Fifteen years ago, in the summer of 2001 at the European Summer School in Language, Logic, and Information (ESSLLI) in Helsinki there was a special event organized by Kimmo Koskenniemi, Gertjan van Noord, Kemal Oflazer and myself to mark the Twenty Years of Two-Level Morphology. At that time morphology, that is, the analysis and generation of inflected word forms, had become a `solved problem' at least from a computational point of view. It was the appropriate time and place to celebrate that achievement. It was a festive event. I gave the keynote address in the grand old lecture hall of the university to a full audience. There was nothing else going that evening even if the topic was not what most of ESSLLI was about that year.

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:

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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 types of presupposition triggers but he only mentions 13 of them. Please send me the full list. I am writing my dissertation on presuppositions.”

— “I don’t know if I still have it.”

“What sort of range of presuppositional phenomena is there? We may begin by listing some of the constructions that have been isolated by linguistics as sources of presuppositions, i.e. by constructing a list of of known presupposition-triggers. Karttunen (n.d.) has collected thirty-one kinds of such triggers, and the following list is a selection from these…”


The Levinson List

1. Definite descriptions (Strawson 1950, 1952)
2. Factive verbs (Kiparsky & Kiparsky 1971)
3. Implicative verbs (Karttunen 1971)
4. Change of state verbs (Sellars 1954, Karttunen 1973)
5. Iteratives
6. Verbs of judging (Fillmore 1971)
7. Temporal clauses (Frege, 1892, 1952, Heinämäki 1972)
9. Implicit clefts with stressed constituents (Chomsky 1972, Wilson & Sperber)
10. Comparisons and contrasts (Lakoff, 1971)
11. Non-restrictive relative clauses
12. Counterfactual conditionals

When linguists took over the notion of presupposition from philosophers in just in few years they create a large zoo of ‘presupposition triggers’ under the misconception that they were all of the same species. Our field has not yet completely recovered from this initial mistake. The quest of an all-encompassing theoretical account of presupposition has been a failure.

The Greek philosophers already knew about presuppositions, Eubulides’ example is the forerunner of the familiar Have you stopped beating your wife example. Eubulides is also known for the Liar Paradox. In the modern logical literature the concept first comes up in Frege’s Über Sinn und Bedeutung paper where he argued that proper names presuppose that they designate something. If there is no Kepler, any sentence with the name Kepler is meaningless, neither true nor false. In Russell’s system, anything with the present king of France is just false. Strawson argued
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). 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.

If the linguists and philosophers at the time of the first boom of presupposition studies around

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.

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

**Facts**

The list of verb and adjective constructions listed as factive in Kiparsky & Kiparsky 1970 is a mixed bag. Need to distinguish at least between:

- Certain predicates with that-clause subjects:
  - that S be odd/tragic (as opposed to likely)
  - that S count/matter/suffice (as opposed to happen)

- 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)

- Certain propositional attitude verbs:
  - NP know/regret/forget/remember that S (as opposed to believe)

- Verbs of discovery:
  - NP discover/find out/notice/observe (as opposed to suspect)
  - NP be discovered/found out/noticed/observed to VP (as opposed to suspected)

- Certain verbs of communication:
  - NP acknowledge, admit, confess (as opposed to say)
Uncomplicated Factives

The first two groups of factives, that S be odd, that S count, and be glad to VP are unproblematic because there is just one person involved, the speaker. They pass the standard tests for presuppositions with flying colors.

Isn’t it odd that desire lasts so much longer than the ability to perform?

Does it count that I celebrated every inch of you?

I wasn’t glad to have a handicap so that others could appreciate their relative normality.

Factive with Multiple Minds

Verbs like know/regret/forget/remember involve two minds, two sets of beliefs, those of the author and those of the protagonist.

Even if the two are the same, there could be a difference between the actual world and a ‘dream’ world:

I dreamt that I was Napoleon and nobody knew it.

