

Non-at-issueness of *since*-clauses*

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Abstract This paper explores the discourse status of English causal clauses introduced by *since*. Tests for non-at-issueness demonstrate that neither the relation (between the subordinate and the superordinate clause) expressed by *since* nor the content of the subordinate clause is at-issue. Other diagnostics further show that these two not-at-issue contents triggered by *since* belong to two different classes of projective content. This can be accounted for by attributing two different sources to their non-at-issueness: the relation expressed by *since* is not-at-issue for structural reasons, i.e. because *since*-clauses modify high evidential or speech act phrases, which are not-at-issue; the content of the subordinate clause is not-at-issue because *since* lexically selects factive clauses. More generally, this study (and future comparative studies on other subordinators) promises to shed further light on the constraints on different contents projected by the same trigger and the role played by structure in non-at-issueness.

Keywords: (non)-at-issueness, presupposition, projection, causal clauses, *since*, *because*, factivity, evidentiality, speech act

1. Introduction

This paper focuses on the discourse status of English causal clauses introduced by *since* (*since*-clauses, henceforth) exemplified below:

- (1) Liz has left, since her coat is not on the rack.
- (2) Let's go for a drink, since you insist.

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Unlike causal clauses introduced by *because* such as (3) (*because*-clauses, henceforth), *since*-clauses do not express the cause of the event described in the matrix clause,¹ but they rather provide some evidence for the truth of the matrix proposition, as in (1), or some reason for the matrix speech act, as in (2) (see Charnavel 2017a and references therein).²

(3) Liz left because she was tired.

The goal of this paper is to show that unlike *because*-clauses, *since*-clauses are never understood as the main point of the utterance, that is, they are not at-issue (see Simons, Tonhauser, Beaver & Roberts 2010, i.a.). More precisely, *since*-clauses are associated with two implications, namely the content of the subordinate clause B (the B-implication, henceforth) and the relation expressed by *since* between that B clause and the matrix clause A (the *since*-implication, henceforth), and neither implication is at-issue. But their non-at-issuedness comes from two different sources, I will argue, as the B-implication and the *since*-implication correspond to two different types of projective content. More generally, the case study of *since*-clauses should thus shed light on the constraints on and properties of different projective contents triggered by the same element.

First (in Section 2), I will establish the empirical generalizations by applying the diagnostics for (non)-at-issuedness and projection to both implications. Then (in Section 3), I will propose an account for the non-at-issuedness of each implication: the *since*-implication is not at-issue because *since*-clauses modify not-at-issue content, namely evidential and speech act phrases; and the B-implication is not at-issue because the subordinator *since* selects a factive complement. One source of non-at-issuedness is therefore structural, and the other one is lexical.

2. Empirical generalizations: double non-at-issuedness of *since*-clauses

2.1 Diagnosing the not-at-issue contents associated with *since*-clauses

In (1) above repeated in (4) below, neither the fact that Liz's coat is not on the rack nor the evidential relation between that fact and the conclusion that she has left are understood as the main point of the utterance, but they are secondary and backgrounded: the main point of the utterance is to convey that Liz has left. The

¹ Some *because*-clauses (with a different prosody) can also modify propositions or speech acts, just like *since*-clauses (cf. Rutherford 1970, Sæbø 1991, i.a.). In this paper, I only mention *because*-clauses that modify an event as a point of comparison with *since*-clauses.

² The same holds in other languages, cf. French *parce que* vs. *puisque* (see Groupe λ-1 1975, Charnavel 2017b, i.a.), German *weil* vs. *denn* (see Scheffler 2008, Antomo 2009, i.a.).

same holds in (2) repeated as (5): neither implication associated with the *since*-clause is at-issue, only the content of the matrix clause is.

- (4) Liz has left, since her coat is not on the rack.
-A-implication: Liz has left [at-issue]
-B-implication: Liz's coat is not on the rack [not at-issue]
-*since*-implication: the absence of Liz's coat on the rack indicates that she left [not at-issue]
- (5) Let's go for a drink, since you insist.
-A-implication: the speaker exhorts the addressee to go for a drink [at-issue]
-B-implication: the addressee insists on going for a drink [not-at-issue]
-*since*-implication: the addressee's insistence is a reason for exhorting her to go for a drink [not-at-issue]

This can be demonstrated by several tests (see Tonhauser 2012, i.a.). The first diagnostic is based on the fact that a proposition is at-issue if it addresses the Question Under Discussion (QUD, see Roberts 1996). Conversely, not-at-issue content cannot serve as the intended answer to the QUD, or more precisely, it may not be intended as the sole content of an utterance to address the QUD (see Simons et al. 2010, Tonhauser 2012, i.a.). The diagnostic thus consists in testing whether the implications associated with *since*-clauses can serve as an answer to a question when in principle, their content entails an answer to that question. The infelicitous dialogs in (6) and (7) show that they cannot.

