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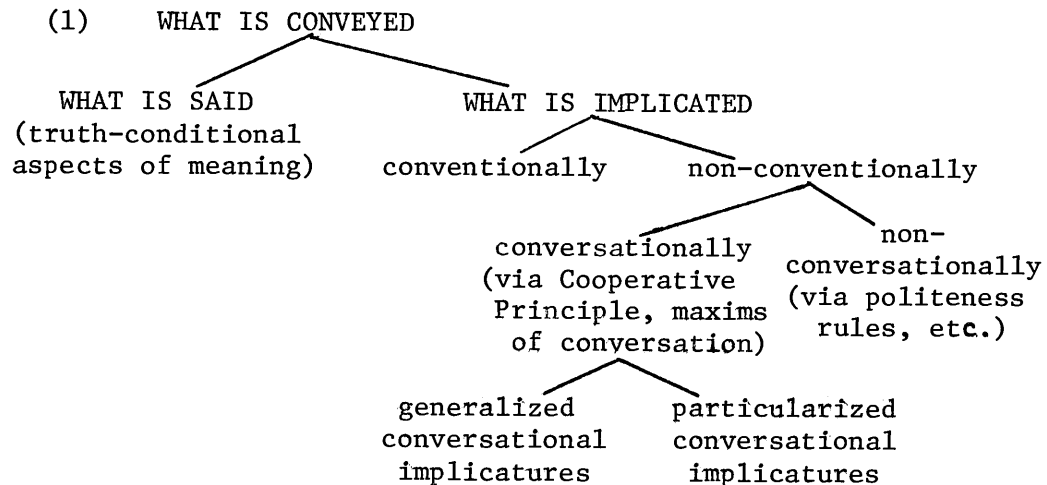
EXHAUSTIVENESS AND THE SEMANTICS OF CLEFTS

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In recent work, Halvorsen (1978) and Atlas & Levinson (to appear) have presented alternative views of the formal semantics of cleft sentences. I shall review their claims, in particular the treatment each of these approaches offers for dealing with the so-called "exhaustiveness implicature" associated with it-clefts. After showing why neither analysis is wholly satisfactory, I shall propose a new treatment of exhaustiveness and--in the last section--present an argument, based on this treatment, for the conclusion that projection properties and non-cancellability, the two central criteria held to characterize conventional implicature in papers by Karttunen and Peters (cf. K&P (1979)), may in fact be mutually independent and non-correlating.

Halvorsen's view of clefts is couched in the semantic framework expounded in Karttunen & Peters (1979), which in turn was parented by Richard Montague and H. P. Grice. The notion of conventional implicature can be situated within this approach as indicated by the table in (1) on the following page. In many respects the natural, if not legitimate, heirs to the earlier notions of semantic and pragmatic presupposition, conventional implicatures count as part of the semantics (part of the meaning of an expression) without participating in truth-conditional semantics per se.

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As evolved through the work of Grice (1967, 1975) and Karttunen & Peters (1975, 1979), conventional implicatures have, *inter alia*, the properties described in (2):

- (2)a. they make no contribution to truth conditions, but constrain the appropriateness of the expressions with which they are associated
- b. they constitute an unpredictable part of meaning and must be learned *ad hoc*, along with truth-conditional aspects of meaning, by the language learner; unlike conversational implicatures, they are not derivable via general, "natural" maxims of conversation or of rational behavior
- c. they are detachable: they will not necessarily adhere equally to synonymous expressions (unlike some classes of conversational implicatures)
- d. unlike conversational implicatures, they are non-cancellable: they cannot be removed either explicitly (by the addition of linguistic material) or implicitly (by the context itself)
- e. they are akin to, if not identifiable with, Stalnaker-type pragmatic presuppositions (cf. Stalnaker (1974, 1978)), representing non-controversial propositions which the speaker acts as if (s)he assumes are in the common ground of the discourse
- f. [a critical addition to Grice's notion made by K&P] they have a coherent, well-defined set of projection properties (whose source can be traced to earlier papers by Karttunen (1973, 1974) on presupposition), allowing the implicatures of larger expressions to be built up compositionally from the implicatures of their sub-parts; conventional implicatures will survive normal negation and yes-no question, or embedding under "holes", they are filtered out in characteristic ways in conjoined and conditional clauses, and so forth (Cf. K&P (1979) for details.)

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Classic examples of conventional implicatures include those carried by such lexical particles as conjunctions (as in (3a,b)), adverbs (as in (3c)), and implicative verbs (as in (3d)).

