

A PRESUPPOSITIONAL ANALYSIS OF ONLY AND EVEN

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For the benefit of all those who missed the semantics festival at Columbus this year and therefore still don't know what a presupposition is, we shall begin by differentiating presupposition from entailment, although the relevance of this distinction will not become apparent for some time. Austin attributes the anomaly of

- (1) a. *All John's children are bald, but John has no children.
b. *All the guests are French, but some of them aren't.

to violation of presupposition and violation of entailment respectively (Austin 1958). In the (a) but not the (b) sentence, the left conjunct can have a truth value only if the right conjunct does not hold. Formalizing Austin's criteria, we impose the following convention:

- (2) a. If $(S \rightarrow S')$ and $(\neg S \rightarrow S')$, then S presupposes S'.
b. If $(S \rightarrow S')$ and $(\neg S' \rightarrow \neg S)$, then S entails S'.
(to be read "If from S we can conclude S'...")

An elaboration of (2a) is the notion 'presupposition of a question', defined by Katz & Postal (1964) as "a condition that the asker of a question assumes will be accepted by anyone who tries to answer it". This is illustrated by the question-presupposition pairs

- (3) a. Who saw Harry? Someone saw Harry.
b. Where did Harry go? Harry went somewhere.
c. When did Harry go? Harry went sometime.
d. Why did Harry go? Harry went for some reason.

The set of possible responses to each of the questions in (3) can then be defined as the set of permissible existential instantiations of the appropriate presupposition. A typical instantiation in the case of (3a) might be John saw Harry.

Presuppositions are thereby distinguished from assertions by their invariance under both question and negation.

In a recent paper, Lakoff (1968) reiterates the position followed by McCawley (in a 1968 lecture at UCLA), Kuroda (1966), and generations of logicians since Peirce, the position that

- (4) Only Muriel voted for Hubert.

has as its source

- (5) Muriel voted for Hubert and no one other than Muriel voted for Hubert.

(4) is derived from (5) through the intermediary stage

- ((6) Muriel and only Muriel voted for Hubert.

Closer inspection, however, reveals that the conjuncts of (5), although related to (4), are related as presupposition and assertion respectively. (6) is a full paraphrase of (5), as Lakoff indicates, but (4) is not. Consider the signification of the negations in (7), which I take to be mutual paraphrases:

- (7) a. It's not true that only Muriel voted for Hubert.
b. Not only Muriel voted for Hubert.

Now consider the natural continuation of (7), or the form of a negative response to (8)

- (8) Did only Muriel vote for Hubert? No,...

Possible and impossible candidates for such a continuation include

- (9) a. Lyndon did too.
b. Somebody else did as well, but I forget who.
c. *She didn't.
d. *The election never took place.

(9c) is as inappropriate a continuation of a discourse begun by (7) or (8) as is the old standby (9d). That is to say, we are left with the uneasy feeling in the pit of our stomach which is symptomatic of the 'unhappiness' produced by a violated presupposition, as described by Austin, Katz & Postal, and others.

Limiting our attention for the moment to the only which takes NP scope, we can describe only as a two-place predicate taking as arguments the term within its scope and some proposition containing that term:

- (10) Only $(x=a, Fx)$
P: Fx
A: $\neg(\exists y)(y \neq x \ \& \ Fy)$

In the case of (4), the appropriate substitutions result in

- (11) P: $V(m, h)$
A: $\neg(\exists y)(y \neq m \ \& \ V(y, h))$

As indicated by (11), the sentence in (4) presupposes that Muriel voted for Hubert and asserts that

- (12) No one other than Muriel voted for Hubert.

and, consequently, any denial of (4) will be an instantiation of (13)

- (13) Someone other than Muriel voted for Hubert.

which is the negation of (12). Just such an instantiation is given by the legitimate continuation (9a) above.

