider the manipulation of Structure, but not Definiteness. See §3.1.4 for more discussion.

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3.1. Initial study

3.1.1. Participants

48 participants (mean age 33.76, age range 20-67, 26 women) were recruited on Prolific. To ensure that only reliable participants would be eligible to take part in this task, we also required the potential participants to have a Prolific approval rate of at least 97%. All the participants reported being native speakers of English living in countries in which English was a primary language. All participants provided their written informed consent before participating in the experiment and received financial compensation (£3) for their time.

3.1.2. Design and stimuli

The experiment was written and hosted on PCIbex Farm (Schwarz and Zehr, 2021). We manipulated Structure {Passive, Active} and Definiteness {Definiteness, Indefiniteness} to create 40 target items analogous to (5) (see Appendix for sample stimuli). Each item contained a resultative adjective and an instrument of an event that could lead to such a result, followed by a comprehension question probing explanation coherence, such as 'Was the man drenched because of the water balloon?'. Participants were instructed to read each sentence and answer the comprehension question using a 7-point Likert scale, where 1 represented 'definitely yes' and 7 represented 'definitely no'. The sentence and question appeared together on the screen.

Target items were distributed across four lists based on a Latin Square design, with each item occurring only once per list, in one of the four conditions. They were interspersed with 40 filler items that were similar to the target items in terms of length and complexity. The filler items were designed to elicit responses across the entire scale, with 'definitely yes', 'definitely no', or 'maybe' as expected answers to their comprehension questions (see Appendix for sample fillers).

3.1.3. Data analysis and results

To ensure the quality of responses, we first cleaned the data based on reaction times (RTs). RTs falling below 1.5 standard deviations (SDs) below the mean of all participants' median RTs were considered extremely fast, while RTs exceeding 4 SDs above the mean of all participants' median RTs were considered extremely slow (Juzek, 2016)[7]. Four participants with extremely fast median RTs were identified as non-cooperative participants, so their data was excluded from further analyses.

The numbers of trials, as well as the means and standard errors (SEs) of the scales for each condition, are summarized in Table 1. Average ratings for causal coherence across all conditions were intermediate compared to those of fillers, while responses to the filler items indicated that participants utilized the full scale (see Figure 2b). The passive-definite condition received

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[7]Extreme RTs suggested non-cooperative or abnormal language processing (Juzek, 2016). Extremely fast RTs might be the result of careless clicking, while extremely slow RTs could indicate distraction.

Runyi Yao – E. Matthew Husband – Daniel Altshuler

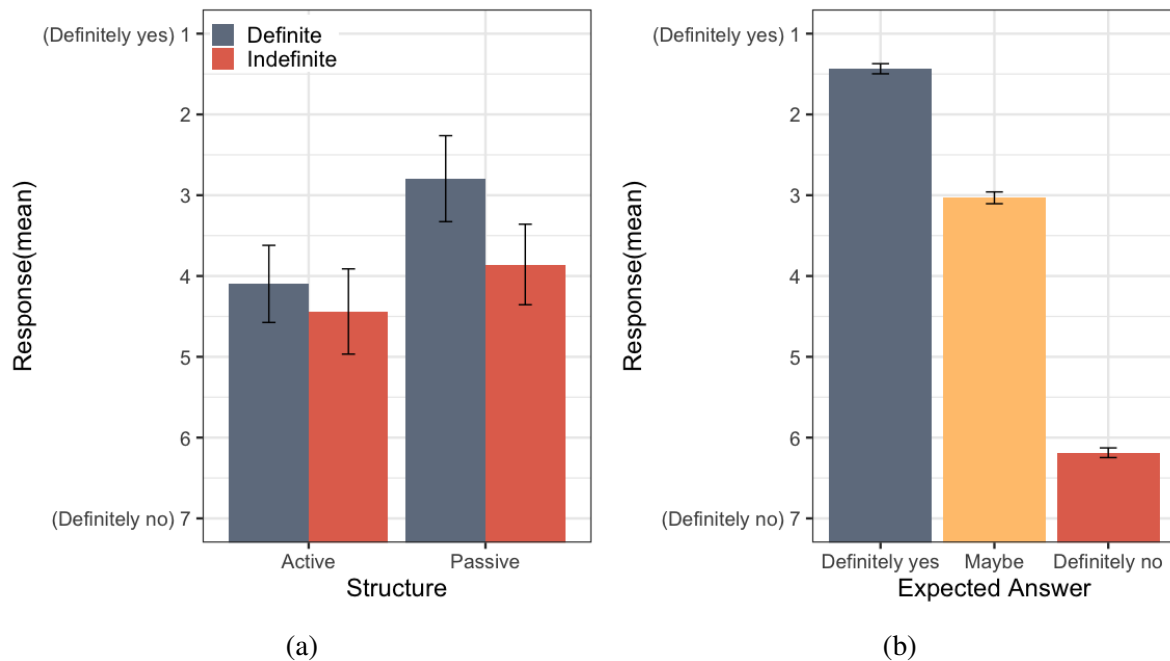(a)   (b)

