

The Epistemic Step

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Epistemic Step
U. Sauerland

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Scalar Implicatures

Standard examples of scalar implicatures:

- (1) The Philharmonic played many of Beethoven's symphonies.
↪ The Philharmonic didn't play all nine.
- (2) I saw Elvis or Bobby Fischer at the airport.
↪ I didn't see both Elvis and Fischer.

(for example Levinson 1983)

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The Epistemic Step

- (3) **Maxim of Quantity**: Make the most informative statement that you know to be true.
- (4) The Philharmonic played many of Beethoven's symphonies.
- (5) **Primary Implicature**: The speaker is **not sure** that the Philharmonic played all of Beethoven's symphonies.
- (6) **Secondary Implicature**: The speaker is **sure** that the Philharmonic did **not** play all of Beethoven's symphonies.

Grice's maxim only yields primary implicatures.
Secondary implicatures require an epistemic step
(Terminology from Sauerland 2004).

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Disjunction

(7) I saw Elvis or Bobby Fischer at the airport.

The ‘generalized conventional implicatures of disjunction’ (Gazdar, 1979) really follow from the primary implicatures (Sauerland, 2004):

- (8) a. The speaker is **not sure** that he saw Elvis at the airport.
b. The speaker is **not sure** that he saw Fischer at the airport.

From (7) and (8), the ‘conventional implicatures’ follow:

- (9) a. The speaker thinks it’s **possible** he saw Fischer at the airport.
b. The speaker thinks it’s **possible** he saw Elvis at the airport.

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Absence of the Epistemic Step

The secondary implicatures in (10) are blocked because they contradict the primary ones in (11).

- (10) Potential secondary implicatures:
- The speaker is **sure** that he did **not** see Elvis at the airport.
 - The speaker is **sure** that he did **not** see Fischer at the airport.
- (11) Contradicting primary implicatures:
- The speaker thinks it's **possible** he saw Fischer at the airport.
 - The speaker thinks it's **possible** he saw Elvis at the airport.

Summary: In disjunction, primary implicatures occur independently of secondary ones.

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Survival under Cancellation

After cancellation of secondary implicatures, primary implicatures survive.

- (12) The Philharmonic played many of Beethoven's symphonies, and possibly all of them.
- (13) The speaker isn't certain they played all nine.
- (14) I saw Elvis or Bobby Fischer at the airport, and possibly both of them.
- (15) The speaker isn't certain that he saw both Elvis and Fischer.

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Survival *at least/more than*

Primary implicatures also remain when **at least** or **more than** block a secondary implicature.

- (16) a. Terry had at least three beers.
b. Terry had more than two beers.
- (17) a. **Primary implicature:**
The speaker is **not certain** that Terry had four beers.
b. **No secondary implicature:**
*The speaker is **certain** that Terry did **not** have four beers.

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Non-cancellability

Primary implicatures cannot be cancelled (Sauerland 2005, and independently R. v. Rooy, K. Schulz and B. Spector, p.c.):

- (18) #The Philharmonic played many of Beethoven's symphonies, and certainly all of them.
- (19) #I saw Elvis or Bobby Fischer at the airport, and certainly both of them.

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In Fact

In fact involves a correction accompanied by a shift of relevance (van Rooy, p.c.):

- (20) A: Who has seen Elvis or Fischer?
B: I saw Elvis or Fischer at the airport. (No:)
In fact, I saw both.
- (21) A: Why are you so excited?
B: #I saw Elvis or Fischer at the airport. In
fact, I saw both.

Summary: Only secondary implicatures can be cancelled.

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Implicated Presuppositions

Hawkins (1981) attributes the oddness of (22a) to a anti-uniqueness implicature.

- (22) a. #The journalist interviewed a father of the victim.
b. The journalist interviewed the father of the victim.

Heim (1991): Since presuppositions aren't informative, we need a new maxim, namely (24).

- (23) **Maxim of Quantity:** Make the most informative statement that you know to be true.
- (24) **Maximize Presupposition:** Make the statement with the strongest presupposition that you know to be satisfied.

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Epistemic Status of Anti-Uniqueness

The epistemic step doesn't apply in (25):

(25) Kai caught a 3 ft. long catfish. (Heim, 1991)

(26) **primary implicated presupposition:**
The speaker is not certain that there's only one 3 ft. long fish.

(27) **no secondary implicated presupposition:**
The speaker is certain that there's another 3 ft. long fish.

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Non-Factivity of *believe*

Believe vs. *know* gives rise to non-factivity:

(28) Scientists believe that neutrinos have mass.

Again, the epistemic step doesn't seem to apply:

(29) **primary implicated presupposition:**
The speaker is not certain that neutrinos have mass.

(30) **no secondary implicated presupposition:**
The speaker is certain that neutrinos have no mass.

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Non-Pastness of the Present

Sauerland (2002): Non-pastness of the present is an implicated presupposition.

