Accounting for the "causal link" between free adjuncts and their host clauses[1]

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Abstract. This paper investigates the causal interpretation of *free adjuncts*. These are non-clausal adjuncts that associate with an individual denoted by an argument of the main verb and contribute propositional content about that individual (e.g., *being an Englishman* in *John, being an Englishman, is brave*). Based on a comparison with *since*-clauses, I analyze causally interpreted free adjuncts as contributing presuppositional propositional content that provides supporting evidence for the speaker's main claim. I argue that the "causal link" responsible for this interpretation is not contributed by the free adjunct but inferred. I propose that it is pragmatically necessary that the presuppositional content of the free adjunct is linked to the truth-conditional content of the host clause and that the causal flavor follows from general pragmatic requirements placed on the assertion act.

Keywords: free adjuncts, causal interpretation, presupposition, assertion.

1. Introduction

Free adjuncts are non-clausal adjuncts (**boldface** in (1)) that associate with an individual denoted by an argument of the main verb (underlined in (1)) and contribute propositional content about that individual (see Fabricius-Hansen and Haug, 2012; Stump, 1985). The main semantic puzzle posed by free adjuncts is how the propositions that they contribute relate to the matrix propositions of their host clauses. Example (1) illustrates a subset of all possible links; for each sentence, the preferred link is made explicit with the semantically closest adverbial clause.

(1) a. John, **being an Englishman**, is brave.
(≈ Since John is an Englishman, he is brave.) (causal)

b. **As a child**, Jerrie had red hair.
(≈ When Jerrie was a child, she had red hair.) (temporal)

c. **Wearing this**, Peter would appeal to Mary.
(≈ If Peter were wearing this, he would appeal to Mary.) (conditional)

The full range of possible links found for free adjuncts has been addressed by a number of authors (see the discussion in Stump, 1985: Ch. 1). Curme (1931: 154–157) provides the most extensive list. He finds that free adjuncts may perform the same functions as causal, temporal, conditional, and concessive adverbial clauses. In addition, they can be used to describe *attendant circumstances*[2] or the manner in which the main clause eventuality is performed.

Stump (1985) presents a first semantic analysis of these expressions that is restricted to those free adjuncts that perform adverbial-clause-like functions. One of Stump's central observations for this subset is that the causal-clause-like and concessive-clause-like interpretations are possible for all adjuncts, while the temporal and conditional interpretations are only available for what he calls "weak free adjuncts" (e.g., *as a child* in (1b) and *wearing this* in (1c)). Over-

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[2]*Attendant circumstances* are circumstances that are co-temporal to those described by the main clause but do not have any other connection to them; cf. depictive secondary predicates, Rothstein (2006).

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all, the causal-clause-like interpretation has a special status among the possible interpretations: in addition to being available for all adjuncts, it is also potentially available in any context. Hence, sentences like (1b) and (1c) are potentially ambiguous. For instance, (1b) can also be understood as stating "since Mary is a child, she had red hair at some point in the past" (e.g., when she was part of a play where all children were given red wigs). In contrast, the other adverbial-clause-like interpretations are restricted to specific discourse or sentential contexts.

In Zobel (2017, 2018), I discuss Stump's formal account and propose a new analysis of the semantic variability of weak adjunct *as*-phrases.[3] In these papers, I focus mainly on how to adequately capture the temporal and conditional interpretations and argue that they arise indirectly via the interaction of a weak free adjunct with a temporal or modal operator (i.e., past tense in (1b) and *would* in (1c)). Since there is no operator that can be plausibly identified as the source of the causal interpretation, I set aside the details of how the causal-clause-like interpretation arises and adopt the suggestion in Jäger (2003) that the "causal link" responsible for this interpretation is the *discourse relation* EXPLANATION, which can be inferred to obtain between two independent utterances (see e.g. Asher and Lascarides, 2003).[4]

The main aim of this paper is to close this gap and to investigate the type of causal interpretation found with free adjuncts in unembedded declarative clauses and to present a proposal for how the underlying "causal link" arises that is compatible with my analysis of the semantic variability of weak adjunct *as*-phrases in Zobel (2017, 2018).[5] I propose that the free adjunct provides (part of) the speaker's evidence for asserting the truth-conditional content of the host clause. The "causal link" is inferred from general pragmatic requirements placed on the assertion act connected to the truth-conditional content of the host clause. Inferring this link is, furthermore, necessary since free adjuncts contribute presupposed propositional content that is not *lexically linked* to the truth-conditional content of the host clause.

My methodological aim is to defend an account for the causal interpretation that does not appeal to covert operators or a structural "discourse layer" with discourse-oriented functional heads. This does not mean that I have reasons to discard accounts that use these tools. The goal is merely to check how far an account without these additional assumptions can take us.

The paper is structured as follows. In Section 2, I review Stump's analysis of the "causal link" and his proposal for how it is to be captured. I show that Stump's main supporting data can be given an alternative analysis. Section 3 takes a closer look at the type of "causal link" found with free adjuncts and its information status by comparing causally interpreted free adjuncts to causal adverbial clauses. In Section 4, I present my own proposal for how the "causal link" arises. Based on the semantic proposal for weak adjunct *as*-phrases in Zobel (2017, 2018), I present a pragmatic account that connects the inference of the "causal link" to general pragmatic requirements connected to assertions. Section 5 concludes the paper.

[3]Note that not all *as*-phrases are weak adjuncts. Weak adjunct *as*-phrases form Class 4 *as*-phrases in the classification sketched in Zobel (2016).

[4]I put "causal link" in scare quotes throughout this paper because, as we will see in Section 3, the propositions contributed by the free adjunct and the main clause are not linked via a strict causal relation.

[5]The syntactic and semantic behavior of free adjuncts with adverbial-clause-like interpretations in embedded declarative clauses and other sentence types is exceedingly understudied, and an adequate discussion of these cases is beyond the scope of this paper.