To take another example, the sentences

- (14) a. Only Lucifer pities himself.
 b. Only Lucifer pities Lucifer.
 c. Lucifer pities only {himself}.
 {Lucifer}

share the presupposition that Lucifer pities Lucifer--P(L,L)--but assert

- (15) a. $-(\exists y)(y \neq L \ \& \ P(y,y))$
 b. $-(\exists y)(y \neq L \ \& \ P(y,L))$
 c. $-(\exists y)(y \neq L \ \& \ P(L,y))$

respectively.

Contrary to the categorical unacceptability of sentences like

- (16) Only John eats only rice.

which is alleged by Kuroda (1966), many English speakers accept two occurrences of only with overlapping scope within the same sentence. For these speakers, the presupposition of (16) is given by

- (17) John eats only rice.

which, in turn, is composed of

- (18) P: $E(j,r)$
 A: $-(\exists y)(y \neq r \ \& \ E(j,y))$

The assertion of (16), on the other hand, is found to be

- (19) $-(\exists z)(z \neq j \ \& \ -(\exists y)(y \neq r \ \& \ E(z,y)))$
 Nobody but John eats {only rice.
 {nothing but rice.

That the first only in (16) must be outermost is apparently a function of topicalization rather than of any deep semantic consideration, as indicated by the facts in (20):

- (20) a. It's only John who eats only rice.
 b. *It's only rice that only John eats.
 c. *It's only by John that only rice is eaten.
 d. It's only rice that's eaten by only John.

Consider now the following sentences:

- (21) a. Only Muriel voted for Hubert.
 b. Muriel only voted for Hubert.
 c. Muriel voted {only for} Hubert.
 {for only}

The evident ambiguity of (21b) disappears if stress is indicated. Spoken with a normal contour, (21b) is a paraphrase of (21c) and

is in fact derived from it, by an optional adverb-movement rule of the type discussed in Kuroda (1966). If the verb is stressed, the resultant reading has the sense

- (22) Muriel only voted for Hubert, she didn't campaign for him.

There is an additional possibility, brought out by VP focus:

- (23) Muriel only voted for Hubert, she didn't do the laundry.

The use of only with a predicate as scope (two-place in (22) and three-place in (23)) differs contentively from the term-scope only we have considered so far. To represent it, we employ "variable predicates" which may be quantified, as permitted by second-order logic, and tentatively adopt the formula

- (24) Only (F, Fx)
 P: Fx
 A: $-(\exists G)(G \neq F \ \& \ Gx)$

There is a sense in which the only of (24) involves the notion of expectation rather than the mere exclusion proposed by the above formulation. Assuming that there is some set E of scales of degree of strength such that each member $E_i \in E$ is a two-place relation which partially orders a (semantic) class of predicates, we can rewrite (24) in the form

- (25) Only (F, Fx, $E_i \in E$)
 P: (i) Fx
 (ii) $(\exists G)(G \neq F \ \& \ E_i(G,F))$
 A: $-(\exists G)(G \neq F \ \& \ E_i(G,F) \ \& \ Gx)$

(25) describes this only as a three-place predicate taking as arguments a predicate, a proposition containing that predicate, and a scale of degree. This predicate-scope only is furthermore purported to presuppose that the property F hold for some object x, and that there is another property G which is ranked "stronger" than F on the scale E_i ; it asserts that no such property G holds for x. The availability of such scales explains why both (22) and

- (26) Muriel only campaigned for Hubert, she didn't vote for him.

are far better than (23), at least in isolation. Similarly, the existence of the relations

- (27) a. $E_{love}(love, like)$
 b. $E_{loathe}(hate, dislike)$

and the nonexistence of the corresponding converse relations (e.g., any scale which ranks like as stronger than love) explains the facts of (28):

- (28) a. John only likes rice (...he doesn't love it).
 b. John only dislikes rice (...he doesn't hate it).
 c. ?John only eats rice (...?).
 d. *John only loves rice, he doesn't like it.
 e. *John only hates rice, he doesn't dislike it.

