Conditional Presuppositions (?)

Yoad Winter

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1 Filtering facts (Karttunen 1973)

Conditionals:

(1) If Sue is in a good mood, she will bring her partner to the party.
$\rightsquigarrow$ Sue has a partner.

(2) If Sue is in a relationship, she will bring her partner to the party.
$\not\rightsquigarrow$ Sue has a partner.

(3) If Sue is married, she will bring her partner to the party.
$\not\rightsquigarrow$ Sue has a partner.

> **Generalization (1)**:
> In a conditional *if* S_1 *then* S_2, the presupposition of S_2 is filtered if and only if S_1 entails that presupposition.

Disjunctions:

(4) Either Sue will stay at home tonight, or (else) she will surely bring her partner to the party.
$\rightsquigarrow$ Sue has a partner.

(5) Either Sue is **not** in a relationship, or (else) she will surely bring her partner to the party.
$\not\rightsquigarrow$ Sue has a partner.

(6) Either Sue is **un**married, or (else) she will surely bring her partner to the party.
$\not\rightsquigarrow$ Sue has a partner.

> **Generalization (2)**:
> In a disjunction S_1 *or* S_2, the presupposition of S_2 is filtered if and only if the **negation** of S_1 entails that presupposition.

Conjunctions:

(7) If Sue arrives and brings her partner, it will surely make Dan envious.
$\rightsquigarrow$ Sue has a partner.

(8) If Sue is in a relationship and brings her partner, it will surely make Dan envious.
$\not\rightsquigarrow$ Sue has a partner.

(9) If Sue is married and brings her partner, it will surely make Dan envious.
$\not\rightsquigarrow$ Sue has a partner.

> **Generalization (3)**:
> In a conjunction S_1 *and* S_2, the presupposition of S_2 is filtered if and only if S_1 entails that presupposition.

"Having identical conditions for *if...then* and *and* seems at first a bit suspicious from the point of classical logic. However, this is not so. [...] we can also demonstrate that conditionals and disjunctions should be treated differently." (Karttunen 1973, p.181-2)

2 Value determination and the filtering condition

For bivalent conjunction, disjunction and implication:

- Conjunction is left-determined and right-determined by 0 as 0.
  = if we know that the left (right) value is 0, we know that the result is 0 without needing to know the right (left) value
- Disjunction is left-determined and right-determined by 1 as 1.
  = if we know that the left (right) value is 1, we know that the result is 1 without needing to know the right (left) value
- Implication is left-determined by 0 and right-determined by 1, in both cases as 1.
  = if we know that the left (right) value is 0 (1), we know that the result is 1 without needing to know the right (left) value

> **Filtering Condition** (*first version*): *A proposition* φ *op* ψ satisfies the filtering condition *if every situation failing* ψ *leads to a value of* φ *that is either* $*$ *or left-determines the bivalent result of* φ *op* ψ.

My puzzle here: Is there anything *foundationally* wrong about this filtering condition?

3 Two projection algorithms and their predictions

Algorithm 1 (Schlenker 2008, Fox 2008)

op:	bivalent binary propositional operator
S_1,S_2:	sentences with trivalent denotations $[\![S_1]\!]$, $[\![S_2]\!]$
result:	trivalent denotation $[\![S_1\ op\ S_2]\!]$

(i) Evaluate the truth-value $[\![S_1]\!]$.

(ii) If $[\![S_1]\!] = *$ then $result = *$, else:

(iii) If $[\![S_1]\!]$ left-determines *op* as μ, then $result = \mu$, else:

a. Evaluate the truth-value $[\![S_2]\!]$.

b. If $[\![S_2]\!] = *$ then $result = *$, else:

c. $result = [\![S_1]\!]\ op\ [\![S_2]\!]$.