- (3)a. Mr. X is a politician but he is honest.
- b. Harry is an Englishman; he is, therefore, brave.
- c. Even Bill passed the test.
- d. Bill managed to pass the test.

Grice (1975) argues that (3a) and (3b) are assigned the truth conditions of the corresponding simple conjunction; thus (3a) is true if and only if Mr. X is a politician and Mr. X is honest. What is contributed by but and therefore are conventional implicatures involving contrast with expectation in the former case and causal connection in the latter. If these conditions do not hold in the context of utterance of (3a) or (3b), this utterance might be inappropriate, but the proposition expressed thereby remains true so long as the conjuncts are each true.

Similarly, (3c) has the same truth conditions (is assigned the same "extension expression" by K&P's rules) as (3'),

- (3') Bill passed the test.

but (3c) carries a conventional implicature to the effect that others passed the test and that Bill was the least likely of a contextually designated set to have done so (K&P's account of even is prefigured in Stalnaker (1974) and is critically discussed in Horn (1979)). (3d) is likewise held to be truth-conditionally equivalent to (3'), with the added conventional implicature that passing the test was difficult for Bill (K&P (1975, 1979)).

For Halvorsen (1976, 1978), not only lexical items but complex syntactic constructions may have conventional implicatures associated with them. In particular, the cleft form--like the lexical elements even and manage to in K&P (1979)--is regarded as transparent to truth-conditional meaning. On this view, (4a), an it-cleft with NP-focus, entails (or asserts) (4b),

- (4)a. It was a pizza that Mary ate.
- b. Mary ate a pizza.
- c. Mary ate something. [There was something that Mary ate]
- d. Mary ate nothing (within some contextually defined set) other than a pizza.
Mary ate only a pizza (within some contextually defined set).

and conventionally implicates (as well as entails) (4c). (I shall assume Halvorsen is essentially correct in these claims.) In addition, (4a) seems to suggest something like (4d) as well, but this "suggestion" can not be fleshed out as a conventional implicature, Halvorsen points out, because it fails to survive the tests for projection properties. Thus, neither the negative nor the interrogative version of (4a), (5a) and (5b) respectively,

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- (5)a. It wasn't a pizza that Mary ate.
 b. Was it a pizza that Mary ate?

commits the speaker to the truth of (4d). (Note, by contrast, that --as predicted--(5a) and (5b) do commit the speaker to the truth of the existential implicature, (4c).)

Given the two imaginable options open to him--replacing the relation of conventional implicature with a different relation obtaining between (4a) and (4d), or redefining the implicatum--Halvorsen (1978: 15) tentatively opts for the latter. He stipulates that any cleft of the form It was α that Mary ate conventionally implicates not that Mary ate only α , but that she ate at most n things, where the value of n is fixed by the cardinality of the denotation of α , the phrase in focus position. In (4a), where the focus phrase denotes one object, Halvorsen's exhaustiveness implicature would be

- (6) Mary ate at most one thing (within some contextually defined set).

Halvorsen's resultant semantics for (4a) can be summarized as in [H]:

- [H] (i) (4a) has the same truth conditions as (4b) [each entails the other]
 (ii) (4a) both entails and conventionally implicates (4c)¹ ["EXISTENTIAL IMPLICATURE"]
 (iii) (4a) conventionally implicates (6) ["EXHAUSTIVENESS IMPLICATURE"]

Given the conjunction of the implicatures in (ii) and (iii), (4a) thus conventionally implicates that Mary ate exactly one thing. However plausible this claim may initially seem in the case of a cleft like (4a), it rapidly becomes less so when we examine the predictions made for clefts in which the focus phrase denotes a larger set than a singleton. Thus (7a) will presumably implicate (7b):

- (7)a. It $\left\{ \begin{array}{l} \text{was} \\ \text{wasn't} \end{array} \right\}$ a pizza, salad, and ice cream that Mary ate.
 b. Mary ate exactly three things, one each from the pizza class, the salad class, and the ice cream class.

It is by no means obvious that a speaker, in uttering (7a), is somehow committed to (7b). Indeed, even in the case of focus phrases which do denote singletons, Halvorsen's exhaustiveness implicature, defined in terms of cardinality, fails to behave like a well-disciplined conventional implicature (as Halvorsen himself partly acknowledges (1978: 15-6)). This is shown by the examples in (8):

- (8)a. It wasn't a pizza that Mary ate, it was a sausage sub and spaghetti.
 b. It wasn't John that Mary kissed, it was Bill and Fred.
 c. Was it John that Mary kissed (or was it Bill and Fred)?

