# Linguistic Inquiry

*Volume IV*
*Winter, 1973–Fall, 1973*

Editor: Samuel Jay Keyser
Squibs and Discussion: Stephen R. Anderson
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Published by The MIT Press, Cambridge, Massachusetts 02142

negation of S, and therefore, it cannot be that the presupposition S′ is false. Thus, no presupposition can be false.[10]

We note that this argument cannot be gotten around by claiming that if the presupposition S′ is false, then the sentence is neither true nor false because this reply would admit just the point we are arguing for, namely, that the Fregean definition is the basic definition of logical presupposition. We note further that we might well have known this from the start, since the Fregean definition explains what it is that a sentence has when it has a presupposition, namely, a condition that tells us what must be the case in order that (standard) uses of the sentence make a statement (ask a question, make a request, a promise, etc.), whereas (5) does not.

This brings us full circle round. The attractiveness of (5) lay in its simplicity, its freedom from dependence on unsolved problems of semantic description, and its reliance on well-understood apparatus from logic. Now we see that the difficulties with (5) are so great that we are happy to settle for a more complex approach whose working out depends on obtaining solutions to unsolved semantic problems by not too well understood apparatus from the theory of grammar.

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[10] I am indebted to James F. Thomson for the point underlying this argument and for other helpful suggestions.



## Whose Gorilla?

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Identity of sense pronominalization, as is well known, operates with considerable freedom (subject only to the constraints on backwards pronominalization) and ignores sentence boundaries, islands, and other barriers to rules with variables:

(1) Jack favors the older gorilla. I like the younger one.
(2) My gorilla is cute, but Jack's is really luscious.
(3) Jack admits that my gorilla is cute, but he claims that his is a lot neater.
(4) Jack admits that my gorilla is cute, but he won't listen to the suggestion that we get mine and his together.

Sentences (2)–(4) demonstrate a typical effect of identity of sense pronominalization, that of leaving a genitive NP as the only trace of a pronominalized NP. The same rule can leave a genitive interrogative pronoun:

(5) My gorilla is over there drinking punch. Whose is that banging at the window?
(6) I don't know whose you could have seen banging at the window.
(7) Jack doesn't believe my claim that I don't know whose he saw banging at the window.
(8) That I can't have any idea whose you saw banging at the window should be obvious.

In short: not surprisingly, the rule of identity of sense pronominalization is insensitive to whether the genitive NP left behind is an interrogative pronoun or not.

The rule is, however, inexplicably sensitive to whether the genitive NP left behind is a relative pronoun:

(9) My gorilla is over there drinking punch.
*The guy whose you saw banging at the window is over there watering the rubber tree.
(10) *Melvin, whose is banging at the window, is over there watering the rubber tree.

Our present theory of pronominalization cannot account for this difference. Will anybody whose can please step forward?

## Entanglement on Factives

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Amidst the confusion about what kind of linguistic phenomena can and cannot be justifiably referred to as "presuppositions", there has always been one class of examples above suspicion, the presuppositions on so-called "factive predicates". Recently, this paradigm case has been chal-

lenged wholesale: Wilson (1972), in a recent issue of *Linguistic Inquiry*, argues (i) that the relation between full factive sentences[1] and their complements is not one of presupposition but one of entailment, and (ii) that in doing semantics "it is never necessary to talk of logical presuppositions as distinct from entailments".[2] Wilson offers two explicit arguments in support of (i); understandably enough, she offers no sufficient argument for (ii), although in view of the paradigmatic standing of factive presuppositions, (ii) would of course greatly gain in plausibility, if (i) turned out to be true. But is it true?

Let us consider the first argument in support of (i) (Wilson 1972, 406f). Wilson puts forth the following extended syllogism:

Premise 1: No one {knows / can know} that Nixon is bald unless Nixon is bald.
Premise 2: Nixon is not bald.
Conclusion 1: No one {knows / can know} that Nixon is bald. (from $P_1$, $P_2$)
Premise 3: John is a person.
Conclusion 2: John does not know that Nixon is bald. (from $P_3$, $P_1$, $P_2$ via $C_1$)

Wilson considers the premises of this argument to be true and fully grammatical statements. If this is the case, then this argument proves that sentences like (1) and (2)

(1) John does not know that Nixon is bald. ($=C_2$)
(2) John knows that Nixon is bald. ($=\neg C_2$)

can have a truth value, namely "true" and "false" respectively, even if (3) is assumed to be false (viz. $P_2$).

(3) Nixon is bald.