- (6) a. Where is Liz's coat?
b. # Liz has left, since her coat is not on the rack.
- (7) a. Why has Liz left? / How do you know that Liz has left?
b. # Liz has left, since her coat is not on the rack.

In (6), the B-implication (the content of the subordinate clause) in (b) is intended to be the answer to the question in (a), as its content is directly relevant to that question. But sentence (b) is an infelicitous answer to (a), which shows that the B-implication is not at-issue. This contrasts with the A-implication (the content of the matrix clause), which is at-issue as it can address the QUD as in (8).

- (8) a. Where is Liz?
b. Liz has left, since her coat is not on the rack.

Similarly, (7) shows that the *since*-implication (the relation between the matrix clause and the subordinate clause) cannot serve as an answer to any type of

question and is therefore not at-issue either. *Since*-clauses differ in that respect from *because*-clauses, which can answer *why*-questions as exemplified in (9).

- (9) a. Why has Liz left?
b. Liz has left because she was tired.

The second diagnostic relies on the fact that only at-issue content can be challenged and confirms that neither the B-implication nor the *since*-implication is at-issue. Specifically, the at-issue content of a speaker's utterance can be assented or dissented with, i.e. it can be directly accepted or rejected by an addressee (see Tonhauser 2012, i.a.). Not-at-issue content, however, can only indirectly be challenged with utterances such as "Hey, wait a minute!" (see Shanon 1976, von Stechow 2004). One way to diagnose (non)-at-issueness is thus to explore the acceptability of utterances where an assent/dissent is followed by an adversative utterance that conveys a hypothesized at-issue or not-at-issue content (Tonhauser's 2012 diagnostic #1c). The assumption behind the diagnostic is that such utterances are contradictory, therefore unacceptable, when the continuations convey at-issue content, but acceptable when they convey not-at-issue content. The diagnostic is applied to *since*-clauses in (10)-(11).

- (10) a. Liz has left, since her coat is not on the rack.
b. Yes, true, but her coat is in fact on the rack. [B-implication]
- (11) a. Liz has left, since her coat is not on the rack.
b. Yes, true, but in fact, the absence of her coat on the rack does not prove anything: she did not take it. [*since*-implication]

Both responses in (10) and (11) consist of assents followed by adversative utterances that convey the content of the B-implication and that of the *since*-implication, respectively. Both (10) and (11) are acceptable, which supports the hypothesis that the B-implication and the *since*-implication are not at-issue. Just as above, this contrasts with the status of the A-implication on the one hand, and that of the *because*-implication on the other hand, as shown in (12)-(13): both responses are contradictory, which confirms that the A-implication and the *because*-implication are at-issue.

- (12) a. Liz has left, since her coat is not on the rack.
b. # Yes, true, but in fact, she has not left. [A-implication]
- (13) a. Liz has left, because she was tired.
b. # Yes, true, but in fact, her tiredness did not cause her to leave. [*because*-implication]

Thus, the two diagnostics show that the two implications associated with

since-clauses are not at-issue. So far, they have been applied to evidential *since*-clauses, that is, *since*-clauses like (1) that provide evidence for the truth of the matrix proposition. The same holds for speech act *since*-clauses, that is, *since*-clauses like (2) that provide reasons for the matrix speech act. As assertions are easier to challenge and to serve as answers to questions than other speech acts, it is more appropriate to apply the diagnostics to (14) below, where the *since*-clause modifies an assertion, than with (2), where the *since*-clause modifies an exhortation.

(14) Liz has left, since you must know everything.

Just as in the case of the evidential *since*-clause in (6)-(7) and (10)-(11), neither the B-implication nor the *since*-implication associated with this speech act *since*-clause can address the QUD, as shown in (15)-(16), or can be directly challenged, as exemplified in (17)-(18).