Assuming that pizzas, sausage subs, and spaghetti are three alternatives from the same context set, e.g. the same menu heading, (8a)

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should evoke the sort of bizarreness reaction accompanying standard instances of presupposition- (or conventional implicature-) denying "external" negation, as in Bill didn't manage to pass the test; it was quite easy for him to do so. But the negation in (8a) seems totally unmarked, an internal or "hole" negation accompanied by normal (non-contrastive) intonation. So too in the cleft in (8b) or its interrogative version, (8c): if it is known that Mary kissed either John or else both Bill and Fred, the cleft form does not commit the speaker to an upper bound of one on the set of Mary's kissees.² Similarly, in (8')

- (8') Is it the rational numbers that are non-denumerable
(or is it the reals)?

it is not implicated or pragmatically presupposed that something with the cardinality of the rationals is non-denumerable--it is precisely this which is being asked! In short, the exhaustiveness premise, whether viewed as a fixing of cardinality or as originally formulated in (4d), simply does not survive normal negation, yes-no question, or indeed other environments which should not affect the upward percolation of conventional implicatures. In these examples, exhaustiveness can once again be seen to contrast vividly with the existential premise, which does exhibit proper projection behavior. Thus in (8a) it is presumed that Mary ate something, in (8b,c) that there was someone she kissed, and in (8') that something is non-denumerable.

Partially for empirical reasons related to those just discussed, and partially on the basis of metatheoretical considerations, Atlas & Levinson (to appear) reject Halvorsen's analysis of clefts in favor of an approach whereby the relation between clefts and exhaustiveness is treated as a matter of classical (truth-conditional) entailment. Applied to our familiar example, (4a)--repeated for convenience as (9a)

- (9)a. It was a pizza that Mary ate.
b. Mary ate a pizza.
c. Mary ate something.
d. Mary ate (exactly) one thing.
(9') It wasn't a pizza that Mary ate.

--entails (rather than conventionally implicates) that Mary ate one and only one thing. Their analysis can be given as in [A&L] below:

- [A&L] (i) (9a) entails (9b) but not conversely.
(ii) (9a) entails (9c) [and its negation, (9')],
"presupposes" (9c)
(iii) (9a) entails but does not "presuppose" [= conventionally implicate] (9d)

(The scare quotes around presuppose are A&L's; I will ignore the terminological difference, as well as the logical form they propose for clefts under which the truth conditions for a cleft do not merely reduce to those of the corresponding unclefted sentence--note the contrast between [A&L(i)] and [H(i)] above.)

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Under their analysis, Atlas & Levinson will correctly predict that the negation of (9a), viz. (9'), will not necessarily commit the speaker to (9d), since entailments do not survive negation. Unfortunately, their approach--on which (9a) amounts to something very close to (10a), or perhaps to (10b) if these are logically distinct

- (10)a. Mary ate a pizza and only a pizza.
 b. It was a pizza and only a pizza that Mary ate.

--incorrectly assimilates the truth-conditional meaning of (9a) to a simple conjunction of (9b) and (9d), and such does not seem to be the case.

Even if Halvorsen's semantics cannot be maintained in toto, the exhaustiveness premise associated with clefts does indeed act like some sort of implicature or pragmatic presupposition in the sense of non-controversial, old information or common ground, rather than new, asserted, and hence potentially controversial material (cf. Stalnaker (1978) for more on this distinction). This emerges clearly in the anomaly of the sentences in (11), which goes unpredicted by [A&L].

- (11)a. #I know Mary ate a pizza, but it wasn't a pizza that she ate!
 b. #I know Mary ate a pizza, but was it a pizza that she ate?
 c. #I know Mary ate a pizza, but I've just discovered that it was a pizza that she ate!³
 d. #I know Mary ate a pizza, but if it was a pizza that she ate, then all is well.

Evidently, a cleft sentence is pointless to assert or to question, and idiotic to deny, if the corresponding simple declarative is already established. The anomaly of (11a-d) is strikingly redeemed if we convert a pizza in each of the clefts to only a pizza, e.g.

- (11') I know Mary ate a pizza, but I've just discovered that it was only a pizza that she ate!

