Conversational Implicature: Applying the Gricean Theory to Linguistic Puzzles [1]

Here are the key components thus far of our theory of implicature:

(1) **A Theory of What Implicatures Are**

A conversational implicature is an inference which arises from and is validated by:

a. The asserted content of the speaker's utterance.
b. **The assumption that the speaker is observing the conversational maxims.**
c. (possibly, certain background facts drawn from general world knowledge)

(2) **A Theory of How Particular Implicatures are Derived/Computed**

The implicatures of a sentence S are deduced from (1a)-(1c) above.
(See examples on previous handout.)

(3) **A Theory of the Properties that Implicatures Should Exhibit**

The proposal that implicatures are inferences of the sort stated in (1) predicts that they should exhibit the following key properties:

a. defeasibility ("S and not p" is consistent)
b. reinforceability ("S and p" does not sound redundant)

Let's now see how our theory of implicature might be applied to the linguistic puzzles which began our discussion….

(4) **The Puzzle Relating to Disjunction**
In a sentence of the form "S1 or S2", what is the T-value of the sentence when both "S1" and "S2" are true? True? Or, False?

(5) **An Example Where the T-Value Seems to be 'True'**

a. Sentence: John is vegan, and so **John either gets his protein from nuts or from dietary supplements.**

b. Intuition: If it turns out that John gets his protein from nuts *and* dietary supplements, then the sentence in (a) isn't false.

[1] These notes are based on the material in Chierchia & McConnell-Ginet (2000: 25-28, 239-255).

(6) **An Example Where the T-Value Seems to be 'False'**

a. Sentence: (Said by kidnappers)
You will pay us 1 million dollars, or the president will die.

b. Intuition: The kidnappers' statement in (a) is false if they do both.
(*i.e.,* if they take the money *and* kill the president, then there's a sense in which they 'lied' in making their statement.)

(7) **The Puzzle Relating to *Some***
For a sentence of the form "… some of the NPs …", what is the T-value of the sentence when the parallel sentence "… *all* of the NPs … " is true?

(8) **An Example Where the T-Value Seems to be 'True'**

a. Sentence: If **Suzie has some of the soccer balls**, then we need to warn Joe.

b. Intuition: In a situation where Suzie has all the soccer balls, then if (a) is true, then we still need to warn Joe.

(9) **An Example Where the T-Value Seems to be 'False'**

a. Sentence: For dessert, **you can have some of the candies.**

b. Intuition: If someone tells you (a), you don't have permission to eat them all (*i.e.,* if you ate all the candies, you'd be breaking the rules.)

(10) **The Puzzle Relating to Numerals**
For a sentence of the form "… *n* NPs …" (where *n* is a numeral), what is its T-value when the parallel sentence "…*m* NPs…" is true (where $n < m$)?

(11) **An Example Where the T-Value Seems to be 'True'**

a. Sentence: If **you bring two children**, then you get a discount.

b. Intuition: In a situation where you bring *three or more* children, you still qualify for the discout.

(12) **An Example Where the T-Value Seems to be 'False'**

a. Sentence: Joe: How many children do you have?
Mary: **I have three children.**

b. Intuition: If Mary has four children, then she's said something false.

1. Particularized and Generalized Implicatures

In his classic work on implicature, Grice noted an interesting contrast between what could be called 'particularized' vs. 'generalized' impicatures…

> … basically, this contrast relates to whether or not the implicature in question could be expected to *always* arise for the sentence in question…

(13) **Particularized Implicature**
An implicature whose association with the sentence S crucially depends upon rather 'specific' features of the immediate context. Thus, in most imaginable contexts, sentence S *does not* carry the implicature in question.

(14) **Example of Particularized Implicature**

Person A: Are you going out tonight?
Person B: I have to work. *Implicature:* I am not going out tonight.

Key Observation: In most other imaginable contexts, the sentence "I have to work" does not carry the implicature "I am not going out tonight."

Person A: Why are you applying for a work permit?
Person B: I have to work.