Applying Algorithm 1 to sentence (2) = *if Sue is in a relationship she will bring her partner to the party*:

Step (ii)	–	irrelevant (*Sue is in a relationship* is bivalent)	
Step (iii)	–	if Sue is **not** in a relationship:	$result = 1$
		if Sue **is** in a relationship:	$result =$ [[Sue will bring her partner to the party]]

Thus: Result is bivalent, i.e. the presupposition of the consequent is expected to be filtered – (2) is predicted to presuppose nothing.
Similarly for (3).

Applying Algorithm 1 to sentence (1) = *if Sue is in a good mood she will bring her partner to the party*:

Step (ii)	–	irrelevant (*Sue is in a good mood* is bivalent)	
Step (iii)	–	if Sue is **not** in a good mood:	$result = 1$
		if Sue **is** in a good mood:	$result =$ [[Sue will bring her partner to the party]]

Thus: Result is bivalent iff <u>Sue is not in a good mood or has a partner</u>, i.e. the presupposition of the consequent is **only partially projected**: it is filtered whenever Sue is not in a good mood.

⇒ **Proviso Problem**

Algorithm 2

op:	bivalent binary propositional operator
S_1,S_2:	sentences with trivalent denotations $[\![S_1]\!]$, $[\![S_2]\!]$
result:	trivalent denotation $[\![S_1\ op\ S_2]\!]$

(i) Evaluate the truth-value $[\![S_1]\!]$.

(ii) If $[\![S_1]\!] = *$ then $result = *$, else:

(iii) If **filtering condition holds of S_1 and S_2, and** $[\![S_1]\!]$ left-determines *op* as μ, then $result = \mu$, else:

a. Evaluate the truth-value $[\![S_2]\!]$.

b. If $[\![S_2]\!] = *$ then $result = *$, else:

c. $result = [\![S_1]\!]\ op\ [\![S_2]\!]$.

Applying Algorithm 2 to sentence (2) – filtering condition **holds** ⇒ same result as Algorithm 1

Applying Algorithm 2 to sentence (1) – filtering condition does **not** hold:

Step (ii)	–	irrelevant (*Sue is in a good mood* is bivalent)	
Step (iii)	–	filtering condition does **not** hold ⇒	
		if Sue is **not** in a relationship:	$result = *$
		if Sue **is** in a relationship:	$result =$ *bivalent result*

Thus: Result is bivalent iff <u>Sue has a partner</u>, i.e. the presupposition of the consequent is **fully projected**

⇒ **No Proviso Problem**

4 A possible problem for Algorithm 2

(10) If Buganda is a monarchy, then Buganda's king will be at the meeting. (Mandelkern & Rothschild 2018)

Algorithm 1:

Step (iii) – if Buganda is **not** a monarchy: *result* = 1
if Buganda **is** a monarchy: *result* = $[\![$Buganda's king will be at the meeting$]\!]$

Thus: Algorithm 1 expects (10) to presuppose *either Buganda is not a monarchy or it has a king* .

This seems correct!

Puzzle: How come the same result that leads to the Proviso problem in (1) suddenly derives a desirable result?

Algorithm 2 – filtering condition does **not** hold – Buganda may be a monarchy without having a king:

Step (iii) – if Buganda is **not** a monarchy: *result* = $*$
if Buganda **is** a monarchy: *result* = $[\![$Buganda's king will be at the meeting$]\!]$

Thus: Algorithm 2 expects (10) to presuppose *Buganda is a monarchy and it has a king*
= *Buganda has a king.*

This seems **in**correct!

Puzzle: How come the same result that avoids the Proviso problem in (1) suddenly derives a undesirable result?

Common assumption in literature: we need to solve Proviso problem for Algorithm 1 in cases like (1), while preserving the derivation of the following *conditional presupposition* in cases like (10):

(11) If Buganda is a monarchy, then Buganda has a king.