There is no obvious way to rule out the infelicitous sequences of (11) if we are to insist, with A&L, that clefts entail exhaustiveness.⁴

The examples in (12) are also worse than A&L's account would predict,

- (12)a. (#)It wasn't a pizza that Mary ate, it was a pizza and a calzone.
 b. (#)It wasn't John that Mary kissed, it was John and Bill.

i.e. if (9a) does in fact entail (9d) and It was John that Mary kissed entails that she kissed no one else. I assume that calzone (a sort of inside-out pizza) is in the same context set as pizza, if anything is, yet (12a) strikes me as somewhat odd with normal,

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internal negation and non-contrastive intonation, as does (12b).
(I shall return to this question below.)

It seems that uniqueness or exhaustiveness cannot be an entailment of clefts, pace Atlas & Levinson, but neither can it be a conventional implicature, pace Halvorsen. Indeed, Ellen Prince has collected a good deal of data--including the examples cited in (13)

- (13)a. Perhaps it was Hitler's granite will and determination and certainly it was the fortitude of the German soldier that saved the armies of the Third Reich from a complete debacle.
[Shirer, Rise and Fall of the Third Reich]
- b. He was just a burned-out little man with tired eyes and a drained smile, who had a gift that was too big for his soul, and it was the gift that killed him, as much as anything. [Silverberg, Stochastic Man]
- c. Do you know, it was me that caused the trouble, mostly, though two of them most bravely backed me up.
[Sayers, Strong Poison]
- d. It's the ideas that count, not just the way we write them.
[Richard Smaby, lecture]

--which tend to indicate that any purely semantic approach to the exhaustiveness premise, whether truth-conditional or not, is fundamentally misguided.

In addition to the very real empirical questions raised by such data, each of the previously considered accounts, even if it could be made observationally adequate, predicts that exhaustiveness is conventionally, that is arbitrarily, associated with the syntax of the cleft construction. Yet it appears that any focussing operation, any way of asserting (9b) and at the same time conventionally implicating the existential premise (9c), will automatically convey the speaker's belief in exhaustiveness, or at least in its possibility: some one or more members of a contextually determined set are asserted to have the property in question, and this assertion is relevant only if these members of the set are taken to contrast (at least implicitly) with other members of the same set not exhibiting this property.

No special syntax, much less the syntax of the it-cleft, is needed to induce this reading. As Kuno (1972: 269) has pointed out, a simple declarative like (14a) can itself be assigned what he calls the "exhaustive listing" interpretation, which he paraphrases as (14b):

- (14)a. John kissed Mary.
b. John (and only John) kissed Mary; among those under discussion, it was John who kissed Mary.

But if (14a) is uttered against the background assumption (or pragmatic presupposition) that someone kissed Mary, (14b) will tend to

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be "automatically" (not conventionally) inferred. (It might also be suggested that "under discussion" in Kuno's paraphrase be altered to read "under consideration", since the set in question may not be overtly enumerated.)

There are, of course, a range of syntactico-phonological devices used for signalling exhaustive listing (some of which may have other functions as well); among these are the constructions illustrated in (15):

- (15)a. It was a pizza that Mary ate. [it-cleft]
 b. What Mary ate was a pizza. [pseudo-cleft]
 c. The thing that Mary ate was a pizza. [th-cleft]
 d. A pizza, Mary ate. [Y-movement or focus shift]
 e. Mary ate a pizza. [contrastive or focus intonation]

Each of these locutions conventionally implicates (pragmatically presupposes) that someone ate a pizza, each entails (or says, or asserts) that Mary ate a pizza, and each suggests that Mary ate nothing else (within some contextually defined or assumed set of which pizza is a member). But we have seen that this last suggestion does not pattern like an entailment or a conventional implicature. I suggest that it is instead a generalized conversational implicature, a pragmatic assumption naturally (as opposed to conventionally) arising from focussing or exhaustive listing constructions in the absence of a specific contextual trigger or block; it is just this absence of a trigger which demarcates the class of generalized conversational implicatures from the particularized implicatures generated in marked contexts only (cf. Grice (1967)).

We can formulate the relevant principle as (16):

- (16) The utterance in context C of any sentence which entails $F\alpha$ and conventionally implicates (or, à la Gazdar (1978), potentially pre-supposes) $\exists xFx$ will induce a generalized conversational implicature to the effect that $\sim\exists x(x\neq\alpha \ \& \ Fx)$, where the variable x ranges over entities in a set determined by the context C.

The fact that exhaustiveness is non-detachable, that expressions with the same meaning give rise to the same exhaustiveness premise, is an accident on the semantic accounts of Halvorsen (1978) or Atlas & Levinson (to appear), since both entailments and conventional implicatures are in general detachable.