Figure 2: Responses for experimental items (a) and filler items (b) in the initial study.

higher scores than in the other three conditions. We further analyzed the data with the cumulative link mixed model using the ordinal package (Christensen, 2022) in R (R core team, 2021). We sum-coded Structure and Definiteness as fixed effects, and included random intercepts and slopes for both subjects and items.

Condition		Numbers	Means	SDs	SEs
Active	Definite	440	4.07	2.13	0.102
Active	Indefinite	480	4.46	2.07	0.095
Passive	Definite	440	3.00	2.12	0.101
Passive	Indefinite	400	3.95	2.08	0.104

Table 1: An overview of responses for target items in the initial study

The model estimated ratings are shown in Figure 2a. Main effects of Structure (Est = -0.81, SE = 0.18, z = -4.41, p < .001) and Definiteness (Est = -0.72, SE = 0.13, z = -5.73, p < .001) were found, along with an interaction between them (Est = -0.71, SE = 0.24, z = -2.98, p = .003). Planned comparisons between definite and indefinite in two structures were calculated using the emmeans package (Lenth et al., 2018). These comparisons indicated that while Definiteness affected explanation coherence in both active and passive structures, the effect was larger in the passive conditions (Est = -1.14, SE = 0.20, z = -5.61, p < .001) than in the active conditions (Est = -0.40, SE = 0.15, z = -2.65, p = .008). This result is consistent with the prediction that causal inference would be strongest in the passive-definite condition.

3.1.4. Discussion

The results of this study suggest that (i) native speakers are able to infer the relation Explanation between a result state described by an adjective within a DP, and the event described by the main clause, and that (ii) such inferences are sensitive to grammatical cues of Structure and Definiteness. Comprehenders are most likely to establish the clause-internal Explanation when the the resultative adjective is contained in a definite subject DP, as in (5a).

Our findings are consistent with Sasaki and Altshuler (2022, 2023), who showed that attributive adjectives can trigger the same causal inferences within clauses. However, they investigated deverbal adjectives and non-deverbal adjectives separately, finding that while both of them can trigger clause-internal coherence, the coherence triggered by deverbal adjectives is more robust than that triggered by non-deverbal adjectives. The resultative adjectives we used in the stimuli including both deverbals (e.g., *broken*) and non-deverbals (e.g., *slippery*, see Appendix for sample items). Therefore, a further question for us is whether clause-internal causal inferences raised by deverbal resultative adjectives and guided by grammatical cues are more robust. We conducted another comprehension task focusing on deverbal resultative adjectives to address this question.

3.2. Follow-up study

3.2.1. Participants

Monolingual English speakers recruited through Prolific participated in this study (mean age: 39.64, age range: 19-68, 30 women).[8] Participants from the initial study were prescreened, and as in the initial study, potential participants were required to have a Prolific rate of at least 97%. All participants provided written informed consent before participating in the experiment and received financial compensation (£4) for their time.