2. Discussion of the analysis in Stump (1985)

Stump (1985) assumes that free adjuncts that are linked either causally, concessively, or temporally to the main clause introduce a free relational variable *L*. *L* is not part of the lexical material that makes up the free adjunct but is added to its basic semantic contribution via a type-shifting rule. Semantically, *L* is an unspecified propositional relation that links the propositional content of the free adjunct (underlined in (2)) to the propositional content *P* of the main clause.[6]

(2) $[\![as\ a\ child]\!] = \lambda P.\lambda t.\mathscr{K}(L)(\underline{\exists t'[M(t,t') \ \&\ \mathrm{AT}(t', \exists x^s[R(x^s, y^i) \ \&\ \mathrm{child'}(y^i)])]})(P(t))$
(Zobel, 2018: 501)

For a sentence containing a free adjunct with this contribution to get its full interpretation, a value for *L* has to be inferred (e.g., a causal propositional relation).[7]

Stump assumes that content can be either contributed by a lexical item or inferred. Furthermore, he distinguishes two types of content: truth-conditional content and content that is purely inferred. Content that is contributed by lexical items will always be part of the truth-conditional content of the sentence, while content that is inferred can be either purely inferred or part of the truth-conditional content as the inferred value of a free variable. This means that one consequence of Stump's analysis in (2) is that the causal relation inferred for *L* becomes part of the truth-conditional content of the sentence and is subsequently part of what is asserted.

As support for this analysis, Stump presents (3) and (4), which he uses to compare the information status of the "causal links" found with free adjuncts, appositive relative clauses, and conjunctions. According to Stump, the possible combinations of A and B utterances show that the "causal link" found for appositive relative clauses and conjunctions is never part of what is asserted—in contrast to the "causal link" understood with free adjuncts.

(3) A: John, being an Englishman, is brave. (Stump, 1985: 22)
A': John, who is an Englishman, is brave.
A": John is an Englishman, and he is brave.

(4) B: No, that's not why he is brave.
B': Are you implying that John is brave because he is an Englishman?

Stump describes (3) and (4) as follows: the assertion in A can only be answered with B, while A' and A" can only be answered with B'. The answers in B and B' share that they both deny or call into question the "causal link" between being an Englishman and John's being brave. They differ with respect to whether truth-conditional content or inferred content is targeted; the utterance in B, which is a direct denial, putatively only targets truth-conditional content (i.e., asserted content), while the utterance in B' targets content that is purely inferred. Since B can be used as an answer to A, Stump concludes that the "causal link" is part of the asserted, truth-conditional content of A while any "causal link" that is understood for A' and A" is purely inferred. This supports Stump's choice to represent *L* on the truth-conditional level.

However, I do not agree with Stump's analysis of (3) and (4). Specifically, the observation that

[6]The formula in (2) is based on Stump's own proposal for *as* and has been derived using Stump's interpretation rules and type-shifting rules. For a more comprehensive summary of Stump's proposal, see Zobel (2018).
[7]In addition to a propositional relation, a temporal relation needs to be inferred to interpret the free variable *M*. *M* temporally orders the propositional content contributed by the free adjunct and the propositional content *P*.

A can be the target of a direct denial like B is not conclusive evidence that the "causal link" is part of the truth-conditional content of A. Recent work on the deniability of different types of content has shown that non-asserted content p can also be the target of direct denials of the form "No, $\neg p$". Cummins et al. (2013) investigate the deniability of presupposed content and find that, for instance, the presupposed content triggered by *quit* can be denied in this way:

(5) A: Did John quit smoking? (Cummins et al., 2013: 207)
B: No, he never used to smoke.

In (5), B's answer of the form "No, $\neg p$" directly denies the presupposed content p triggered by *quit* (i.e., John used to smoke). Hence, Stump's conclusion—that the possibility of directly denying the "causal link" is a clear indication that it is asserted—is not warranted.

Furthermore, we can construct felicitous dialogues in which a "causal link" that is inferred to hold between two utterances by different speakers is denied directly, as in (6).

(6) A: John saved a kitten from drowning. He is really brave!
B: Well, he is an Englishman.
C: No, that's not why he is brave. His mother is a fire fighter.

For (6), a "causal link" is understood to hold between B's utterance and A's last sentence. However, none of the lexical elements in B's utterance in (6) plausibly contributes a silent relational variable.[8] Hence, C's subsequent denial arguably does not target anything that is part of the truth-conditional content of B's utterance. This again shows that the "causal link" targeted by B in (4) is not necessarily part of the truth-conditional content of A in (3).

Example (7) instead suggests that direct denial of an inferred "causal link" is only felicitous if that link is clearly the only connection that the previous speaker intended to communicate.

(7) [*Context:* A and B talk about John, who recently celebrated his 60th birthday.]
A: By the way: as a student, John didn't own a car.
B: No, that's not why he didn't own a car.
B': Are you implying that John didn't own a car back then because he was a student?

In (7), the *as*-phrase in A's utterance can be taken to contribute either only a temporal interval or also a reason for why John did not own a car. In this context, the answer in B seems odd since it is not clear that A intended to communicate more than the temporal link between John's being a student and his not-owning a car. Here, the answer in B' seems more appropriate.

In sum, Stump's motivation for making the "causal link" part of the truth-conditional content via a free variable L that is contributed by the free adjunct does not withstand closer scrutiny.

3. The "causal link" and its information status

3.1. The type of relation expressed by the "causal link"

It is well-known that lexical items that are traditionally called "causal connectors" do not always express a strict causal connection between the contents that they relate to each other. A

[8]The discourse marker *well* signals that B's utterance disagrees with A's expectations (see e.g., Heritage, 2018). That is, A's utterance suggests that John's bravery is surprising or exceptional, while for B, it is an expected result of his being an Englishman. Hence, the "causal link" that is understood between A's and B's utterances cannot be attributed to *well*.

strict causal relation holds between two contents if one names a cause and the second the effect of that cause. Lewis (1973: 556) characterizes a cause as an "indispensable part of the total situation that is followed by the effect in accordance with a law".[9]

The relation contributed by the "causal link" found with free adjuncts is not a strict causal relation. To see this, it is instructive to consider the range of "causal relations" that can be expressed by causal adverbial clauses. Taking up results from the previous literature (e.g., Sæbø, 1991), Charnavel (2017b) distinguishes three types of causal adverbial clauses: *eventive causal clauses*, *evidential causal clauses*, and *speech act causal clauses*, illustrated in (8).

