

## Presupposition: What went wrong? \*

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**Abstract** When the first generation of generative linguists discovered presuppositions in the late 1960s and early 1970s, the initial set of examples was quite small. Aspectual verbs like *stop* were discussed already by Greek philosophers, proper names, *Kepler*, and definite descriptions, *the present king of France*, go back to Gottlob Frege and Bertrand Russell by the previous turn of the century.

Just in the span of a few years my generation of semanticists assembled a veritable zoo of ‘presupposition triggers’ under the assumption that they were all of the same species. Generations of students have learned about presuppositions from Stephen Levinson’s 1983 book on *Pragmatics* that contains a list of 13 types of presupposition triggers, an excerpt of an even longer unpublished list attributed to a certain Lauri Karttunen. My task in this talk is to come clean and show why the items on Levinson’s list should not have been lumped together.

In retrospect it is strange that the early writings about presupposition by linguists and even by philosophers like Robert Stalnaker or Scott Soames do not make any reference to the rich palette of semantic relations they could have learned from Frege and later from Paul Grice. If we had known Frege’s concepts of *Andeutung* – Grice’s *conventional implicature* – and *Nebengedanke*, it would have been easy to see that there are types of author commitment that are neither entailments nor presuppositions.

**Keywords:** presupposition, projection, conventional implicatures, question-under-discussion, at-issue-meaning, factives, implicatives, invited inferences

### 1 Levinson’s list

Fifteen years ago, in the summer of 2001 at the European Summer School in Language, Logic, and Information in Helsinki there was a special event to mark *Twenty Years of Two-Level Morphology*. My presentation was titled “A Short History of Two-Level Morphology.” It recounted the story of how finite-state transducers came to be used for morphological analysis and generation: they werfhusserle compact, efficient, and applicable to all languages.

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After the talk and the reception that followed, I was walking back to my hotel. I heard quick steps approaching me from behind. It turned out to be a young woman, out-of-breath because she had been running to catch up with me. She started our conversation with a breathless question:

- Are you the SAME Lauri Karttunen who wrote *Presuppositions of Compound Sentences*?
- Yes, I am.
- I DIDN'T KNOW THAT YOU WERE STILL ALIVE!

She introduced herself as Jennifer Spenader, a graduate student at the University of Stockholm, and our dialogue continued:

- Levinson says you have a list of 31 presupposition triggers but he only mentions 13. Please send the full list to me. I am writing my dissertation on presuppositions.<sup>1</sup>
- I am not sure that I still have that list. I will send it to you if I find it.

Fifteen years later by now, I am still the same person, happy to be alive, but I failed to find a copy of that old class handout. I don't know how Levinson got hold of one; I never had any contact with him. That attribution has haunted me ever since.

Here is the list of PRESUPPOSITION TRIGGERS as it appears in [Levinson \(1983: 181–184\)](#):

- i. Definite descriptions (Strawson 1950, 1952)
- ii. Factive verbs (Kiparsky & Kiparsky, 1971)
- iii. Implicative verbs (Karttunen, 1971)
- iv. Change of state verbs (Sellars, 1954; Karttunen, 1973)
- v. Iteratives
- vi. Verbs of judging (Fillmore, 1971)
- vii. Temporal clauses (Frege, 1892 (1952); Heinämäki, 1972)
- viii. Cleft sentences (Halvorsen 1978; Prince 1978; Atlas & Levinson 1981)
- ix. Implicit clefts with stressed constituents (Chomsky 1972; Wilson & Sperber, 1979)
- x. Comparisons and contrasts (Lakoff, 1971)
- xi. Non-restrictive relative clauses
- xii. Counterfactual conditionals
- xiii. Questions (Katz 1972; Lyons 1977)

The error, from which the field still has not completely recovered, was the idea that the items on this list exemplify the same phenomenon. The zoo of presupposition triggers should have been constructed with separate cages for different species. The

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<sup>1</sup> Completed in the following year ([Spenader 2002](#)).

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quest for a unified theory of presupposition, pragmatic or semantic, has been a failure.<sup>2</sup>

By the time linguists discovered presuppositions in the late 1960s (Horn 1969; Morgan 1969; Langendoen & Savin 1971), the topic had been discussed by logicians and philosophers for a long time (Frege 1892; Russell 1905; Strawson 1950).<sup>3</sup>

In hindsight it is a pity that the philosophers and linguists engaged in the early discussions about presuppositions in the 1970s only referenced Frege's 1892 paper on *Über Sinn und Bedeutung*. They all seem to have been unaware of the relevance of Frege (1918), a paper called *Der Gedanke* (The Thought).<sup>4</sup> I discovered this work only a couple of years ago preparing my talk for Salt 24. Larry Horn (2007) had taken notice of it much earlier. Although it does not contain all the distinctions that should be made, Frege (1918) would have been a good starting point.