3.2.2. Design and stimuli

The design and stimuli used in this study were similar to the initial study. 40 experimental items and 80 filler items were intermixed. Each experimental trial consisted of a target sentence, as shown in (5), and a comprehension question. The most significant difference between this study and the initial study was that all resultative adjectives used in this study were deverbals, which have been reported to trigger more robust clause-internal causal inferences than non-deverbals (Sasaki and Altshuler, 2022, 2023). Additionally, the comprehension questions used in this study asked about the causal relationship between the adjective and the main clause event in a more direct way, such as 'Do you think the man was drenched because he was hit with the water balloon?' Participants were instructed to response to comprehension questions using a 7-point Likert scale, where 1 represented 'definitely no' and 7 represented 'definitely yes'.

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[8]While we only required participants to be native English speakers in the initial study, we implemented stricter prescreening criteria in the follow-up study, requiring participants to be monolingual English speakers to avoid any potential influence from their second language(s).
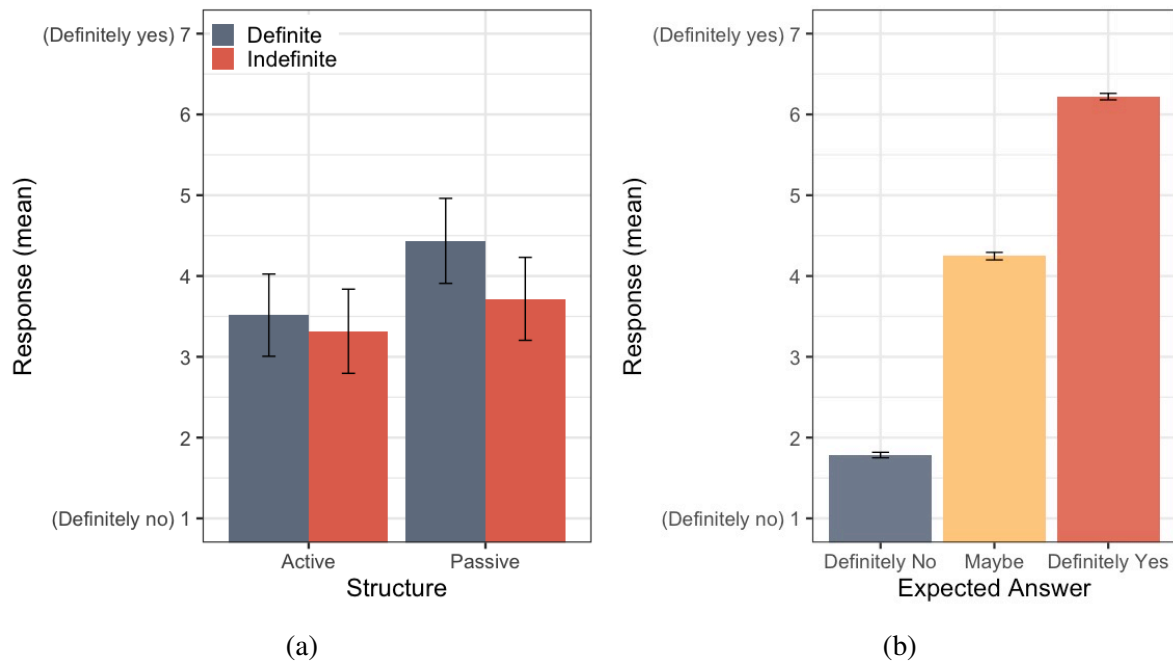
Figure 3: Responses for experimental items (a) and filler items (b) in the follow-up study.

3.2.3. Data analysis and results

We cleaned and analyzed the data using the same method as employed in the initial study. Data from one participant was removed due to extremely fast RTs, leaving data from 63 participants for further analysis.