(8) a. Liz left because she was tired. (Charnavel, 2017b: 148)
b. Liz (must have) left, since her coat is gone.
c. Since you know everything, did Liz leave?

Eventive causal clauses, like the *because*-clause in (8a), contribute the cause of the matrix eventuality; (8a) conveys that Liz's being tired caused her to leave.[10] Evidential causal clauses, like the *since*-clause in (8b), provide evidence for the truth of the matrix proposition; the causal clause in (8b) provides the speaker's grounds for why they think that Liz left (i.e., her coat is gone). And speech act causal clauses, like the *since*-clause in (8c), name the speaker's motivation for performing the speech act; the speaker's asking the question in (8c) is motivated by the content of the *since*-clause (i.e., the addressee knows everything).

The connectors *because* and *since* differ with respect to which type of causal clause they can introduce: *because* can introduce eventive or evidential causal clauses while *since* can introduce evidential or speech act causal clauses.[11]

At first glance, the "causal link" found with free adjuncts seems to mirror the relations found in both eventive and evidential causal clauses, consider (9); only for speech act causal clauses, I was not able to find an attested example involving a free adjunct and a declarative clause.

(9) a. **As a mother**, I empathize with the fear of losing a child.
(COCA: Saturday Evening Post, 2014)
b. **Being wise**, their gifts were no doubt wise ones. (COCA: Girls' Life Vol. 4, 2003)

Example (9a) could be taken to claim that the speaker's being a mother causes her to empathize with the fear of losing a child. In (9b), on the other hand, the free adjunct arguably presents the evidence for why the speaker is confident in claiming that the gifts were wise (which is supported by the added *no doubt*).

The characterization of (9), however, involves only best guesses about what these examples convey. What makes it especially difficult to determine whether an eventive causal relation or

[9]Causal connectors that express strict causal relations can be further distinguished by whether they express direct or indirect causation. See Maienborn and Herdtfelder (2017) for a discussion of the causal use of German *von*-PPs and other prepositional expressions and their differences in this respect.

[10]It is debatable whether Liz's being tired is conceptualized as a cause of her leaving in the strict sense. Regarding the possible interpretations of *because*, Solstad (2009) not only shows that *because*-clauses can express true causal relations, but also that they can provide an agent's reason for performing an action. That is, (8a) can be taken to express that Liz's reason for leaving was her tiredness. Both potential interpretations fall into Charnavel's class of eventive causal clauses since neither can be expressed using *since*.

[11]A comparable split can also be observed in other languages, see Sæbø (1991: 624).

an evidential causal relation is expressed, is that causes can, of course, serve as evidence. For instance, if a speaker believes that it has rained, they can use this as inferential evidence for claiming that the streets are wet. Hence, it is practically impossible to determine the possible types of "causal link" based on purely conceptual considerations. The strategy adopted in the remainder of this subsection is to check whether causally interpreted free adjuncts share some of the properties of causal adverbial clauses that correlate with specific interpretations.

I will employ two contexts in which eventive causal clauses and evidential causal clauses differ in order to show that causally interpreted free adjuncts pattern with evidential causal clauses. The first context are answers to *why*-questions, for which Charnavel (2017a: 45) observes that they can only be answered using eventive causal clauses, see (10).

(10) A: Why has Liz left? (Charnavel, 2017a: 45)
B: She left because she was tired.
B': #She left, since her coat is gone.

In (10), only the answer with an eventive *because*-clause is felicitous; answering A's *why*-question with an evidential *since*-clause results in oddness. This is also the case if A's question is changed to explicitly ask for B's evidence (i.e., *How do you know that Liz has left?*).[12] With respect to answering *why*-questions, free adjuncts pattern with evidential *since*-clauses, compare (10) to (11).

(11) A: Why does Liz empathize with this fear?
B: She empathizes with this fear because she is a mother.
B': #**As a mother**, she empathizes with this fear.

The second context that distinguishes eventive and evidential causal clauses involves the focus particle *only*. Charnavel (2017a: 47–48) reports the observation that *only*, which conventionally associates with focused material, can associate with eventive *because*-clauses but not with evidential *since*-clauses. This is illustrated in (12).

(12) a. Liz has only left because she was tired. (Charnavel, 2017a: 48)
(can mean: the only reason why Liz has left is her tiredness)
b. #Liz has only left since her coat is not on the rack. (Charnavel, 2017a: 47)
(intended: the only piece of evidence indicating that Liz has left is the absence of her coat on the rack)

The sentence in (12b) cannot express the intended paraphrase, in which *only* is made to target the "causal relation" contributed by the *since*-clause. The only available reading for (12b) is that the absence of Liz's coat on the rack constitutes the speaker's evidence for the claim that Liz only left (and did not do anything else).

The behavior of the *since*-clause in (12b) is again mirrored by free adjuncts. Neither of the sentences in (13) can express that Liz's being a mother is the speaker's only evidence for the claim that she empathizes with this fear.

(13) a. **As a mother**, Liz only empathizes with this fear.
b. Liz only empathizes with this fear, **as a mother**.

[12] Note that this question can be answered using an eventive *because*-clause that targets an explicit attitude verb: *I believe that she has left because her coat is gone*.

The only available reading for the two sentences—if the *as*-phrase is read as a weak free adjunct[13]—is that Liz's being a mother is the speaker's evidence for the claim that Liz only empathizes with this fear (and, e.g., with nothing else).

Charnavel (2017b: 149–151) attributes the interpretational and pragmatic differences between eventive and evidential causal clauses to their syntactic positions. That is, the two causal relations are restricted to specific syntactic attachment points: eventive causal clauses attach low in the syntactic structure and are part of the VP-layer while evidential causal clauses attach higher in the functional structure and are part of the left periphery.[14] This high syntactic attachment point of evidential *since*-clauses captures their inability to be part of the focus of their host sentences (i.e., they cannot provide the answer to a constituent question or be the target of *only*). So, given that free adjuncts with a "causal link" pattern with evidential *since*-clauses, it is plausible to assume that they are attached at least as high as evidential *since*-clauses.