(15) a. What do (you think) I want to know?
b. # Liz has left, since you must know everything. [B-implication]

(16) a. Why has Liz left? / Why should you tell me where Liz is?
b. # Liz has left, since you must know everything. [*since*-implication]

(17) a. Liz has left, since you must know everything.
b. Yes, true, but I am not asking to know everything. [B-implication]

(18) a. Liz has left, since you must know everything.
b. Yes, true, but it's not because I want to know everything that you need to tell me. [*since*-implication]

A further observation that corroborates this generalization is that *since*-clauses cannot be focused (cf. Sæbø 1991, i.a.). For instance, neither type of *since*-clause can be clefted, as shown in (19), while *because*-clauses can, as illustrated in (20).

(19) a. *It is since her coat is not on the rack that Liz has left.
b. *It is since you must know everything that Liz has left.

(20) It is because she was tired that Liz has left.

Similarly, (21) and (22) show that unlike *because*-clauses, *since*-clauses cannot be associated with a focus particle like *only*.

(21) a. # Liz has only left since her coat is not on the rack.
[Intended: the only piece of evidence indicating that Liz has left is the absence of her coat on the rack]

b. # Liz has only left since you must know everything.

[Intended: the only reason why I am asserting that Liz has left is your willingness to know everything]

(22) Liz has only left because she was tired.
[i.e. the only reason why Liz has left is her tiredness]

Given that not-at-issue content cannot usually be focused,³ this supports the hypothesis that *since*-clauses are not at-issue.

2.2 Two types of projective contents

Given that the two implications associated with *since*-clauses are not-at-issue, they are predicted to project (see Simons et al. 2010). An implication is said to project if and only if it survives as an utterance implication (i.e. is understood as a commitment of the speaker) when the expression that triggers the implication occurs under the syntactic scope of an entailment-cancelling operator. Under the classical theory, presuppositions thus survive under negations, questions, modals or conditionals. But it has been observed (Chierchia & McConnell-Ginet 1990, i.a.) that projection potential is not just a property of standard presuppositions, but also of other types of implications such as conventional implicatures (Potts 2005). This led Simons et al. (2010) to propose that projection is intimately tied to discourse structure: all and only not-at-issue contents project.

The prediction seems⁴ to be borne out for *since*-clauses. As shown in (23), both the B-implication (Liz's coat is not on the rack) and the *since*-implication (the absence of Liz's coat on the rack indicates that she left) are still understood as commitments of the speaker in the presence of a negation, question, modal or conditional. This contrasts with *because*-implications that are affected by these operators as exemplified in (24).

(23) a. #It is not the case that Liz left since her coat is not on the rack. [negation]
b. Did Liz leave, since her coat is not on the rack? [question]
c. It is possible that Liz left since her coat is not on the rack. [modal]
d. If Liz left since her coat is not on the rack, I'll go. [conditional]

³ The relation between non-at-issueness and focusability is more complex (see Abrusán 2016, Simons et al. 2016, Sæbø 2016, i.a.). In particular, the entire not-at-issue content cannot be focused, but part of it can contain contrastive focus as illustrated below.

(i) a. "I cannot see Liz's purse, has she left?"

b. "No, she hasn't left, since her COAT is still on the rack."

⁴ This conclusion is complicated by the fact that it is not clear that *since*-clauses can be under the syntactic scope of all these operators. We will briefly come back to this issue in Section 3.1.

- (24) a. It is not the case that Liz left because she was tired. [negation]
 b. Did Liz leave because she was tired? [question]
 c. It is possible that Liz left because she was tired. [modal]
 d. If Liz left because she was tired, I'll go. [conditional]

If all projective meanings are characterized by non-at-issueness, it does not mean that they do not differ in other respects: Tonhauser, Beaver, Roberts & Simons (2013) establish distinctions among projective contents on the basis of a series of diagnostics. These tests applied to *since*-clauses reveal that the B-implication and the *since*-implication do not belong to the same class of projective content. The first test (Strong Contextual Felicity) is meant to diagnose the presence of a constraint on context: specifically, the diagnostic consists of testing whether the implication under investigation must be entailed by the context to be felicitous. When we apply this diagnostic to the two implications associated with *since*-clauses as in (25)-(26), we observe that only the *since*-implication is subject to this constraint.