## 2 Frege's *Voraussetzung*, *Andeutung*, and *Nebengedanke*

Frege's paper on *Sinn und Bedeutung* (Sense and Reference) discusses of proper names like *Kepler* and definite descriptions like *the one who discovered the elliptic form of the orbits of the planets*. In Frege's view main sentences denote a truth value. Any sentence containing a term referring to something that does not exist is fundamentally defective, it does not have a truth value. The negation of such a sentence is also neither true nor false. *Kepler died in misery* and *Kepler didn't die in misery* both presuppose the existence of Kepler. The word *Voraussetzung* is Frege's term for presupposition.<sup>5</sup> Kepler had a cumulative view of presuppositions. The temporal clause in *After the separation of Schleswig-Holstein from Denmark, Prussia and Austria quarreled* presupposes that Schleswig-Holstein was separated

2 This is the implicit conclusion of the *Stanford Encyclopedia of Philosophy* article on *Presupposition* (Beaver & Geurts 2014): "... perhaps we may re-ask the question of whether the things that the different so-called 'presupposition triggers' are triggering are in fact presuppositions, in any of the theoretical senses of the term 'presupposition' that we have considered in this article."

3 The earliest known tricky presupposition problem is the question *Have you lost your horns?* This is one of the four paradoxes attributed to Eubulides of Miletus (4th century BC). A similarly loaded question *Have you stopped beating your father?* comes from the Stoic Chrysippus of Soli (c. 279–206 BC). As we are now more concerned about spousal abuse than parental abuse, *wife* has replaced of *father* in modern versions of this loaded question.

4 For example, the MIT dissertation by Scott Soames (1976) is an extensive discussion of Frege's views of presupposition and a critique of contemporary theories (Karttunen 1973, 1974; Wilson 1975). It mentions Frege's 1918 paper only in passing in a couple of footnotes.

5 Other equally good English translations for *Voraussetzung* would be *prerequisite* or *requirement*. It is curious that German linguists in the 1970s felt the need to back-translate the English term *presupposition* into German as *Präsupposition*. The connection to Frege had been lost, or maybe the loan from English sounded more scientific and prestigious than its humble German origin *Voraussetzung*.

from Denmark. If that had not happened, the sentence would not denote anything. Frege does not discuss the presuppositions of compound sentences formed with *if... then*, *and*, and *or*, which would have falsified the cumulative hypothesis (Karttunen 1973).

The 1892 article remarks that a connective like *although*, *but*, and the untranslatable *doch* doesn't affect the sense of the sentence that follows but *illuminates it in a peculiar fashion*. Replacing the sentence with another one with the same truth value would not affect the truth value but it might be seen as inappropriate like singing a sad song in a lively way (Frege 1892: 226). The later *Der Gedanke* paper spells out this idea in more detail:

Much of language serves the purpose of aiding the hearer's understanding, for instance the stressing of part of a sentence by accentuation or word-order. One should remember words like "still" and "already" too. With the sentence "Alfred has still not come" one really says "Alfred has not come" and, at the same time, hints that his arrival is expected, but it is only hinted. It cannot be said that, since Alfred's arrival is not expected, the sense of the sentence is therefore false. The word "but" differs from "and" in that with it one intimates that what follows is in contrast with what would be expected from what preceded it. Such suggestions in speech make no difference to the thought.

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But what is essential depends on one's purpose. To a mind concerned with what is beautiful in language what is indifferent to the logician can appear as just what is important. Frege (1918: 295–296).

As Horn (2007) points out, this Frege's idea of "hinting" or "intimating" surfaces half a century later as Paul Grice's notion of CONVENTIONAL IMPLICATURE as the following convoluted passage indicates:

If I say (smugly) *He is an Englishman; he is, therefore, brave*, I have certainly committed myself, by the virtue of the meaning of my words, to its being the case that his being brave is a consequence (follows from) his being an Englishman. But while I have said that he is an Englishman, and said that he is brave, I do not want to say that I have SAID (in the favored sense) that it follows from his being an Englishman that he is brave, though I have certainly indicated, and so implicated that this is so. I do not want to say that my utterance of this sentence would be, STRICTLY SPEAKING false should the consequence in question fail to hold. Grice (1975: 44–58).

The word that Geach translates as "hinting" in one sentence and as "intimating" in the other is the same German word in Frege's text: *andeuten*. As Horn suggests, in the best of worlds we could adopt its nominalization, *Andeutung*, as the name for the

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semantic relation that we now clunkily refer to as *conventional implicature*. It may be too late for that.<sup>6</sup> Grice himself doesn't make much of that notion, he is mainly interested in CONVERSATIONAL IMPLICATURES and his conversational maxims.<sup>7</sup>

Included under Frege's concept of *Andeutung* are the affective meaning of words like *bastard* and *jerk* in Christopher Potts's (2005) work on conventional implicature. The choice between the neutral *horse* or the pejorative *nag* makes no difference to the thought. *The assertive force does not extend over that in which these words differ* (Frege 1918: 295).