This situation is only compatible, however, with (3) being *entailed* by (2) (via $\neg(2) = (1)$ being entailed by $\neg(3)$). If (3) were *presupposed* by (1) and (2), then the failure of the alleged presupposition (3) (viz. $P_2$) should have resulted in (1) and (2) having no truth value at all.

[1] I use "factive sentence" as a shorthand expression for "sentences containing a factive predicate followed by a *that* clause"; likewise, "factive presupposition" stands for "the presupposition of factive sentences, that the proposition expressed by their complement sentence is true".

[2] Wilson (1972, 406). For the qualification "in doing semantics" cf. Wilson (1972, 405).



This chain of reasoning, however, is as weak as its first assumptions about $P_1$: that $P_1$ has the truth value "true"; furthermore, that $P_1$ is a genuine instance of normal implication; and that "know" in $P_1$ and $C_1$, $C_2$ are the same predicates. Only if these assumptions are justified, does the desired situation follow. If $P_1$ were indeterminate, then so would be $C_1$, $C_2$; if $P_1$ is not an instance of normal implication, there is no deduction leading from $P_1$, $P_2$ to $C_2$; if there has been an equivocation of predicates, either $P_1$ or $C_1$ or $C_2$ will have a different meaning. In either case, Wilson's argument fails its purpose. The proper course of refuting Wilson's argument will then be to attack the assumptions about $P_1$.

For obvious reasons, Wilson must intend her argument to be applicable not only to *know*[3] but also to all factive predicates. We shall assume then, that in $P_1$ *X* can range over all factive predicates, thereby always resulting in sentences as acceptable as the original $P_1$.

$P_1$: If Nixon is not bald, nobody {X's / can X} that Nixon is bald.

Accordingly, these sentences are assumed to be true statements, to be genuine instances of normal implication, and to contain the same predicate *X* as the corresponding conclusions $C_1$, $C_2$. Suppose *X* ranges, for example, over *know*, *remember*, *forget*, *aware*, *unaware*, and the corresponding sentences are used as first premise to Wilson's otherwise unaltered syllogism. Then, by Wilson's argument, (4a–e) will entail (5)

(4) a. b. c. d. e. John {(still) knows / forgets/has forgotten / remembers / is aware / is unaware} that Nixon is bald.
(5) Nixon is bald.

[3] For the sake of the argument I shall be insensitive to the awkwardness of *nobody knows that X*. If one takes it as a strictly universal statement, as Wilson has to, he might wish for the complementizer *whether*, in which case Wilson's deduction would end up with a *whether* clause in $C_2$ and thus be irrelevant for her purpose. If taken as meaning *nobody else knows that X* (excluding at least the speaker) *that* is appropriate, but deduction is no longer possible. This dilemma seems, however, only to arise with epistemic qualifiers like *know*, *be aware*, etc. It does not arise with emotive factives and, therefore, shall be assumed to have no bearing on the validity of Wilson's argument in general.

whereas (6a–e) do not entail (5), but are in turn entailed by the negation of (5).

(6) a. b. c. d. e. John { does not know (any more) / does not forget/has not forgotten / does not remember / is not aware / is not unaware } that Nixon is bald.

Items like *unaware*, *forget/have forgotten*, *remember*, however, can be lexically decomposed—by virtue of undisputable entailment relations—into something like *not aware*, *cease to know* [=*not know any more*] (*due to a change in the mental state of the subject*),[4] *not forget/not have forgotten*. These expressions I consider to be cognitively synonymous with *unaware*, *forget*, *remember*. Synonyms should be substitutable *salva veritate*; hence also (4b′, c′, e′) should entail (5).

(4) b′. c′. e′. John { does not know any more (due . . .) / does not forget/has not forgotten / is not aware } that Nixon is bald.

This move, however, yields a contradiction. (6a) and (4b′), (6b) and (4c′), and (6d) and (4e′) are in all relevant aspects "the same sentence" respectively, in that both members of each pair contain the same factive predicate under negation. Hence, by Wilson's analysis, there are factive sentences that do and do not entail their complement sentence (5) at the same time. From this contradiction it follows that either the initial assumptions about $P_1$ will have to be given up, or all lexical decompositions involving a negative element. Since Wilson is maintaining, in effect, that (traditional) entailment is the only important semantic relation (cf. Wilson 1972, 405), this amounts to a dilemma. Factive "entailments" can only be saved at the cost of arbitrarily suspending seemingly valid entailments involving a negative element.[5]

[4] This paraphrase is due to G. Lakoff (1971, 272a). It incorporates the observations of de Rijk (1968) with respect to the differences between *forget* and *cease to know/not know anymore*.