Does not carry the implicature 'I am not going out tonight'.

(15) **Generalized Implicature**
An implicature whose association with the sentence S depends only upon very 'general' features of the context and/or world-knowledge. Thus, in most (nearly all) imaginable contexts, sentence S *does* carry the implicature in question.

(16) **Example of Generalized Implicature**

Person A: What happened to Dave after college?
Person B: Dave got a good job and got married.
Implicature: Dave got a good job first, and then later got married.

Key Observation: In most (all?) imaginable contexts, the sentence "Dave got a good job and got married" carries the implicature that Dave got married *after* he got a good job.

Person A: Tell me something, anything about Dave.
Person B: Dave got a good job and got married.

Implicature: Dave got a good job first, and then got married.

*Let's stick with the example in (16) for a second, just to confirm that the inference in question really **is** an implicature, and (if so) how it could be derived using the classic Gricean theory…*

(17) **Defeasibility Test**
Dave got a good job and got married, **but not in that order**. (seems consistent)

(18) **Reinforceability Test**
Dave got a good job, and **then** got married. (doesn't seem redundant)

(19) **Deriving the Implicature**

a. Sentence: Dave got a good job and got married.

b. Implicature (of speaker's utterance): Dave got a good job, and then got married.

c. Deriving the Implicature
The following reasoning is done by anyone hearing the sentence in (19a):

- Speaker has said only that Dave got a good job and got married.
- **Sue is following the Maxim of Manner**, and so her utterance is 'orderly'. That is, it is organized into some kind of logical order.
- In a typical narrative, events are listed in chronological order.
- Therefore, the event of Dave getting married occurred *after* the event of his getting a good job.
- **THEREFORE: Dave got a good job, and *then* got married.**

(20) **Key Observation**
The inference in (19) relies upon no special features of the context in which the sentence was uttered…
Rather, it relies only upon (i) the content of the uttered sentence, and (ii) the assumption that the speaker is following the conversational maxims.

(21) **Key Consequence**
Sentence (19a) should have the observed implicature in most (essentially all) contexts.

(22) **Important Fact**

- If a sentence S carries a *generalized* implicature *p*, then a speaker of S will always be interpreted in context as also communicating *p*.
- Consequently, it will at first glance appear as if *p* is actually part of the meaning (asserted content) of S, *even though it is actually an implicature…*

2. The Puzzle of '*Some*'

We now have the tools at our disposal to understand the puzzle surrounding *some* in (7)-(9)…

(23) **Key Example**

a. Sentence: Mother, to son: For dessert, **you can have some of the candies.**

b. The Inference:
From the mother's utterance, it seems the son should conclude that he can't have *all* the candies (*i.e.*, if he were to eat all the candies, he'd be breaking the rules.)

(24) **Question** Is the inference in (23b) an *implicature*?

(25) **Test 1: Defeasability**

Mother, to son: 'For dessert, you can have some of the candies… **in fact, you can have all of them if you want.** (seems consistent)

Contrast:
?? Mother, to son: 'For dessert, you can have some of the candies… **in fact, you can't have any of them.** (seems inconsistent)

(26) **Test 2: Reinforceability**

Mother, to son: 'For dessert, you can have some of the candies, **but you can't have all of them.** (seems non-redundant)

Contrast:
?? Mother, to son: 'For dessert, you can have some of the candies, **and/but you are allowed some.** (seems redundant)

(27) **Conclusion:**

The inference in (23b) *is* an implicature.

- That is, the fact that when someone uses a sentence of the form "…some NP…", we conclude that the parallel sentence "…all the NPs…" is false is simply an *implicature*
- The actual *asserted* content of a sentence containing "…some NP…" does not actually include the information that "…all the NPs…" is false.
- Rather, the asserted content of the sentence is *entirely consistent* with "…all NPs…" being *true*….