The third semantic relation that appears in Frege's writings is *Nebengedanke* that Max Black translates as *subsidiary thought*. In Frege (1892: 44,47) it appears in his discussion of non-restrictive relative clauses. According to Frege,

- (1) Napoleon, who recognized the danger to his right flank, himself led his guards against the enemy position.

expresses two thoughts:

- (2) a. Napoleon recognized the danger to his right flank.  
b. Napoleon himself led his guards against the enemy position.

If one or the other of the clauses in (2) is false, the whole sentence (1) is false. There may also be a subsidiary thought that the knowledge of the danger was the reason for Napoleon's action. *But one may in fact doubt whether this thought is merely lightly suggested or really expressed* (Frege 1892: 47). This characterization of subsidiary thought sounds very similar to what Michael Geis and Arnold Zwicky (1971) call an INVITED INFERENCE.<sup>8</sup>

If the linguists and philosophers at the time of the first boom of presupposition studies around 1970 had been in command of Frege's palette of semantic relations ranging from *Voraussetzung* (presupposition) to *Andeutung* (conventional implicatures) to *Nebengedanke* (invited inference), the picture that emerged might have

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6 The best English translation for Frege's *anduten* might be *allude*, with *allusion* as the nominalization.

The problem with *Andeutung* is how to make the plural: English *Andeutungs* or German *Andeutungen*?

7 Kent Bach (1999) argues that Frege and Grice are wrong about *still* and *but*. For him the existence of any non-truthconditional meaning is a myth. Potts (2005) agrees with Bach about *therefore* and *but*.

8 Like many 20th century logicians, Frege rejects the idea that universal quantifiers *all* and *every* have existential import, contrary to Aristotle and the recent developments in *Natural Logic* (Valencia 1991). In a letter to Husserl (Frege 1997) he argues that in expressions like *all M are N* do not presuppose that there are any *M*, nor do they commit the speaker such a view as an *Andeutung* would do, although it is a subsidiary thought. (The translator of Frege's letter renders *Nebengedanke* as *incidental thought*.) In Horn's estimate, Frege's treatment of the existential import of universals as a pragmatic aspect of communicated meaning rather than a semantic implication *actually allows for a subtler and more insightful account of quantified statements than does the presuppositional story* (Horn 2007: 45).

been more nuanced, not limited to just two semantic relations: entailment and presupposition.

### 3 Levinson's list: a second look

Looking at Levinson's list in the light of Frege's distinctions we can recognize some clear cases of Fregean presuppositions, conventional implicatures, and invited inferences. Let us first provisionally winnow the list presuppositions to the following easy cases.

#### 3.1 Easy cases

- i. Definite descriptions
- v. Iteratives
- vii. Temporal clauses
- viii. Cleft sentences
- ix. Implicit clefts with stressed constituents
- x. Comparisons and contrasts
- xiii. Questions

In making this selection we of course need to get away from the narrow notion of *logical presupposition* that is well-defined only for expressions that could have a truth value. We recognize that questions and commands can have presuppositions. Although Frege's concept of presupposition does not apply in cases such as

- (3) a. When did Kepler die?
- b. Tell me about Kepler!

Frege probably would have agreed that, if Kepler had never existed, the expressions in (3) would be flawed. Questions like (3a) would have no answer, commands like (3b) could not be followed. They fail as speech acts. As many commentators have noted, e.g. Soames (1976: 169), we have intuitions about whether statements are true or false but we have no intuitions about whether something is truth-valueless rather than false. That latter distinction is a technical construct, it is misguided to take it as basic concept, we need a pragmatic notion. Let us say for now that presupposition failure results in a serious failure in communication. More about that later in **Section 5**.

#### 3.2 Factives

The item that has generated more controversy over the years than anything else on Levinson's list is Factives. The verb and adjective constructions listed in Kiparsky

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& Kiparsky (1970) are a heterogeneous collection. One should have distinguished at the very beginning at least the following five types of expressions:

ii. Factive verbs

- a. Certain predicates with *that*-clause subjects:  
*that S be odd/tragic* (as opposed to *likely*)  
*that S count/matter/suffice* (as opposed to *happen*)
- b. Certain adjectives with complements:  
*NP be happy/glad/furious that S* (as opposed to *hopeful*)  
*NP be sad/delighted/disappointed to VP* (as opposed to *willing*)
- c. Certain propositional attitude verbs:  
*NP know/regret/forget/remember that S* (as opposed to *believe*)
- d. Verbs of discovery:  
*NP discover/find out/notice/observe that S* (as opposed to *suspect*)  
*NP be discovered/found out/noticed/observed to VP* (as opposed to *suspected*)
- e. Certain verbs of communication: *acknowledge, admit, confess* (as opposed to *say*)

The subgroups (ii.a) and (ii.b) belong to the easy cases listed in (3.1). These constructions clearly pass the classical tests for presuppositions (Chierchia & McConnell-Ginet 2000: 350): the truth of a presupposition is preserved under negation, questioning and in the antecedents of conditionals. Examples such as

- (4)    a. Isn't it odd that desire lasts so much longer than the ability to perform?  
         b. Does it count that I celebrated every inch of you?

commit the speaker to the truth of the *that*-clause.