[5] There are variants of the argument just presented that make essential use of the weaker relation of meaning inclusion rather than synonymy. Thus, whatever the differences in meaning between (*not*) *forget* and *know* might be, undoubtedly a sentence like (a) *John hasn't forgotten that S* at least entails (b) *John still knows that S*. (This can be supported by the evidence of *but/and so* conjunction, cf. *John hasn't forgotten that S, and so/*but he still knows it.*) By Wilson's analysis, (a) should not entail *S*, whereas (b) does entail *S*. Entailment, however, is transitive; if (a) → (b), (b) → *S*, then also (a) → *S*, by which move the same contradiction arises as above.



This seems to indicate that Wilson's argument is in some way fallacious. Nothing can conceivably be wrong with $P_2$, $P_3$, nor with the deductive manipulation of all the premises; hence, only $P_1$ can be at fault. And, in fact, sentences like $P_1$ differ from ordinary statements of superficially identical form in "meaning". Compare, for example (7) and (8):

(7) = $P_1$ If Nixon is not bald, then nobody { knows / can know } that he is bald.

(8) If Nixon wears a wig all the time, then nobody { knows / can know } that he is bald.

(7) says: If the antecedent is true, the predicate "know that S" cannot correctly be used. (8) however says: if the antecedent is true, knowledge about S will not arise; there will be lack of evidence for S. Accordingly, one can object to (8) by saying (9) and citing discovery procedures for baldness:

(9) Even if Nixon wears a wig all the time, then somebody, e.g. I, can know that he is bald.

But one cannot likewise object to (8) by saying (10) and citing the same procedures.

(10) *Even if Nixon is not bald, someone, e.g. I, can know that he is bald.

There are several possibilities to describe this difference with respect to the ambiguous pattern that (7) and (8) share. One might either locate it in the connective, thereby distinguishing an *if-then*$_1$ (indicating implication) from *if-then*$_2$ (indicating necessitation[6]), or in the predicate, thereby distinguishing *know*$_1$ 'know that S' from *know*$_2$ 'use correctly "know that S"', or in the negation, thereby distinguishing between strong and weak negation respectively.[7] Any one of these options (a) implies that $P_1$ does not possess the logical properties necessary for Wilson's argument to be valid, (b) results in acknowledging the necessity of some semantic concept like "presupposition" as distinct from "entailment".

[6] Cf. van Fraassen (1968, 143).

[7] Cf. Keenan (1970, 83). The phenomenon in question has also been characterized as choice vs. exclusion negation, internal vs. external negation.

Wilson's second argument in support of (i) comes from *but/and/and so* sentences. It is well known "that when two sentences are conjoined [by *but*, *and*], if the first entails the second, the result is a performance oddity" (Wilson 1972, 407); whereas *and so* is especially felicitous, when such an entailment relation does indeed hold (cf. p. 408). Hence, if the entailment analysis of factives is correct, only the *but/and* conjunction of positive factive sentences with their complements should be unacceptable; the presuppositional analysis, however, would predict oddity for the *but/and* conjunction of negative factive sentences and their complements as well. The same holds in reverse for *and so* conjunction. The sentences Wilson cites do indeed show an undisputable difference in acceptability, cf. (11)–(14).

(11) *John knows that Nixon is bald, but/and Nixon is bald.
(12) John does not know that Nixon is bald, but/and Nixon is bald.
(13) John knows that Nixon is bald, and so Nixon is bald.
(14) *John does not know that Nixon is bald, and so Nixon is bald.

But Wilson's conclusion that this bears out the correctness of an entailment analysis of factives cannot be accepted. It is true that a number of factives behave like *know* with respect to the *but* conjunctions in question,[8] cf. for example (15):

(15) a. *know, disclose, let out, discover, find out, realize, notice, remember, confess, be aware, make clear*
b. *exhilarating, great, wonderful, be happy, in raptures, pleased, delighted*
c. *important, significant, relevant, interesting*

But for factives like those in (16)

(16) a. *conceal, keep it a secret, ignore, overlook, forget, be unaware, obscure*
b. *nauseating, ridiculous, annoying, (no laughing matter), be sorry, regret, deplore, resent, be angry, disappointed*
c. *odd, strange, funny* ('strange')
d. *uninteresting, trivial, bore to death*

[8] In my counterargument I shall confine myself to the case of *but* conjunctions, where matters seem to be clearer, or at least informant reactions have been more straightforward than for *and so/and*.



the reverse starring pattern seems to hold; the positive sentence is uniformly rated much more acceptable than the negative one, cf. (17)–(20).

(17) John keeps forgetting that Nixon is bald, but he is.
(18) *John does not forget that Nixon is bald, but he is.
(19) John regrets that Nixon is bald, but he is.
(20) *John does not forget that Nixon is bald, but he is.