(28) **Key Follow-Up Question**

- ***How exactly*** *does an utterance like the one in (23a) come to have the implicature in (23b)?*
- *Does our Gricean theory of implicature indeed predict that (23a) should generate the inference in (23b) as an implicature?*

(29) **A Preliminary Comment on 'Informativity'**

Sentence S1 is 'more informative' than S2 *if* S1 entails S2, but S2 doesn't entail S1.

- If S1 entails S2, that means that whenever S1 is true, S2 is also true…
  …Thus, if you know S1, you *also have enough information to conclude* S2
- If S2 doesn't entail S1, that means that knowing S2 *doesn't* give you enough information to conclude S1.
- **Thus, if S1 entails S2, but not vice versa, that means that there 'more information' in S1 than in S2... which means that S1 is 'more informative'…**

(30) **Deriving the Implicature**

a. Sentence: You can have some of the candies.

b. Implicature (of speaker's utterance): You cannot have *all* of the candies.

c. Deriving the Implicature
- Speaker (Mom) has said only that I can have some of the candies.
- **Speaker is following the Maxim of Quantity**. Therefore, her statement was 'as informative as possible without breaking the other maxims'.
- If the speaker has instead said "you can have all the candies", she would have made a more informative statement.
  ('you can have all the candies' entails 'you can have some', but not *vice versa*)
- Since the speaker *didn't* say "you can have all the candies", **it follows that such an utterance would have broken some other maxim (namely, Quality).**
- Therefore (**following reasoning similar to what we've already seen**), it must be that the speaker (Mom) believes that "you can have all the candies" is false, or she doesn't have enough evidence to assert it.
- **But, the speaker is assumed to know whether or not I can have all the candies.** Therefore, the speaker must know that "you can have all the candies" is false.
- **THEREFORE: I *can't* have all the candies…only *some* of them.**

(31) **An Important Side-Note**

- The reasoning in (30c) relies upon the following assumption:
  The speaker knows whether or not "you can have all the candies" is true

- This assumption indeed holds in scenario (23a); and so our theory does predict that the speaker's utterance has the observed implicature in (23b).

- **But our theory *also* predicts that if that assumption *doesn't* hold in context, then the implicature in question *won't* be observed…**

  Evidence for the Prediction: Consider the following scenario:
  - You are at a fancy dinner party. The food is set out on a buffet table.
  - There is a special table with dessert items. There are many small bowls of things (candies, nuts, chocolates). In fact, let's imagine there are more bowls than guests at the party.
  - Next to the bowls there's a sign that reads "for dessert". It's not clear whether guests are allowed to take an entire bowl.
  - You ask a friend standing nearby whether it would be OK to take the entire bowl of candies.
  - Your friend looks at the table, shrugs and says. "I don't know. You can (definitely) take some of the candies…"

  Key Observation:
  In *this* scenario, your friend's utterance *doesn't* have the implicature in (23b).

(32) **Conclusion**

- A sentence of the form "… some of the NPs …" is *still true* when the parallel sentence "… *all* of the NPs …" is also true.
  (*e.g.* "you can have some of the candies" is still true when "you can have all of the candies" is)

- Now, we do have an intuition that a sentence "… some of the NPs …" is sometimes 'incompatible' with the truth of the parallel sentence "… *all* of the NPs …"

- But, this intuition is due to an *implicature*… one that is due to the following two key assumptions:
  (i) The speaker is following the Maxim of Quantity
  (ii) The speaker knows whether "…all of the NPs…" is true or not.

- Since these two assumptions are not very 'specific' features of the context, and since most contexts can be assumed to support those assumptions, we find that the implicature in question is (moreover) a *generalized implicature*...
  … and so it's one that is quite likely to be confused with part of the asserted content of the utterance…

3. The Puzzle of '*Or*'

The analysis we just laid out for 'the puzzle of *some*' can also be adapted for 'the puzzle of *or*'.

(33) **Key Example**

a. The Dialog (Said by kidnappers)
You will pay us 1 million dollars, or the president will die.

b. The Inference:
From the kidnappers' utterance, it seems one should conclude that they won't *both* take the 1 million dollars *and* kill the president.
(*ie.,* that if they do that, then their utterance in (33b) will have been a lie.)