These easy cases involve just one person, the author, and the world that she inhabits as it is already known to be, no future contingencies, not dream worlds, or worlds as imagined by other people.<sup>9</sup>

The most commonly cited examples of factive verbs, *know, regret, remember* etc. in subgroup (ii.c), are more complicated because in addition to the author there is another person involved, the attitude holder, say, the protagonist. Even when the author and the protagonist are in some sense the same person they may be in different worlds as Morgan (1969) demonstrated with examples like:

- (5)    I dreamt that I was a German and nobody knew it.

It is clear that we can have false beliefs about the actual world and true regrets based on those false beliefs:

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<sup>9</sup> In literary works matters can become more complicated. In a style called *free indirect discourse* the narrator gives the illusion of being one or several of her characters and saying what they would say.



- (6) The man died still mistakenly believing that he had once fathered a son, regretting that they never met.

The question is what happens if we replace *regretting* in (6) by *knowing* or *being aware*? Is there a context where it is OK to say that someone ‘knows’ or ‘is aware of’ something that is false in the actual world? That is controversial. In the case of Morgan’s dream world in (5) *know* is fine because the complement is true in that world. My impression is that the question about the actual world is more a philosophical issue than a question about the proper use of English. Depending on the answer the (ii.c) class might have to be split in two.

In contexts where the difference between the beliefs of author and those of the protagonist have not been spelled out, the default assumption is that they are aligned. If there is no reason to think otherwise,

- (7) The man regretted that he and his son never met.

does commit the author to the proposition that there is this father-son pair in the actual world that never met and that the father took it to be a fact and regretted it. But the inference that it is the actual world where that is the case rests on the assumption that, in the absence of any indication to the contrary, the beliefs of the author are aligned with the beliefs of the protagonist. Grice probably would have called this a *generalized conversational implicature*.

The ‘coming-to-know’ verbs in (ii.d), *discover*, *find out*, etc. commit the author to the truth of the complement in affirmative assertions but it has been known from the beginning that these ‘semifactives’ are different from verbs like *regret*. Stalnaker (1974), Gerald Gazdar (1979), Rob van der Sandt (1992) gave rather elaborate pragmatic accounts of how the presuppositions of these particular verbs could get cancelled in situations where truth of the complement is an open issue. The presence of negative polarity items in the complement clause in examples such as (8a) and (8b) indicates that the author is not sure of the truth of the complement. The author of (8c) seems not to take any stand on the final result of the police investigation.

- (8) a. The police did not discover that any cars had been tampered with.  
 b. If the police did not discover that any cars had been tampered with, the suspects should let go.  
 c. Perhaps the police will discover that some cars had been tampered with but so far they haven’t.

The pragmatic accounts of the presupposition cancellation were formulated for first and second person subjects. As David Beaver (2010) pointed out, they don’t carry over to the type of examples in (8). Beaver gives an abundance of examples similar to (8) from Google of cases where it is clear from the context that the author is not committed to the truth of the complement clause.



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Instead of making the assumption that the ‘coming-to-know’ verbs are presupposition triggers only to have to tie yourself into knots trying to explain how that presupposition sometimes get cancelled or goes away, and doesn’t project, it is better to admit that it was a mistake to assume that these verbs have presuppositions in the classical sense. They are in a class by themselves. Affirmative assertions definitely commit the speaker to the truth of the complement but negative sentences, questions, and conditionals with coming-to-know verbs are in principle noncommittal. Most of the time there are enough clues in the context to indicate whether the author takes the complement as true or as yet to be established but it is not part of the lexical meaning of these verbs. What is part of it, however, is that discovering, realizing, noticing, etc. lead to facts. There is still a real distinction between *coming to know that p* and *coming to think that p*, *discovering that p* and *assuming that p*. In retrospect, calling the discovery verbs ‘semifactives’ was not a bad choice of a term once you decouple it from the notion of presupposition.

Finally, the last group of factives (ii.e), *acknowledge*, *admit*, *confess*, etc. do not commit the speaker to the truth of anything other than the protagonist having communicated something that the protagonist wished to present as a fact. The different flavors of these verbs involve conventional implicatures, Frege’s *Andeutungen*: affirming what is expected (*acknowledge*), what was denied before (*admit*), or revealing some new personal information (*confess*).