In Zobel (2018), I argue that the possible interpretations of weak free adjuncts are connected to their syntactic attachment points.[15] Hence, if we assume that the syntactic attachment point of an adjunct determines which type of causal relation can be expressed, we can conclude from the above that a plausible candidate for the "causal link" is an evidential explanation relation comparable to the relation contributed by evidential *since*-clauses. In particular, I propose that a sentence containing a causally interpreted free adjunct presents the speaker's epistemic grounds for their claim (i.e., a/the reason for why the speaker believes the main clause proposition).

(9a) **As a mother**, I empathize with the fear of losing a child.

That is, for (9a), I assume that, by mentioning that she is a mother, the speaker provides explicit explanatory/supporting evidence for her claim that she empathizes with this particular fear.

3.2. The information status of the "causal link"

In Section 2, I discussed Stump's examples (3) and (4), which supposedly show that the "causal link" is part of what is asserted, and demonstrated that this conclusion is not warranted. In this subsection, I again address the information status of the "causal link". I show that there are good reasons to assume that the "causal link" is not part of the truth-conditional content of the host sentence of the free adjunct and, further, that the link is not contributed by the free adjunct.

For evidential *since*-clauses, Charnavel (2017a) concludes that the causal relation and the propositional content of these clauses are not-at-issue. This conclusion is based on examples (10) and (12) and the behavior of *since*-clauses in connection with answers of the form "Yes, but, $\neg p$", which express partial assent, see (14) (cf. the tests in Tonhauser, 2012).

[13]If the *as*-phrase in example (13b) is not separated from the main clause by comma-intonation, it is interpreted as a role *as*-phrase (i.e., Class 3 in Zobel, 2016). In this interpretation, the *as*-phrase picks out a role of Liz's, her mother-role, and restricts the application of the main clause predicate to this role. In this case, the *as*-phrase is part of the focus and can, hence, be the target of *only*. In this alternative interpretation, (13b) states that Liz empathizes with this fear only in her role as a mother (but not in any other role).

[14]Speech act causal clauses are assumed to be highest among causal adverbial clauses and to modify a Speech Act Phrase in the high left periphery.

[15]That attachment height correlates with interpretation also for other non-clausal adjuncts has been observed, for instance, in Maienborn (2001) for locative PPs.

(14) A: Liz has left, since her coat is not on the rack. (Charnavel, 2017a: 46)
B: Yes, true, but her coat is in fact on the rack.
B': Yes, true, but in fact the absence of her coat does not prove anything...
B": #Yes, true, but in fact, she has not left.

In (14), the answers in B and B' assent to the asserted content of A's utterance (i.e., Liz left), but deny the propositional content of the *since*-clause (B) and its status as valid evidence (B'); both answers are pragmatically acceptable. However, the analogous answer in B" is pragmatically odd, since the speaker first assents to and then denies the same truth-conditional content.

Examples (11), (13), and (15) support analogous conclusions for the content contributed by the free adjunct and the "causal link": neither is part of the asserted, truth-conditional content.

(15) A: **As a mother**, Liz empathizes with this fear.
B: Yes, true, but she is in fact not a mother. (She never had kids!).
B': Yes, true, but in fact being a mother does not explain her empathy.
B": #Yes, true, but Liz does not empathize with this fear.

So, unlike the direct-denial diagnostic used by Stump (see Section 2), the partial-assent diagnostic in (15) teases apart the asserted proposition from other types of content conveyed by A's utterance.[16]

The discussion so far is compatible with the assumption that causally interpreted free adjuncts contribute both their propositional content, as well as the "causal link" as not-at-issue content. However, the data does not force us to assume that the "causal link" is contributed by the free adjunct; compare (16) to (17) (see also (6)).

(16) **As a doctor**, Eric had an instinctive dislike for tattoos. (COCA: Analog SciFi & Fact, 2012)

(17) A: Eric dislikes tattoos.
B: Well, he is a doctor.

For both (16) and (17), Eric's being a doctor is understood as an explanation for why Eric dislikes tattoos. For (17), just as in (6), this relation cannot plausibly be attributed to any given lexical element. Hence, explanation relations between two propositions can be purely inferred (e.g., EXPLANATION in Asher and Lascarides, 2003).[17]

Furthermore, the assumption that the "causal link" is not contributed by the free adjunct allows for a more parsimonious account of the different interpretations observed for weak free adjuncts. If we were to assume that *as a child* in (18a) contributes the "causal link" itself, we would expect the causal interpretation to be understood whenever the *as*-phrase occurs.

[16]Note that there seem to be different direct-denial tests with distinct effects. Native speaker intuitions about well-formedness and what B denies in Stump's dialogue change if B just answers "No, that's not true", as in (i).
(i) A: John, being an Englishman, is brave.
B: No, that's not true.
Here, native speakers report that B's denial can only target the truth-conditional content; that is, B denies that John is brave. This suggests that denials of the form "No, $\neg p$" are more permissive regarding the information status of p, while *No, that's not true* seems to only target the asserted content.

[17]Crucially, I do not wish to suggest that the relations in (16) and (17) are the same and/or that they are inferred in the same way. As I argue in Section 4, the "causal link" understood in (16) arises for *as a doctor* because specific factors coincide, which are not observed for (17).

(18) a. **As a child**, Jerrie is entirely dependent on adults for survival.
b. **As a child**, Jerrie had red hair.

Example (18b) shows that for temporally interpreted weak free adjuncts, the causal interpretation does not necessarily arise if it is pragmatically implausible (i.e., the speaker does not suggest that Jerrie's child status explains why she had red hair back then). This optionality forces us to either assume an ambiguity for weak free adjuncts or to discard the assumption that the free adjunct contributes a "causal link" conventionally. I pursue the second option.

In sum, this section provided motivating evidence that the "causal link" found with free adjuncts is semantically close to the relation expressed by evidential causal clauses. Furthermore, unlike for causal adverbial clauses, I take this causal relation to be fully inferred; that is, the "causal link" is not contributed by the free adjunct.

