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The Syntax of Concessive Clauses: Evidence from Exempt Anaphora

Abstract

Charnavel (2019b) argues that the acceptability of exempt anaphors in adjunct clauses can be used to diagnose the height of those clauses. The goal of this paper is first to provide experimental support for this diagnostic and then to use it to probe the syntax of two types of concessive clauses in English, namely clauses headed by "even though" and "although". The distribution of exempt anaphors reveals that "even though"-clauses attach lower than "although"-clauses. However, this result seems to contradict more standard scopal tests (such as pronominal binding) suggesting that "even though"-clauses scope as high as "although"-clauses. We argue that this apparent conflict reveals that more fine-grained scopal distinctions are needed both between different types of adjunct clauses and between different types of DPs.

The syntax of concessive clauses: evidence from exempt anaphora

Gunnar Lund and Isabelle Charnavel*

1 Introduction

Concessive clauses—adverbial clauses headed by *even though* and *although* in English—are understudied constructions semantically and syntactically. Charnavel (2019b) offers a new tool in diagnosing the syntax of adjunct clauses: the distribution of exempt anaphora. We apply this diagnostic to English concessive clauses. In conjunction with other syntactic tests, we explore the syntactic properties of *even though*-clauses and provide a higher resolution syntax for these constructions.

This paper is organized as follows: In Section 2, we review the diagnostic introduced in Charnavel (2019b). In Section 3, we put the empirical claims in Charnavel (2019b) to the test experimentally. We then extend the analysis to concessive clauses in Section 4. We apply further syntactic tests to *even though*-clauses in Section 5. We provide a syntactic analysis of these clauses in Section 6. Section 7 concludes.

2 Background

The classic formulation of Condition A states that an anaphor must be bound in its binding domain, which for our purposes can be approximated to the smallest clause containing it (see Charnavel and Sportiche (2016) for detailed discussion). In (1a), the anaphor *itself* is within the binding domain for its antecedent *the moon*, and as such, satisfies Condition A. In (1b), Condition A is not satisfied; *itself* is outside of the binding domain of its antecedent *the moon*.

- (1) (Adapted from Charnavel and Sportiche (2016))
 - a. The moon_{*i*} spins on itself_{*i*}.
 - b. *The moon_{*i*} influences people [who are sensitive to itself_{*i*}].

However, as has long been noticed, reflexive anaphors like *herself* also show apparent exemption from Condition A in certain contexts (Ross 1970, Pollard and Sag 1992, Reinhart and Reuland 1993, i.a.). In (2a), the anaphor *herself* is not c-commanded by *Mary*, its antecedent. In (2b), the anaphor *himself* is not in the local domain of *Albert*. The contexts that license such exemption are argued to be those that in some sense represent the perspective of their antecedent. These contexts have been termed *logophoric* (see Sells 1987, Charnavel 2019a, i.a.).

- (2)
 - a. The picture of herself_{*i*} on the front page of the Times made Mary_{*i*}'s claims seem somewhat ridiculous. (Pollard and Sag 1992:264)
 - b. Albert_{*i*} was never hostile to laymen who couldn't understand what physicists like himself_{*i*} were trying to prove. (Ross 1970:230)

Causal clauses, adjunct clauses headed by *because* and *since* in English, can also contain exempt anaphors. An anaphor in a causal clause can be bound long distance by an antecedent in the superordinate clause. This is shown in (3). Here, *Liz*, the matrix subject, can bind the reflexive *herself* residing in the adjunct clause. Charnavel (2019b) argues that causal clauses, like the one in (3), create perspectival contexts. The causal relation must be established by some reasoning individual, which we henceforth refer to as the “causal judge.”

Moreover, when an exempt anaphor is licensed in a causal clause, the antecedent must also believe that the causal relation expressed by the adverbial clause holds. In (3), *Liz* herself must believe that the picture going around is the reason she left the party. Compare this to (4), where the

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anaphor has been replaced by a pronoun. Here, Liz may or may not believe the picture going around to be the cause of her leaving. She may believe the picture had nothing to do with her leaving.

