Short Communication

Expectations from relative clauses: Real-time coherence updates in discourse processing

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A B S T R A C T

When processing a text, comprehenders use available cues to anticipate both upcoming content and the dependencies that comprise the structure of the growing discourse. In an eye-tracking while reading experiment, we test discourse updating in passages in which dependencies are implicit and the segments convey content that is not required to participate in any coherence-driven inference. This study provides strong evidence of comprehenders’ ability to build implicit non-obligatory discourse structure in real time.

1. Introduction

Language processing depends on establishing not only the meaning of sentences in isolation, but also the connections that hold between sentences in a larger discourse. Such dependencies are what makes a text more than simply an arbitrary collection of sentences but rather a coherent discourse with a larger inferable purpose and a meaningful underlying structure. The analysis of discourse structure is typically approached with an inventory of possible coherence relations that can be inferred between segments or can be signaled explicitly with markers like connectives (e.g., Asher & Lascarides, 2003; Mann & Thompson, 1988; Prasad et al., 2008; Roberts, 2012; Sanders, Spooren, & Noordman, 1992). In (1), the segments S1 and S2 are linked via the connective because, which marks S2 as the EXPLANATION for the situation described in S1. Understanding (1) thus requires building a dependency like (2).

Prior work on discourse expectations suggests that comprehenders use available cues to make guesses both about upcoming content (Köhne & Demberg, 2013, Koornneef & Van Berkum, 2006, Xiang & Kuperberg, 2015) and more abstractly about the dependencies that will comprise the structure of the growing discourse (Scholman, Rohde, & Demberg, 2017). For example, verbs like scold in the class of so-called implicit causality (IC) verbs (e.g., Au, 1986; Garvey & Caramazza, 1974; McKoon, Greene, & Ratcliff, 1993) create an expectation for an upcoming segment that provides an EXPLANATION. IC-driven expectations have been observed even before any connective is encountered, via anticipatory eye movements to a visual location associated with EXPLANATION (Rohde & Horton, 2014), as well as in faster processing for the connective because compared with and (Koornneef & Sanders, 2013).

(1) [The teacher scolded the student]\textsubscript{S1} because [the student was late.]\textsubscript{S2}

(2) \textbf{EXPLANATION}

\begin{itemize}
  \item [consequence] S1 – scold
  \item [cause] S2 – late
\end{itemize}

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Prior work, however, targets contexts in which the discourse dependencies are marked explicitly with overt connectives or the discourse segments themselves are easily identifiable because they correspond to free-standing clauses. Here we use eye-tracking while reading to test whether and how quickly discourse updating emerges in contexts in which these constraints are lifted: The coherence relation is implicit and the segments themselves are clauses that need not form discourse dependencies in order for discourse to cohere.

2. Implicit relations and implicit causality

Unlike the relation in (1), many coherence relations show no explicit marking, as in (3) (Asr & Demberg, 2012; Taboada, 2006). Nonetheless, a comprehender who encounters (3) would likely infer an explanation relation, given the combination of the IC-driven biases of scold in S1 (why did the teacher scold the student?), the ease of interpreting S2 to plausibly explain the scolding, and the juxtaposition of S1 ~ S2 which demands the inference of some relation to ensure passage coherence.

(3) [The teacher scolded the student.]s1 [The student was late.]s2

However, inferable relations can sometimes hold between segments that are smaller than free-standing matrix clauses, as in (4) (Hoek, Rohde, Evers-Veermel, & Sanders, 2020a; Rohde, Levy, & Kohler, 2011). In (4), the content of the relative clause (RC) provides a plausible explanation of the matrix clause event, despite the lack of an explicit connective and despite the fact that restrictive RCs serve primarily to restrict reference and are not required to participate in coherence relations. For instance, the function of the RC in (5) is merely to ensure referential uniqueness of ‘the student’.

(4) [The teacher scolded the student]s2 [who was late.]s2

The study we report here compares contexts like (4–5) to test if the non-obligatory inference of a matrix—RC coherence relation—a dependency that is possible but never required and that remains entirely implicit—can in turn influence subsequent expectations about upcoming discourse dependencies. If comprehenders consider inferences of this type in real time, are their updated coherence expectations measurable in their processing of a subsequent segment?

