Even though as *even if*[1]

Hanzhi Zhu — *Massachusetts Institute of Technology*

Abstract. In this paper, I propose a new semantics for *although/even though*. My proposal makes use of the scalar likelihood presupposition of *even*, and I argue that the concessivity of *although* comes from scalar likelihood comparison of two conditional propositions. I present both formal and empirical advantages of such an account.

Keywords: scalar presupposition, concessivity, although.

1. Introduction

English has a wide variety of constructions used to convey the oddity of two propositions put together, often called "contrastive" or "concessive". Various particles have been claimed to be a part of this class, including *(al)though*, *even though*, and *still*, *nevertheless*, *but*, *despite*, among many others. The descriptive literature on concessive constructions characterize them as "the unexpected, surprising nature of what is being said in view of what was said before that" (Quirk et al., 1972).

These constructions convey the truth of both propositions as well as the fact that the combination of the two propositions is odd or unexpected. Although they are often studied together, I examine just the particles *even though* and *although*, which are nearly identical in use and which I shall generally treat as interchangeable.

(1) John went out for a walk, even though it's raining. — q, even though p

(2) Although Bailey is rich, she doesn't give to charity. — although p, q

2. What is asserted by *although*?

Concessive constructions are often grouped together and labeled "conjunctions" based on the fact that they convey two propositions; many accounts of *although* assume that it, like other similar constructions, assert the two propositions involved (e.g. Pasch 1992, Lund 2017). However, a closer examination reveals particles differ on that regard: some of these particles (i.e. *but*) truly assert a conjunction, whereas *although* does not.

Let us compare near-synonymous constructions of the form "although p, q" and "p but q".[2] We can demonstrate using attitude predicates that the *although*-constructions only convey that the attitude is held of q, and the *but*-constructions convey that the attitude is held of both p and q.

(3) a. Mary is happy that although John didn't study for the test, he passed it.
$\not\Rightarrow$ Mary is happy that John didn't study, $\Rightarrow$ Mary is happy that John passed the test

b. Mary is happy that John didn't study for the test but (still) passed it.
$\Rightarrow$ Mary is happy that John didn't study, $\Rightarrow$ Mary is happy that John passed the test

[1]I'd like to thank Roger Schwarzschild, Justin Khoo, Gunnar Lund, Vann McGee, Kai von Fintel, and other audience members and reviewers for helpful commentary.

[2]I use p to refer to both the clause headed by *although* and the clause **not** headed by *but*.

Proceedings of Sinn und Bedeutung 23, vol. 2, pp. 481–490. Universitat Autònoma de Barcelona, Bellaterra (Cerdanyola del Vallès).

Additionally, we can observe that an *although*-construction projects p when embedded under a non-factive predicate, whereas a *but*-construction does not. This suggests that p in *although*-constructions is part of the not-at-issue content.

(4) a. Mary wonders if, although John studied for the test all night, he failed it.
$\Rightarrow$ John studied all night, $\not\Rightarrow$ John failed the test
b. Mary wonders if John studied for the test all night but failed it.
$\not\Rightarrow$ John studied all night, $\not\Rightarrow$ John failed the test

Additionally, we can show that the content of p within an *although*-construction, which is not-at-issue, is not felicitous as an answer to a question. This is in contrast with the same p within a *but*-construction.

(5) A: Are you a pianist?
a. B: ?? Although I do play piano, I'm not a professional.
b. B: I do play piano, but I'm not a professional.

The same answer (5b) is felicitous when q is the question answer, showing that q is part of the at-issue content.

(6) A: Are you a professional pianist?
B: Although I do play piano, I'm not a professional.

The question of whether p is a presupposition or a conventional implicature à la Potts (2005) is harder to diagnose. The latter option may initially seem promising, as *although*-constructions are often used to introduce p as new content, such as in (6). However, at least one test, the presuppositional plug test, favors the status of p as a presupposition rather than a conventional implicature like *as*-parentheticals.