With these verbs it is often difficult to figure out the relationship between the protagonist’s and the author’s world view. In an interview with ex-Vice president Dick Cheney, if the reporter asks *Was the Iraq war a mistake?* and Cheney says *No*, the interviewer could report the answer as

(9) Cheney did not acknowledge that the Iraq war was a mistake.

The audience on Fox News of (9), most likely assumes that the world view of the reporter aligns with that of Cheney, hence the war was not a mistake contrary to some contrary opinions. The audience of MSNBC would have a different interpretation of (9), the war was a mistake, Cheney is living in some parallel universe.

### 3.3 Implicatives

Karttunen (1971) claimed that the characteristic feature of implicative verbs such as *manage* is that they presuppose some sufficient and necessary condition for the event described by their complement clause. For example, (10a) and (10b) would presuppose that solving the problem was difficult for John or that it was unexpected that he would succeed.<sup>10</sup>

<sup>10</sup> Bach (1999: 334) argues unconvincingly that whatever *manage* contributes to the meaning of *Bill managed to finish his homework* is not implicated. The content “includes both the finishing and the

- (10) a. John managed to solve the problem.  
 b. John didn't manage to solve the problem.

Rebekah Baglini and Frances Itamar (2015) have more complicated theory of what is presupposed. According to them the presupposition of *manage* is that there is some causal element that is necessary for the truth of the complement but that is insufficient to bring it about without an additional, situation-dependent component, a 'catalyst' that determines whether or not John actually solved the problem. For them assertion of (10a) is something like

- (11) The catalyst, which was necessary but not sufficient for John to solve the problem, actually caused John having solved the problem.

One advantage that this analysis has is that it doesn't attempt to pin down whether the catalyst involves trying, difficulty, unexpectedness, likelihood, or something else. Of all the two-way implicative verbs of English *manage* is the most bleached, least specific in characterizing the impediment that the protagonist has to overcome. However, it seems a mistake to me now to think of that as a presupposition. In retrospect it seems that the two-way implicatives in (12) have all the hallmarks of Frege's *Andeutungen* (Grice's conventional implicatures).

- (12) a. John remembered/bothered/dared/deigned/happened to open the door.  
       ⊨ John opened the door.                   + | -  
 b. John didn't remember/bother/dare/deign/happen to open the door.  
       ⊨ John didn't open the door.           + | -

The positive examples in (12a) entail that John opened the door, the negative ones in (12b) entail that he didn't. By using one of the implicative verbs the author commits herself to some proposition over and beyond what is asserted. It is not always clear what that additional piece of meaning is. By saying *John remembered to open the door* the author may imply that it was John's prior intention to do so or she might mean that John did what was expected of him. This implication is conventional, it is part of the lexical meaning of *remember* in the *remember to VP* construction. But just as in the case of Frege's *yet* and Grice's *therefore*, the implicated proposition has no effect on the truth of the author's statement. Even if it turns out that John just happened to open the door, without intending or anybody expecting it, the assertion *John remembered to open the door* is, strictly speaking, true. The answer to a yes-no question like *Did John remember to open the door?* is the same as the answer to *Did John open the door?* A command like *Remember to open the door!* can be

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entailed difficulty." But whoever asks *Did Bill manage to finish his homework?* is asking whether Bill finished his homework, not about the combination of finishing and difficulty.

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understood and followed even if the implication that the addressee is supposed to open the door is conveyed as part of the command itself.

The fact that the *happen to VP* is one of the two-way implicative constructions illustrated in (12) is difficult to reconcile with the Baglini-Frances idea that two-way implicatives are associated with a presupposition involving some necessary causal catalyst. The author of *John happened to open the door* alludes that John's opening or not opening the door was accidental. The negation *John didn't happen to open the door* is just the same: John didn't open the door but he might have, and whether he did or not was due to pure chance as far as the author cares or knows about.

The verbs in (12) have the entailment signature  $+|-$  meaning that they yield a positive entailment in positive contexts and a negative entailment in negative contexts. The two-way implicatives in (13) have the opposite signature  $-|+$ , negative entailment in the positive, positive entailment in the negative.<sup>11</sup>

- (13) a. John failed/forgot/neglected to open the door.  
       $\models$  John didn't open the door.        $-|+$   
      b. John didn't fail/forget/neglect to open the door.  
       $\models$  John opened the door.        $-|+$

The two-way implicatives yield an entailment in both positive and negative contexts, the four types of one-way implicatives yield an entailment only under one polarity but a suggestion under the other.