Prior work on real-time processing of matrix—RC relations in IC contexts has only targeted the interpretation of the RC itself, not its repercussions on the processing of subsequent segments. That work shows that an RC is read fastest when its content provides an inferable reason for the matrix clause event (Explanation RC), slower for an RC whose content is limited to restricting reference (neutral RC), and slowest for content that would be unexpected as an explanation for the matrix clause event (Concessive RC) (Hoek et al., 2020a; see also Rohde et al., 2011). With regards to the integration of subsequent material, prior work has tested the processing of connectives and demonstrated the speed at which comprehenders use cues such as an IC verb in one clause to generate expectations for an upcoming Explanation in the next. In an eye-tracking-while-reading study with IC contexts, Koornneef and Sanders (2013) found faster reading times for because over and at the first spillover region after the connective in first gaze and regression path measures (the former typically taken as evidence of effects at early moments of processing). However, that work did not test whether the IC-driven preference for an upcoming Explanation can be modulated by context. There is some evidence that RCs can modulate the Explanation preference (Kohler & Rohde, 2019), but that evidence comes only from offline studies: In a story continuation task, prompts like (4) with an Explanation RC yielded fewer upcoming segments that explained the matrix clause event, compared to prompts like (5) in which the RC provided no plausible explanation.

These findings raise the question of whether content made available via an RC can influence comprehenders’ real-time processing of a subsequent coherence relation, even though RCs lack explicit coherence marking and do not require discourse segment status. We therefore probe comprehenders’ preferences for upcoming coherence relations by measuring reading times at a segment-initial connective in a 2 × 2 design crossing RC type and connective: The teacher scolds the student [who is late / who sits by the window] (because / and so).... These two connectives signal Explanation and Consequence respectively, two relations whose relative expectedness is predicted to vary with RC type in IC contexts (e.g., Crinean and Garnham, 2006; Pickering and Majid, 2007).

We predict an interaction. In keeping with prior work, the IC matrix verb is expected to bias comprehenders in favor of an upcoming Explanation, thereby making because easier, and thus faster to process than and so; this pattern should be strongest when the RC has failed to provide any plausible Explanation for the IC matrix event (i.e., the neutral RC, who sits by the window). Crucially, if comprehenders update their IC-driven biases based on the content of an RC—one that enters into a discourse dependency only non-obligatorily—the presence of an inferable Explanation (i.e., who is late) is expected to reduce or reverse this pattern. Our analysis follows prior work on IC-driven coherence effects that have targeted the connective and spillover regions. Of particular interest is the timing of the predicted interaction relative to the main effect of the connective: Is there a delay in the modulation of the Explanation bias or is the interaction apparent in the same regions in which coherence biases have previously been shown, albeit in contexts with more uniform cues and for segments with less ambiguous status?

Table 1

| Intro | Let me fill you in on the latest company gossip. |
|-------|------------------------------------------------|
| neutral RC + because | Diane fired the guy from the London office who was here last month because astoundingly he hired a stripper for the Christmas party. |
| neutral RC + and so | Diane fired the guy from the London office who was here last month and so astoundingly he hired a lawyer to sue the company. |
| causal RC + because | Diane fired the guy from the London office who was embezzling money because astoundingly he hired a stripper for the Christmas party. |
| causal RC + and so | Diane fired the guy from the London office who was embezzling money and so astoundingly he hired a lawyer to sue the company. |

3. Method

3.1. Participants

79 native speakers of English were recruited at Lancaster University. They participated in exchange for course credits. Data from four participants were discarded because of computer or eye-tracker problems, which left us with data from 75 participants (mean age 20.19, age range 18–41, 58 women).

3.2. Materials

32 experimental stimuli were intermixed with 78 filler items similar to the target items in terms of length and complexity. The target stimuli contained an introductory sentence, a multi-clause target sentence, and a wrap-up sentence (Table 1; see Appendix for all target items).

In the target sentences, we varied the RC in S1 (neutral vs. causal) and the explicit segment-initial connective before S2 (because vs. and so). S1 contained a main clause with an NP2-biased IC verb and an object-
modifying RC. S1 was linked to S2 with the explicit connective. 2
We used and so instead of just so for signaling a consequence relation to create a connective region that was approximately as long as because and to avoid the potential interpretation of so as meaning so that. S2 consisted of a single clause containing an adverbial and an unambiguous pronoun co-referent with the object of S1. The adverbial provides a spill-over region before the pronoun (since IC verbs also affect expectations about the pronoun). Target items were distributed over four lists. Each participant saw every item only once, in one of the four conditions.