- (25) [Context: Paul has invited guests for New Year's Eve. As Luke is looking for Liz, Paul tells him:]
 Liz left, since her coat is not on the rack. [B-implication]
- (26) [Context: When Paul was away, Claire and Paul's neighbors told Claire that they turn their radio on every time they leave to turn away potential thieves. Paul now hears the neighbors' loud radio and asks Claire to talk to them and ask them to lower the volume. She replies:]
 #The neighbors have left, since their radio is on. [*since*-implication]

In (25), the context does not imply the B-implication, but only the *since*-implication: the addressee Luke does not know that Liz's coat is not on the rack, but he knows (due to common knowledge) that the absence of someone's coat on the rack indicates that that person left. In that context, sentence (25) is perfectly felicitous, which means that the B-implication is not subject to Strong Contextual Felicity: it can easily be accommodated. Conversely, the context of (26) only implies the B-implication, but not the *since*-implication. To guarantee this, the example involves an evidential relation that is not stereotypical: it is usually not the case that the sound of a radio in a house indicates that its residents left (rather the opposite). Thus, the addressee Paul knows that the neighbors' radio is on, but he does not know that this indicates that they left. In that context, Claire's answer is not felicitous, which shows that unlike the B-implication, the *since*-implication is subject to the Strong Contextual Felicity constraint.

The second diagnostic (Obligatory Local Effect) tests the behavior of projective contents with respect to embedding operators such as propositional attitude verbs. Specifically, an implication is subject to the Obligatory Locality

Effect if the belief that the implication holds must be attributed to the attitude holder. To apply this diagnostic to *since*-clauses, we must first check whether they can be embedded in attitude contexts. Sentences (27)-(28), which transpose (1) and (14) into attitude contexts, show that evidential *since*-clauses can, but not speech act *since*-clauses.

(27) Paul thinks that since her coat is not on the rack, Liz left.

(28) # Paul asserts that since his interlocutor must know everything, Liz left.

In both (27) and (28), fronting of the *since*-clause within the embedded clause guarantees that it is embedded (it does not modify the matrix clause, but the embedded clause). In that configuration, the *since*-clause in (27) provides evidence for the truth of the embedded proposition, similarly to (1) with respect to the matrix proposition. However, the *since*-clause in (28) cannot be understood as modifying the reported speech act (Paul's assertion), which is consistent with the observation that speech acts are usually not embeddable (cf. Krifka 2014). Thus, only evidential *since*-clauses are embeddable in attitude contexts.⁵

The Obligatory Local Effect diagnostic can therefore be applied to evidential *since*-clauses only. If we do so as in (29)-(30), we observe that both the B-implication and the *since*-implication are subject to this effect.

(29) # Paul thinks that since her coat is not on the rack, Liz left, and he also thinks that Liz's coat is still on the rack. [B-implication]

(30) # Paul does not know that the neighbors turn their radio on when they leave, and he thinks that since their radio is on, they must have left. [*since*-implication]

In (29), the *since*-clause is embedded under *think*, and the negation of the content of the B-implication is embedded under the same predicate. The conjunction is contradictory, which shows that when a *since*-clause is embedded in an attitude context, the belief that the B-implication holds must be attributed to the attitude holder (Paul in (29)). In (30), the attitude holder Paul is explicitly ignorant about the content of the *since*-implication;⁶ in that case, the *since*-clause cannot be

⁵ More precisely, they can only be embedded under predicates of acceptance: just like epistemic modals (Anand & Hacquart 2013), they cannot be embedded under desideratives or directives.

(ii) #Paul {wants/demands} that since her coat is not on the rack, Liz leave.

The similar behavior of *since*-clauses and epistemic modals is not surprising given that both types of elements are related to evidentiality (cf. von Stechow & Gillies 2010, i.a., for discussion about the relation between epistemic modals and evidentiality).

⁶ The test is applied slightly differently in (30) as compared to (29) (*does not know that* vs. *does not think that*) because unlike the B-implication, the *since*-implication is subject to the Strong Contextual Felicity constraint (cf. Tonhauser et al. 2013).

embedded in an attitude context with Paul as the center. Just like in the case of the B-implication, the belief that the *since*-implication holds must thus be attributed to the attitude holder when the *since*-clause is embedded in an attitude context.

In sum, the *since*-implication is subject to both the Strong Contextual Felicity constraint and the Obligatory Local Effect, while the B-implication is only subject to the latter. The two implications associated with *since*-clauses thus belong to different classes of projective content (class A and class C) as summarized in Table 1 below.