- (14) a. John was not able to speak up.        $\models$  John didn't speak up.        $o|-$   
      b. John refused to speak up.        $\models$  John didn't speak up.        $-|o$   
      c. John was forced to speak up.        $\models$  John spoke up.        $+|o$   
      d. John didn't hesitate to speak up.        $\models$  John spoke up.        $o|+$

If the polarity in (15) is reversed, there is no entailment. It is not a contradiction to say *I was able to speak up but chose not to do so*. However, if I say *I was able to read your paper last night* and it turns out that you didn't actually read it, even if I haven't said not an outright lie, my utterance invites the inference that I did read the paper. It would be perceived as very misleading in a situation where my having read the paper is a topic of interest for the addressee whether I did or not is not yet known. This is not true of just the *able* construction, all the one-way implicatives exhibit to varying degrees the same phenomenon. This is what Frege called *Nebengedanke*, Grice *generalized conversational implicature* and Geis and Zwicky *invited inference*.

<sup>11</sup> I am adopting here the notation used by Bill MacCartney and Cristopher Manning (2009), simpler than in (Karttunen 2012). For the two-way implicatives there are two classes,  $+|-$  (*manage*) and  $-|+$  (*fail*). For the one-way implicatives, to be discussed shortly, there are four classes:  $+|o$  (*forced*),  $-|o$  (*refuse*),  $o|-$  (*able*), and  $o|+$  (*hesitate*), where  $+$  indicates positive entailment,  $-$  negative entailment, and  $o$  no entailment under the given polarity: *positive|negative*.

- (15)
- |                                     |  |            |
|-------------------------------------|--|------------|
| a. John was able to speak up.       | $\rightsquigarrow$ John spoke up.        | $o \mid -$ |
| b. John did not refuse to speak up. | $\rightsquigarrow$ John spoke up.        | $- \mid o$ |
| c. John was not forced to speak up. | $\rightsquigarrow$ John didn't speak up. | $+ \mid o$ |
| d. John hesitated to speak up.      | $\rightsquigarrow$ John didn't speak up. | $o \mid +$ |

The fact that the effect is systematic is probably related to the fact that the main sentence with a one-way implicative verb and the complement clause are semantically in MacCartney's COVER relation,  $\smile$ , with negation on one member of the pair. For example, *John was able to speak up*  $\smile$  *John didn't speak up* are in a cover relation because, in any universe of discourse, at every world one or the other is true and there are some worlds where both might be true (MacCartney & Manning 2009: 3). These are worlds where John was able to speak up but didn't. To specify that the actual world is in that set, the speaker would have to say explicitly *John was able to speak up but didn't*. If the speaker only says *John was able to speak up* without the additional clause of John not speaking up, by Gricean maxims he can be interpreted as implicating that John did speak up, a scalar implicature of sorts. This explanation works for all the cases in (15).

To sum up, two-way implicatives involve conventional implicatures, Frege's *Andeutungen*, one-way implicatives yield entailments and invited inferences in a systematic way.

### 3.4 Aspectual verbs

Aspectual verbs, Levinson's class (iv) State of change verbs, includes items like *stop* that are the oldest presupposition triggers in the literature. The Greeks regarded questions like *Have you stopped beating your father?* as paradoxical because whichever way the addressee answers it, *Yes* or *No*, he ends up acknowledging that he has been beating his father. In affirmative statements *stop* clearly commits the speaker to having beaten his father and it also passes the negation test for presupposition triggers.

But the paradoxical second person questions are a special case. In third person questions and in conditionals the judgements are less clear. As Dorit Abusch (2012) and others have shown, the *if*-test does not always lead to the expected result.

- (16)
- If John stops smoking, Mary will buy him a camera.
  - In a brochure addressed to resident:  
If you stopped smoking in 2001, you are eligible for a payment from Tobacco Indemnity Fund. (from Kadmon 2001)
  - I notice that you keep chewing on your pencil. Have you recently stopped smoking? (from Abbott 2006, Simons 2001, attributed to Geurts 1994)

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- d. I have no idea whether Jane ever smoked, but she hasn't stopped smoking.  
(from [Simons 2001](#))

(16a) is unproblematic but the agency sending out (16b) presumably is not presupposing that a particular recipient is or has been a smoker. In this case *stopped* is understood as a shorthand for *were smoking and stopped*. Abusch speculates that the difference has to do with how familiar the author is with the protagonist. Examples like (16c) show that by indicating that the question is based on speculation, the author escapes any commitment to the proposition that the addressee ever smoked. In this respect the aspectual verbs are similar to the semifactives in (ii.d). In the case of (16d), as Mandy [Simons \(2001: 433\)](#) points out, the author may know some special symptom displayed by a person who has stopped smoking that Jane does not display.

What remains is that a command like *Stop smoking* does commit the author to the addressee being a smoker. Otherwise the command could not be followed.

### 3.5 Verbs of judging

Levinson's class (ii.vi.) got onto the list by mistake. Charles [Fillmore's \(1971\)](#) paper distinguishes three roles: the author, a judge, and a defendant. If the author is assuming the role of the judge and says *It was very bad of you not to answer Harry's letter*, then I have criticized you for having done something I consider a bad thing. But if the author and the judge are different as in *John criticized Bill for not answering Harry's letter*, the author is not taking any stand as to whether not answering Harry's letter was or would have been bad or what Bill has done or not done something. It is the author's interpretation of something that John said to Bill.