Finally, there are factives like those listed in (21)

(21) *crazy, sad, a tragedy, comical, enough, sufficient, instructive, exciting, defy comment, surprise, alarm, fascinate, bother, put up with*

for which a third starring pattern emerges: positive and negative *but* conjunctions involving items from (21) are not infrequently judged equally (un)acceptable, or much closer in acceptability than the corresponding pairs from (15)–(16). It must however be said that about *but* sentences involving (21) intuitions seem to be especially unclear and sometimes contradictory.[9]

Obviously, these different patterns of acceptability cannot be accounted for by Wilson's entailment hypothesis. However, by attributing presuppositional properties to factives, they cannot be readily explained either. Only factive sentences containing items from (21) exhibit to some degree the proper behavior with respect to *but* conjunction with their own complements; sentences involving factives from (15) and (16) do not. Taken at face value, the facts of *but(/and/and so)* conjunction are then irrelevant to the issue at hand. Yet they are interesting, and, on second sight, can be seen to even lead to an argument in point.

Notice that the starring patterns do not vary freely over factives; there are semantic regularities—in terms of the idiosyncratic meanings of the verbs in question—behind them. This is obvious for all cognitives,[10] i.e. factives con-

[9] I regard the list of factives assigned to (21) on the basis of limited data as no more than preliminary (and of course, as is the case with (15), (16), incomplete). Spurious items include for example *sad* (cf. *great* with clear polar judgments), *comical* (cf. *exhilarating*). I am convinced, however, that between (15) and (16) such a middle class with respect to the *but* conjunctions in question exists. Everybody I asked assigned at least some of the factives in (21) to the third acceptability pattern; moreover, the contradictory assignments seem to result from the informants' willingness to understand factives from (21) and the corresponding *but* sentences along the lines of (15b, c) and (16b, c, d).

[10] Otherwise called nonemotives, cf. Kiparsky and Kiparsky (1971, 363–365).

taining KNOW in their semantic representation (cf. 15a, 16a). If they are lexically negative, they belong to (16), and if they are lexically positive, they belong to (15); none behaves like the factives in (21). The behavior of cognitives with respect to the *but* conjunctions considered above is then quite predictable: only if (after the law of double negation has applied) NOT KNOW is present in the propositional content of the factive sentence—no matter whether NOT derives from the meaning of the cognitive verb or from internal sentence negation—will *but* conjunction with its own complement sentence be permissible, and *and so* conjunction be odd.

A similar polarity can be observed with emotive factives. All the emotives included in (16b, c) entail that the facts expressed in the complement do not conform to our wishes and expectation; they are wished to be otherwise. For the emotives in (15b), however, no such relation of contrariness between predicate and complement holds.[11] Taking into account that sentence negation will reverse this polarity, the behavior of emotives with respect to *but* conjunctions also becomes predictable. Only if an emotive factive sentence entails the wish that the complement sentence be false will the *but* conjunctions in question be acceptable and the *and so* conjunction presumably be odd. To some extent, this prediction also covers the behavior of the factives listed in (21). However questionable the inclusion of some items into (21) might be, most of its members are either noncommittal as to the desirability of the truth of the complement, or at least much less committal than the emotives listed in (15b) and (16b). Reversal of behavior under negation, hence, cannot be expected.[12]

These facts, in themselves, do not of course serve to explain why *but* conjunctions of factive sentences with their complements can be acceptable at all. Accepting the framework of Robin Lakoff's analysis of *but*,[13] one might try to account for these cases in the following way. As to cognitive factive *but* sentences, the *but's* in question seem to be instances of Lakoff's "denial of expectation *but*".[14] Sentences $S_1$ *but* $S_2$ containing it are acceptable just in case the "presupposition" of *but*—Exp ($S_1 \rightarrow \neg S_2$)—can in some way be fulfilled. With respect to the acceptable *but* sentences discussed above this presupposition obviously cannot be

[11] Cf. Baker (1970, 18off.) for related observations.

[12] This account raises the question why the factives listed in (15c) and (16d), which certainly are just as noncommittal as the most pertinent items in (21), exhibit such a consistently different and polarity oriented behavior. At present I have no answer to this.

[13] Cf. R. Lakoff (1971, 131–142).

[14] Cf. R. Lakoff (1971, 133).



stated solely in terms of the propositional content of the *but* conjuncts alone; it crucially involves the performative level. Take, for example, (12):

(12) $S_1$: John does not know that Nixon is bald.
$S_2$: (I assure you:) It is true that Nixon is bald.
PSP: One (others) might expect that, if somebody does not know that *X*, *X* might not be true after all.