(34) **Question** Is the inference in (33b) an *implicature*?

(35) **Test 1: Defeasability**

You will pay us 1 million dollars, or the president will die. **In fact, *both* might happen!** (seems consistent)

(36) **Test 2: Reinforceability**

You will pay us 1 million dollar, or the president will die. **But not both (we promise)!** (seems non-redundant)

(37) **Conclusion:**

The inference in (33b) *is* an implicature.

- That is, the fact that when someone uses a sentence of the form "S1 or S2" we conclude that "S1 and S2" is false is simply an *implicature*
- The actual *asserted* content of a sentence containing "S1 or S2" does not actually include the information that "S1 and S2" is false.
- Rather, the asserted content of the sentence is *entirely consistent* with "S1 and S2" being *true*….
- Thus, (38) below is the 'tabular formulation' of the extension of "or"...

(38) **The Extension of "Or" Written in Table Form**

F	→	T	→	T
		F	→	F
T	→	F	→	T
		T	→	**T**

(39) **Key Follow-Up Question**

- ***How exactly*** *does an utterance like that in (33a) come to have the implicature in (33b)?*
- *Does our Gricean theory of implicature indeed predict that (33a) should generate the inference in (33b) as an implicature?*

(40) **Deriving the Implicature**

a. Sentence: You will pay us 1 million dollars, or the president will die.

b. Implicature (of speaker's utterance):
It's not the case that *both* will happen. If you pay us the money, we'll let him go.

c. Deriving the Implicature

- Speaker has said only that they will take the money *or* the president will die.
- **Speaker is following the Maxim of Quantity**. Therefore, their statement was 'as informative as possible without breaking the other maxims'.
- If the speaker has instead said "You will pay us the money *and* we will kill the president", they would have made a more informative statement.
  (Note: given (38), "A and B" entails "A or B", but not *vice versa*.)
- Since the speaker *didn't* say "you will pay us the money *and* we will kill him", **it follows that such an utterance would have broken a maxim (namely, Quality).**
- Therefore (**following reasoning similar to what we've already seen**), it must be that speaker believes that "you will pay us *and* we will kill him" is false or they don't have enough evidence to assert it.
- **But, the speaker knows whether or not they are going to take the money *and* kill the president.** Therefore, they must know that "You will pay us and we will kill him" is false.
- **THEREFORE: If we pay them, they won't kill the president.**

(41) **An Important Side-Note**

- The reasoning in (40c) relies upon the following assumption:
  The speaker knows whether or not "S1 *and* S2" is True

- This assumption obviously holds in scenario (33a); and so our theory does predict that the kidnappers' utterance has the observed implicature in (33b).

- **But our theory *also* predicts that if that assumption *doesn't* hold in context, then the implicature in question *won't* be observed…**

  Evidence for the Prediction:

  - Recall the sentence below (from the last handout):

    "Dave and Sue both love to bake desserts. So, at the potluck, **Dave will bring a dessert, or Sue will."**

  - We observed earlier that this sentence *doesn't* seem to implicate that "Dave *and* Sue will bring a dessert" is false…
    (*i.e.*, if it turns out that both bring a dessert, we don't have the sense that the speaker said something 'false'…)

  - This is obviously due to the fact that the speaker in this context *doesn't know who is going to bring a dessert, and so doesn't know whether "Dave and Sue will bring a dessert" is true or not*...

(42) **Conclusion**

- A sentence of the form "S1 or S2" is *still true* when "S1 and S2" are true…
  (*i.e.*, the extension of "or" is represented by the table in (38))

- Now, we do have an intuition that a sentence "S1 or S2" is sometimes 'incompatible' with the truth of "S1 and S2"

- But, this intuition is due to an *implicature*… one that is due to the following two key assumptions:
  (i) The speaker is following the Maxim of Quantity
  (ii) The speaker knows whether "S1 and S2" is true or not.