3. Analysis: two different sources of non-at-issueness

The previous diagnostics have demonstrated that *since*-clauses are associated with two different types of not-at-issue content. The goal of this section is to show that the non-at-issueness of each implication comes from different sources.

3.1 The *since*-implication: a structural source of non-at-issueness

The non-at-issueness of the *since*-implication results, I hypothesize, from the high structural position of *since*-clauses: *since*-clauses modify Evidential or Speech Act phrases, which are not at-issue, and modifiers of not-at-issue content, I assume, cannot be at-issue themselves.

The hypothesis that *since*-clauses modify either Evidential phrases or Speech Act phrases is supported both by their meaning and by their height. As we have seen above, *since*-clauses like (1) provide some evidence for the truth of the matrix proposition. They are thus similar to evidential markers (see Faller 2002 and references therein): while evidential markers indicate the type of evidence (e.g. direct vs. hearsay vs. conjectural in Faller 2002), *since*-clauses specify the content of indirect inferential evidence. *Since*-clauses can therefore modify indirect evidential markers like *apparently* in (31).

(31) Liz has apparently left, since her coat is not on the rack.

These semantic considerations support the idea that this type of *since*-clauses modifies Evidential phrases, which host evidential elements (Cinque 1999, Speas & Tenny 2003, Speas 2004, i.a.). Similarly, we have seen that *since*-clauses like (2) or (14) provide a reason for the speech act expressed in the matrix clause, which makes them semantically similar to speech act particles or adverbs like *frankly*. This suggests that this type of *since*-clauses modifies the projections containing such elements, i.e. Speech Act phrases (Cinque 1999, Speas & Tenny 2003, Speas 2004, Haegeman & Hill 2013, i.a.).

Not-at-issue content		Properties of not-at-issue content		
Class	Examples	Projection	Strong Contextual Felicity	Obligatory Local Effect
A	<i>too</i> /existence of alternative <i>since/since-implication</i>	✓	✓	✓
B	appositive	✓	✗	✗
C	<i>know</i> /content of complement <i>stop</i> /prestate holds <i>since/B-implication</i>	✓	✗	✓
D	<i>too</i> /salience of established alternative	✓	✓	✗

Table 1 Classification of the implications associated with *since*-clauses among the different types of projective contents proposed by Tonhauser et al. (2013)

Syntactic observations corroborate the hypothesis that *since*-clauses modify either Evidential Phrases (EvidP) or Speech Act Phrases (SAP). EvidP and SAP are high projections of the TP-space as represented in (32) (Cinque 1999).

(32) **SAP** > EvalP > **EvidP** > EpistP > T... > Asp... > V

Several scopal facts reveal that the position of *since*-clauses is as high as these projections. In particular, they scope higher than EpistP as they cannot be interpreted under the scope of epistemic adverbs or modals.

(33) a. # Liz has probably left since her coat is not on the rack. **probably* > *since*
Intended: the absence of Liz's coat on the rack is a plausible piece of evidence for the fact that she left.

b. # Liz has probably left since you must know everything. **probably* > *since*
Intended: your willingness to know everything is a plausible reason for my asserting that Liz left.

(34) a. # Liz must have left since her coat is not on the rack. **must* > *since*
Intended: the absence of Liz's coat on the rack is a plausible piece of evidence for the fact that she left.

b. # Liz must have left since you must know everything. **must* > *since*
Intended: your willingness to know everything is a plausible reason for my asserting that Liz left.

This again contrasts with *because*-clauses, which can be outscoped by epistemic elements as illustrated in (35) (cf. Rutherford 1970, Sæbø 1991, i.a.).

- (35) Liz has probably left because she was tired. *probably* > *because*
i.e. Liz's tiredness is a plausible reason for her leaving.

Also, pronominal binding and NPI-licensing into a *since*-clause (vs. a *because*-clause) by a matrix quantifier or negation is not licensed as shown in (36) vs. (37) and (38) vs. (39) (cf. Rutherford 1970, Sæbø 1991, Iatridou 1991, Johnston 1994, Charnavel 2017a, i.a.).⁷

- (36) *[No woman]_i has left since her_i coat is not on the rack.
(37) [No woman]_i has left because she_i was tired.
(38) *Liz has not left since anything is missing (but since...).
(39) Liz has not left because she had anything to do (but because...).