4. A new proposal for how the "causal link" arises

4.1. Background: an analysis of weak adjunct *as*-phrases

A central role in my proposal, which I will present in Section 4.2, is played by the semantic properties of the propositional content contributed by the free adjunct, and how that content combines with the main clause proposition. To make this discussion more concrete, I first introduce the formal analysis of weak adjunct *as*-phrases proposed in Zobel (2017, 2018).

Even though *as*-phrases are weak adjuncts and, hence, show the full range of possible interpretations introduced in (1), the causal interpretation can be investigated reliably if the data is restricted to a specific class of sentential contexts: episodic, present-oriented sentences. In this type of sentence, *as*-phrases show a robust preference for a causal interpretation. In the same sentential context, verb-based free adjuncts sometimes express temporary properties of their associated object that are purely co-temporal to the circumstances described by the main clause (i.e., *attendant circumstances*), as illustrated in (19).[18]

(19) **Looking nervous**, she is carrying her belongings in a bundle.
(COCA: Literary Cavalcade 50, 1998)

In (19), *looking nervous* is understood to hold co-temporally to the main clause eventuality without temporally restricting that eventuality, and the two propositions denoted by the free adjunct and the main clause are not linked causally, concessively, or conditionally.[19] For weak

[18] A second advantage of *as*-phrases is that, in contrast to verb-based free adjuncts, they do not come with their own temporal/aspectual content. The participial forms in verb-based free adjuncts have an impact on the relative temporal ordering of the eventuality described by the main verb and the free adjunct (see Stump, 1985: Ch. 3-4).

(i) a. **Spying on his neighbors**, Peter saw Mary enter the house. (co-temporal)
b. **Taken in the prescribed dosage**, it would work better. (sequential)
c. **Having seen an accident ahead**, I stopped my car. (sequential)

In contrast, *as*-phrase content is always interpreted to be co-temporal to the main clause content.

[19] The main contrast between free adjuncts that contribute attendant circumstances and temporally interpreted weak free adjuncts lies in the fact that the latter temporally locate the main clause eventuality while the former do not, see (i) (repeats (18b)).

(i) **As a child**, Jerrie had red hair.

The *as*-phrase in (i) provides the reference time relative to which the eventuality described in the main clause is located; that is, *as a child* locates Jerrie's having red hair in a past temporal interval at which she was a child, see Zobel (2017, 2018).

adjunct *as*-phrases, this interpretation is unavailable, see (20).

(20) #**As a cat owner**, Peter is reading the newspaper.
(intended: Peter is a cat owner and is reading the newspaper.)

The only other interpretation that is observed for weak adjunct *as*-phrases in episodic, present-oriented sentences is a concessive interpretation. This interpretation, however, seems to be restricted to *surprise contexts* like the one in (21a).

(21) a. Peter really surprised me. **As a cat lover**, he likes his neighbor's dogs.
b. **As a cat lover**, he likes his neighbor's dogs.

After the first sentence in (21a), the addressee knows to expect something unexpected or unusual. In the second sentence, the speaker ascribes two properties to Peter, and given the surprise context, the combination of these two properties is understood to be surprising (for the speaker), which supports a "concessive link" between the *as*-phrase content and the main clause content. If the contextual support that drives the concessive interpretation is missing—assume that (21b) is uttered out-of-the-blue, the default interpretation for the link between the *as*-phrase proposition and the main clause proposition is the causal interpretation.

I adopt the semantic analysis for weak adjunct *as*-phrases in Zobel (2017). The core of this analysis is that weak adjunct *as*-phrases are propositional modifiers (type $\langle\langle i,st\rangle,\langle i,st\rangle\rangle$) that contribute mainly not-at-issue content, see (22).

(22) $[\![as\ [\text{PRO}_c\ [a\ \text{NP}]]]\!]^{g,w_0,t_0} = \lambda q_{\langle i,st\rangle}.\lambda t'.\lambda w' : [\![\text{NP}]\!]^{g,w_0,t_0}(g(c))(t')(w') = 1.\ q(t')(w')$

In the analysis in Zobel (2017), weak adjunct *as*-phrases contain a Small Clause that is formed from a non-obligatorily-controlled PRO and an indefinite DP. The non-obligatorily-controlled PRO is interpreted contextually via the variable assignment g as the associated individual (i.e., $g(c)$), and the indefinite DP contributes a property of individuals, which is applied to $g(c)$. The main contribution of the *as*-phrase to its modified proposition q is propositional not-at-issue content:[20] the associated individual $g(c)$ has the property contributed by the indefinite DP at time t' in world w'.

Regarding the type of not-at-issue content, the analysis in (22) makes the more specific claim that weak adjunct *as*-phrases contribute presupposed content.[21] That this assumption is justified is shown in (23).

(23) a. Peter has three cats. #And, he, **who is a cat owner**, understands my cat troubles.
b. Peter has three cats. And, **as a cat owner**, he understands my cat troubles.

Example (23) contrasts the behavior of the propositional content contributed by an appositive relative clause to that contributed by a weak adjunct *as*-phrase. Example (23a) illustrates that using an appositive relative clause results in oddness if its content has been established previously (see Potts, 2011). In contrast, the use of the weak adjunct *as*-phrase in (23b) is completely

[20] The not-at-issueness of this content has been shown as part of the comparison with *since*-clauses in Section 3.
[21] Vera Hohaus (p.c.) suggests that the *as*-phrase might not contribute presupposed content itself, and that the propositional *as*-phrase content might instead be "presuppositionalized" via a covert operator (see Hohaus's FRAME-operator in Hohaus, 2015). Since this question is orthogonal to the question of how the "causal link" arises, I will leave it to future research.