In the other cases we are considering here, it is the author that is supposedly committed to what is being presupposed.

## 4 Projection and Attitude Verbs

As [Beaver & Geurts \(2014\)](#) observe in their SEP article:

For nearly four decades, the Holy Grail of presupposition research has been to explain the behavior of presuppositional expressions occurring in embedded positions.

There have been many proposals to explain the projection phenomenon. The gamut ranges from formidably complicated formal accounts such as ([Schlenker 2007](#)) to a delightfully simple idea in ([Simons, Tonhauser, Beaver & Roberts 2010](#)). I will not be able to tackle Schlenker's theory but I will comment briefly later on the *Simons et al.*'s proposal that *meanings project IFF they are not at-issue*.

But first to the origins of the problem. In his ‘plugs-and-holes-and-filters’ paper Karttunen (1973) found it difficult to decide whether a verb like *believe* was a ‘hole’ or a ‘plug’, that is, whether the presumed presupposition triggered by *believe* in

(17) Bill believes that Fred has stopped beating Zelda.

projects or gets stopped by the matrix verb Karttunen (1973: 188-190). “It has proved difficult to get speakers to agree on what the right answer should be, which may indicate that the question has been put in a wrong way.” The final conclusion was that *believe* and other non-factive attitude verbs are plugs.

Karttunen (1974) considered that decision an error. His new view was that verbs like *believe* are neither plugs or holes but belong to a new class of verbs that require that the presuppositions of the complement are ‘satisfied’ by the beliefs of the protagonist. In other words, (17) presupposes that Bill believes that Fred has been beating Zelda. Irene Heim (1992) assumed that this new view was basically correct and incorporated it in a more ambitious and comprehensive theory (Heim 1992: 183):

The enterprise is carried out in a framework of context change semantics, which incorporates Stalnaker’s suggestion that presupposition projection results from the stepwise fashion in which information is updated in response to complex utterances. The empirical focus is on predicates of desire and on the contribution of counterfactual mood.

It now seems self-evident to me that the view that Karttunen (1974) and Heim (1992) had on belief reports overlooked the fact the author has a considerable leeway in describing someone’s beliefs. Here is a simple example.

Suppose my friend Laura gets a ride in Kris’s new car to Ken’s house. She does not know much about cars but she is so impressed by the experience that he says to Ken, *I want to buy a car like Kris’s, some kind of electric*. Later on Ken says to me *I think Laura wants to buy the kind of car that Kris has*. As Kris and Ken and Laura are all my friends, I know that Kris has a Tesla and that Ken and Laura are clueless about cars. They don’t know that the car Laura is enthused about is called *Tesla*. It would be quite OK for me in these circumstances to say to someone who knows about electric cars but doesn’t know anything about Kris:

- (18) a. Laura wants to buy an electric car.  
       b. Laura wants to buy a Tesla.  
       c. Ken thinks that Laura wants to buy a Tesla.

Heim (1992: 207–212) invokes the well-known *de re/de dicto* ambiguity to explain cases where someone’s desires and beliefs are described in language that the protagonist herself could not have used. For (18b), the two readings are crudely paraphrased as in (19):

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- (19) a. There is a Tesla that Laura wants to buy.  
b. Laura wants there to be a Tesla that he buys.

(19a) is false because there is no particular car that Laura wants to buy, but so is (19b) because, having no idea of what Teslas are, Laura cannot possibly have on a conscious level a desire to acquire a Tesla.<sup>12</sup>

In (18) there must be at least one person involved with the knowledge to say *a Tesla* to explicate what Laura meant by saying *I want to buy the kind of car that Kris has*. In principle it could be any one of the three, the author, Ken, or Laura herself if she knew about electric cars.

I think it is not necessary or useful to view this in terms of presupposition satisfaction. In the course of describing other people's beliefs and wishes speakers are free to bring in supplementary information and put their own slant on the content. Here is an example.

- (20) a. Sanders:  
I want to quadruple the tax on billionaires.  
b. WSJ reporter:  
Sanders wants radical changes in the US Tax Code.  
c. Romney:  
I believe Sanders wants to destroy the US economy.

The WSJ reporter's description of what Sanders wants to do is a fair journalistic caption of what Sanders said. It is not a *de re* rendering of what Sanders said he wants but it is consistent with it. Sanders himself might well be happy with this headline provided that his specific idea of quadrupling the taxes on billionaires gets mentioned somewhere in the article.

In Romney's world, it may well be the case that given his model of how the US economy works, plugging in a quadruple tax increase for himself can have catastrophic consequences for the US economy as a whole. For the Romney world this statement may well be a true description of the consequences of what Sanders wants to do. Opinionated and partisan, yes, but you cannot call Romney's belief false on its own terms.