Now it is true that non-detachability is strictly speaking neither a necessary nor a sufficient criterion for establishing an inference as a conversational implicature, as Grice (1967) concedes and as Jerry Sadock (1978) shows in some detail. But Sadock goes on to point out that non-detachability is strongly indicative, although not decisive:

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- (17) The more apparently synonymous expressions there are that fail to detach an implicature, the less the situation looks accidental and the more it looks as if some principle, such as the Cooperative Principle, is in force. [Sadock (1978: 290)]

A familiar example of non-detachability, due to Grice, is provided by a sentence like Lee tried to rob the bank which conversationally implicates (*ceteris paribus*) that (for all the speaker knows) Lee did not succeed in robbing the bank--this implicature generated via exploitation of the maxim of quantity (enjoining the speaker to provide all the [relevant] information available, consistent with truth). But the identical implicature would be generated, in the same way, were the speaker to choose any of the available synonyms for tried, e.g. attempted, endeavored, made an effort.⁵

The exhaustiveness implicature is non-detachable only if we include conventionally implicated material, in the manner of (16), in the substitution frame of the detachability test. This is independently proposed by Sadock (1978: 288-9), who argues that synonymy, i.e. sameness of meaning, must take into account conventional implicatures if these are indeed components of an expression's meaning (cf. (2b) above).

If exhaustiveness is conversationally implicated by clefts, this implicature should be cancellable, as are the classic instances of generalized conversational implicatures, the upper-bounding scalar implicatures discussed in Horn (1972) and Gazdar (1978) and illustrated in (18a-c):

- (18)a. Some men are chauvinists; indeed, all men are chauvinists.
 b. It's possible that double-digit inflation is here to stay; indeed, it's certain that it is.
 c. Max has three children; indeed, he has four.
 d. (#)It was a pizza that Mary ate; indeed, it was a pizza and a calzone.

In each case, what the first clause implicates--due to the use of a weaker scalar value (some, possible, three) where a stronger value on the same scale could have been chosen (all, certain, four)--is cancelled by the second clause. Yet the cleft case is more problematical: (18d) seems awkward at best, and for some speakers it is apparently downright impossible.

Perhaps the marginality of (18d) alongside the impeccability of (18a-c) can be partly attributed to the non-scalar nature of the exhaustiveness implicature, given the relationship between scales and cancellation (or suspendibility; cf. Horn (1972)). But perhaps cancellability is also reduced because a speaker who uses a cleft has "gone out of her way" to employ a construction which introduces the existential and hence the exhaustiveness implicatures (as against the utterer of (18a-c) who does not go out of his way

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to introduce the scalar implicature). Note that conventional implicatures, such as those generated by someone who utters (3c) or (3d) rather than the simpler (3'), are equally "gone out of one's way" for, and equally non-cancellable. It might thus be speculated that non-cancellability derives not from the conventional status of an implicature, but rather from the form of the implicature-carrying expression and the availability of conceivable "simpler" alternatives.⁶ (This suggestion makes implicit reference to something like a pragmatic analogue of Zipf's Principle of Least Effort; cf. McCawley (1978) and Horn (1978) for related discussion of this principle and its connection with conversational implicature.)

In any event, not only is exhaustiveness barely, if at all, cancellable, but the failure of exhaustiveness to obtain seems occasionally (i.e. for those speakers who share Atlas & Levinson's intuitions that (12a,b) are well-formed) to constitute sufficient grounds for denying the truth of a cleft, or at least for asserting its negation. Of course, conversational implicatures, being pragmatic inferences, should not constitute necessary conditions for a proposition's truth. Yet there may be independent reasons, consistent with the analysis presented here, why (12a,b) may be better than predicted for some speakers, and (18d) worse.

To begin with, the negation exemplified in (12) may be the sort of external, "plug", or "contradiction" negation which is assumed to cancel or block implicatures--even conventional implicatures on Karttunen & Peters's account (1979: 46-8). The negations in (12a,b) can be read as affecting an implicit just or only within the cleft, even if we don't share Atlas & Levinson's sense that such an implicit only must be built into the logical form of cleft sentences. Thus compare (19a-c) with (19d):

- (19)a. I don't (just) believe it, I know it.
 b. You didn't eat (just) some of the cookies, you ate all of them.
 c. Max doesn't have (just) three children, he has four.
 d. It wasn't (just) a pizza that Mary ate, it was a pizza, a calzone, and an order of ziti.
 e. Mary didn't eat (just) a pizza, she ate a pizza, a calzone, and an order of ziti.