Scales, unfortunately, can overlap, as in

- (29) a. Brigitte Bardot is only pretty,
 b. (...she isn't beautiful).
 c. (...she isn't intelligent).

The claim developed here is that the two possible continuations indicated in (29) define a true ambiguity in (29a), rather than merely a vagueness of the only clause. It is uncertain whether any evidence more powerful than this intuition can be applied to such a question. FN

Note, incidentally, that the sentences in (21) have related forms

- (30) a. Only Muriel voted for her husband.
 b. Muriel only voted for her husband.
 c. Muriel voted {only for} her husband.
 {for only}

Given that Hubert = Muriel's husband, (30b,c) are paraphrases of (21b,c) respectively. This is not the case in the (a) sentences: a possible reading, and for me the unique reading, of (30a) is with a variable index on her, the reading paraphrasable as

- (31) Muriel was the only one who voted for her (own) husband.

(cf. the contrast of (14a) and (14b) alongside the synonymy of the sentences in (14c) above). Turning now to (32), which can be decomposed like (16) and similar two-only sentences, consider

- (32) Only Muriel voted only for her husband.
 P: Muriel voted only for her husband.
 A: No one other than Muriel voted for only her husband.

It is evident that the variable-index interpretation of the pronoun in (32) cannot follow from the presupposition of (32), since the equivalent (30c) permits only constant index, but must rather follow from the variable-index interpretation of the assertion.

Returning to the only with term-scope in un-only-embedded sentences, we shall consider the cases in which it precedes a cardinal number and thus forms a quantifier. The sentence

- (33) I saw him only twice.

is derived from the pair

- (34) P: I saw him (at least) two times.
 A: I saw him no more than two times.

This is shown by our familiar 'possible discourse' test:

- (35) a. {Didn't} you only see him twice?
 {Did }
 b. ?No, I didn't see him that often.
 ?No, I saw him once.
 c. No, I saw him more often than that.
 No, I saw him three (four, five,...) times.

Similarly,

- (36) Only two girls (in the class) are clever.

asserts that the number of clever girls (in the class) does not exceed two, while presupposing that this number is at least two (if we ignore the notion of expectation in (36): 'surprisingly, no more than two').

Partee (1968) and Lakoff (1968), in the course of their dispute, discuss a relation obtaining between certain classes of sentences involving the effect of quantifiers and conjunction reduction upon entailment. (The indulgent reader will please recall condition (2b) above.) Consider the cases represented by the following:

- (37) a. All girls are (both) clever and seductive.
 b. Many girls are (both) clever and seductive.
 c. Few girls are (both) clever and seductive.
 (38) a. All girls are clever and all girls are seductive.
 b. Many girls are clever and many girls are seductive.
 c. Few girls are clever and few girls are seductive.

The crucial point to note here is that while the entailment proceeds in both directions between the (a) sentences--(37a) may be related to (38a) by an equivalence relation--this is not true for the others. In fact, as revealed by inspection of the appropriate truth conditions, (37b) entails (38b), but (38c) entails (37c). Let us formulate these facts about entailment and quantifiers by the rules

- (39) a. (x)(Fx & Gx) ↔ (x)Fx & (x)Gx
 b. (Mx)(Fx & Gx) → (Mx)Fx & (Mx)Gx
 c. (Lx)(Fx & Gx) ← (Lx)Fx & (Lx)Gx

While those quantifiers which are characterized by the bidirectional entailment of (39a) are indeed those which are the natural language equivalents to the universal quantifier of symbolic logic (for the purposes of these sentences), there is no representation provided by logic for the unidirectional entailment in (b) and (c), here marked by the 'super-quantifiers' M and L respectively. English quantifiers which can be assigned to these universal classes include

- (40) a. (x): all, every, each
 b. (Mx): many, some, most, several, at least n, more than n
 c. (Lx): few, not many, no/none, at most n, less than n