False beliefs may give rise to true regrets:

Sally misremembered not leaving a tip and regretted it.

Facts may change over time:

Back then everybody knew that ulcers were caused acid, triggered by stress, but we know now that the real cause is a bacterial infection.

Verbs of Discovery

The ‘coming-to-know’ verbs, discover, find out, notice, etc. commit the author to the truth of the complement in affirmative assertions, but it has always been known that these ‘semifactives’ may fail the negation and if-tests. A negative polarity item in the complement clause indicates that the author is not sure of its truth.

The police did not discover that any cars had been tampered with.

As Beaver has shown, the complicated pragmatic accounts of how a presupposition may get cancelled or goes away in such cases do not cover these sorts of cases. These verbs are in a class by themselves. Negative sentences, questions, and conditionals with these verbs are in principle non-committal, although there are usually clues to indicate whether the author takes the complement as true or as not yet established. What is part of the lexical meaning is that discovering, noticing, etc. lead to facts.

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.

The most commonly cited examples of factive verbs, know, regret, remember etc. 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:

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.

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 like these. 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.
Verbs of communication

Certain verbs of communication like acknowledge, admit, confess, etc. entail that a protagonist has committed herself to something being a fact. The Spanish inquisition recognized that tortured people may say anything like I am a witch to make the pain stop. That would be a confession but not a “free confession.”

Negative statements, questions, and if-clauses with these verbs are in principle non-commital although the context may provide clues as to the author’s stance on the veridicality.

Interviewer: Was the Iraq war a mistake?
Cheney: No.
Cheney did not acknowledge that the Iraq war was a mistake.

As said by a FOX/MSNBC reporter.

With these verbs it is often difficult to figure out the relationship between the protagonist’s and the author’s world view.

he audience on Fox News of 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, the war was a mistake, Cheney is living in some parallel universe.

Implicative Verbs

Two-way implicative yield an entailment under both positive and negative polarity. Verbs like manage, bother, dare, deign, remember (to), happen, and turn out etc. are polarity-preserving; fail, neglect, and forget (to) reverse the polarity.

Stan failed to propose to Carole again. fail: −|+
⇒ John didn’t propose to Carole.
John didn’t fail to propose to Carole again.
⇒ John proposed to Carole.
John failed to manage to propose to Carole again. manage: +|−
⇒ John didn’t propose to Carole.

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.

Presupposition or conventional implicature?

One man’s opinion (Kent Bach):
Whatever manage contributes to the meaning of Bill manage to finish his homework is not implicated. The content includes both the finishing and the difficulty.

Did Bill manage to finish his homework?

Another take (Baglini and Itamar):
A presupposition of a necessary condition + a catalyst to make it sufficient.
The catalyst, which was necessary but not sufficient for Bill to finish his homework, actually caused Bill having finished his homework.

My view: Conventional implicature (Frege’s Andeutung)

Against Bach: Did Bill manage to finish his homework? does not mean Did Bill finish his homework with difficulty?

Against Baglini and Itamar: The causal theory does not seem applicable to verbs like happen and turn out. Bill happened to finish his homework.

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

It seems a mistake to me now to think of that as a presupposition. In retrospect it seems that the two-way implicatives in on the previous slide have all the hallmarks of Frege’s Andeutungen
One-way implicatives

The four types of one-way implicatives yield an entailment under one polarity and, in many cases, an invited implicature under the other. The entailments of *able* and *force* are polarity-preserving, *refuse* and *hesitate* reverse the polarity.

Sally was not able to speak up.  \(\rightarrow\) Sally didn't speak up.  \(\circ\)\(-\)
Sally was forced to speak up.  \(\rightarrow\) Sally spoke up.  \(+\)\(\circ\)
Sally refused to speak up.  \(\rightarrow\) Sally didn't speak up.  \(-\)\(\circ\)
Sally didn't hesitate to speak up.  \(\rightarrow\) Sally spoke up.  \(\circ\)\(+\)

Invited inference:
Only Sally was able to speak up (but she didn't).