As the juxtaposition of (18c) and (19c) makes especially clear, the negation in the examples of (19)--including (19d) and hence (12a)--is no ordinary, garden-variety negation. Indeed, this same "funny" negation is possible even without cleft syntax, in an example like (19e), where it is undeniable that Mary's eating a pizza along with other things entails that she ate a pizza.⁷

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To put the same point somewhat differently, there is a distinction, drawn clearly by Grice (1967) in his lectures on logic and conversation, between truth and assertibility; either truth or assertibility can be affected by negation, and it is up to the addressee to determine which the speaker, in using a negative form, wished to deny. Discussing his position that natural language or does indeed exhibit the truth-conditional semantics associated with the familiar truth table for inclusive disjunction, Grice deals with a potential objection to his claim:

If you say "X or Y will be elected", I may reply
 "That's not so: X or Y or Z will be elected."
 Here...I am rejecting "X or Y will be elected"
 not as false but as unassertable.

[Grice (1967, lecture V: 9)]

Grice extends this distinction⁸ to a defense of his analysis of conditionals. He admits that a statement like (20)

(20) It is not the case that if X is given penicillin he will get better.

does not have the truth conditions we should expect of a negated material conditional; after all, (20) does not normally come down to an assertion of the simple conjunction "X will be given penicillin and he won't get better." This is especially clear if we continue, as Grice points out we can,

(20') It is not the case that if X is given penicillin he will get better; it might very well have no effect on him at all.

But then, Grice argues, (20) does not constitute (an assertion of) the negation of a conditional, but only an assertion of the speaker's unwillingness to assert the conditional; here, as elsewhere, "'It is not the case that if p then q' is to be interpreted as a refusal to assert 'if p, q'." (Grice (1967, lecture V: 5))

Now it is not my purpose here to defend Grice's claims in toto. His defense of material implication as an adequate representation of the semantics of natural language if-then statements is especially moot; indeed, the truth conditions for if-then statements has been passionately but inconclusively debated at least since the third century B.C., when Callimachus observed that even the crows on the roof were cawing about which conditionals are true (cited in Mates (1949: 234)).⁹ The point is just that Grice's distinction between rejecting a claim as false and rejecting it as (perhaps true but) unassertible or otherwise inappropriate is directly relevant to the exhaustiveness premise associated with clefts and analogous constructions, and helps explain the marginal acceptability of (12a) and the awkwardness of (18d). If Mary ate both a pizza and a calzone, it would be true that it was a pizza that she ate, but it is difficult for me to imagine a context in which I would be willing to employ the

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the cleft in order to express the proposition it expresses.

The principal problem encountered in attempting to determine whether the exhaustiveness implicature defined in (16) can be cancelled by the context itself, as conversational implicatures should be--that is, the question of finding a context in which it was α that ϕ d fails to implicate that no non- α (within the context set) ϕ d--is that the implicature itself crucially builds in the context in selecting the appropriate set over which the variable in (16) is to range; we have seen that a similar complication arises within Halvorsen's and Atlas & Levinson's accounts. Since there is no way to know a priori whether exhaustiveness is cancelled by a given context, or whether it holds but only for a more narrowly defined set, the question of implicit cancellability of the exhaustiveness implicature must apparently remain unsettled.

I am not sure that the cancellability evidence points either way, but if we tentatively assume, on the basis of the (purported) deviance of (18d) and the difficulty of establishing context-cancellation, that the exhaustiveness implicature is not cancellable, we arrive at a curious conclusion about the relation of cancellability and implicature. As I mentioned earlier in discussing the defining criteria for conventional implicatures, non-cancellability should pattern along with projection properties and the other criteria listed in (2). But Gazdar (1978) has argued, along with others (cf. Wilson (1975), Rogers & Gazdar (1978), Soames (1979), Horn (1979)), that at least some inferences which manifest the appropriate projection properties and pattern like well-behaved conventional implicatures with respect to the other criteria of (2) are nevertheless both explicitly and implicitly cancellable in the appropriate linguistic and/or extralinguistic context.

Rogers & Gazdar (1978), for example, point out that (21a) apparently implicates (21b), and that this implicature projects suitably upward through negation, question, and hole predicates like forget in (21c):

- (21)a. John criticized Mary for writing the letter.
- b. Mary wrote the letter.
- c. John didn't criticize Mary for writing the letter.
 Did John criticize Mary for writing the letter?
 Harry forgot that John had criticized Mary for
 writing the letter.
- d. John criticized Mary for writing the letter, but
 that was quite unfair of him, since she hadn't
 in fact written it.