3.3. Procedure

After receiving instructions and signing a consent form, participants were seated approximately 60 cm from the monitor, with their heads on a chin rest. Eye movements were recorded using the SR Research Eyelink 1000 at a sampling rate of 500 Hz. The experiment was split into two blocks. Halfway through, participants had a short break during which they performed another task, which did not involve a computer. Participants then returned to the monitor, were recalibrated, and finished the experiment. The whole session took approximately an hour.

Participants were presented with a verification statement after 25% of all items (target or filler). The verification statements were included in the experiment to promote careful reading; no reaction time was measured. The verification statements for the target stimuli always inquired about either the first or the last sentence of the item. 3

3.4. Data clean-up and analysis

Fixations shorter than 80 ms and within one degree of a consecutive longer fixation were merged with the longer fixation. Remaining reading times shorter than 80 ms were removed. Finally, outliers were removed in all reading times by replacing reading times of more than two standard deviations below or above the mean (2.0% of the data). See Hoek, Rohde, Evers-Vermeul, and Sanders (2020b) for the details for the final dataset.

We analyzed two regions from the target sentences: the connective region and the connective spill-over region, see (6).

(6) ... [because] connective (astoundingly) spill-over ...

For each region, we analyzed three reading time measures: first pass duration (FP: the time spent in a region until leaving the region for the first time in any direction), regression path duration (RP: the time spent in a region plus all regressions to previous regions before leaving the region for the first time to the right), and total fixation duration (TF: the total time spent in a region). FP and RP duration are both more associated with immediate processing difficulty; TF duration is more indicative of later processing difficulty (e.g., Liversedge, Paterson, & Pickering, 1998).

We analyzed the data using linear mixed effects regression models (Baayen, Davidson, & Bates, 2008) using the lme4 package (Bates, Maechler, Bolker, & Walker, 2015) in R (R Development Core Team, 2019), with fixed effects for RC type, Connective (both deviation coded) and their interaction, as well as random effects of participant and item. In addition, we included a covariate for trial number to account for any variance due to participants’ reading times speeding up over the course of experiments. We used the maximal random effects structure permitted by the data (Barr, Levy, Scheepers, & Tily, 2013). The significance of fixed effects was determined by performing likelihood ratio tests to compare the fit of the model to that of a model with the same random effects structure that did not include the fixed effect.

4. Results

Table 2 contains the mean reading times and standard deviations for each reading time measure per condition and region. There was no significant effect of Connective or RC type at the connective region (p > .05 for all measures). 4 On the connective spill-over region, there was a main effect of Connective on all three reading time measures, which is in line with previous findings that IC verbs generally favor subsequent Explanations, the because condition was read faster than the and so condition (FP: β = 38.91, SE = 10.39, t = 3.74, p < .001; RP: β = 87.86, SE = 23.85, t = 3.68, p < .001; TF: β = 68.83, SE = 13.81, t = 4.98, p < .001). We also found the predicted interaction between Connective and RC on RP (β = 59.40, SE = 29.52, t = 2.01, p < .05) and TF duration (β = 57.54, SE = 22.28, t = 2.58, p < .01) but not on FP (β = 14.73, SE = 12.59, t = 1.17, p = .24). Fig. 1 shows the results at the spillover region for RP and TP durations; the difference in reading times between the because and and so condition is larger after a neutral RC than after a causal RC. This pattern is in keeping with the prediction that causal RCs can satisfy the expectation for an Explanation, rendering subsequent because-clauses more surprising and subsequent and so-clauses less surprising. 5

5. Discussion and conclusion

This study tested the speed and flexibility with which comprehenders update expectations about discourse structure in real time, even if the information leading to this update is only expressed in RCs. In line with the well-established observation that implicit causality verbs favor subsequent Explanations, reading times were faster in the condition with because, a prototypical marker of Explanation, than in the condition with and so, a prototypical marker of Consequence. This result replicates previous findings at the same post-connective spillover region in similarly early measures (FP, RP, and TF duration). As predicted, we found the critical interaction at the same region: RCs that provided a plausible Explanation for the contents of the matrix clause led to longer reading times following a subsequent because, while speeding up reading times following a subsequent and so. This effect can be attributed to the updating of discourse structural expectations on the basis of the RC. The RC was thus found to modulate the Explanation bias in RP and TF duration, but not the FP duration, the reading time measure most indicative of immediate processing difficulty.

Our results suggest that RCs, which need not convey information relevant at the discourse level, affect processing of subsequent linguistic properties of the RC.

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4 All models also revealed a main effect of trial number that indicated that participants’ reading times sped up throughout the experiment (p < .05 in all main models).