- (3) Liz_i left the party because there was an embarrassing picture of herself_i going around. (Char-navel 2018:5)
 (4) Liz_i left the party because there was an embarrassing picture of her_i going around.

As such, Charnavel (2019b) argues that the causal judge is encoded directly in the semantics for causal subordinators. She gives *because* constructions the semantics in (5), where *j* represents the causal judge, an argument of *because* (cf. Stephenson 2007).

- (5) $\llbracket A \text{ because}(j) B \rrbracket^w = \forall w'$ compatible with *j*'s mental state in *w*, B is the cause of A in *w'*.

Furthermore, Charnavel (2019b) argues that this causal judge variable is represented syntactically because it is subject to binding requirements. First, it must be bound by a syntactically represented speaker *S* (Speas and Tenny 2003, Haegeman and Hill 2013) or some higher attitude holder. Second—and crucially for our purposes—the judge variable may also be bound by an event participant in the superordinate clause under the appropriate conditions. As we will see, binding by an event participant is a necessary condition for the licensing of exempt anaphors in these clauses. Thus, the judge variable must be bound by *Liz* in (3) (as in (6a)), but need not be in (4) (as in (6b)). In both cases in (6) the speaker *S* binds *j*, reflecting the fact that the speaker must also believe in the causal relation expressed by the *because*-clause.

- (6) a. S [Liz_i left the party] [_{*j*}_{*S+Liz*} because there was an embarrassing picture of herself_i going around.]
 b. S [Liz_i left the party] [_{*j*}_{*S*} because there was an embarrassing picture of her_i going around.]

Additionally, there must be a perspective center for the subordinate clause itself, which is not necessarily the same as the causal judge. Consider the two continuations of (3) in (7). The speaker *S* does bind the causal judge variable, and therefore must also believe the picture going around to be cause of Liz's leaving, ruling out the continuation in (7b). The subordinate clause, however, may have only *Liz* as the perspective center. Thus the perspective sensitive adjective *embarrassing* is being evaluated by *Liz* alone, and the continuation in (7a) is fine.

- (7) Liz_i left the party because there was an embarrassing picture of herself_i going around...
 a. But I don't think it was embarrassing at all.
 b. #But I think she left because she was tired.

This leads Charnavel (2019b) to argue that in addition to the causal judge there is a logophoric operator *Op* in the periphery of the subordinate clause. This operator syntactically represents the perspective center, binding logophoric elements in the clause. The causal judge, then, may partially bind *Op*. This allows *Liz* to be the perspective center of the subordinate clause in (3).

Thus apparent exempt anaphors are in fact locally bound and abide by Condition A (Charnavel 2019a). The anaphor *herself* in (6a) is bound locally by *Op*. *Op* is (partially) bound by the causal judge, and the causal judge is in turn bound by *Liz*, the apparent antecedent of *herself*. What looks to be exempt anaphora is really a sequence of local binding relations. This is illustrated by the tree in Fig. 1. *Liz* does not directly bind *herself*, as this would be a violation of Condition A.

This account predicts that exempt anaphors referring to event participants that do not c-command the causal clause should be unavailable. Charnavel (2019b) argues that evidential and speech act modifying causal clauses show exactly that. The attachment sites for these clauses is high in the periphery of the clause, residing in Mood_{evidential} (EvidP) and Mood_{speech act} (SAP) in (8) below (Cinque 1999, Speas and Tenny 2003, Rutherford 1970, Sæbø 1991). Clauses attaching at these high positions would no longer be c-commanded by the matrix subject. This is illustrated in Fig. 2.

- (8) [Mood_{speech act} (SAP) [Mood_{evaluative} [Mood_{evidential} (EvidP) ... [VP ...]...]]]