Invited inferences

In a neutral context where it has not been already mentioned or otherwise known what actually happened, all of the one-way implicatives are pushed towards being two-way implicatives unless the author explicitly indicates otherwise.

Sally was able to speak up.  \(\rightarrow\) Sally spoke up.  \(+\)\(\circ\)
Sally was not forced to speak up.  \(\rightarrow\) Sally didn't speak up.  \(\circ\)\(+\)
Sally did not refuse to speak up.  \(\rightarrow\) Sally spoke up.  \(-\)\(\circ\)
Sally hesitated to speak up.  \(\rightarrow\) Sally didn't speak up.  \(\circ\)\(-\)

This is a systematic effect although the strength of the invitation varies from one lexical item to another: very strong on *able*, weak on *hesitate*.

This is probably related to the fact that the main sentence of a one-way implicative verb and the complement clause are in MacCartney’s COVER relation, \(\circ\), with negation on one member of the pair.

CSLI Language and Natural Reasoning

One-way implicatives: \(\circ\)\(-\)

The join of negation and cover is entailment: \(\circ\)\(+\) \(\circ\)\(-\)

Sally was able to speak up \(\circ\) Sally didn't speak up

Sally was not able to speak up \(\circ\) Sally didn't speak up
Sally wasn't able to speak up \(\circ\) Sally didn't speak up
Sally didn't speak up

Sally was able to speak up
Sally was able to speak up

Sally spoke up
Sally was able to speak up

Sally didn't speak up
Sally didn't speak up

CSLI Language and Natural Reasoning

One of MacCartney's innovations is the COVER relation, defined as \(x \circ y = x \cap y \neq \emptyset \land x \cup y = U\). Given the example *animal* \(\circ\) *non-human* it is not obvious what this relation would be useful for. It is the relation that MacCartney needs for the \(\circ\)/+ class of one-way implicatives such as *hesitate* that yield a positive entailment under negation. This picture explains how it comes about.

The black square is the universe of all worlds. In some of them Mary spoke up, in the rest of the worlds she didn’t. In some of the worlds where Mary spoke up she hesitated to do so. That’s the middle area. The remaining worlds on the right are the worlds where Mary didn’t hesitate to

If the polarity of the examples on the previous slide 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 I didn’t actually read it, even if I haven’s 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
Aspectual Verbs

The Greeks regarded questions like Have you stopped beating your father? as paradoxical because, whichever way the addressee answers it, he ends up acknowledging having beaten his father.

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

- 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.

Abusch speculates that the difference has to do with how familiar the author is with the protagonist. The tense probably makes a difference as well. In the past tense example stopped is understood as shorthand for were smoking and stopped.

If the author explicitly indicates that the question is based on speculation about what might be the case, she escapes any commitment to the proposition that the addressee has ever smoked:

- I notice that you keep chewing on your pencil. Have you recently stopped smoking?

As Simons points out, the author may know some special symptom displayed by a person who has stopped smoking that the protagonist does not display:

- I have no idea whether Jane ever smoked, but she has not stopped smoking.

What remains is that a command like Stop smoking! certainly commits the author to the addressee being a smoker. Otherwise the command could not be followed.

Verbs of Judging

Fillmore's verbs of judging, criticize, accuse, blame, etc. got on to Levinson's list by mistake. Fillmore distinguishes three roles: AUTHOR, JUDGE, and DEFENDANT.

If I am the author and assume the role of the judge and say to Mary:

- It was very bad of you not to answer Harry's letter.

then I have criticized Mary for having done something I consider a bad thing. But if someone else, say John, says that and someone report the event as

- John criticized Mary 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 a bad thing or whether Mary is responsible.

In the cases on Levinson's list the author is supposedly committed to what is being presupposed.
Projection and Attitude Verbs

Beaver & Geurts (SEP 2014):

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 forbiddingly complicated formal accounts (Schlenker 2007) to a delightfully simple idea in Simons et al, 2010 that I will comment on later.

