

1. Logic versus Natural Language (Revised)

Consider (1):

- (1) Katie drinks and she smokes.

The textbook interpretation of *and*: '*A and B*' is true iff A is true and B is true.

- (2) *The interpretation of and*

<u>A</u>	<u>B</u>	<u>A and B</u>
T	T	T
T	F	F
F	T	F
F	F	F

The textbook interpretation of *or* interprets it *inclusively*, that is, '*A or B*' is false iff A is false and B is false.

- (3) *The inclusive interpretation of or*:

<u>A</u>	<u>B</u>	<u>A or B</u>
T	T	T
T	F	T
F	T	T
F	F	F

The textbook interpretation of *or* might be right for the purposes of logic and mathematics, but does it capture the meaning of *or* in natural languages? Consider:

- (4) Katie drinks or smokes.

Don't we get an exclusive interpretation here? An exclusive interpretation would not allow (4) to be true in situations in which Katie both lied and stole.

One way of accounting for the exclusive interpretation of *or* would be to say that in natural language, *or* is exclusive, that is, it is interpreted as follows, where '*A or B*' is not true if A and B are both true:

- (5) *The exclusive interpretation of or*:

<u>A</u>	<u>B</u>	<u>A or_{exclusive} B</u>
T	T	F
T	F	T
F	T	T
F	F	F

There is an alternative explanation, however, which appeals to the theory of implicature. The explanation runs as follows.

Natural language *or* is really interpreted inclusively, as in (3). *A and B* entails *A or B*, which you can read off the truth table, since whenever *A and B* is true, *A or B* will also be true. In other words, *A and B* is more informative than *A or B*.

As a result, in positive (i.e. 'upward entailing') contexts, *and* and *or* form a strength scale: *<and, or>*.

Assuming that I am being cooperative, by the maxim of quantity, if I use *or*, I implicate 'not and', since *and* is stronger than *or*. Thus, the exclusive interpretation of *or* is derived as an implicature:

- (6) a. Katie drinks or smokes.
 b. $\sim\sim$ Katie doesn't drink and smoke.

Two components come together:

- (a) Semantic meaning: Katie drinks or she smokes (possibly both)
 (b) Implicature: Katie doesn't drink and smoke

If (3b) is truly an implicature, we expect it to be both defeasible and reinforceable. The following examples show that the implicature is indeed defeasible and reinforceable, respectively:

- (7) a. Katie drinks or smokes, possibly both.
 b. Katie drinks or smokes, but not both.

There is supporting evidence for this implicature analysis of *or*: In certain linguistic environments ('downward entailing environments' such as negation and *if*-clauses), you only get the inclusive reading of *or*.

To see this, it is useful to first work out the truth tables for *and* and *or* under negation. The following truth tables show that under negation, inclusive *or* is stronger than *and*; you can see this from the truth table, which shows that whenever $\text{not}(A \text{ or } B)$ is true (where *or* is interpreted inclusively), $\text{not}(A \text{ and } B)$ will also be true.

(8) *The interpretation of and under negation*

<u>A</u>	<u>B</u>	<u>A and B</u>	<u>not A and B</u>
T	T	T	F
T	F	F	T
F	T	F	T
F	F	F	T

(9) *The interpretation of inclusive or under negation*

<u>A</u>	<u>B</u>	<u>A or B</u>	<u>not A or B</u>
T	T	T	F
T	F	T	F
F	T	T	F
F	F	F	T

(10) *The interpretation of exclusive or under negation*

<u>A</u>	<u>B</u>	<u>A or_{exclusive} B</u>	<u>not A or_{exclusive} B</u>
T	T	F	T
T	F	T	F
F	T	T	F
F	F	F	T

Predictions:

If *or* is interpreted inclusively, then in downward entailing contexts such as negation, *or* should be stronger than *and*. As a result, the implicature of an exclusive reading should disappear, and *or* should be interpreted inclusively.

If *or* is interpreted exclusively, then it should be interpreted exclusively in every environment, including downward entailing environments.

What are our intuitions for the natural language examples?

Consider, for example:

(11) Katie doesn't drink or smoke.

The question is whether this sentence is judged true in a situation in which Katie both drinks and smokes.

If *or* is interpreted inclusively, we expect it to be false in such a scenario.

If *or* is interpreted exclusively, we expect it to be true in such a scenario.

The standard line is that (11) is in fact judged false given such a scenario; thus, we have support for adopting the inclusive analysis of *or*.

Same goes for other contexts which reverse strength scales:

(12) If Katie drinks or smokes, she is disqualified.

If *or* is interpreted inclusively here, then Katie should be disqualified in three cases: if she smokes, if she drinks, or if she does both. And this does seem to square with our intuitions about this example.