With the presuppositional plug test, we can observe that the factive presupposition of *realize* can be blocked by a predicate of speech (7). On the other hand, a conventional implicature cannot be cancelled under such predicates (8). In (9), we observe that p under an embedded *although*-construction can be cancelled. This example suggests that *although* is less speaker-oriented than appositives, as the content of p can be more easily attributed to the subject of a speech report rather than the speaker.

(7) John said that Sue realized Kaitlin lives in poverty. (Later we found out that John was wrong. Sue can't have realized that Kaitlin lives in poverty, because Kaitlin is well off.)
(adapted from Potts 2005)

(8) Joe said that Kaitlin, a friend of his living in poverty, is quite happy. # But in fact, Kaitlin doesn't live in poverty.

(9) Joe said that although his friend Kaitlin lives in poverty, she's quite happy. ✓ But in fact, Kaitlin doesn't live in poverty.

I'll treat the content of p as a presupposition (following the intuition of König and Siemund 2000), leaving open the question of whether a conventional implicature approach would be preferable.

3. The oddness/concessive inference

3.1. The conditional approach

Previous works on *although* focus on capturing the oddness presupposition that it contributes, the most influential account being that of König and Siemund (2000). Their proposal approaches the oddness inference by positing a conditional as the presupposition.

One tangential motivation for approaching *although*-constructions using conditionals is an observation (at least since Kortmann 1996) that concessive constructions have a close connection with concessive *even if* conditionals, by which the following pair is near-synonymous:

(10) Even if your friend dislikes museums – which I know he does – he'd enjoy a visit to the MOMA. (adapted from K&S 2000)

(11) Even though your friend dislikes museums, he'd enjoy a visit to the MOMA.

König and Siemund note two such links. Diachronically, concessive conditionals often develop into *though*: English *though* was also formerly a conditional marker. Second, many languages use the same construction for *even though* and *even if* (e.g., French *même si* and Italian *anche se*).

Another motivation for this approach is through the lens of comparison with *because* clauses, which is the subject of much discussion (König 1989, Iten 1997, a.o.). In *because*-constructions, p is the cause of q, whereas in concessive constructions, p normally causes $\neg q$.

(12) Because it was raining, John didn't go out for a walk.

(13) Although it was raining, John went out for a walk.

The intuition behind their approach is that the rainy weather normally results in John not going out for a walk. In (12), one can roughly posit a conditional as the sentence presupposition that expresses $p \rightarrow q$, whereas in (12) such a conditional would be $p \rightarrow \neg q$. In fact, almost all previous accounts of concessive constructions rely on such a conditional (Winter and Rimon 1994, Iten 2000, König 1989, König and Siemund 2000, inter alia).

The challenge of these accounts is in how to transform $p \rightarrow \neg q$ into an acceptable presupposition of *although*, as presupposing exactly $p \rightarrow \neg q$ would contradict the fact that concessive constructions convey $p \wedge q$. The tension between $p \rightarrow \neg q$ and $p \wedge q$ must be represented: the meaning that is conveyed is that the normal or expected course of events did not occur. König and Siemund suggest that the oddness presupposition of *although*-constructions should be schematized as $P \rightarrow \neg Q$, in which P and Q are propositions involving "quantification and generalization" of p and q respectively. For example, if p is "it's raining" and q is "John went out for a walk", $P \rightarrow \neg Q$ would be paraphrased as "if it's raining, John normally does not go for a walk".

3.2. The scalar conjunctive approach

Objecting to the non-compositional nature of König and Siemund (2000), Lund (2017) offers a compositional account making use of the independent meaning of *even* in *even though*. Using

the scalar likelihood presupposition of *even*, Lund makes two crucial assumptions to derive $(p \wedge q) <_{likely} (\neg p \wedge q)$ as the presupposition of "although p, q". First, he assumes that the assertive form of *although*-constructions is a conjunction, which I have argued against above. Second, he requires a verum operator over p to generate the alternative set $\{p, \neg p\}$ in order to generate the negation for *even* to compute over, perhaps an improvement over the unmotivated negation over the q proposition in the traditional account. Skipping the details of the composition, I present an informal schematic of the account.