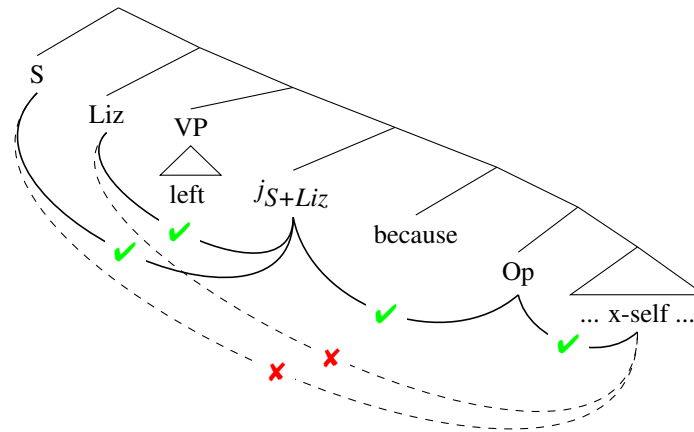


Figure 1: Apparent exempt anaphora in causal clauses is local binding.

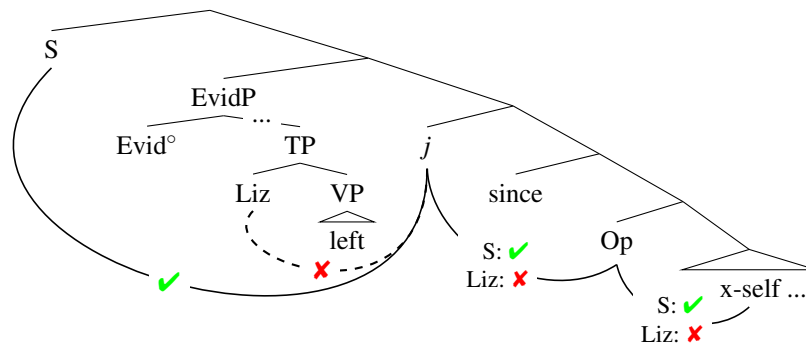


Figure 2: The causal judge in evidential causal clauses cannot be bound by the matrix subject.

Examples of these types of causal clauses are below in (9). Because speakers report that the causal subordinator *since* is preferred in these clauses, we will refer to these as evidential *since*-clauses and speech act modifying *since*-clauses, respectively, in contrast to eventive *because*-clauses.

- (9) a. It must be raining, *since/because* John’s rain boots are wet. (EvidP)
 b. It’s raining, *since/?because* you need to go out later. (SAP)

Armchair native speaker judgments support this prediction. Evidential and speech act modifying *since*-clauses disallow exempt anaphors. Compare the eventive causal clause in (3) to (10), where the embedded clause is understood to provide evidence for the truth of the matrix clause.

- (10) ?? Liz must have left, *since* there is an embarrassing picture of herself going around.

In the next section, we provide experimental evidence supporting this conclusion, bolstering the analysis in Charnavel (2019b).

3 Experimental Confirmation

We tested experimentally the empirical claim in Charnavel (2019b) that exempt anaphors are permissible in eventive *because*-clauses but not evidential *since*-clauses. We asked 90 participants to provide grammaticality judgements of causal clauses containing exempt anaphors on a six-point Likert scale. Each participant was shown three sentences of *because*-clauses and *since*-clauses, like those in (11). The semantic import of the clause types was controlled for; *because*-clauses had eventive interpretations, while *since*-clauses had evidential ones.

- (11) a. Alice sued the newspaper because it published an embarrassing photo of herself.
[condition mean: 4.7 out of 6; standard deviation: 1.15]
b. Tom went on vacation since there was a picture of himself at a beach on Facebook.
[condition mean: 3.5 out of 6; standard deviation: 1.38]

Using t-tests to calculate the results, we find that participants judged *because*-clauses with exempt anaphors to be significantly better than *since*-clauses ($p < 0.0005$). This supports the claim that eventive *because*-clauses allow for exempt anaphora but evidential *since*-clauses do not.