- Since these two assumptions are not very 'specific' features of the context, and since most contexts can be assumed to support those assumptions, we find that the implicature in question is (moreover) a *generalized implicature*...
  … and so it's one that is quite likely to be confused with part of the asserted content of the utterance…

4. The Puzzle Relating to Numerals

The analysis presented in Section 2 for 'the puzzle of *some*' can also be adapted for 'the puzzle relating to numerals'.

(43) **Key Example**

a. Sentence: Joe: How many children do you have?
Mary: **I have three children.**

b. The Inference:
From Mary's utterance, it seems Joe should conclude that she does not have *more* than three children (*i.e.,* if she had more than three kids, she's be lying to him)

(44) **Question** Is the inference in (43b) an *implicature*?

(45) **Test 1: Defeasability**

Mary has three children… **in fact, she has four.** (seems consistent)

Contrast:
?? Mary has three children… **in fact, she has only two** (seems inconsistent)

(46) **Test 2: Reinforceability**

Mary has three children, **but no more than that** (seems non-redundant)

Contrast:
?? Mary has three children, **but more than two** (seems redundant).

(47) **Conclusion:**

The inference in (43b) *is* an implicature.

- That is, the fact that when someone uses a sentence of the form "…*n* NP…", we conclude that the parallel sentence "…*m* NPs…" (where $n < m$) is false is simply an *implicature*
- The actual *asserted* content of a sentence containing "…*n* NP…" does not actually include the information that "…*m* NPs…" is false (where $n < m$)
- Rather, the asserted content of the sentence is *entirely consistent* with "…*m* NPs…" being *true*….

(48) **Key Follow-Up Question**

- ***How exactly*** *does an utterance like the one in (43a) come to have the implicature in (43b)?*
- *Does our Gricean theory of implicature indeed predict that (43a) should generate the inference in (43b) as an implicature?*

(49) **Deriving the Implicature**

a. Sentence: I have three kids.

b. Implicature (of speaker's utterance): I do not have *more* than three kids.

c. Deriving the Implicature

- Speaker has said only that she has three kids..
- **Speaker is following the Maxim of Quantity**. Therefore, her statement was 'as informative as possible without breaking the other maxims'.
- If the speaker has instead said "I have *m* children" (where $3 < m$), she would have made a more informative statement.
  ('I have *m* kids' would entail 'I have 3 kids', but not *vice versa*)
- Since the speaker *didn't* say "I have *m* kids", **it follows that such an utterance would have broken some other maxim (namely, Quality).**
- Therefore (**following reasoning similar to what we've already seen**), it must be that the speaker believes that "I have *m* children" is false, or she doesn't have enough evidence to assert it.
- **But, the speaker is assumed to know exactly how many kids she has.** Therefore, the speaker must know that "I have *m* kids" is false.
- **THEREFORE: The speaker does not have *m* kids, for any *m* greater than 3**

(50) **An Important Side-Note**

- The reasoning in (49c) relies upon the following assumption:
  The speaker knows whether or not "I have *m* children" is true, where $m > 3$
- This assumption indeed holds in scenario (43a); and so our theory does predict that the speaker's utterance has the observed implicature in (43b).
- **But our theory *also* predicts that if that assumption *doesn't* hold in context, then the implicature in question *won't* be observed…**

Exercise for Reader: See if you can imagine context where the assumption above doesn't hold, and then check whether the implicature in (49b) still holds…

(51) **Conclusion**

- A sentence of the form "…*n* NPs…" is *still true* when the parallel sentence "…*m* NPs…" (where $n < m$) is true…

- Now, we do have an intuition that a sentence "…*n* NPs…" is sometimes 'incompatible' with the truth of "…*m* NPs…" (where $n < m$).

- But, this intuition is due to an *implicature*… one that is due to the following two key assumptions:
  (iii) The speaker is following the Maxim of Quantity
  (iv) The speaker knows whether "…*m* NPs…" is true or not.