(14) even though p, q
   a. assertion: $p \wedge q$
   b. scalar presupposition: $\forall r \in \{p \wedge q, \neg p \wedge q\}[[r \neq (p \wedge q)] \supset [(p \wedge q) <_{likely} r]]$
      equivalent to: $(p \wedge q) <_{likely} (\neg p \wedge q)$

(15) Even though it's raining, John went out for a walk.
   a. assertion: It's raining $\wedge$ John went out for a walk.
   b. scalar presupposition: [That it's raining $\wedge$ John went out for a walk] is less likely than [that it's not raining $\wedge$ John went out for a walk].

3.3. Empirical challenges of these accounts

I present further empirical data to evaluate these two approaches, showing that both are problematic.

3.3.1. The problem with scalar conjunctions

Lund's (henceforth: scalar conjunctive) presupposition is fundamentally quite different from the traditional presupposition: "normally, $p \rightarrow \neg q$". Our task is to devise a context in which the scalar conjunctive presupposition is met, but not the traditional one.

Let us consider (16), relying on the following world knowledge: Europeans who speak both Catalan and Spanish ($c \wedge s$) are less common than those who speak Spanish and not Catalan ($\neg c \wedge s$); thus the conjunctive presupposition is met. However, Europeans who speak Catalan largely also speak Spanish, contradicting the traditional presupposition.[3]

(16) *Eva is European.* #Although she speaks Catalan, she also speaks Spanish.

	although c, s
scalar conjunctive presupposition: Eva speaks Catalan and Spanish $<_{likely}$ Eva doesn't speak Catalan and speaks Spanish	$(c \wedge s) <_{likely} (\neg c \wedge s)$

The scalar conjunctive presupposition incorrectly predicts (16) to be felicitous. The scalar presupposition is met: that Eva speaks both Catalan and Spanish ($c \wedge s$) is less likely than

[3]Compare (16) with the following felicitous example, which relies on the world knowledge that religious practice is often mutually exclusive:

(1) Although Eva practices Judaism, she also practices Buddhism.

that Eva speaks Spanish and not Catalan ($\neg c \wedge s$). On the other hand, the traditional account correctly predicts infelicity with a presupposition that is not met: it is not normally the case that speakers of Catalan don't speak Spanish; in other words, Catalan speakers normally speak Spanish.

I take these data as evidence against a scalar conjunctive presupposition. Although the traditional presupposition is plausible for this example, we'll see examples in which it is inadequate. Instead, I propose an account which retains the insight of using the presupposition of *even*, and that makes a stronger theoretical link between concessive "conjunctions" and concessive conditionals. Recall the arguments against *although* constructions asserting a conjunction. Let us make a simple modification of the scalar presupposition: we change the scalar presupposition to operate over an alternative set of conditionals, instead of conjunctions:

(17) revised scalar presupposition: $(p \rightarrow q) <_{likely} (\neg p \rightarrow q)$

Such a revision involves comparative likelihood of conditionals. The topic of the propositional status and likelihood comparability of conditionals deserves lengthy discussion such as in the philosophical literature (e.g. Rothschild 2013), but for our purposes here, we may assume that a conditional is more likely than another if the attitude holder judges that there is stronger evidence to support it.

We can check that such a presupposition correctly predicts infelicity when applied to (16). It results in the following presupposition: [that Eva speaks Spanish if she speaks Catalan] is less likely than [that Eva speaks Spanish if she doesn't speak Catalan]. This goes against our world knowledge, in which (speaking Catalan $\rightarrow$ speaking Spanish) is more likely than (not speaking Catalan $\rightarrow$ speaking Spanish).

3.3.2. Against the traditional account

So far, we have not presented empirical evidence against the traditional presupposition, as Lund (2017) only offers theoretical reasons to disfavor it. Below, I present two classes of counterexamples to the traditional presupposition.

First of all, examples in which q is true independently of a possibly relevant p or $\neg p$ are in principle compatible with the traditional account. In (18), any account based on generalizing $p \rightarrow \neg q$ would be able to generate a true presupposition: if it isn't raining on a given day, Mary normally uses the treadmill.[4] Such a mechanism makes it difficult to account for the infelicity of (18).