All these scopal facts support the hypothesis that *since*-clauses modify EvidP or SAP (while *because*-clauses modify a lower phrase like VP). Given that evidential and speech act markers are not at-issue (cf. Faller 2002, Murray 2010, i.a.) and assuming that modifiers of not-at-issue content are not at-issue either, this explains why the *since*-implication is not at-issue.

Note that the high structural position of *since*-clauses may question the result of the projection tests presented in (23) (see fn. 4). Specifically, (34) and (38) show that *since*-clauses cannot be in the syntactic scope of negations and modals occurring in the superordinate clause (but in (23), negation and modal occur in an even higher clause). Thus, the fact that the B-implication and the *since*-implication survive in the presence of such operators does not necessarily demonstrate that they project. In any case, this does not affect the general point that the two implications associated with *since*-clauses are two different types of not-at-issue content.

3.2 The B-implication: a lexical source of non-at-issueness

As mentioned in Table 1, the B-implication belongs to the same class of not-at-issue content as complements of factive verbs such as *know*, which are also subject to the Local Obligatory Effect, but not to the Contextual Felicity constraint. I hypothesize that this is due to the fact that the subordinator *since* is

⁷ The reverse argument has been provided (cf. Iatridou 1991) that in fact, the unavailability of pronominal binding or NPI-licensing in *since*-clauses is due to the fact that *since*-clauses are opaque to syntactic operations because they are not at-issue ('presupposed' in Iatridou's 1991 terms). But pronominal binding into a *since*-clause is in fact possible when the binder is in a higher clause as in (iii).

(iii) [Each boy]_i says that his_i mother must be here since his_i father is here.

also factive, i.e. selects arguments that denote facts. This implies that the B-implication, unlike the *since*-implication, is lexically triggered.

The argument motivating this hypothesis comes from the behavior of *since*-clauses in attitude contexts. We have already seen that the belief that the B-implication (as well as the *since*-implication) holds must be attributed to the attitude holder (Local Obligatory Effect). What we furthermore observe is that it must also be attributed to the speaker. This *Global Obligatory Effect* is observed in (40).

(40) # I can see Liz's coat on the rack, but Paul believes that since her coat is not there, Liz left.

In (40), the first conjunct of the sentence implies that the speaker does not believe that Liz's coat is not on the rack, and the second conjunct contains a *since*-clause that implies this as a B-implication (Liz's coat is not on the rack) and is embedded in an attitude context. The contradictory beliefs of the speaker and the attitude holder yield unfelicity: in attitude contexts, both the speaker and the attitude holder must be committed to the content of the *since*-clause (the B-implication). The *since*-implication, however, is only subject to the Local Obligatory Effect, not to the Global Obligatory Effect as exemplified below.

(41) Paul thinks that since their radio is on, the neighbors must have left. I also think that they left, but I don't think they left with the radio on on purpose.

Example (41) contains a *since*-clause embedded in an attitude context in the first sentence, and the second sentence implies that like the attitude holder Paul, the speaker is committed to the B-implication of that clause (the neighbors' radio is on) and to the A-implication (the neighbors have left), but not to the *since*-implication (the fact that their radio is on indicates that the neighbors left). In that context, the *since*-clause is felicitous, which shows that the belief that the *since*-implication holds must be attributed to the attitude holder, but not necessarily to the speaker.

The Global Obligatory Effect is thus a specificity of the B-implication. It is similar to factivity effects: in a sentence like (42) involving the canonical factive verb *know*, not only Paul, but also the speaker must be committed to the fact that the neighbors' radio is on.

(42) Paul knows that the neighbors' radio is on.

Furthermore, this still holds in case of multiple embedding as in (43).

(43) Mary thinks that Paul knows that the neighbors' radio is on.

Thus, assuming that the subordinator *since* is factive, just like *know*, directly derives the Global Obligatory Effect.⁸ Specifically, I suppose that *since* s-selects for arguments (i.e. B) that denote facts. Assuming that *that*-clauses are either factive or propositional depending on their complementizer (Kratzer 2006, i.a.), this means that *since* selects factive clauses as represented in (44), while *because*-clauses select non-factive clauses. Unlike the cause or explanation introduced by *because*, the evidence introduced by *since*-clauses is presented as a true fact.