- Since these two assumptions are not very 'specific' features of the context, and since most contexts can be assumed to support those assumptions, we find that the implicature in question is (moreover) a *generalized implicature*...
  … and so it's one that is quite likely to be confused with part of the asserted content of the utterance…

(52) **Special Terminology: Scalar Implicature / Quantity Implicature**

A 'scalar/quantity implicature' is one that arises from the following general inference:

- The speaker said p

- The speaker did not say q

- q is 'more informative'/'is a stronger statement' than p

- Therefore, **since the speaker is assumed to follow the Maxim of Quantity**, **the speaker's saying q must violate the Maxim of Quality**

- Therefore, the speaker either isn't sure about q, or believes/knows q to be false.

- **The speaker is assumed to know whether q is true/false**

- Therefore, *since the speaker said p but not q*, **q must be false**

Scalar implicatures are the most widely-studied and best understood family of (generalized) implicatures….
*... We actually find such implicatures **all over** natural language*

(53) **Some More Examples of Scalar / Quantity Implicatures**

	Sentence	***Associated Scalar Implicature***
a.	"X or Y"	"NOT (X *and* Y)"
b.	"Dave likes some of the girls"	"Dave doesn't like *all* the girls"
c.	"Dave has two cats."	"Dave doesn't have *three* (or more) cats."
d.	"X is smart."	"X is not a *genius* (but is smart)."
e.	"X believes p"	"X doesn't *know* that p (*i.e.,* p isn't true)"
f.	"Dave was a singer."	"Dave is not *now* a singer."
g.	"Dave was Italian."	"Dave is dead."

Exercise to the Reader (For Fun):
For each of the pairs in (53)…
- Confirm that the purported implicatures indeed pass our tests for implicature
- Confirm that the purported implicatures can be derived via a line of reasoning as in (52)

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5. Some Problems for the Classic Gricean Theory of Scalar Implicatures

(54) **Over-generation by the Schema in (52)**
It was noticed rather early on that the general inference schema in (52) will generate scalar implicatures that don't seem to exist.

(55) **Example: At Least Three**

- According to our analysis in (47), the numeral *three* basically means 'at least three', rather than 'exactly three'.

- **Consequently, the sentence in (55a) should have the same truth-conditions as the sentence in (55b).**

- **Consequently, sentence (55b) should be less informative than the statement that the speaker has four children.**

- **Consequently, (55b) should also carry an implicature that the speaker *has no more than three* children, contrary to fact.**

a. I have three children. (Implicates: 'I have no more than three'.)
b. I have at least three children. (Does *not* implicate: 'I have no more than three'.)

Possible Solution:
Maybe 'at least three' in (55b) actually asserts that the speaker *doesn't know* whether the higher numerals are true. **Thus, the last two reasoning steps in (49c)/(52) wouldn't be licit.**

(56) **Example: *Some* vs. *Only Some***

- According to our analysis in (32), the sentence in (56b) is more informative – is logically stronger – than the sentence in (56a).
- **Consequently, the schema in (52) predicts that (56a) should implicate (56c)**
- **However, (56b) clearly does not in any context implicate (56c).**

a. You can have some of the candies.
b. You can have **only** some of the candies.
c. You can't have only some of the candies (i.e., you have to have *all* of the candies)

(57) **Example: *Smoke* vs. *Smoke Marlboros***

- Given our definition in (29), sentence (57b) is more informative than sentence (57a).
- Therefore, our schema in (52) predicts that (57a) should implicate (57c). But, of course, it doesn't.

a. Some musicians smoke.
b. Some musicians smoke Marlboros.
c. No musicians smoke Marlboros.

(58) **Example: *Musicians* vs. *Musicians and Politicians***

- Given our definition in (29), sentence (58b) is more informative than sentence (58a).
- Therefore, our schema in (52) predicts that (58a) should implicate (58c). But, of course, it doesn't.

a. Some musicians smoke.
b. Some musicians and politicians smoke.
c. Either no musicians smoke or no politicians smoke.