5 Follow-up analyses on the relevant subsets of the data confirm this: For both the RP and TF, the difference between the because and and so condition was significant, but in both measures the difference was bigger after neutral RCs (RP: β = 114.02, SE = 27.61, t = 4.13, p < .001; TP: β = 98.35, SE = 20.94, t = 4.70, p < .001) than after causal RCs (RP: β = 55.91, SE = 17.58, t = 3.18, p < .01; TP: β = 39.92, SE = 15.69, t = 2.55, p < .05).

6 For full model output, see tables in the supplemental material: https://tinyurl.com/RCSupplementaryFiles.
material differently depending on whether the contents of the RC can be causally related to the contents of the matrix clause. These results provide the first online evidence that comprehenders use non-obligatory inferences about coherence relations (matrix–RC relations) to update their discourse structural expectations and that they do so remarkably fast. Although not visible in FP duration, the interaction does occur at the same post-connective spillover region where prior work has found evidence of IC-driven explanation biases (Koornneef & Sanders, 2013), so any delay that arises from this RC-driven modulation is very small.

The establishment of effects from non-obligatory inferences with RCs raises further questions about what other material may have been set aside as too small to constitute a discourse segment to participate in coherence relations. For example, adjectives are not themselves clausal but they permit coherence inferences in certain contexts (e.g., the loud student annoyed everyone, see also Webber, 1991). An adequate model of pragmatic processing must ensure that these and other cues that participate in non-obligatory discourse dependencies can still influence how comprehenders build discourse structure. Relatedly, our results are a reminder that models that focus only on comprehenders’ processing of the surface manifestations of coherence relations (overt connectives) will fail to capture the range of inferred dependencies in real-time discourse parsing.

In sum, this experiment extends findings from offline continuation studies to demonstrate the speed and flexibility with which comprehenders integrate linguistic material into their representation of the discourse to generate and update expectations about upcoming discourse structure.

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Appendix A. Experimental items

1.

| Intro | Neutral RC × because | Neutral RC × and so | Causal RC × because | Causal RC × and so | Wrap-up |
|-------|-----------------------|---------------------|------------------|-------------------|---------|
| We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. |
| neutral RC + because | Neutral RC + because | Neutral RC + and so | Causal RC + because | Causal RC + and so | Wrap-up |
| We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. |
| neutral RC + because | Neutral RC + because | Neutral RC + and so | Causal RC + because | Causal RC + and so | Wrap-up |
| We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. |
| neutral RC + because | Neutral RC + because | Neutral RC + and so | Causal RC + because | Causal RC + and so | Wrap-up |
| We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. |
| neutral RC + because | Neutral RC + because | Neutral RC + and so | Causal RC + because | Causal RC + and so | Wrap-up |
| We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. | We were recently involved in a law suit. |

(continued on next page)
2. Intro
The company meeting ended with a few announcements.

3. Intro
Let me fill you in on the latest company gossip.

4. Intro
Mr. Fitzgerald was a real grouch.

5. Intro
Paul loved the clothing shop in his home town.

6. Intro
Yesterday, Natalie had to go to hospital.

7. Intro
Roy was walking to the farmers’ market on a sunny morning.

8. Intro
Today is the last day of school before Christmas.

(continued on next page)
8.
Intro Geoff was on a red-eye flight to New York.

| causal RC + because | I complimented the child who had recently moved here from Spain and so obviously she has been smiling from ear to ear for the last few minutes. |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------|
| causal RC + and so  | I complimented the child who had gotten a perfect test score because obviously she has been having a hard time with her parents’ divorce. |
| Wrap-up             | This afternoon, we will sing carols and eat gingerbread cookies.                                                                   |

9.
Intro Today is the last day of school before Christmas.

| neutral RC + because | I complimented the child who has recently moved here from Spain and so obviously she has been smiling from ear to ear for the last few minutes. |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------|
| neutral RC + because | I complimented the child who had gotten a perfect test score because obviously she has been having a hard time with her parents’ divorce. |
| causal RC + because  | I complimented the child who had gotten a perfect test score and so obviously she has been smiling from ear to ear for the last few minutes. |
| Wrap-up              | This afternoon, we will sing carols and eat gingerbread cookies.                                                                   |

10. Intro Ginny opened the door for three of her mother’s brothers.

| causal RC + because | He had publicly condemned the wealthy aunt who lived in Scotland because reportedly she was in the possession of Nazi gold. |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------|
| causal RC + because | He had publicly condemned the wealthy aunt who lived in Scotland and so reportedly she was in the process of cutting him out of her will. |
| Wrap-up             | The upcoming family reunion was going to be an interesting event.                                                                   |