So we are dealing here with a conventional implicature, right? Wrong, since the would-be implicatum is cancellable without contradiction, as in (21d). Evidently, we need to allow for a relation, one that Gazdar (1978) has defined as potential pre-supposition, which resembles conventional implicature in most

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respects (e.g. those defined in (2a,b,e,f)), but not in cancellability: a potential pre-supposition is annihilated if it collides with a proposition in the context with which it would be mutually inconsistent, as for example in (21d). Thus too, Gazdar points out, the potential existential pre-supposition of definite descriptions which emerges as an actual presupposition in (22a), viz. that there is a King of France, is headed off in (22b)

- (22)a. The King of France is not bald.
 b. The King of France does not exist.

where it comes up against an entailment that no such monarch exists. In the same way, we can distinguish the presuppositional behavior of the classic pair in (23)

- (23) Tame tigers do not $\left\{ \begin{array}{l} \text{growl.} \\ \text{exist.} \end{array} \right\}$

without recourse to the assumption that existence is not a predicate. In short, non-cancellability, for Gazdar et al., is no longer a necessary condition for conventional implicature (alias potential pre-supposition) status.

But if it turns out to be correct that exhaustiveness is a non-cancellable generalized conversational implicature of cleft sentences, we must conclude that non-cancellability is also not a sufficient condition for concluding that an inference is conventional in nature. The relation between clefts and exhaustiveness would thus fill in the empty quadrant in the matrix of possibilities summarized in (24):

		CANCELLABILITY?	
		yes	no
PROJECTION PROPERTIES?	yes	Gazdar's potential pre-suppositions; cf. Soames (1979) e.g. α criticized δ $\text{for } \phi \text{ing} \rightarrow \delta \phi \text{d.}$	Standard conventional implicatures à la Grice, Karttunen & Peters e.g. α managed to $\phi \rightarrow$ $\text{it was difficult for } \alpha \text{ to } \phi.$
	no	Standard conversational implicatures (cf. Grice (1975)) e.g. $\text{some men } \phi \rightarrow$ $\text{not all men } \phi.$	

An inference's behavior with respect to cancellability would thus turn out to be independent from its behavior with respect to projection into complex sentences.

Since the jury on cancellability of the exhaustiveness implicature in clefts is still out, this last conclusion must be left as an open, if provocative, possibility. In particular, Prince's examples cited above in (13) can be read as instances

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of explicit cancellation of exhaustiveness, and--as we have seen--severing assertibility conditions from truth conditions leads us to a re-examination of the alleged "deviance" of (18d). If we ultimately find that exhaustiveness is indeed cancellable in clefts, we will have weakened the argument for revising the defining conditions on implicature but we will commensurately have reinforced the argument for assigning a pragmatic, conversational status to the exhaustiveness premise.¹⁰

FOOTNOTES

¹Thus (4c) is a necessary condition for both the truth and the appropriateness of (4a). Since ordinary negation is a "hole" for conventionally implicatures but not for entailments, (5a) will conventionally implicate (4c) without entailing it. If Mary ate nothing and the speaker knows it, (5a) will therefore count as an inappropriate (and misleading) utterance which nevertheless expresses a true proposition.

²It will not do to rejoin that Bill and Fred in this context somehow count as a unit entry and thus are (is?) assigned the same cardinality as John; this line can be dismissed as arrant question-begging and entirely circular.

³The frames in (11c,d) are adapted from tests for conventional implicature behavior proposed in Karttunen & Peters (1979) and utilized in Halvorsen (1978).

⁴Assuming that sentences, including clefts, which contain only do indeed entail exhaustiveness (cf. Horn (1969, 1979)), there is every reason to expect sentences like (11') to be impeccable.

⁵Non-detachability will be manifested in general only by those conversational implicatures generated by the content maxims (quality, quantity, relation), not by those generated by the maxims of manner, where the implicature will derive not from what is said but precisely from how it is said. This does not directly affect the status of the exhaustiveness implicature, which derives (in part) from an exploitation of the maxim of relation (or relevance).

⁶One piece of evidence tending to support this "least effort" approach to cancellability is the fact, called to my attention by Jerry Sadock, that the strength of an exhaustiveness implicature--and its resistance to cancellation--varies directly with the complexity of the "exhaustive listing" syntax employed to induce it. Thus contrast the relative ease of cancelling the exhaustiveness premise associated with (15d) or especially with (15e) as against (15a).