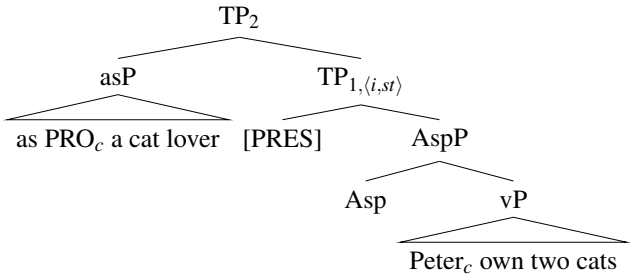
well-formed in exactly the same context, which is expected behavior for presupposed content (see Beaver and Geurts, 2011).

The formal proposal in (22) can directly account for the temporal and the conditional interpretations of weak adjunct *as*-phrases. Depending on which position on the functional spine of the main clause the *as*-phrase adjoins to (see Zobel, 2018), the temporal variable t' and the world variable w' in (22) are identified with different time and world variables involved in the interpretation of the main clause: the temporal interpretation arises through identification of t' with the reference time of the main clause, and the conditional interpretation arises through binding of w' by a modal quantifier in the main clause (see Zobel, 2017 for details).

A causally interpreted *as*-phrase, I argue in Zobel (2018), occupies the highest adjunct position in the functional spine. This means that *as a cat lover* in (24) adjoins to TP, at a point where the full main clause proposition has been formed, see (25).

(24) **As a cat lover**, Peter owns two cats.

(25)



For reasons of simplicity, I ignore the temporal and aspectual information found in the main clause and assume that TP_1 in the tree above denotes the proposition in (26). The contribution of *as a cat lover* is provided in (27).

(26) $\lambda t.\lambda w.$ owns-two-cats(Peter)$(t)(w)$ (TP_1)

(27) $\lambda q_{\langle i,st\rangle}.\lambda t'.\lambda w' :$ cat-lover$(g(c))(t')(w') = 1.\ q(t')(w')$ (asP)

Combining the semantic contribution of the *as*-phrase in (27) with the matrix proposition in (26) results in a proposition where the world and time of evaluation of the presupposed content and the truth-conditional content are linked, see (28).

(28) $\lambda t'.\lambda w' :$ cat-lover(Peter)$(t')(w') = 1.$ owns-two-cats(Peter)$(t')(w')$ (TP_2)

Let us assume that (24) is uttered at t_0 in w_0. As a result, (28) is evaluated with respect to t_0 and w_0, which results in the truth-conditions in (29).

(29) *As a cat lover, Peter owns two cats* is true in w_0 at t_0 iff owns-two-cats(Peter)$(t_0)(w_0)$
[*provided that:* cat-lover(Peter)$(t_0)(w_0) = 1$]

The "causal link" that is intuitively understood for (24) is crucially not part of either the truth-conditional content or the presupposed content of this sentence, see (28). This is exactly as desired given the results of Section 2 and 3; the "causal link" is not contributed by the free adjunct but is inferred.

4.2. The origin of the causal interpretation

The compositional analysis discussed in the previous subsection outputs two propositional contents for sentences like (24), the content contributed by the free adjunct *p* and the main clause content *q*. The results of Sections 3.2 and 4.1 support the view that the two contents have different information status: *p* is presupposed while *q* is asserted. I propose that the "causal link" between *p* and *q* arises because the content contributed by the free adjunct *p* is a specific kind of presupposed content that is not *lexically linked* to the main clause content *q*. It is as a result of this lack of a lexical link, that a link between *p* and *q* has to be inferred when interpreting the sentence. That it is a "causal link" of the type described in 4.2 is the result of the information status of *p* and *q*.

Before spelling this idea out in more detail, I briefly discuss some counter-examples against proposals that identify *world knowledge regularities* as the source of the "causal link". More concretely, I argue against the idea that during the interpretation of utterances like (24), the interpreter accesses their body of knowledge about individuals who have the property denoted by the complement of *as* and checks for a regularity that links the *as*-phrase content to the main clause content (e.g., "cat lovers own cats" for (24)). If such a regularity is found, the interpretation of the sentence can be enriched with a "causal link" between the *as*-phrase content and the main clause content. Proposals based on this idea make inadequate predictions. First, they predict no "causal link" to arise with pseudo-word sentences. This is not borne out; contrary to what we would expect, we understand the *as*-phrase content in (30) to provide an explanation for the main clause content even though there is no matching world-knowledge regularity.

(30) **As a bleep**, Peter is blooping.

Second, these proposals predict no "causal link" to be understood if there is a world knowledge regularity that links the property denoted by the complement of *as* to the negation of the main clause predicate. Let us, for instance, assume that, in general, cat owners like cats; hence, "cat owners do not like cats" is not a valid world knowledge regularity. As a result, no "causal link" should be inferable for (31), contrary to fact.

(31) **As a cat owner**, Emily dislikes cats.

Examples (30) and (31) suggest that for the interpreter, the connection between the "causal link" and potential world knowledge regularities is reversed. For instance, being presented with (30) prompts the interpreter to entertain the new world knowledge regularity that bleeps bloop. For the speaker, their beliefs about valid world knowledge regularities will motivate their utterances; a speaker who utters (30) can be taken to believe that bleeps bloop since they take Peter's being a bleep to support the claim that he is blooping (see Section 3). But, while world knowledge regularities may enter into the reasoning processes of the speaker and the interpreter in connection with the uttered content, they are not the source of the "causal link".

Let me now address my own proposal for how interpreters come to understand that the speaker takes the content of the free adjunct *p* to explain/support their claim that the main clause content *q* holds. This explanatory connection is inferred as a result of two properties of *p*: (i) it is presuppositional and (ii) it is not *lexically linked* to the main clause content.

The importance of the presuppositionality of *p* is best seen in comparison to the behavior of

appositive content. Like free adjuncts, appositive relative clauses contribute propositional not-at-issue content about an individual denoted by a DP in the main clause—but arguably one of a different type (see (23) in Section 4.1; Potts, 2011). While it is possible to understand a causal relation between appositive content and the main clause content (see Section 2), this interpretation is not the default and rather sensitive to world knowledge. Compare the behavior of the appositive relative clauses in (32) to that of the corresponding *as*-phrases above.[22]

(32) a. Peter, **who is a cat lover**, owns two cats.
b. Peter, **who is a bleep**, is blooping.
c. Emily, **who is a cat owner**, dislikes cats.