4 Concessive Clauses

We extend the analysis of exempt anaphora in Charnavel (2019b) to concessive clauses headed by *even though* and *although*. These clauses are a natural extension of the theory of exempt anaphora in Charnavel (2019b). First, they are argued to be anti-causal semantically, and may therefore parallel causal clauses syntactically (König and Siemund 2000).¹Second, we know relatively little about the syntax of these clauses.

Rutherford (1970) argues that *although*-clauses are syntactically higher than *even though*-clauses, as *although*-clauses have speech act modifying uses, but *even though*-clauses do not. If Rutherford (1970) is correct that *although*-clauses attach higher than *even though*-clauses, we might expect a contrast similar to that of *because* and *since*-clauses. That is, we might expect exempt anaphora to be available for *even though*-clauses but not *although*-clauses. To test this, we performed an experiment like the one outlined in section 3. We found that *even though*-clauses do allow for exempt anaphors, but *although*-clauses do not.

We asked the same participants as in the experiment in section 3 to judge sentences with exempt anaphors in concessive clauses on a six-point Likert scale. Participants each saw three sentences with *even though*-clauses and three sentences of *although*-clauses. Examples of the sentences tested are in (12). Both types of clauses were presented as contrasting the two clauses (i.e., the *although*-clauses were not to be interpreted as speech act modifiers).

- (12) a. The judge was allowed to stay on the case even though there was a recording of himself insulting the defendant. [condition mean: 4.7 out of 6; standard deviation: 1.19]
b. Mary spent the week at her lake house although there was going to be a statue of herself revealed outside city hall. [condition mean: 3.8 out of 6; standard deviation: 1.57]

Using t-tests to calculate the results, we found a significant contrast between *even though*- and *although*-clauses in acceptability ($p < 0.0005$). *Even though*-clauses containing exempt anaphors were judged to be significantly better than *although*-clauses. Comparing concessive clauses to causal clauses, we found no significant difference between *even though*-clauses and eventive *because*-clauses nor one between *although*-clauses and *since*-clauses. The results for the four clause types are summarized in Fig. 3.

This sheds light on the syntax of concessive clauses. We conclude that, like eventive *because*-clauses, *even though*-clauses may be c-commanded by matrix subjects, allowing for apparent exempt anaphora. *Although*-clauses, however, attach higher than the matrix subject, disallowing binding. In the next section of this paper, we show that *even though*-clauses are not exactly like *because*-clauses. While they attach lower than *although*-clauses, they attach higher than eventive *because*-clauses.

5 *Even Though* Attaches High

These results may suggest that *even though*-clauses are a syntactic counterpart of eventive *because*-clauses. This is not the case. Further syntactic tests reveal that, in certain respects, *even though*-

¹Iten (2005) and Lund (2017) argue against this anti-causal view of concessive clauses. On Charnavel's account, exempt anaphora is available in causal clauses because they create perspectival contexts, not because they are causal *per se*. Without going too far afield, it is reasonable to assume that the concessive relation, causal or not, must also be established by a reasoning individual and therefore creates a perspectival context.

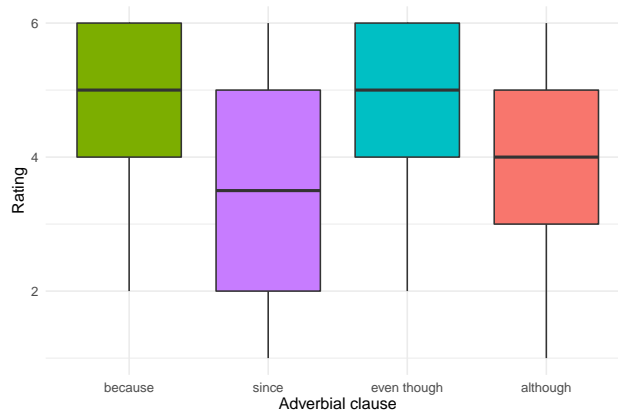


Figure 3: Availability of exempt anaphora in causal and concessive clauses.