(31) Lina is chasing a butterfly.

(32) **primary implicated presupposition:**
The speaker is not certain that Lina's butterfly chasing is over.

For (31), the strong presupposition (33) seems appropriate.

(33) **secondary implicated presupposition:**
The speaker is certain that Lina's butterfly chasing is not over.

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Non-singularity of the Plural

Sauerland (2003): The non-singularity of the plural is an implicated presupposition.

- (34) John is coming with his children.
- (35) **primary implicated presupposition:**
The speaker is not sure that John has just one child.
- (36) **secondary implicated presupposition:**
The speaker is sure that John has more than one child.

Summary: The epistemic step doesn't apply to some implicated presuppositions.

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Primary Implicatures Cannot be Embedded

If primary implicatures could be embedded, (39) should be congruent.

(39) #When John OR Mary worked, the result was good, but when John worked, the result was a mess.

With an embedded primary implicatures, the first conjunct would be (40):

(40) When the speaker knows that one of John and Mary worked, but doesn't know which one, the result was good.

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Verba dicendi

Verba dicendi seem to allow embedding of primary implicatures:

- (41) When the log says that John or Mary worked, the result was good, but when it says that John worked, the result was a mess.

I assume these are partial quotations:

- (42) When the log says that “John or Mary” worked, the result was good, but when it says that “John” worked, the result was a mess.

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Section Summary

Primary implicatures are well behaved Gricean phenomena.

In particular, they seem to be:

- ▶ non-cancellable
- ▶ unembeddable

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Primary vs. Secondary Implicatures

In most examples, secondary implicatures are salient:

- (43) The Philharmonic played many of Beethoven's symphonies.
↪ I'm not sure that the Philharmonic didn't play all nine.
↪ I sure that the Philharmonic didn't play all nine.
- (44) I saw Elvis or Bobby Fischer at the airport.
↪ I'm not sure that I saw both Elvis and Fischer.
↪ I'm sure that I didn't saw both Elvis and Fischer.

How are secondary implicatures derived? How are primary and secondary ones related?

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Account 1: Epistemic Strengthening

Assumption of Expertise (Sauerland, 2004; van Rooij and Schulz, 2004) (cf. Soames 1982; Horn 1989; Spector 2003):

- (45) Assume that the speaker is certain that p holds or is certain that $\neg p$ holds in so far as consistent with the the assertion and primary implicatures.

For example (46a) and (46b) entail (46c):

- (46) a. I'm not sure that the Philharmonic didn't play all nine.
b. Either I'm sure they played all nine or I'm sure they didn't.
c. \rightarrow I'm sure they didn't play all nine.

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Account 2: Independent Generation

Added or silent material, in particular silent *only* (Fox, 2003) (possibly related accounts of Carston 1988; Recanati 2003):

(47) The Philharmonic *only* played many of Beethoven's symphonies.

Silent *only* can optionally occur.

- (48) a. The P. *only* played many_F of B's symphonies.
b. The P. played many_F of B's symphonies.

Representation is preferred because it answers (49) completely:

(49) How many of B's symphonies did the P. play?

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Proposal Today

Both account 1 and account 2 are needed.

In particular:

- ▶ Epistemic strengthening is restricted to the speakers personal experience, where the experthood assumption is justified.
- ▶ Silent *only* derives embedded implicatures.

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Disjunction

(50) I saw Elvis or Bobby Fischer at the airport.

Two derivations possible:

(51) Assume: Either I am sure that I saw Elvis and Bobby Fischer, or I am sure that I didn't see Elvis and Bobby Fischer.

(52) I **only** saw Elvis or_F Bobby Fischer at the airport.

Since silent **only** associates with **or**, (52) doesn't contradict the primary implicatures.

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Cancellability

Scalar sentences are structurally ambiguous. For example, (51) allows the two structures (53a) and (53b):

- (53) a. I saw **only** Elvis or_F Fischer.
b. I saw Elvis or Fischer.

'Cancellation' disambiguates towards (53b):

- (54) I saw Elvis or Fischer, and possibly both.

The primary implicatures are still present, but epistemic strengthening doesn't apply because the expertness assumption is cancelled.

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Presuppositions

Recall that some implicated presuppositions do not give rise to secondary implicatures.

(55) Kai caught a 3 ft. long catfish.

(56) **no secondary implicated presupposition:**
The speaker is certain that there's another 3 ft. long fish.

- ▶ Silent *only* does not compare alternatives that only differ by their presuppositions.
- ▶ The epistemic step is restricted.

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Only and Presuppositions

A hypothetical presupposition-sensitive lexical entry for *only* (cf. von Stechow 1999):

- (57) '*only* P' presupposes P, and is true if and only if:
All alternatives P' to P are either false or **cause a presupposition violation**.

At first it seems, *only* can compare presuppositions:

- (58) Kai only caught ONE 3 ft. long catfish, not the 3 ft. long catfish.