(59) **'The Symmetry Problem' (Kroch 1972, Horn 2000, Katzir 2011)**

- Suppose that 'S_1' implicates 'NOT S_2', where 'S_2' is stronger than 'S_1'.
- **Consequently, 'S_1 and NOT S_2' is also stronger than 'S_1'.**
- Therefore, the schema in (52) predicts that we should also infer 'NOT NOT S_2', i.e., 'S_2', contrary to fact.

(60) **The Solution / Conclusion from the Symmetry Problem**

- The facts in (56)-(59) show us that there are *limits* on the 'stronger alternatives' q to the statement p in schema (52).

- Contrary to the classic Gricean picture, they aren't just any old stronger propositions.

a. **<u>One Influential Idea:</u>**
In schema (52), the stronger alternative *q* has to be a sentence *just like* p, except that some lexical item in p is replaced by lexical item of the same category in q.

- That is, to get the (stronger) alternatives to p, you take its 'syntactic skeleton', and try replacing the terminal nodes with other linguistic items.

b. **<u>Immediate Consequence:</u>**
None of the (b)-sentences in (56)-(58) will actually be 'stronger alternatives' considered by the schema in (52); *they all <u>add</u> lexical items to the (a)-sentences.*

(61) **The Picture Suggested by Solution (60)**

- The solution in (60) places a *linguistic* constraint on the alternative utterances that are considered in the generation of scalar implicatures.

- **This suggests that the generation of these (scalar) implicatures isn't just part of 'general common sense reasoning', contrary to Grice's classical picture.**

- However, we needn't think that this process is strictly semantic, either. We could still imagine that it operates on the output truth-conditions that semantics delivers.

- **Theories that assume this network of ideas are usually called 'Neo-Gricean'**

  - Scalar implicatures are not merely the result of 'general common sense' reasoning; there are specifically linguistic constraints on them.

  - However, they aren't part of semantics either…

… There is, though, still some reason to doubt whether scalar implicatures *aren't* really part of semantics after all…

(62) **The Overall Puzzle of Scalar Implicatures**

- An assertion of one sentence (*e.g.* "A or B", "…some NPs…", "…*n* NPs…") is sometimes felt to be 'imply' the negation of a stronger sentence (*e.g.* "A and B", "…all NPs…", "…*m* NPs…".

- This 'implication' can be explicitly defeated or reinforced by overt linguistic material, and so seems unlike the directly asserted content of the sentence.

We've seen the classic Gricean solution to this puzzle…
However, this solution has always faced a rather tenacious competitor…

(63) **Conventionalism**

Sentences like those in (62) are lexically or structurally ambiguous.
- Under one syntactic/lexical analysis, the implications in (62) follow as entailments.
- Under another analysis, the implications do not follow at all.

Observation 1:
If a sentence S is ambiguous, where one interpretation entails *p* but the other does not, it is possible to sensibly state "S, but not *p*" (*i.e.,* it's not necessarily a contradiction)

Example: Dave is at the bank, but he's not at the edge of the river.

Observation 2:
If a sentence S is ambiguous, where one interpretation entails *p*, but the other does not, it is possible to state "S and *p*" (*i.e.*, it's not necessarily redundant)

Example: The boys built boats, and they built each one together.
The boys built boats, and they built each one separately.

Conclusion:
The properties of 'defeasibility' and 'reinforceability' found for 'scalar implicatures' might be because those 'implicatures' are actually entailments of *one* interpretation of a structurally ambiguous sentence…

Now, there may be many other reasons to prefer the classic, Gricean account…
But for now let's consider some of the facts that motivate contextualism…

(64) **The General Issue: The Problem of 'Embedded Implicatures'**

- Let S be a sentence with scalar implicature *p*.
  - Thus, the utterance of S is usually understood to mean 'S and *p*'

- In some cases, it is actually possible for *structurally embedded* instances of S to also be understood as "S and *p*". (examples to follow).