## 5 Presupposition or Conventional Implicature?

Going in back to *Voraussetzung* and *Andeutung*, that distinction, presumably clear to Frege, has become difficult for us to make. There is an overlap between phenomena

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<sup>12</sup> It might be shown experimentally that Laura's brain responds to an image of a Tesla in some significantly different way than to the image of any other car but there it is unclear of whether that by itself would be a confirmation of (19b) unless these brain responses correlate with wants and wishes. All that is outside of formal semantics for now at least.



that have been called presuppositions by some semanticists and conventional implicatures by others. Some linguists have changed their minds even more than once on this issue (Karttunen 1971; Karttunen & Peters 1979; Karttunen 2012). Are these concepts distinct, or opposite ends of some continuum?

Ironically, one of the clearest definitions of conventional implicature comes from Bach (1999: 331), the lone prophet who preaches that they do not exist:

- (21) CI: A proposition is a conventional implicature of an utterance just in case
- a. the speaker (speaking seriously) is committed to the truth of the proposition,
  - b. which proposition that is depends upon the (or a) conventional meaning of some particular linguistic device in the utterance,
  - c. but the falsity of that proposition is compatible with the truth of the utterance.

Frege and Grice would have been in agreement with Bach about the definition in (21) although they believed that conventional implicatures are real, as most of us do.

The conditions (a) and (b) also apply to presuppositions. But the tradition has it that (c) makes a fundamental difference. False implicatures can be ignored in ordinary conversation, false presuppositions have serious consequences, for a logician, a truthvalueless statement, for a pragmatist, a failure of communicational purpose of some sort. We will try to tease out that difference later on in one concrete case.

There are other differences. Presuppositions are expressible as propositions, typically about something existing or having happened. Conventional implicatures can be quite ineffable, hard to express in words. What does *jerk* mean as opposed to *bloke*? But some expressions classified as conventional implicatures by Potts (2005), such as appositives, have propositional content. Amaral, Roberts & Smith (2007) give many examples that show that conventional implicatures interact with the at-issue meaning of the text. In such cases, as Karttunen & Zaenen (2005) show, conventional implicatures behave like presuppositions. For example, what they implicate can be filtered away by an *if*-clause:

- (22) a. The heiress married Bill and the lucky man became a millionaire.  
 b. If the heiress married Bill, the lucky man became a millionaire.

In (22b) the author's characterization of Bill as *the lucky man* may be understood as conditional on whether the heiress actually married him.

There are many other linguistic means besides the *if*-clause to introduce a hypothetical context. The author of (23) is not committed to the appositive *a third*

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*time offender* if the protagonist is found innocent but he is committed to Gonzales having been convicted at least twice before.<sup>13</sup>

(23) The jury is very likely to convict Gonzales. In that case, as a third time offender, he will never get out of jail.

Under California's harsh 'three-strikes-and-you-are-out' law, a person convicted of three felonies can be locked away for a life.

In trying to find cases to test (21c) with students I have found that people tend to have much better intuitions about money than truth-value gaps. Here is a case to consider.

- i. You and I think that Bill has a new girl friend named Sally. We both think that Bill intends to send her a Valentine card.
- ii. You think that Bill often forgets to do things he intends to do. I agree that Bill is forgetful in general but not about his romances.
- iii. You say: *I bet you \$10 that Bill will forget to send a Valentine card to his new girl friend.* I accept the bet.

After Feb. 14, we go to Sally to find out what happened. Let's assume we hear either A1 or A2:

A1. *No. I didn't get a card from Bill but he sent me a really sweet tweet.*

A2. *No. Why would Bill send me anything? We are not romantically involved.*

Who won the bet? In the case of A1, I have to agree that a tweet, sweet as it may be, doesn't really count as a Valentine's card. Reluctantly I pay you \$10.

In the case of A2, we both agree that our bet was invalid because Sally is not Bill's girl friend. Neither one of us won or lost. There was no bet.

This is as close as I have been able to come to convince students that there is a difference between a false presupposition and a false entailment. I am not aware of any experimental studies on this issue.

Even if presuppositions, conventional implicatures and entailments are of different species, their semantics have to interact in ways that we still have not been able to resolve, either formally or computationally. Assuming that *again* involves a presupposition and *fail* a conventional implicature, I suspect that in spite of the precise work of Kamp (2001) in the DRS framework on the meaning of *again* and all of Karttunen & Peters (1979), we don't have an account of the entailments in (24):

- (24) a. She has never failed to return my calls.  
      ⊢ She has always returned my calls.

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<sup>13</sup> If the author believes that Gonzales has exactly two previous convictions, in the second sentence of (23), Gonzales could be referred to as a *two-time offender* (his present status) or as a *three-time offender* (his status, if convicted again).

- b. She has never failed to return my calls again.  
     ⊢ She once didn't return my call but never after that.

I would love to be shown wrong on that conjecture.

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