But first to the origins of the problem…

Karttunen 1973 found it difficult to decide whether believe was a ‘hole’ or a ‘plug’ in

Bill believes that Fred has stopped beating Zelda.

Final conclusion: believe and other non-factive attitude verbs are plugs.

Karttunen 1974 postulated that verbs like believe are neither plugs nor 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.

Heim 1992 assumed that this new view was basically correct and incorporated it in a more ambitious and comprehensive theory:

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.

This approach now seems to me to run against common-sense understanding of how we talk about other people’s beliefs and desires.

Reports on beliefs and desires

Situation:

My friend Laura gets a ride in Kris’s new car. She doesn’t know much about cars but is very happy with the experience. Laura says to Ken I want to by a car like Kris’s, some kind of electric, and Ken tells me I think Laura wants to buy the kind of car Kris has.

I could report Laura’s desire and Ken’s belief by saying any one of the following

Laura wants to buy an electric car.
Laura wants to buy a Tesla.
I know that Kris has a Tesla, Ken and Laura don’t. I know Teslas are expensive.

This is not the classical de re/de dicto distinction:

There is a Tesla such that Laura wants to buy it. (de re)
Laura wants there to be a Tesla that she buys. (de dicto)
Ken thinks that Laura wants to buy an expensive car.
A claim

It is not necessary or useful to think of the *Tesla* examples in terms of presupposition satisfaction.

In describing other people’s beliefs and wishes speakers are free (and often required) to bring in additional supplementary information put their own slant on the content.

An example

Sanders:

> I want to quadruple the tax on billionaires.

WSJ reporter:

> Sanders wants to make radical changes in the US Tax code.

Romney:

> Sanders wants to destroy the US economy.

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 it FALSE on its own terms.

Presupposition vs. conventional implicature

Back to Frege’s *Voraussetzung* and *Andeutung*. Are they really distinct notions?

Ironically, one of the clearest definitions of conventional implicature comes from the man who believes there aren’t any, Bach 1999:

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.
Differences - Similarities

Conventional implicatures can be ineffable, non-propositional as the difference between *jerk* and *bloke*. Presuppositions are in most cases propositional, easily articulated.

But in cases where conventional implicatures are propositional, e.g. appositives, they can interact with not-at-issue meaning like presuppositions do.

Assume:

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Smith has two previous felony convictions. He is on trial for another one. Under California's harsh 'three-strikes-and-out' law, a person with three felony convictions can be locked up for life.
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The jury is very likely to convict Smith. In that case, as a *third time offender*, he will never get out of jail.

The appositive, *a third time offender*, applies to Smith only if he is convicted once more.

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Setting up a bet

You and I think that Bill has a new girl friend named Sally. We both think that he intends to send her a Valentine's card.

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 romantic life.

You say

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I bet you $10 that Bill will forget to send a Valentine to his girl friend.
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I say

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i accept.
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Who won?

Sally, did you get a Valentine's card from Bill?

A1. No. But Bill sent me a really sweet text message.

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

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The problem with Bach’s condition (c) is that people have no intuitions of whether something is false or lacking a truth value. That is a technical notion that I think is not empirically testable. In trying to to sort out the difference with students I have found that people tend to have better intuitions about money than truth-value gaps. Who won or lost a bet? Here is a case to consider.

In my exchanges with students, the majority agrees that under scenario A1 I have lost the bet. A text message no matter how sweet does not count as a Valentine’s card. Reluctantly, I pay my friend $10.

In the case of scenario A2, there is no winner. In making the we both presupposed that Sally was Bill’s girl friend. If that assumption was false, we did not succeed in making a valid bet. Failure to make a bet is not a truth value gap in any technical sense but it comes close to it in spirit.
I have already given you the answer: Separate cages should have built for different types of ‘presupposition triggers.’ The quest of an all-encompassing theoretical account of presupposition was doomed to failure from the very beginning.