For all three examples in (32), it is possible to understand the appositive content and the main clause content to hold conjointly without inferring any additional relation to hold between them. The preferred interpretations of (32a) and (32c), however, involve a causal and concessive relation between the appositive and main clause content, respectively. For (32b), any such additional relation is much harder to understand. This contrast between (32a) and (32c) vs. (32b) suggests that the additional relations arise as a result of the specific combinations of appositive content, main clause content, and world knowledge.[23] Recall that we observe no parallel contrast for the corresponding *as*-phrases.

In addition, the discourse context readily affects the interpretation of appositive content. In the context of A's prompt in (33), the appositive relative clause in B is understood to simply provide additional information on Paul; no causal or concessive relation is understood.

(33) A: You always mention this "Paul"... tell me something about him!
B: Paul, **who is a linguist from Tübingen**, is tall and works on ellipsis.
B': **As a linguist from Tübingen**, Paul is tall and works on ellipsis.

In exactly the same context, the *as*-phrase in B' cannot be understood as providing only another piece of information about Paul. B' invariably communicates that Paul's being tall and working on ellipsis can be explained by his being a linguist from Tübingen. Hence, the type of not-at-issue content has an impact on the default status of the causal interpretation.

The observation that a "causal link" is inferred by default is also connected to the specific type of presuppositionality of the content of the free adjunct p: p and the main clause content q are not *lexically linked*. The presupposed contents that are commonly discussed in the literature are all lexically linked to the content of their containing clause (see e.g. Beaver and Geurts, 2011 for a list). This link is the result of the respective triggers, which can be classified based on the specifics of the link that they introduce. Following Zeevat (1992: 397–399), (at least) three classes of presupposition triggers can be distinguished: *resolution triggers*, *lexical triggers*, and

[22] Analogous observations to those in (32) and (33) can be made for appositive nominals, like *a cat lover* in *Peter, a cat lover, owns two cats*.

[23] The observation that we seemingly automatically understand additional relations between propositions if they are plausible is partial motivation for the pragmatic constraint *Maximize Discourse Coherence* in Asher and Lascarides (2003) (my emphasis).

(i) *Maximize Discourse Coherence:* Maximizing coherence amounts to prefer discourse structures with the smallest number of nodes, the fewest semantic and pragmatic clashes, *the largest number of rhetorical relations*, and the fewest number of underspecifications. (Asher and Lascarides, 2003: 234)

bookkeeping triggers, which are illustrated in (34).[24]

(34) a. The King of France is a smoker. (resolution trigger)
b. Mary stopped smoking. (lexical trigger)
c. Peter is also a smoker. (bookkeeping trigger)

For resolution triggers (e.g., definite descriptions), the presupposition is needed to determine their contribution to the truth-conditional content of their containing clause. For lexical triggers (e.g., factive and aspectual verbs), the presupposition constitutes a condition on the appropriate use of the trigger; only if the presupposed content is true, it is appropriate to add the truth-conditional contribution of these triggers to the containing clause. And lastly, for bookkeeping triggers (e.g., *too*, *also*), the trigger relates the content of the containing clause to previously established content in order to signal their distinctness. So, for all three classes, the relation between the presupposed content and the content of the containing clause is fixed by the trigger.

The presupposed content of free adjuncts cannot be related to any of these three classes, since its presuppositionality is not induced by any element in the containing clause (i.e., there is no explicit trigger). This can be seen as the main difference between free adjuncts and sentential complements of factive verbs. For both types of expressions, the propositional content that is presupposed to be true is contributed by explicit lexical material that is part of the utterance, as illustrated in (35).

(35) a. Mary knows **that Peter is a cat owner**. (presupposes: Peter is a cat owner.)
b. **As a cat owner**, Peter loves cats. (presupposes: Peter is a cat owner.)

The presuppositional status of the *that*-clause in (35a) can be plausibly attributed to the factive verb *know*, which takes the content of the clause as its argument. No comparable lexical relation can be determined for the propositional status of the *as*-phrase in (35b).[25]

Pragmatically, presupposed content that is unlinked to the remainder of the utterance is problematic. If presupposed content p were to remain unlinked, the interlocutors would be left to wonder why the speaker chose to communicate p in the first place given that they already consider p to be established. This, I suggest, is the pragmatic motivation for inferring the "causal link" for free adjuncts: it fills the gap created by the missing lexical link.

This is supported by the fact that presupposed content that is lexically linked to the main clause content is never understood with a "causal link". This is illustrated for the sentential complement of *know* and the presupposition of *stop* in (36) and (37).

(36) Mary knows that Peter owns cats. (presupposes: Peter owns cats.)
Cannot mean: Since Peter owns cats, Mary knows that he owns cats.

(37) Mary stopped smoking. (presupposes: Mary used to smoke.)
Cannot mean: Since Mary used to smoke, she stopped smoking.

[24]The term "bookkeeping triggers" is mine. Zeevat does not officially name triggers of this class but describes them as "playing a role in the bookkeeping involved in storing information by humans" (Zeevat, 1992: 399).

[25]The lack of an independent trigger for free adjuncts would be problematic if we were to assume that all presuppositions need to be triggered. In that case, we could assume that free adjuncts become presuppositional through a covert operator that, however, does not link the presupposed content to the truth-conditional content (e.g., FRAME, Hohaus, 2015). I will not pursue this option in this paper.

The need for a link between presupposed content and asserted content does not explain why it is a "causal link" that is inferred for free adjuncts. The specific flavor of "causal link" is the result of linking the presupposed content to the assertion as a whole. In particular, it is the result of relating it to the act of asserting the truth-conditional content of the main clause.