clauses pattern with evidential *since*-clauses, indicating that they are higher than *because*-clauses. First, negation may take scope above *because*-clauses but not *even though*-clauses. Second, questions may scope above *because*-clauses but not *even though*-clauses. Third, quantifier DPs (QDPs) in matrix clauses may bind pronouns in *because*-clauses but not *even though*-clauses. We support this last claim experimentally.

5.1 Negation

Eventive *because*-clauses can fall in the scope of negation, cancelling the inference that the subordinate clause holds (Lakoff 1972, Rutherford 1970, Iatridou 1991, Johnston 1994, i.a.). This is not the case for evidential *since*- or *even though*-clauses. The inference that the subordinate clause is true holds regardless of the presence of negation in the matrix clause. This is illustrated in (13).

- (13) a. Liz didn't leave because she was tired. (But because she had work the next day.)
 $\not\Rightarrow$ She was tired. ($\neg > \textit{because}$)
 b. # Liz didn't leave since her coat wasn't on the rack.
 \Rightarrow Her coat wasn't on the rack. ($*\neg > \textit{since}$)
 c. # Liz didn't leave even though she wasn't tired.
 \Rightarrow She wasn't tired. ($*\neg > \textit{even though}$)

5.2 Questions

Eventive *because*-clauses can also fall within the scope of a question. Like with negation, these configurations also cancel the inference that the subordinate clause holds. Again, this is not the case for the evidential *since* and *even though*-clauses. Like with negation, the subordinate clause must be true regardless of the presence of a question in the matrix clause, as shown in (14).

- (14) a. Did the cowboy ride to town because he wanted to buy a new hat?
 $\not\Rightarrow$ The cowboy wanted to buy a new hat. ($Q > \textit{because}$)
 b. Did the cowboy ride to town since his horse is gone?
 \Rightarrow The cowboy's horse is gone. ($*Q > \textit{since}$)
 c. Did the cowboy ride to town even though he didn't want to buy a new hat?
 \Rightarrow The cowboy didn't want to buy a new hat. ($*Q > \textit{even though}$)

5.3 Pronominal Binding

Finally, matrix quantifier DP subjects can bind pronouns in eventive *because*-clauses but not evidential *since*-clauses or *even though*-clauses. The sentences in (15) can only be true for the given

contexts if the quantifier binds the pronoun. The pronoun in the *since*- and *even though*- clauses can't be bound, rendering their respective sentences false.

- (15) a. [Context: There are ten guests at the party. Four left, and of them, three left due to exhaustion.]
 Most guests left the party because they were tired. (*most* > *because*)
- b. [Context: There are ten guests at the party. The speaker has evidence that four left. He sees that one person's coat is missing, and that three others' bikes are gone.]
 # Most guests left the party since their bikes are gone. (**most* > *since*)
- c. [Context: There are ten guests at the party. Four left, and three of the four were having a good time but needed to get to bed early.]
 #Most guests left the party even though they weren't tired. (**most* > *even though*)

To test this intuition, we asked participants to give truth value judgements for sentences with bound pronouns in adjunct clauses, given a particular scenario. Subjects each saw four sentences in unembedded contexts and four in embedded contexts. Matrix subjects consisted of QDPs headed by *no*, and pronominal singular subjects in the subordinate clause were the intended targets of binding, as in (16). The sentence is interpreted as true on only the bound reading, and not on a referential reading.

- (16) [Situation: Congressmen Smith, Jones, and Johnson hate their jobs. However, they feel a sense of duty to their citizens and go to work every day for that reason.]
 No congressman_j goes to work because he_j loves his job. [TRUE]
 No congressman_j goes to work because he_k loves his job. [FALSE]

Examples for *although* and *even though*-clauses are below.