Question: *Does the evidence for conditional presuppositions justify reverting to Algorithm 1 and tackling its Proviso problem?*

Beaver (2001, p.122): "It is ironic, and worrying, that the [derivation of conditional presuppositions in theories like Algorithm 1 – Y.W.] continues to be taken as one of the most serious objections [against them – Y.W.], and the [non-derivation of conditional presuppositions – Y.W.] in other accounts [like Algorithm 2 – Y.W.] continues to be taken by Karttun-ists (such as myself) to be a serious failing of those theories."[1]

5 Pragmatic inference and the filtering condition

Beaver (2001, p.246,278):

(12) a. If Jane *takes* a bath, Bill will be annoyed that there is no more hot water.
$\not\rightsquigarrow$ There is/will be no more hot water. (at least in ordinary contexts)

b. If Jane *wants* a bath, Bill will be annoyed that there is no more hot water.
$\rightsquigarrow$ There is/will be no more hot water.

Question: what explains contrasts as in (12)?

- According to the Filtering Condition above, in both (12a) and (12b) the presupposition should get projected: in neither case does the antecedent entail the presupposition of the consequent.
- Karttunen: entailment in the Filtering Condition should be supplemented with "some (possibly null) set X of assumed facts".
- In (12): X includes the common sense assumption **bath** $\dashrightarrow$ $\neg$**hot_water**.
  Taking a bath may exhaust hot water supplies. Merely *wanting* a bath does not consume hot water...

Formally:

Filtering Condition (*revised version*): *A proposition φ op ψ* satisfies the filtering condition relative to a class $\mathcal{M}$ of models *if for every model $M \in \mathcal{M}$: if $[\![\psi]\!]^M = *$ then either $[\![\varphi]\!]^M = *$ or $[\![\varphi]\!]^M$ determines the bivalent result of φ op ψ.*

[1] Note (Y.W.): Karttunen himself seems not to have been in one mind about it: wit. Karttunen (1973) vs. Karttunen (1974, &Peters 1979).

Further evidence: when the context of (12a) defeats the assumption **bath** $\dashrightarrow$ $\neg$**hot_water**, the presupposition is projected:

(13) The hot water supply in Bill's place relies on gas heating, so that no single person could possibly take a bath that would exhaust the hot water supply. At present there's some problem with Bill's heating system. Not knowing that, Bill suggests Jane, who is staying at his place, to take a bath whenever she pleases. *If Jane takes a bath, Bill will be annoyed (to hear from her) that there is no more hot water.*
$\rightsquigarrow$ *there is no more hot water*

6 Presupposition suspension

(14) There is no king of France. Therefore, *the king of France is not hiding in this room.* (von Fintel 2008)

Heim (1983) – *the king of France is not hiding* is ambiguous between:

A. **Default reading**:
Presupposition: there is a (unique) king of France, x
Assertion: **not**(x is hiding)

B. **Secondary reading**:
Presupposition: –
Assertion: **not**(there is a (unique) king of France x s.t. x is hiding)

Generalization: Under certain pragmatic conditions – e.g. threat of incoherence as in (14) – presuppositions may get suspended and accommodated under the scope of logical operators.

More examples:

(15) If you *stopped smoking* in 2001, you are eligible for a payment from Tobacco Indemnity Fund.
(Abusch 2002, adapted from Kadmon 2001)

(16) Perhaps God *knows* that we will never reach the stars. (Abbott 2006)

(17) John doesn't *realize* that Sue loves him, and (in fact) she may not. (Horn 1972)

7 Conditional presuppositions – an assessment

(18) If Buganda is a monarchy, then Buganda's king will be at the meeting. (=(10))

Two possible accounts using Algorithm 2:

Account 1 – Pragmatic inference (Karttunen 1973):

- Given the current state of affairs, a likely assumption is:
  (i) *Every African monarchy has a king*, or *African monarchies have kings.*
- (18) does not presuppose that Buganda has a king, because that presupposition is filtered in any model where (i) holds (and where Buganda is in Africa).
- Here we rely on the **weak** implication: **monarchy** $\dashrightarrow$ **king**

Account 2 – Suspension (Gazdar 1979, Soames 1982):