11. Intro Sally attended an election debate.

| neutral RC + because | She enthusiastically applauded the politician who presented during the final hour because in the end he had the most inspiring message of the day. |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------|
| neutral RC + because | She enthusiastically applauded the politician who presented during the final hour of and so in the end he had the idea to invite her on stage. |
| causal RC + because  | She enthusiastically applauded the politician who received a humanitarian award because in the end he had the most inspiring message of the day. |
| Wrap-up              | The event ended with a short performance by a local band.                                                                         |

12. Intro Geoff was caught up in some family drama.

| causal RC + because | He ridiculed the stewardess who was walking down the aisle because clearly she refused to acknowledge that she needed a dress in a much larger size. |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------|
| causal RC + because | He ridiculed the stewardess who was walking down the aisle and so clearly she refused to provide him with any kind of service for the rest of the flight. |
| causal RC + because | He ridiculed the stewardess who crashed the drink cart into one of the seats because clearly she refused to acknowledge that she needed a dress in a much larger size. |
| Wrap-up             | The other passengers thought Geoff was incredibly rude.                                                                          |

Verification statement Geoff took a red-eye flight to New Mexico.

13. Intro Early on, I punished the girl who was dropped off by her grandpa and so viciously she tried to lock herself and another girl in one of the bedrooms.

| neutral RC + because | Early on, I punished the girl who was dropped off by her grandpa because viciously she tried to steal one of the presents. |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------|
| neutral RC + because | Early on, I punished the girl who knocked over the punch bowl because viciously she tried to steal one of the presents. |
| causal RC + because  | Early on, I punished the girl who knocked over the punch bowl and so viciously she tried to lock herself and another girl in one of the bedrooms. |
| Wrap-up              | Later, it turned out the bowling alley had no record of our reservation.                                                          |

14. Intro My son’s eighth birthday party was a complete disaster.

| causal RC + because | Early on, I punished the girl who was dropped off by her grandpa because viciously she tried to steal one of the presents. |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------|
| causal RC + because | Early on, I punished the girl who knocked over the punch bowl because viciously she tried to steal one of the presents. |
| causal RC + because | Early on, I punished the girl who knocked over the punch bowl and so viciously she tried to lock herself and another girl in one of the bedrooms. |
| Wrap-up              | Later, it turned out the bowling alley had no record of our reservation.                                                          |
14. Intro My son’s eighth birthday party was a complete disaster.

15. Intro We try our best to maintain a good relationship with our community.

16. Intro Andy met a lot of new people at the business fair last month

17. Intro This morning, Pauline caught the bus to work.

18. Intro Bob was conducting interviews for the shop assistant vacancy.

19. Intro Chrissy got into a bit of a fight at a party.

20. Intro Mrs. Thompson had many family members she saw regularly.

21. Intro Prof. Roberts was in the middle of a lecture on global politics.

(continued on next page)
21. Intro Prof. Roberts was in the middle of a lecture on global politics.

Wrap-up He told her they would continue the discussion after class.

22. Intro After work, Mia went to a pub with some colleagues.

neutral RC + because She told off the businessman who was having a drink at the bar because obnoxiously he voiced his sexist opinions about women in business.

neutral RC + and so She told off the businessman who spilled a drink on her dress because obnoxiously he voiced his objection to her hostile attitude.

causal RC + because She told off the businessman who was having a drink at the bar because obnoxiously he voiced his objection to her hostile attitude.

causal RC + and so She told off the businessman who spilled a drink on her dress because obnoxiously he voiced his objection to her hostile attitude.

Verification statement Steak was overcooked.

Wrap-up After a while, she left to catch the last train home.

23. Intro Grace was in her final year of high school.

neutral RC + because She completely idolized the guy who was the cutest member of the hockey team because regularly he would take his grandma to her yoga class.

neutral RC + and so She completely idolized the guy who was the cutest member of the hockey team and so regularly he would take advantage of her.

causal RC + because She completely idolized the guy who sat in front of her during Art because regularly he would take advantage of her.

causal RC + and so She completely idolized the guy who sat in front of her during Art and so regularly he would take advantage of her.

Verification statement Grace is in her last year of high school.

Wrap-up Some of the other kids were chasing after a squirrel.