- (17) a. [Situation: Will tried out for the baseball team and his mom approved. Harry also tried out for the team with his mom's approval. Johnny tried out for the team too with his mom's approval.]
 No boy tried out for the baseball team even though his mom protested.
- b. [Situation: Lisa makes sure that her three sons take good care of their teeth and makes the children brush their teeth twice per day. While the boys don't mind brushing their teeth, they hate going to the dentist.]
 No son hates going to the dentist although his teeth need cleaning.

We found that *because*-clauses were significantly more likely to be interpreted as *true* than any other clause type. These results are summarized in Figure 4.

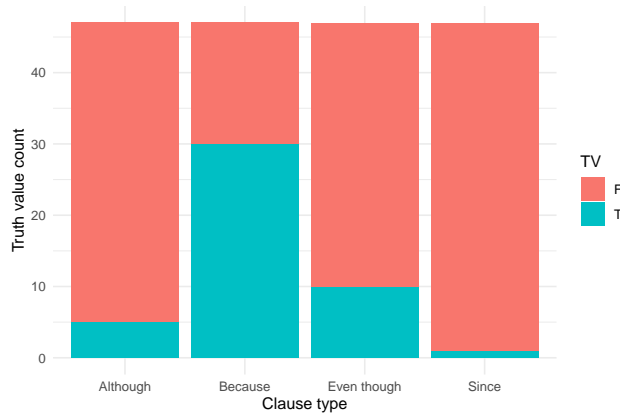


Figure 4: Availability of pronominal binding in causal and concessive clauses.

This last test leaves us with a puzzle. If *even though*-clauses allow for exempt anaphora, then matrix subject antecedents can c-command them. However, the unavailability of binding by QDPs

suggests that these subjects can't c-command *even though*-clauses. We resolve this puzzle in the next section.

6 Analysis

Even though-clauses represent a syntactic peculiarity. On one hand, they attach higher than eventive *because*-clauses, failing to take scope under questions and negation. On the other, unlike *although*-clauses and evidential *since*-clauses, they attach low enough to be c-commanded by referential matrix subjects and allow for exempt anaphora. As an added complication, QDP matrix subjects are not able to bind into *even though*-clauses, suggesting they are unable to c-command them.

Our solution to this puzzle has two ingredients. First, we argue that *even though*-clauses attach at Epis(temic)P. This puts them above eventive *because*-clauses, but below evidential *since*-clauses and *although*-clauses. The second ingredient concerns the syntax of subject DPs themselves. Following Beghelli and Stowell (1997) and Kiss (1996), we argue that referential DPs and QDPs take different scopes. This captures the fact that *even though*-clauses allow exempt anaphora, but not binding by QDPs.

6.1 Ingredient 1: EpisP

Given that *even though*-clauses are syntactically lower than *although*- and evidential *since*-clause but higher than eventive *because*-clauses, they must attach at an intermediate position between the two. Following the hierarchy of functional projections (8) above, repeated below in (18), EpisP provides exactly such an attachment site. It is below EvidP, where evidential *since*-clauses attach, and above VP, where eventive *because*-clauses attach.

(18) [Mood_{speech act} (SAP) [Mood_{evaluative} [Mood_{evidential} (EvidP) ... [VP ...]...]]

We argue that *even though*-clauses reside here at EpisP. There is a semantic basis for this. According to Crevels (2000:318), "In the epistemic domain concessive conjunction will mark the impediment of a belief or a conclusion. [A concessive clause] does not express any factual conflict, but a conflict between the conclusion and the potential counter argument expressed in the concessive clause." In other words, *even though*-clauses do not express an incompatibility between two facts. Rather, these clauses signal an incompatibility between what we believe and the conclusions we generally draw from those beliefs and reality itself.