Table 2 shows an overview of responses for target items. Similar to the initial study, average ratings for causal inferences across four conditions (see Figure 3a) were intermediate compared to those of fillers (see Figure 3b). Data were analyzed in a cumulative link mixed model, with Structure and Definiteness as sum-coded fixed factors and random intercepts and slopes for subjects and items. The model revealed main effects of Structure (Est = 0.58, SE=0.14, z = 4.23, p < .001) and Definiteness (Est = 0.40, SE = 0.10, z = 3.81, p < .001), and an interaction between them (Est = 0.44, SE = 0.21, z = 2.15, p = .03). Planned comparisons via emmeans (Lenth et al., 2018) confirmed that the effect of Definiteness was significant in the passive conditions (Est = 0.71, SE = 0.20, z = 3.54, p < .001), but not in active conditions (Est = 0.20, SE = 0.12, z = 1.64, p = .10).

Condition		Numbers	Means	SDs	SEs
Active	Definite	630	3.58	2.32	0.092
Active	Indefinite	630	4.48	2.28	0.091
Passive	Definite	630	4.40	2.30	0.091
Passive	Indefinite	630	3.80	2.27	0.091

Table 2: An overview of responses for target items in the follow-up study

3.2.4. Discussion

The results of the follow-up study are similar to those of the initial study. They indicate that causal inferences triggered by deverbal resultative adjectives, which give rise to more robust clause-internal Explanations than non-deverbal resultative adjectives (Sasaki and Altshuler, 2022, 2023), are still affected by Structure and Definiteness. Comprehenders are more likely to establish explanation relations between the result state of the deverbal adjective and the main clause event when the adjective is in a definite subject DP. Alongside the initial study, these results further suggest that clause-internal causal coherence raised by resultative adjectives is guided by the grammatical cues of Structure and Definiteness.

4. Analysis

We propose that differences in causal, clause-internal inferences — e.g., in (5a)-(5d), repeated below – arise from the possible temporal interpretations that can be established between the result state described by the adjective within a DP and the event described by the clause. We further propose that these interpretative possibilities are constrained by whether a DP is a topic, giving rise to distinct scopal relations between the DP and the event quantifier.

(5)   a.   The broken window was struck by a stone from the sidewalk next to the building.
       b.   A broken window was struck by a stone from the sidewalk next to the building.
       c.   Bethany struck the broken window with a stone from the sidewalk next to the building.
       d.   Bethany struck a broken window with a stone from the sidewalk next to the building.

While sentence topics are closely connected to subjects in English (Erteschik-Shir, 1997; Davison, 1984), felicitous topics must also be already familiar to speakers. This familiarity condition is linked to a DP's existence-presuppositional status; that is, a DP is presuppositional only if it is 'hearer-established' while non-presuppositional DPs are not established in the discourse model (Tonhauser, 2020; Musan, 1999). For example, when answering a question asking about the existence of dealers, as in (9a), the response in (9b), with the weak reading of *two*, is felicitous but the responses in (9c) and (9d), with the strong determiner *the* and strong quantifier *most*, respectively, are not. This is because strong DPs carry existence-presuppositions. Because their existence is presupposed, presuppositional DPs are established in the discourse, and are therefore more likely to be topics than non-presuppositional DPs.

(9)   a.   Are there any dealers in this town?
       b.   Two dealers have just been arrested. I guess that's evidence!
       c.   # The dealer has just been arrested. I guess that's evidence!
       d.   # Most dealers have just been arrested. I guess that's evidence!   (Büring, 2012)

Topics have also been argued to be interpreted outside the scope of an event quantifier by Herburger (2000). Evidence for this argument comes from the inability of topics, as marked by sentence topic constructions and related constructions (e.g. Japanese *-wa*), to structure the quantification of a clause's event through focal mapping, where non-focused material in the

c-command domain of quantifier also contributes to the quantifier's restriction. Herburger also notes that scrambled phrases in German are also interpreted outside the scope of the clause's event quantifier.