24. Intro Mr. Brown was teaching his weekly sculpture class.

neutral RC + because He chastised the lady who was making a modernist cube because allegedly she stole the idea for her project from another classmate.

neutral RC + and so He chastised the lady who was making a modernist cube and so allegedly she stole the most expensive sculpting tool in retaliation.

causal RC + because He chastised the lady who guarded the castle because astonishingly he tried to poison her the day before.

causal RC + and so He chastised the lady who had dropped her clay for the seventh time because astonishingly he tried to poison her the day before.

Verification statement Mr. Brown’s steak was overcooked.

Wrap-up Class ended at 4 PM sharp.

25. Intro Queen Wendelyn was addressing her Court.

neutral RC + because She banished the knight who guarded the castle’s main entrance because astonishingly he tried to poison her the day before.

neutral RC + and so She banished the knight who guarded the castle’s main entrance and so astonishingly he tried to draw his sword and attack her.

causal RC + because She banished the knight who had recently let three prisoners escape because astonishingly he tried to poison her the day before.

causal RC + and so She banished the knight who had recently let three prisoners escape and so astonishingly he tried to draw his sword and attack her.

Verification statement Mr. Evans’ steak was overcooked.

Wrap-up Later, she also reprimanded the court jester.

26. Intro Mr. Evans was having lunch at his favourite pub.

neutral RC + because He respected the waitress who was serving his table because over the past year she had received two promotions and was now practically in charge.

neutral RC + and so He respected the waitress who could carry the heaviest trays because over the past year she had received two promotions and was now practically in charge.

causal RC + because He respected the waitress who was serving his table and so over the past year she had received very generous tips whenever he visited.

causal RC + and so He respected the waitress who could carry the heaviest trays and so over the past year she had received very generous tips whenever he visited.

Verification statement Mr. Evans’ steak was overcooked.

Wrap-up When his steak arrived, it was perfectly medium-rare.

27. Intro Right when the gardening crew was leaving, Lady Paulson noticed that her beloved flower patch had been completely ruined.

neutral RC + because She blamed the gardener who was wearing dark green overalls because surely he was the one last seen near the flower patch.

(continued on next page)
|28. Intro | Right when the gardening crew was leaving, Lady Paulson noticed that her beloved flower patch had been completely ruined. |
|---|---|
|neutral RC + and so | She blamed the gardener who was wearing dark green overalls and so surely he was the one most fervently denying having been near the flowers. |
|causal RC + because | She blamed the gardener who always had a careless attitude because surely he was the one last seen near the flower patch. |
|causal RC + and so | She blamed the gardener who always had a careless attitude and so surely he was the one most fervently denying having been near the flowers. |
|Wrap-up | The crew manager promised they would repair the damage. |
|Verification statement | Lady Paulson noticed her orchard had been ruined. |

|30. Intro | Julie was a contestant in a national talent show. |
|---|---|
|neutral RC + because | She envied the singer who was standing on stage left because from the start he had been the public’s favourite. |
|neutral RC + and so | She envied the singer who was standing on stage left and so from the start he had been avoiding her as much as possible. |
|causal RC + because | She envied the singer who was also a gifted guitar player because from the start he had been the public’s favourite. |
|causal RC + and so | She envied the singer who was also a gifted guitar player and so from the start he had been avoiding her as much as possible. |
|Wrap-up | She was extremely nervous about next week’s final. |

|31. Intro | Mr. Lee was helping the golf team off the bus after the accident. |
|---|---|
|neutral RC + because | He carried the girl who had been in the back of the bus because obviously she was very badly hurt. |
|neutral RC + and so | He carried the girl who had been in the back of the bus and so obviously she was very grateful for his help. |
|causal RC + because | He carried the girl who had a huge gash on her leg because obviously she was very badly hurt. |
|causal RC + and so | He carried the girl who had a huge gash on her leg and so obviously she was very grateful for his help. |
|Wrap-up | Fortunately, it would later turn out that the cut had not severed any major arteries. |

|32. Intro | Ava had to attend a symposium on life after high school. |
|---|---|
|neutral RC + because | She loudly mocked the speaker who presented before the break and so right away he started to advocate expressing one’s feelings using a xylophone. |
|neutral RC + and so | She loudly mocked the speaker who presented before the break because right away he started to advocate expressing one’s feelings by using a xylophone. |
|causal RC + because | She loudly mocked the speaker who tripped as he walked on stage because right away he started to advocate expressing one’s feelings by using a xylophone. |
|causal RC + and so | She loudly mocked the speaker who tripped as he walked on stage and so right away he started to call her out on it. |
|Wrap-up | He liked the PE teacher much better. |
|The rest of the day was fairly disastrous also. |

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