We support this argument with three additional empirical tests. If *even though*-clauses attach at EpisP, they should share empirical properties with epistemic modals and other epistemic elements. Like epistemic modals, these clauses 1) respect the Epistemic Containment Principle (ECP) (von Stechow and Iatridou 2003), and 2) may only embed under representational attitude verbs (Anand and Hacquard 2013). In addition, they take appropriate scope with respect to adjacent adverbial modifiers (Cinque 1999).

6.1.1 Epistemic Containment Principle

The ECP simply states that quantifiers may not take scope above epistemic modals like *must* (von Stechow and Iatridou 2003). This is seen in (19), from von Stechow and Iatridou (2003). In a scenario where I want to know if our friend Chris is awake or not, my interlocutor can utter (19a) to indicate that Chris's light being on allows us to draw the conclusion that he's awake. If we want to generalize this to all the students, though, we can't use (19b). Assuming that the *if*-clause restricts the modal and is local to it, the quantifier will be unable to bind the pronoun *his*. Since it cannot take scope above *must* and the *if*-clause, it cannot c-command the pronoun to bind it.

- (19) a. Chris must be awake if his light is on.
b. * Every student_k must be awake if his_k light is on.

We've seen this same principle at work with *even though*-clauses in section 5.3. Like epistemic modals, quantifiers cannot take scope above *even though*-clauses to bind pronouns within them.

6.1.2 Representational Attitudes

Epistemic modals are also restricted in terms of the attitude verbs they may embed under. In particular, they can only embed under representational attitude verbs like *think* and *know* (Anand and Hacquard 2013). These verbs differ from non-representational attitude verbs like *want* and *wish* in that they directly quantify over information states. Anand and Hacquard (2013) argue that epistemics must be supplied information states and may therefore embed under representational attitude verbs, which supply them, and not non-representational attitude verbs, which do not. This contrast is illustrated in (20) where *have to*, construed epistemically, can embed under *think* but not *wish*.

- (20) a. John thinks that Paul had to be innocent.
 b. # John wishes that Paul had to be innocent.

This same contrast is exhibited with *even though*-clauses. They may embed under representational attitude verbs but not non-representational attitude verbs. This is shown in (21). If the clause can be embedded, the inference that the subordinate clause holds should be cancellable. This is possible under *think*, as in (21a), but not *wish*, as in (21b).

- (21) a. John thinks that Paul went for a walk even though it's raining (but it's not actually raining)
 b. John wishes that Paul would go for a walk even though it's raining (*but it's not actually raining).

6.1.3 Adjacent Modifiers

Finally, it follows that if *even though*-clauses attach at EpisP, they should take scope above modifiers in lower projections but below those in higher projections. Cinque (1999) posits that EpisP is sandwiched between EvidP and Mood_{irrealis}. Representative modifiers are *allegedly* and *perhaps*, respectively. To determine their scope relative to the adverbial clause, we test whether they cancel the entailment of the subordinate clause. This is evident with eventive *because*-clauses, which scope low. As shown in (22), both adverbs cancel the entailment that it was a nice day.

- (22) Perhaps/allegedly, John went for a walk because it was a nice day.
 ≠ It was a nice day. (Adv. > *because*)

If *even though*-clauses attach at EpisP, we should expect *allegedly* to scope above it and *perhaps* to scope below. This is exactly what we find, as shown in (23).

- (23) a. Perhaps John went for a walk even though it was raining.
 ⇒ It was raining. (*perhaps > *even though*)
 b. Allegedly, John went for a walk even though it was raining.
 ≠ It was raining. (allegedly > *even though*)

In (23b), the adverb *allegedly* scopes over the *even though*-clause, cancelling the entailment that it was raining. This is not true for *perhaps*, as in (23a), which does not cancel the entailment. This suggests that *even though*-clauses attach at a position between the two adverbs, namely EpisP.