- Since S is embedded in these sentences, the usual Gricean reasoning in (52) will not serve to derive the additional content "and *p*". (illustration to follow)

- However, if *p* were part of the conventional semantics of (one interpretation of) sentence S, then the observed interpretation would follow.

Let's consider some sentences illustrating the general problem in (64)…
Interestingly, most of these involve the use of conditionals…

(65) **An Example**

a. Sentence: If Bill has the cake or he has the ice cream, he'll be fine. But, if he has the cake *and* he has the ice-cream, then he'll feel sick.

b. Observations:
- The two sentences in (65a) can be understood as consistent and sensible.
- Under this sensible interpretation, the first sentence in (65b) must be construed as meaning "If Bill has the cake or the ice-cream, *but not both*, then he'll be fine."

c. The Puzzle:
If we assume that "or" has only the meaning in (38), how do we derive the ability for (i) to be interpreted as in (ii).

(i) If Bill has the cake or he has the ice-cream, he'll be fine.
(ii) If Bill has the cake or he has the ice-cream, **but not both**, he'll be fine.

(66) **The Problem for the Gricean Account**

The 'enriched' interpretation in (66b) of sentence (66a) is not the negation of some statement that is stronger than (66a).

- Therefore, there's no way for the reasoning schema in (52) to derive (66b) as some kind of scalar implicature of (66a).

a. If Bill has the cake or he has the ice cream, he'll be fine.
b. If Bill has the cake or he has the ice cream, **but not both**, he'll be fine.

(67) **The Conventionalist Solution**

The logical connective 'or' in English is ambiguous, and also has the following interpretation:

F	→	T	→	T
		F	→	F
T	→	F	→	T
		T	→	**F**

(68) **Another Example**

a. Sentence: If some of my students get A's, I'm happy. But, if all of my students get A's, I'm suspicious.

b. Observations:
- The two sentences in (68a) can be understood as consistent and sensible.
- Under this sensible interpretation, the first sentence in (68a) must be construed as meaning "If some **but not all** of my students get A's, I'm happy".

c. The Puzzle:
If we assume that "…some NPs…" is always true when "…all NPs…" is true, then how do we derive the ability for (i) to be interpreted as in (ii)?

(i) If some of my students get A's, I'm happy.
(ii) If some **but not all** of my students get A's, I'm happy.

The Gricean account has the same problem in (66) with the facts in (68a)…

(69) **The Conventionalist Solution**
'Some' in English is ambiguous. Under one meaning, it's *weak* and is consistent with 'all' being true. Under another meaning, it's *stronger*, and entails 'not all'.

For more examples like (65) and (68) – as well as debate about their consequences for a Gricean approach to implicatures – see the works below.

- Sauerland, Uli (2004) "On Embedded Implicatures." *Journal of Cognitive Science* 5:1, 107-137.

- Chierchia, Gennaro, Danny Fox and Benjamin Spector (2008) "The Grammatical View of Scalar Implicatures and the Relationship Between Semantics and Pragmatics." In Portner, Paul, Claudia Maienborn and Klaus von Heusinger (eds), *Semantics: An International Handbook of Natural Language Meaning*. Mouton de Gruyter. Available online at: http://semanticsarchive.net/Archive/WMzY2ZmY/CFS_EmbeddedSIs.pdf

- Guerts, Bart. (2011) *Quantity Implicatures*. Cambridge University Press.

Needless to say, the very data concerning 'embedded implicatures' are also controversial. See the works below for an interesting comparison of views.

- Guerts, Bart and Nausicaa Pousoulous (2009) "Embedded Implicatures?!?" *Semantics and Pragmatics* 2:4, 1-34.

- Chemla, Emmanuel and Benjamin Spector (2011) "Experimental Evidence for Embedded Scalar Implicatures." *Journal of Semantics* 28:3, 359-400.

As you can tell from the works cited above, this general subject area is currently a rather 'hot' issue…check out the works above for more info…