We propose that, because neither indefinite subjects nor non-subject DPs are preferentially taken to be topics, native speakers preferentially interpret them within the scope of the clause's event quantifier. Taking (5) as an example, neither the indefinite subject in (5b) nor the non-subject DPs in (5c) and (5d) tend to be sentence topics, so readers are likely to interpret them in the scope of the clause's event quantifier, as shown in (10b). In these cases, the existence of the result state s (of being broken) falls within the scope of the event quantifier, $\exists e$, ranging over striking-with-a-stone events e, therefore the onset of the temporal interval of s precedes the temporal location of e. Given this temporal relationship between s and e, comprehenders can surmise that whatever event e_s caused the result state s, it too must be temporally located prior to e. Definite subjects, as exemplified in (5a), however, make good topics and, when taken as such, are interpreted outside of the scope of the event quantifier, as shown in (10b). Since the existence of the result state s is outside the event quantifier $\exists e$, there is no necessary relationship between the onset of the temporal interval of s and the temporal location of e. This permits comprehenders to infer that that the event e_s that caused the result state s is, in fact, the clausal event e itself, when plausible.[9]

(10)   a. $\exists e[\text{strike-with-a-stone}(e)\ \&\ \exists x[\text{Theme}(e,x)\ \&\ \text{window}(x)\ \&\ \exists s[\text{broken}(s)\\ \&\ \text{In}(s,x)]]] \models e_s \prec e$

b. $\exists x[\text{window}(x)\ \&\ \exists s[\text{broken}(s)\ \&\ \text{In}(s,x)]\ \&\ \exists e[\text{strike-with-a-stone}(e)\ \&\\ \text{Theme}(e,x)]] \rightsquigarrow e_s = e$

We take this logic to be a special case of Tonhauser's generalization that non-presuppositional DPs display a stronger tendency than presuppositional ones to be temporally interpreted at the verbal predication time (Tonhauser, 2020). While Tonhauser proposed that the familiarity condition of presuppositional DPs contributes to their temporal independency, we further link her proposal of presuppositionality to sentence topicality, and propose that the information structure of DPs affects their relationship to the scope of event quantifiers, which then guides their temporal interpretation.

5. Discussion and conclusion

We have provided experimental evidence showing that native speakers are capable of making clause-internal inferences, and demonstrated furthermore that clause-internal coherence is constrained by Definiteness and Structure. We have tied these structural elements to the identification of sentence topics, and proposed that clause internal coherence is guided by the temporal interpretation of DPs which is influenced by their topichood. Temporal constraints on cause-result relationships means that coherence is best supported when embedded result states are temporally independent from main clause events. DPs that are construed as topics are temporally interpreted outside the scope of an event quantifier, decoupling the temporal interpretation of topic DPs from the temporal interpretation of their clauses. This permits native speakers to

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[9]See Sasaki and Altshuler (2023) for a discussion of competing pragmatic principles which would guarantee the identification between e_s and e.

infer that the causing event of a result state described by an adjective in a topic DP to be the very same event denoted by the clause.

Coherence inferences within clauses has existed on the periphery of coherence research. Part of this is related to the fragility of clause-internal coherence. As demonstrated in this study, coherence relations depend on temporal relations, and temporal interpretation is tightly constrained within the clause, potentially leading to fewer clear cases of clause-internal coherence. In this work, we explicitly identify one source of clause-internal constraint and show that, first, temporal information is sensitive to grammatical cues, and second, when carefully controlled, coherence within clauses can naturally follow. This analysis suggests a tighter relationship between (morpho)syntax and coherence than is currently assumed.

We conclude by noting that if the topichood of DPs affects clause-internal, causal inferences, we expect similar effects to emerge when manipulating topics. For example, since presuppositional DPs tend to be topics, we expect resultative adjectives in other presuppositional subject DPs, such as in (11a) and (11b), to also allow comprehenders to obtain strong causal inferences, while non-presuppositional subject DPs, such as in (11c), should restrain such inferences. While our intuitions are in line with these predictions, we hope to confirm them with subsequent experiments.