6.2 Ingredient 2: DPs and Scope

The behavior of exempt anaphora and quantificational binding with *even though*-clauses results in a conundrum. As we have seen, exempt anaphora *is* available with *even though*-clauses. Thus matrix subject antecedents must be able to c-command the *even though*-clause. On the other hand, QDP matrix subjects are unable to bind pronouns in *even though*-clauses. This suggests that QDP matrix subjects do not c-command *even though*-clauses. We resolve this apparent problem by adopting the view that different types of DPs take different scopes.

Different types of DPs exhibit scope asymmetries. For instance, the inverse scope reading of (24a) is unavailable. However, when the object DP *fewer than three girls* is replaced by the DP

every girl, an inverse scope reading is possible. Beghelli and Stowell (1997) argue that asymmetries of this sort are the result of different fixed scope positions for different QDPs, restricting their scope possibilities.

- (24) a. Two students visited fewer than three girls.
- b. Two students visited every girl.

Higher than other QDP scope positions sits RefP, a kind of topic position. Referential (or specific) DPs may move to the specifier of this position, but QDPs like *every student* may not (Kiss 1996). We posit that RefP sits between EpisP and EvidP. In the examples of *even though*-clauses with exempt anaphors above, the matrix subjects are referential. As such, they may occupy this high position, allowing them to bind the causal judge in the adverbial clause. Because this position is below EvidP, these subjects can't bind the judge in evidential *since*-clauses. Subject QDPs can never move to a position higher than the *even though*-clause, preventing them from binding pronouns in the subordinate clause.

6.3 Putting it Together

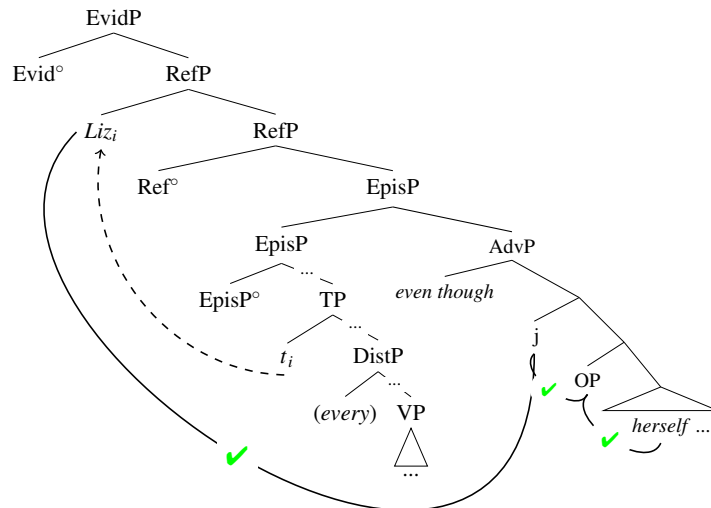


Figure 5: *Even though*-clauses at EpisP.

We first argued that *even though*-clauses occupy EpisP. This puts them between EvidP, where evidential *since*-clauses attach, and VP, where eventive *because*-clauses attach. Following Beghelli and Stowell (1997) and Kiss (1996), we then argued that referential DPs take scope in RefP, a topic position higher than EpisP but below EvidP. QDPs take scope below this.

Together, *even though*-clauses occupy a position higher than eventive *because*-clauses, negation, and questions, but below referential DPs. Thus referential DPs can bind the judge variable in the *even though*-clause, allowing for exempt anaphora. In addition, other types of DPs can only move to positions below this, and won't be able to bind pronouns in the *even though*-clause. The full picture is depicted in Fig. 5.

7 Conclusion

This study has several results, both methodological and theoretical. Methodologically, we have shown that the distribution of exempt anaphora in concert with other scopal tests can be used to diagnose higher resolution analyses for the syntax of adjunct clauses. Theoretically, we have argued for a new analysis of the syntax of *even though*-clauses. We have also provided further support for

the theory of exempt anaphora presented in Charnavel (2019b), as well as theories of DPs and their relatives scopes in Beghelli and Stowell (1997) and Kiss (1996).

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