2. Presupposition

“Presuppositions are an important means for structuring information. They allow speakers to communicate more than one proposition with a single sentence, and to furthermore indicate which of the propositions communicated is the main assertion and which provide a background for the main assertion.” (Sauerland 2007)

For example, (13) entails both that Ruben called, and that he had called previously. The former is asserted, while the latter is presupposed.

- (13) Ruben called again.
Assertion: Ruben called
Presupposition: Ruben called previously

In each case, the speaker commits himself both to that which he presupposes and to that which he asserts. However, the presupposition is taken for granted, while the assertion is presented as new information.

Presuppositions have two properties that set them apart from assertions:

- (i) They are propositions that the speaker takes for granted as already agreed upon among the participants in a conversation;
- (ii) They *project* out of certain embedded contexts (negation, sentences embedded under *maybe*, and *if*-clauses).

2.1 Presupposition triggers

Presuppositions are triggered by certain lexical words or syntactic constructions. For example, (14), entails (15), since (16) is a contradiction. Here too, using any of (17)-(19) will also imply (15).

- (14) Jane knows that Marc is going to be late.
(15) Marc is going to be late.
(16) Jane knows that Marc is going to be late, but Marc is not going to be late.

(17) Jane doesn't know that Marc is going to be late.
(18) Maybe Marc is going to be late.
(19) If Marc is going to be late, I'll be surprised.

Some presupposition triggers we have observed so far:

- Possessive pronouns have existence presuppositions;
E.g., *My brother called last night* presupposes that I have a brother
- Factive verbs such as *know*, *sorry that* presuppose the truth of their complement;
E.g., *Jane is sorry that you had to leave* presupposes that you had to leave
- The iterative adverb *again* presupposes that something has happened in the past
E.g., *They called again* presupposes that they called already.

2.2 A Bigger Picture

A model of how presuppositions work (based on Stalnaker 1973, 1974, 1979, Karttunen 1974).

Every sentence is uttered with respect to a *context*.

A context consists of (at least) a *common ground*. The common ground is the conjunction of all those propositions whose truth is taken for granted by the participants in a conversation, either because they are permanently shared beliefs in their community, or because they have been established in the course of the preceding conversation.

The common ground of a conversation at any given time is the set of propositions that the participants in that conversation at that time mutually assume to be taken for granted and not subject to (further) discussion.

When uttered assertively, the proposition that a sentence denotes is added to the common ground, thereby updating it.

When a sentence has a presupposition, the common ground must entail the presupposition for the sentence to be conversationally appropriate in that context.

Thus, presuppositions are constraints on the context in which a sentence is uttered, in order for the sentence to be appropriate in that context.

If a sentence is uttered in a context in which its presuppositions are not in the common ground, it is said to be conversationally inappropriate for that context. This is referred to as *presupposition failure*.

Two things can happen in a conversation when presupposition failure occurs:

- (i) The addressee may *accommodate* the presupposition so that it is treated as if it were already in the common ground. That is, the addressee will adjust the common ground so that it entails the presupposition; or
- (ii) The addressee may feel justified in challenging the speaker.

3. *There*-existentials and the *have* construction

Some determiners may occur in *there*-existentials, while some may not:

- (20) a. There are some mistakes in the text.
b. There are no mistakes in the text.
c. There are three mistakes in the text.
d. There are several mistakes in the text.
- (21) a. *There is every mistake in the text.
b. *There are most mistakes in the text.
c. *There are both mistakes in the text.
d. *There are the mistakes in the text.

Which determiners presuppose that their NP is non-empty?

- (22) a. If you find every mistake in the text, you can leave.
b. If you find most mistakes in the text, you can leave.
c. If you find both mistakes in the text, you can leave.
d. If you find the mistake in the text, you can leave.

a. If you find some mistakes in the text, you can leave.
b. If you find no mistakes in the text, you can leave.
c. If you find three mistakes in the text, you can leave.
d. If you find several mistakes in the text, you can leave.
- (23) There are mistakes in the text.

Which determiners can occur in the following construction? Why?

- (24) a. Mary has a friend.
b. Mary has two friends.
c. Mary has several friends.
d. Mary has no friends.
- (25) a. *Mary has the friend.
b. *Mary has both friends.
c. *Mary has most friends.
d. *Mary has every friend.

References. These notes are adapted in part from:

von Stechow, Kai. 2004. Pragmatics: Notes on Presupposition.
<http://semantics-online.org/pragmatics/presupposition.pdf>

Chierchia, Gennaro and Sally McConnell-Ginet. 2000. *Meaning and Grammar: An Introduction to Semantics*. Cambridge, Mass: MIT Press.