(11)   a.   Most of the broken windows were struck by stones.
         b.   Every broken window was struck by a stone.
         c.   There were many broken windows struck by a stone.

Finally, we note that our analysis relies on an indirect relation between temporal interpretation and causal inferences. Future experiments may examine this relationship more directly by asking comprehension questions that probe temporal relations (e.g., *Was the window broken before it was hit by the stone?*)

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Appendix: Sample stimuli

Non-deverbal resultative adjectives

(12)   a.   The slippery floorboard got covered with some oil last Tuesday afternoon.
           b.   A slippery floorboard got covered with some oil last Tuesday afternoon.
           c.   Bill covered the slippery floorboard with some oil last Tuesday afternoon.
           d.   Bill covered a slippery floorboard with some oil last Tuesday afternoon.

(13)   a.   The clean mug was washed with detergent after breakfast this morning.
           b.   A clean mug was washed with detergent after breakfast this morning.
           c.   Briant washed the clean mug with detergent after breakfast this morning.
           d.   Briant washed a clean mug with detergent after breakfast this morning.

(14)   a.   The happy girl was presented the gift prepared for her on Christmas Eve.
           b.   A happy girl was presented the gift prepared for her on Christmas Eve.
           c.   Gwen presented the happy girl with the gift prepared for her on Christmas Eve.
           d.   Gwen presented a happy girl with the gift prepared for her on Christmas Eve.

(15)   a.   The upset student was shown with a failed grade one day before the summer vacation.
           b.   An upset student was shown with a failed grade one day before the summer vacation.
           c.   The teacher shown the upset student with a failed grade one day before the summer vacation.

      d.   The teacher shown an upset student with a failed grade one day before the summer vacation.

Deverbal resultative adjectives

(16)   a.   The injured dog got hit with a car on a busy street earlier this morning.
           b.   An injured dog got hit with a car on a busy street earlier this morning.
           c.   Peter hit the injured dog with a car on a busy street earlier this morning.
           d.   Peter hit an injured dog with a car on a busy street earlier this morning.

(17)   a.   The poisoned princess got assassinated with a cobra in the film which was popular last year.
           b.   A poisoned princess got assassinated with a cobra in the film which was popular last year.
           c.   The jealous queen assassinated the poisoned princess with a cobra in the film which was popular last year.
           d.   The jealous queen assassinated a poisoned princess with a cobra in the film which was popular last year.

(18)   a.   The damaged painting was cut with a razor blade during the heist in a museum.
           b.   A damaged painting was cut with a razor blade during the heist in a museum.
           c.   Tina cut the damaged painting with a razor blade during the heist in a museum.
           d.   Tina cut a damaged painting with a razor blade during the heist in a museum.

(19)   a.   The scented room was filled with fresh roses in the old castle for the wedding.
           b.   A scented room was filled with fresh roses in the old castle for the wedding.
           c.   Leonard filled the scented room with fresh roses in the old castle for the wedding.
           d.   Leonard filled a scented room with fresh roses in the old castle for the wedding.

Fillers

Expected to be *definitely yes*

(20)   a.   Tom is from Germany and likes beers. | Question: Is Tom from Europe?
           b.   All students took an exam last month and only three of them failed. | Question: Did any student fail in the exam?

Expected to be *maybe*

(21)   a.   The successful businessman has donated billions of dollars to the charity during the past ten years. | Question: Did the successful businessman donate lots of money to the charity last year?
           b.   Ray wanted to go swimming tomorrow with his brother. | Question: Does Ray like swimming?

Expected to be *definitely no*

(22) a. Although the project was supported by the local government, it was not welcomed by the residents. | Question: Was the project supported by the residents?

 b. It was too noisy in the house, so the sleepy man couldn't fall asleep. | Question: Was the man sleepy because it was noisy in the house?