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⁷I have argued elsewhere that this "funny" or external negation is not, pace K&P (1979), a semantic operator to be assigned wide scope in the logical form with respect to entailed and conventionally implicated material, but rather is a subcase of what Oswald Ducrot has termed "metalinguistic" negation. Note that the negations in the examples of (19) could not be treated as instances of semantic negation without incorporating conversational implicature into the logical form assigned to those sentences. We also find examples like

(i) I didn't [mɪˈnɪʃ] to leave, I [mɪˈnɪʃd] to leave.

where a semantically-based analysis of negation would have to import phonetic representation into the logical form. The negations which attach to conversational implicature in (19) and to phonetic representation in (i) behave like K&P's external or "contradiction" negation with respect to their associated intonation contour and to their failure to trigger negative polarity items (cf. K&P (1979: 47)), supporting the conclusion that all these negative types are instances of the same phenomenon, i.e. of a (metalinguistic) withdrawal from a willingness to assert something in a given way. The relevance of this point for the discussion in the text is that the negation in (19d) can be read as just such a metalinguistic device.

⁸The distinction between questions of truth and questions of assertibility is a central and insufficiently appreciated source of border strife in the DMZ between semantics and pragmatics. It applies, for example, to the classical problem of "future contingents" which has vexed modal logicians since Aristotle, who was reluctant to judge sentences like (i) and (ii)

- (i) There will be a sea-battle tomorrow.
- (ii) There will not be a sea-battle tomorrow.

as either true or false upon their utterance. We can resolve Aristotle's dilemma--not by devising a three-value logic, as Łukasiewicz advocated, and assigning the third or neutral value to these statements--but by recognizing that (i) and (ii), along with other future contingents, are simply true or false, according to what the future brings, although neither (i) nor (ii) is assertible in the present, in the absence of foreknowledge or clairvoyance.

⁹Cf. Stalnaker (1968) and Lewis (1973) for recent treatments of counterfactual conditionals diverging substantially from Grice's; on these accounts, the assignment of truth values is determined in part by comparative similarity across worlds within a possible-world semantics. In fact, an application of the distinction between truth and assertibility to these models might permit a mediation between the positions of Stalnaker and Lewis on the validity of the law of "Conditional Excluded Middle" (or C.E.M.: cf. Lewis (1973: 79-83)). The question here is whether the formula (i)

- (i) (if A then B) or (if A then ~B)

is valid (logically true). Lewis points out that Stalnaker's theory

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seems to rule out the truth of statements like (ii)

- (ii) It is not the case that if Bizet and Verdi were compatriots, Bizet would be Italian; and it is not the case that if Bizet and Verdi were compatriots, Bizet would not be Italian; nevertheless, if Bizet and Verdi were compatriots, Bizet either would or would not be Italian.

which Lewis, using the "box-arrow" to represent the counterfactual would-conditional, formalizes as (iii):

- (iii) $\sim(\phi \boxrightarrow \psi) \ \& \ \sim(\phi \boxrightarrow \sim\psi) \ \& \ (\phi \boxrightarrow \psi \vee \sim\psi)$

Regarding (ii) and comparable instances of (iii) as "probably true", Lewis designs his theory of conditionals to accommodate his judgment, while admitting that the intuitions are unclear. But in the light of the truth/assertibility distinction, we can share Stalnaker's assumption of the validity of C.E.M. as represented in (i), and still provide a ready explanation of Lewis's (shaky) intuition that (ii) is true. It is indeed the case, as C.E.M. requires, that one of the first two conjuncts of (ii), i.e. that either (iv) or (v),

- (iv) If Bizet and Verdi were compatriots, Bizet would be Italian.
 (v) If Bizet and Verdi were compatriots, Bizet would not be Italian.

is true. But given that, as Lewis points out, (ii) could be evaluated either against the world in which both composers had been Italian (altering Bizet's nationality) or against the world in which they had both been French (altering Verdi's), both of these worlds being equidistant from the actual world and closer to it than any alternative is, the problem arises that neither (iv) nor (v), exactly one of which is true, is assertible by a speaker in the actual world. This speaker is in the same helplessness position as his counterpart, in the previous note, faced with the future contingent statement: knowing that one of two contradictories is true, but not privileged to know where the truth lies or, therefore, to assert it. Even if (ii) is true, it appears (iii) does not provide a proper rendering of its logical form. It is not the case that serves in (ii), as in (vi)

- (vi) It is not the case that some men are chauvinists--
all men are chauvinists.

or in Grice's penicillin example (cf. (20), (20') in the text), to introduce a denial of assertibility, and Lewis's problem-- along with the ingenious superstructure he builds on it-- evaporates. (But that's another paper.)

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