(18) *The weather doesn't affect Mary's exercise routine; Mary uses the treadmill almost every day.*
Although it didn't rain today, Mary didn't use the treadmill.

[4]One might object to using as a presupposition a non-concessive conditional in which the consequent is entailed. But such conditionals are in fact assertable to convey indifference to the antecedent: "if it rains, I go jogging and if it doesn't rain, I go jogging".

A scalar likelihood account has no problem predicting infelicity. The conditional statements $p \rightarrow q$ and $\neg p \rightarrow q$ are equally likely, as whether it rains does not affect Mary's use of the treadmill. Thus, the scalar presupposition, which requires one conditional to more more likely than another, is not met.

A second challenge to the traditional presupposition comes in the form of examples in which the presupposition does not hold, yet the sentence is felicitous.

(19) Although the underdog contestant made the finals, she didn't win the contest.

In (19), world knowledge tells us that multiple contestants will make the finals. Thus, it's not the case that a contestant who reaches the finals normally wins. One might propose that the traditional account could fix such examples by restricting the conditional presupposition to make use of bouletic modality, resulting in a presupposition paraphrased as "if the contestant makes the finals, in all her most desired worlds, she wins the contest". However, such a move would further weaken the already flexible nature of the "normally" generalization mechanism.

Using a scalar presupposition, accounting for felicity is simple: for a contestant not to win if she didn't make the finals is trivially true, and is thus more likely than for her not to win if she did make the finals.

A third challenge to the traditional account comes from example in which p entails q, and thus $p \rightarrow \neg q$ would be a logical contradiction.[5] In (20), it's false that if one is from New Caledonia, one is normally not from France.

(20) Although Luc is from New Caledonia, he's still from France.

In (20), the scalar likelihood presupposition is met, assuming a modification to our account below, and the focus alternative set {New Caledonia, mainland France}. The presupposition would be the following: for Luc to be from France if he's from mainland is more likely than for him to be from France if he's from New Caledonia. This presupposition is met if we make the reasonable assumption that the modal base of likelihood to contain more worlds in which New Caledonia is not a part of France. Under the traditional account, (20) would falsely presuppose that normally, if Luc (or someone else) is from New Caledonia, he isn't from France.

4. Proposal

Let's begin to formalize the scalar account proposed in this paper using (23), with a standard semantics for *even* and without committing to the semantics of the conditional. The only difference between *if* and *though*-conditionals is that *though*-conditionals presuppose that the antecedent is true. This presupposition, together with the conditional assertion, entail the truth of q. Thus, *though* is a special form of the conditional which is felicitous and true only in worlds in which both the antecedent and consequent are true.

(21) Even though it's raining, John went out for a walk.

(22) $\text{though}^{c,g} = \lambda P_{st} \lambda Q_{st} \lambda w : P(w) = 1$. it is true of w that if P, Q

[5]Examples of this form are discussed for *although* in Iten (2000), in response to examples with *but* in Winter and Rimon (1994).

(23) $\text{even}^{c,g} = \lambda C_t \lambda R_{st} \lambda w : \forall S_{st} \in C[[S \neq R] \supset R <_{\text{likely}} S].R(w) = 1$

(24) [even C_1][though[p][q]]$^{c,g} = \lambda w : p(w) = 1 \wedge \forall S_{st} \in C_1[[S \neq$ if p, $q] \supset$ if p, $q <_{\text{likely}}$ S]. if p, q is true of w

Let's specify C_1 as the focus semantic value of the expression above, and continue the derivation.

(25) $C_1 :=$ though[it's raining][John went out for a walk]^F = {*if it's raining then John went out for a walk*, *if it's not raining then John went out for a walk*}

(26) [even C_1][though[it's raining][John went out for a walk]]$^{c,g} = \lambda w$: it's raining in w
$\wedge$
[if it's raining then John went out for a walk] $<_{likely}$ [if it's not raining then John went out for a walk].
it is true of w that if it's raining, John went out for a walk

The final step is then to saturate (26) with a world variable w_c.