This assumption is supported by the high syntactic attachment point of causally interpreted free adjuncts. The comparison between free adjuncts and *since*-clauses in Section 3.1 suggested that both attach to a position above TP, which is reflected in the semantic proposal in Section 4.1, see the tree in (25). The high attachment point above TP—to a position where the main clause proposition has been fully formed—suggests that the content contributed by the free adjunct is related to a discourse-oriented aspect of the utterance. Cross-linguistically, structurally high positions are occupied by lexical material that conveys a speaker attitude or specifies how the propositional content is to be integrated in the current common ground between the interlocutors (see Stalnaker, 2002). For instance, speaker-oriented and other discourse-related adverbials in German and English attach high in the syntactic structure (see e.g., the overview in Maienborn and Schäfer, 2011), and also clause typing, which is connected to the primary speech act that is performed by uttering a sentence, involves structurally high positions (see e.g., Sadock and Zwicky, 1985 and much subsequent work).

The discourse-oriented aspect of the utterance to which the free adjunct relates is the assertion made by the speaker. By asserting a propositional content q, the speaker enters a commitment with respect to q and, furthermore, sets q up to become part of the common ground and, thus, part of the commitments of all interlocutors (see e.g., Farkas and Bruce, 2010). In a standard discourse where the main goal is exchange of information, an interlocutor is taken to believe q on the basis of such a commitment (see Pagin, 2014). Hence, co-operative behavior dictates that speakers should only assert what they believe to be true and for which they have adequate evidence (cf. the Gricean *Maxim of Quality*, Grice, 1989).[26] The presuppositional content p contributed by a free adjunct (i.e., content that is presented by the speaker as established) is inferred to explicitly provide the speaker's supporting evidence for their claim that q is true.

The similarity between evidential *since*-clauses and causally interpreted free adjuncts (see Section 3.1), hence, lies in the assumption that both provide evidence for the truth of the main clause proposition. For both expressions, their propositional content can be taken to explain why the speaker assumes the main clause proposition to hold, see (38).

(38) a. **Since Sam is a playwright**, he is drawn to the philosophical.
b. **As a playwright**, Sam is drawn to the philosophical.

The two expressions differ in how the propositional content is related to the main clause proposition. While *since* contributes this relation conventionally, a comparable link has to be inferred for free adjuncts in connection with the assertion act.

Let me conclude this section by briefly addressing the "concessive link" that is available for free adjuncts in surprise-contexts, see (39).

(39) Peter really surprised me. **As a bleep**, he is blooping.
(≈ Even though Peter is a bleep, he is blooping.)

[26]The two submaxims of the Gricean *Maxim of Quality* are also found in Searle's (1969) sincerity condition and first preparatory condition for assertions, see the discussion in Pagin (2014).

In surprise-contexts, the "causal link", which is the default for syntactically high free adjunct *as*-phrases in episodic, present-oriented sentences, loses its default status. This happens even with pseudo-word sentences like (39), for which it is impossible to appeal to world knowledge effects. While the context-dependent disappearance of the default "causal link" supports an inferential account, it also raises new questions: How does the concessive interpretation in surprise-contexts arise? And how do the surprise-contexts block the causal interpretation?

As suggested in Section 4.1, a surprise-context signals to the addressee that they can expect something unexpected. Hence, it becomes highly implausible in these contexts that the free adjunct and the main clause are linked via a "causal link", which conveys a regularity. So, the blocking of the "causal link" can be plausibly linked to the type of context.

It is less clear to me how to account for the "concessive link". Like the "causal link", the "concessive link" does not seem to arise from an interaction between the presuppositional content contributed by the free adjunct and an operator in the same clause (i.e., the "concessive link" seems to be fully inferred). However, the inferential account proposed for the "causal link" cannot be adapted straightforwardly to the "concessive link". A general inferential account based on pragmatic principles of discourse is in conflict with the restricted contexts of occurrence. Therefore, I would like to suggest that surprise-contexts, as in (39), involve embedding of the sentence containing the free adjunct under a surprise-predicate. This is supported by the intuition that the second sentence in (39) describes which of Peter's properties was surprising to the speaker. If such an embedding can indeed by assumed, the "concessive link" could be analyzed as arising from an interaction with the attitude: as the speaker's doxastic grounds for their surprise.[27] Example (39), for instance, would then convey that the speaker is surprised that Peter is blooping based on their belief that Peter is a bleep. A detailed investigation of the "concessive link" and a thorough evaluation of this idea, hence, necessitates a clearer picture of the behavior of free adjuncts in embedded contexts and their interaction with attitude predicates. I leave this task to future work.

5. Conclusion

In this paper, I took a closer look at the causal-clause-like interpretation of free adjuncts and how it arises. I started out by calling into question Stump's assumption that the "causal link" is part of the asserted, truth-conditional content that is contributed by a sentence hosting a causally interpreted free adjunct. The subsequent comparison with *since*-clauses showed clear parallels between causally interpreted free adjuncts and evidential *since*-clauses: neither the propositional content contributed by free adjuncts nor the "causal link" are asserted. I presented evidence supporting the conclusion that the propositional content of the free adjunct is presuppositional and that the "causal link" is pragmatically inferred. Based on a concrete proposal for the compositional semantics of weak adjunct *as*-phrases, I proposed that the "causal link" arises because the presupposed propositional content of free adjuncts is not *lexically linked* to the main clause proposition. Assuming that presupposed content needs to be linked to the asserted content in one way or another, I suggested that the "causal link" is inferred by connecting the presupposed content to general requirements of the assertion act.

As stated in the introduction, the proposal put forth in this paper constitutes an attempt to account for the causal interpretation of free adjuncts without appealing to covert operators or

[27] I thank Nina Haslinger (p.c.) for helpful discussion on these cases.

structural positions above TP that form a syntactic "discourse layer" (cf. the different structural proposals in Krifka, 2018; Speas and Tenny, 2003; and Wiltschko, 2014). I am aware that my suggestion for why the link that we infer is a "causal link" in Section 4.2 can be considered too weak to adequately capture its default status. At the moment, I do not see how my proposal can be improved, and I do not want to exclude that future work will reveal that the additional assumption of covert operators and/or a syntactic discourse layer is, in fact, necessary.

The most promising direction for future research seems to me to be a detailed investigation of the behavior of free adjuncts in embedded contexts, particularly under attitude predicates, and in non-declarative sentences. The latter context is the strongest test case to check the core assumption of the main proposal that the "causal link" is connected to the assertion act.

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