- (18) initially presupposes that Buganda has a king.
- However, that presupposition contradicts the ignorance implicature about the antecedent *Buganda is a monarchy.*
- Consequently, the presupposition is suspended, which leads to the secondary reading of (18):
  (ii) *If Buganda is a monarchy then Buganda has a (unique) king and that king will be at the meeting.*
- Here we rely on the **strong** implication: **king** $\rightarrow$ **monarchy**

Problem to distinguish between conditional presuppositions and accounts 1/2:

"When the predicted conditional presupposition is in the common ground, the [relevant] sentences are felicitous and don't require additional accommodation. The [problematic] judgments... are judgments about what we spontaneously accommodate when presented with out-of-the-blue utterances."

(Heim 2006, quoted in Mandelkern & Rothschild 2018)

In other words: If the relevant conditional statements are ordinary presuppositions, they should (at least sometimes) be *inferred* ("accommodated") as new information, but many examples in the literature rely on conditional statements that may already be in the common ground. For example:

(19) If Theo is a scuba diver, then he will bring his wet suit. (Geurts 1996)
Weak implication: **scuba_diver** ⇢ **wet_suit**

(20) If Theo is blind, he will bring his guide dog.
Weak implication: **blind** ⇢ **guide_dog**

Accommodation or common knowledge?

- No weak implication ⇒ No conditional presupposition = *the Proviso problem*
- Weak implication too weak ⇒ Possibly a conditional presupposition, but no accommodation

(21) a. Sue's husband is a Republican.
b. Sue is very conservative. #If she is in a relationship, then her husband is a Republican. (after Heim 1983)
c. Sue is very conservative. She made a vow that as soon as she's involved in a relationship she would get married. And I tell you: if she is indeed in a relationship, then her husband must be a Republican.

In (21):

– Heim: in cases like (21b), the following purported conditional presupposition is too strange to accommodate:
(iii) *If Sue is in a relationship then she's married.*
– Why is it so strange in (21b) even given Sue's conservatism?
– And why is it so easy to accommodate in (21a) the presupposition that Sue is married.

Alternative account: (iii) is not in common knowledge, even provided that Sue is conservative. Accordingly, no filtering occurs in (21b), and the default reading of the sentence presupposes that Sue is married. The problem in (21b) is the clash between that presupposition and the Gricean implicature that perhaps Sue is not in any relationship.

No suspension here: Suspension would lead to the following, coherent, interpretation of (21b)
If Sue is in a relationship, then she's married and her husband is a Republican.

Thus: The Gricean clashes in (18) and (21b) are similar. The difference between the sentences is only because (i) may be assumed in common ground *even before hearing the sentence*, which is responsible for presupposition filtering, whereas (iii) is too unlikely for most of us to be taken for granted, even for conservative women.

Upshot: *The difference between the pragmatic reasoning in this account and Heim's reasoning is too minimal to warrant tackling the Proviso problem that her approach to presupposition projection (or for that matter, Algorithm 1) faces.*

⇒ **Algorithm 2 is to be preferred to Algorithm 1 – No Proviso Problem**

8 A serious problem for both algorithms, and possibly for trivalent semantics

(22) If Sue is married, she'll bring her partner to her sister's birthday.
⇝ *Sue has a sister*

Algorithm 1: (22) ⇝ *If Sue is married, she has a sister*
– **too weak** (proviso)

Algorithm 2: (22) ⇝ *Sue has a partner and a sister*
– **too strong** (no filtering of *Sue has a partner*)
– suspension is unmotivated (having a partner does not entail being married)
– common knowledge does not support filtering, since there are many plausible models where a married person has no sister

Tentative conclusion: There are two different issues:

1. **Partial filtering**: Algorithm 1 *modifies* presuppositions.
   ⇒ Proviso problems; dubious conditional presuppositions
2. **Selective filtering**: Neither Algorithm 1 nor Algorithm 2 can filter one presupposition while fully projecting another.
   ⇒ General challenge for accounts in trivalent semantics

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