The presupposition that we generated relies on the likelihood comparison of two conditionals, mirroring Guerzoni and Lim's (2007) account of *even if* conditionals. This formalism requires the speaker to reason that each world in the epistemic modal base is such that one conditional, the antecedent of which is entailed by the epistemic modal base, is less likely than another conditional in which the antecedent is false in the epistemic modal base. This does not pose a problem, as the mechanics of the conditional will allow for access to worlds outside the epistemic modal base, just like the mechanism for counterfactual conditionals. The oddness inference can be paraphrased as follows: given that p is true, and that q is more likely to follow from $\neg p$ than p, our assertion is that $p \rightarrow q$ and thus q are true.

So far, we have motivated a crucial modification of Lund's account, in which an *although*-construction necessarily generates the alternative set $\{p \rightarrow q, \neg p \rightarrow q\}$.

4.1. Apparent challenges to the proposal

One prediction of the scalar likelihood account is that any p, q such that $\neg p$ entails q should be felicitous, as the more likely proposition $\neg p \rightarrow q$ would be trivially satisfied. To demonstrate, we can set p as my being from Texas and q as my not being from El Paso. My account would thus generate the presupposition that it's more likely that for me to not be from El Paso if I'm not from Texas than for me not to be from El Paso if I am from Texas; the more likely proposition is trivially true.

(27) ?? Although I'm from Texas, I'm not from El Paso.

(28) *compare with:* Although I'm from the UK, I'm not from England.

Although we have seen a clear example of this type that's felicitous (19),[6] such examples are not felicitous across the board. Such a view would be expected from the traditional approach,

[6](19)'s scalar presupposition, that if one didn't make the finals one didn't make the contest, is a necessary truth under normal laws.

as the traditional presupposition, that if someone is from Texas then that person is normally from El Paso, is not met. However, although (27) may seem degraded when imagined in an out-of-the-blue context, it becomes perfectly felicitous when the information that the sentence contributes is relevant, such as in a context in which q is the answer to a question.

(29) *Let me guess which US city you're from. Are you from El Paso?*
Although I am$_F$ from Texas, I'm not from El Paso.

Thus, my prediction is borne out: any two propositions p and q such that $\neg q$ entails p should be felicitous in *although*-constructions.

A second challenge to my account comes from examples in which it appears that q entails p.[7]

(30) Although I speak French, I speak French poorly.

This example may seem to favor a traditional presupposition, as it is true that one who speaks French normally speaks it better than poorly. Under a scalar approach, the alternative presupposition generated by a verum operator on the antecedent would be that if I don't speak French I speak it poorly, which is contradictory and cannot be more likely than the prejacent conditional.

However, when we look at such examples more broadly, we see that consequents of this form without some sort of negation or exclusivity are degraded.[8]

(31) a. ?? Although Luc is from France, he's from New Caledonia / an overseas department.
b. Although Luc is from France, he's not from mainland France.

(32) a. ?? Although I play the piano, I'm a beginner.
b. Although I play the piano, I'm only a beginner.

A traditional account won't be able to distinguish between the members of the pairs, as "if Luc/someone is from France, he's normally not from an overseas department" is (roughly) truth-conditionally equivalent to "if Luc/someone is from France, he is normally from mainland France". On the scalar account, the assertions in the consequents themselves of the felicitous (b) examples don't entail the antecedent, thus removing the initial challenge. I rely on an analysis of *only* in which the assertion of "I'm only a beginner pianist" is paraphrased as "I'm a beginner pianist or not a pianist"; the assertion of the sentence must rely on an existential presupposition "I'm a pianist at some level" to entail the prejacent "I'm a beginner pianist". Thus, the more likely conditional in the presupposition is that if I don't play the piano, I'm not a pianist (or a beginner pianist). This is trivially true, and thus more likely than if I play the piano, I'm a beginner pianist (or not a pianist). Going back to the speaking French example,

[7] Note that this is exactly the reverse of examples such as (20).

[8] In comparison with (20), both pairs are similar in acceptability, as predicted by the scalar account and contra the traditional account:

(21) Although Luc is from New Caledonia, he's (still) from France.

(21′) Although Luc is not from mainland France, he's (still) from France.

we can assume a covert exhaustivity operator that renders "I speak French (only) poorly$_F$" to mean I speak French poorly or not at all.