- (44) a. $A \text{ since } B \approx A \text{ since the fact that } B$
 b. $\llbracket \text{since } B \rrbracket = \llbracket \text{since that}_F B \rrbracket$ ⁹
 c. $\llbracket \text{that}_F \rrbracket = \lambda p \lambda e. \text{exemplifies } (p)(e) \text{ or } \lambda p. \text{ie exemplifies } (p)(e)$ (Kratzer 2006)

4. Conclusion and open issues

In sum, the subordinator *since* should be added to the inventory of presuppositional triggers. It exhibits the interesting property of triggering two different types of presupposition: the (evidential) relation between the subordinate clause and superordinate clause, which cannot be accommodated and is not factive (i.e. not-at-issue content of class A), and the content of the subordinate clause, which can be accommodated and is factive (i.e. not-at-issue content of class C). I have argued that these two types of projective contents have different sources: structural (*since*-clauses modify high Evidential or Speech Act phrases, which are not-at-issue) and lexical (*since* selects factive clauses).

This raises a general question about the constraints on different projective contents triggered by the same element: an explanatory theory should be able to predict what type of relation exists between several contents projected by the same trigger and why. In our case, we observe that the bigger projective content (the *since*-implication) is of class A while the smaller (the B-implication) is of class C: accommodation and factivity only characterize the smaller projective content. Is this general? If so, why?

An exploration of other clause-taking prepositions¹⁰ should allow us to make progress on this issue. In the domain of causality, examples like (45) or (46)

⁸ Another similarity between the B-implication of *since*-clauses and the complement of factive verbs is that factivity can be suspended in both cases (cf. Karttunen 1971, Abrusán 2016, i.a., for the suspension of factivity with *know*):

(iv) Paul thinks that Liz's coat is not on the rack, and that since it is not there, Liz must have left.

But in fact, I can see it – it is hidden behind my coat.

⁹ The factive complementizer *that_F* remains silent with *since*.

¹⁰ An abstract reviewer also suggests that emotive factives and change-of-state cognitive factives would be worth exploring in this respect as they involve both projection of the embedded clause content and of the attitude holder's knowledge that that embedded clause content is true.

suggest (if we apply the same tests as above) that other clauses as high as *since*-clauses, like clauses introduced by *as* or *given that*,¹¹ exhibit the same characteristics as *since*-clauses with respect to non-at-issueness: neither the relation between the subordinate and the superordinate clause nor the content of the subordinate clause is at-issue, and the two implications are respectively of class A and C.

- (45) a. Liz must have left, as her coat is not on the rack.
 b. Paul thinks that as her coat is not on the rack, Liz must have left.
- (46) a. Liz must have left, given that her coat is not on the rack.
 b. Paul thinks that given that her coat is not on the rack, Liz must have left.

This contrasts with low clauses like *because*-clauses that do not trigger any projective content.¹² In particular, it seems that low clauses can only become factive if the noun *fact* is made explicit.¹³

- (47) Paul thinks that Liz left because of the fact that she was tired.

This suggests that syntactic height must not only be responsible for the non-at-issueness of the relation expressed by subordinators like *since* (as argued in Section 3.1), but also for the factivity of their complements. A lexical explanation (as that presented in Section 3.2) cannot explain this fact. In the future, it would therefore be worth further exploring the (understudied) discourse status of various subordinators to better understand this, if it indeed turns out to be a general fact. This new empirical domain promises to be very informative for the general theory of projective contents.

¹¹ Their height can be determined by the same syntactic tests as above, for instance by the unavailability of pronominal binding.

(v) a. #[Every woman]_i left as her_i coat is not on the rack.
 b. #[Every woman]_i left given that her_i coat is not on the rack.

¹² As mentioned in fn. 1, *because*-clauses can in some cases attach higher and modify Evidential or Speech Act phrases, just like *since*-clauses (cf. Rutherford 1970, Sæbø 1991, i.a.). Crucially, the relation expressed by *because* and the content of the subordinate clause are not-at-issue in that case as can be tested in examples (vi). This confirms that height is crucial.

(vi) a. Liz must have left, because her coat is not on the rack.
 b. Paul thinks that because her coat is not on the rack, Liz must have left.

¹³ It is probably not insignificant that the noun *fact* cannot be made explicit with *since* (or with *as*, vs. *given that*):

(vii) *Liz must have left, since (of) the fact that her coat is not on the rack.

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