But, the comparison can be between *one* vs. *two*.

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Only and Speaker Oriented Presuppositions

(59) He only went out with the BAStard X, (not the ASShole X.)

Relevant speaker oriented presuppositions:

- (60) a. 'The bastard X' denotes John, and presupposes that the speaker believes that John is a bastard.
b. 'The asshole X' denotes John, and presupposes that the speaker believes that John is a bastard.

Predicted, but unavailable meaning:

- (61) a. Presupposition: He went out with X.
b. The speaker believes that John is bastard, but not that he is an asshole.

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Non-Factivity

(62) He only BELIEVES that he solved the problem.

Relevant alternative:

(63) He knows that he solved the problem.

Predicted, but unavailable meaning:

(64) He believes that he solved the problem, but didn't actually.

Hence: *Only* does not maximize presuppositions.

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Epistemic Strengthening

Silent **only** can associate with *three*, but not with **a**.

- (65) a. Kai caught a 3 ft. long catfish.
b. Kai caught **only** a THREE_F ft. long catfish.

Prediction: Any secondary implicated presupposition must be due to epistemic strengthening:

- (66) a. #Kai met a child of mine.
b. Kai caught a 3 ft. long catfish.
- (67) Presupposition: The speaker is sure that he has more than one child.

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Further Support: Epistemic Strengthening

Epistemic strengthening doesn't apply to implicated presuppositions:

- (68) a. Scientists believe that neutrinos have mass.
- b. The speaker is **not sure** that neutrinos have mass.

Epistemic strengthening does apply:

- (69) a. Lina is chasing a butterfly.
- b. The speaker is **sure** that the chase has **not** yet ended.
- (70) a. John is coming with his children.
- b. The speaker is **sure** that John doesn't have **one** child.

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Embedding

Embedded implicatures must be due to silent **only**.
Therefore, they must be secondary.

(71) When John OR Mary worked, the result was good, but when John worked, the result was a mess.

(72) When **only** John OR Mary worked, the result was good.

Since (72) entails (73), (71) is incongruent.

(73) When John worked, the result was a mess.

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Section Summary

There are two routes to a secondary implicatures:

- ▶ Epistemic strengthening if the speaker is an expert
- ▶ Independent generation with silent *only*

Both are restricted in some way:

- ▶ Epistemic strengthening is restricted to the speakers personal experience, where the experthood assumption is justified.
- ▶ (Silent) *only* doesn't apply to presuppositions.

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Two Accounts for *Only*

Linguistic Definition (cf. Rooth 1985):

(74) *only* S = all independent alternative sentences are false.

(75) $\llbracket \text{only } S \rrbracket^w = \forall S' \in \llbracket S \rrbracket_f : \llbracket S' \rrbracket^w = 0 \vee \llbracket S \rrbracket \rightarrow \llbracket S' \rrbracket$

$\llbracket S \rrbracket_f$ is the set of focus alternatives of S: sentences derived by replacing the focussed phrases with alternative phrases.

Modeltheoretic Definition: 'Exhaustification'

Groenendijk and Stokhof (1984); van Rooij and Schulz (2003, 2004)

(76) *only* p = The actual situation is a minimal one for satisfying p.

(77) $\llbracket \text{only} \rrbracket^w(Q^{(et)t})(P^{et}) = 1$ iff.
 $Q(P) = 1 \wedge \forall P' : Q(P') = 1 \rightarrow P' \subseteq P$

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An Argument For the Linguistic *Only*

- (78) a. They only played many of Beethoven's symphonies.
b. \rightarrow They didn't play all nine.
c. \nrightarrow They didn't play five.
- (79) $\llbracket \text{many} \rrbracket(P)(Q) = 1$ iff. $\#\{x \mid P(x) \wedge Q(x)\} > 3$
- (80) a. Only $\llbracket \text{most} \rrbracket_F$ boys left.
b. \rightarrow Not all boys left.
c. \nrightarrow Less than 55% of the boys left.
- (81) $\llbracket \text{most} \rrbracket(P)(Q) = 1$ iff.
 $2\#\{x \mid P(x) \wedge Q(x)\} > \#\{x \mid P(x)\}$

Linguistic Form matters in determining the alternatives considered.

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Summary on *only*

- ▶ This debate is purely semantic.
- ▶ Some evidence that linguist form matters.
- ▶ Relevance can be added to both accounts (rule out more relevant alternatives).

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Conclusion

Implicatures come in two epistemic strengths, and have three different derivations.

- ▶ uncancellable, unembeddable primary implicatures of the form: *the speaker is not certain that . . .* and have Gricean account
- ▶ secondary implicature derivable in two ways:
 - ▶ epistemic strengthening of a primary implicature with experthood assumption
 - ▶ independent generation with a silent *only*

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Derive Presupp.
Derive Embed.

Notes on Only

Conclusion

References