5. The additive presupposition and concessive still

The move from conjunctive to conditional presuppositions allows us room for test the presence of the additive presupposition. Under a scalar conjunctive account, the additive presupposition would be $\neg p \wedge q$, and was excluded from the meaning of *even* scoping over such examples, as it contradicts the assertion $p \wedge q$. However, the additive conditional presupposition, $\neg p \rightarrow q$, does not contradict the assertion $p \rightarrow q$.

There is evidence that the additive conditional presupposition is not part of the meaning of some concessive constructions, which we can test using a provided context as well as the availability of the additive particle *still*.

(33) a. *It's a weekday morning.*
Although Ana had a sore throat, she (✓still) went to work.
b. *Ana woke up to a sore throat. She grabbed the wrong bottle of pills from her medicine cabinet.*
Although Ana had a sore throat, she (#still) took the headache medicine.

(34) a. *The school canteen is undergoing repair and the only other available eating space is the yard.*
Although it was raining outside, the schoolchildren (✓still) had to eat lunch in the yard.
b. *The teacher decided to punish to the students today; the schoolchildren normally eat in the canteen.*
Although it's raining outside, the schoolchildren (#still) had to eat lunch in the yard.

Our new paradigm in which the presupposed content is conditional in form allows us a simple way to capture the distinction between (a) and (b) examples: (a) examples satisfy the additive presupposition and are licit with *still*, whereas (b) examples do not, and are illicit with *still*. Thus, *still* is the operator that contributes the additive presupposition in concessive constructions.

(35) additive presupposition of [even [though p, still q]]: $\exists r \in \{p \rightarrow q, \neg p \rightarrow q\}[[r \neq (p \rightarrow q)] \wedge [r(w) = 1]]$
equivalent to: $(\neg p \rightarrow q) = 1$

(36) Although Ana had a sore throat, she still went to work.
a. additive presupposition: if Ana didn't have a sore throat, she would go to work.

6. Conclusion

I have proposed a semantics for concessive constructions that relies on conditionals as part of their presupposed content. I proposed that *although*-constructions assert a conditional and have as the basis for their concessive meaning a scalar presupposition comparing two conditional propositions, modifying the view in Lund (2017) in which these constructions are fundamentally conjunctions in meaning. The account proposed here allows room for concessive

still to contribute an interpretive difference in *although*-constructions in the form of an additive conditional presupposition, paving the way for more refined predictions.

References

Guerzoni, E. and D. Lim (2007). *Even if*, factivity and focus. In E. Puig-Waldmüller (Ed.), *Proceedings of SuB 11*, Barcelona, pp. 276–290. Universitat Pompeu Fabra.

Iten, C. (1997). Because and although: A case of duality? *UCL Working Papers in Linguistics 9*.

Iten, C. (2000). Although revisited. *UCL Working Papers in Linguistics 12*.

König, E. (1989). Concessive relations as the dual of causal relations. *Semantic universals and universal semantics*.

König, E. and P. Siemund (2000). Causal and concessive clauses: Formal and semantic relations. In E. Couper-Kuhlem and B. Kortmann (Eds.), *Cause – Condition – Concession – Contrast*. New York: De Gruyter.

Kortmann, B. (1996). *Adverbial Subordination: A Typology and History of Adverbial Subordinators Based on European Languages*. De Gruyter.

Lund, G. (2017). Deriving *even though* from *even*. In *Proceedings of ESSLI*.

Pasch, R. (1992). *Sind kausale und konzessive Konstruktionen Duale voneinander?* Düsseldorf: Heinrich-Heine-Universität.

Potts, C. (2005). *The logic of conventional implicatures*. Oxford University Press on Demand.

Quirk, R., S. Greenbaum, G. Leech, and J. Svartvik (1972). *A Grammar of Contemporary English*. London: Longman.

Rothschild, D. (2013). Do indicative conditionals express propositions? *Noûs*.

Winter, Y. and M. Rimon (1994). Contrast and implication in natural language. *Journal of Semantics 11*(4), 365–406.