That the assertive function of $S_2$ figures crucially in the acceptability of (12) and (17) is supported by the fact that sentences of the form (13) exhibit exactly the same starring pattern as the sentences (11–12), (17–18), cf. (23)–(26):

(13) John {Y's / does not Y} that *X*, but (I assure you) *X* is true.

(23) John {does not know / keeps forgetting / *knows / *does not forget} that *X*, but (I assure you) *X* is true.
(24)
(25)
(26)

Since the second conjuncts of e.g. (12) and (23) are quite different in propositional content, this parallelism can only be explained by reference to the one level on which they are identical, the performative level.

Reference to the performative properties of *but* conjuncts is no ad hoc device.[15] Hence, the apparent paradox of $S_1$ = (12) being acceptably *but* conjoined with its entailment $S_2'$ *Nixon is bald* dissolves in a natural way. *Not know that X* entails the truth of *X*, but not the assertion of the truth of *X*. This already might be sufficient reason to invoke the notion of presupposition as distinct from and irreducible to the traditional notion of entailment. For, if $S_1$ entails $S_2$ and "$S_1$" is asserted, then "$S_2$" is also indirectly asserted. But this is precisely not the case with presuppositions.

The acceptability of (12) and (17), then, has clearly to do with the pragmatic connections between the truth of *X* and the knowledge that *X*. The truth of *X* seems to invite the inference that one is aware of it, or, vice versa, somebody's NOT KNOWing that *X* invites the inference that the truth of *X* might not be undoubtable after all. It is this latter inference (expectation) which in the acceptable *but* conjunctions involving cognitives is cancelled.

[15] Cf. R. Lakoff (1971, 140f.) for sentences like *Fritz likes bananas, but, after all, all monkeys do*. Their acceptability, too, can best be explained by reference to the performative function the respective conjuncts have when uttered in isolation.

The acceptable *but* conjunctions of emotive factive sentences with their complements require a somewhat different explanation. What seems involved there is not the "denial of expectation *but*", but rather Lakoff's "semantic opposition *but*",[16] the members of the opposition being wishful thinking regarding "$\neg$S" on the one hand (first conjunct) and the reality of hard fact regarding "S" on the other (second conjunct). Again, these opposites $S_1'$, $S_2'$ cannot be stated in terms of the conjuncts $S_1$, $S_2$ of the given *but* sentence $S_0$ alone. Rather, stating $S_2'$ involves the performative level of $S_2$; $S_1'$ must be deduced[17] from $S_1$ by which it is entailed. Take for example (27a, b):

(27) S a. {It is odd / b. John deplores} that Nixon is (should be) bald, but he is.

$S_1$ a. {It is odd / b. John deplores} that Nixon is (should be) bald.

$S_2$ a.b. Nixon is bald.

$S_1'$ a. One (would have expected and still) prefers: Nixon is not bald.
b. John wishes: Nixon is not bald.

$S_2'$ a.b. (I assert shruggingly:[18]) It is true/a fact, that Nixon is bald.

Again, as with the cognitives, the paradox of sentences being acceptably *but* conjoined with their entailments is only apparent. Neither $S_1$ nor $S_1'$ entails the *assertion* of the truth of the complement. This again can be seen as indirectly supporting the notion of presupposition as distinct from the traditional notion of entailment Wilson seems to advocate.

In the course of this discussion I have tried to establish two points: (a) the arguments Wilson cites fail to support an entailment analysis of factives, (b) the facts underlying her arguments can be reconciled with, even support, a presuppositional analysis of factives. This was not to say

[16] R. Lakoff (1971, 133). Notice that the evaluative factives in (15c) and (16c, d) which are commonly classed as "emotives" behave rather like the cognitives in that the corresponding *but* sentences seem to be instances of the "denial of expectation *but*".

[17] For the role of deduction in interpreting *but* conjunctions cf. G. Lakoff (1971a, 66f.), R. Lakoff (1971, 134).

[18] The adverb is meant literally. Utterances of the second conjunct of the *but* sentences in question are almost invariably accompanied by shrugging one's shoulders. This indicates, that, with emotives, the assertion of the truth of the complement sentence *S* "says" something else than with cognitives: it does not dispel doubts (cf. (12)); rather, asserting that something which we already know is a fact is indeed a fact means "nothing can be done about it", "it can't be helped".



that all aspects of the latter analysis are worked out or uncontroversial. In fact, as the work of Karttunen shows,[19] at least for cognitives they are not. Nowhere in the study of the relation between cognitives, let alone emotives and their complements, however, does the traditional notion of entailment play an interesting role. This suggests that Wilson's hypothesis, (i) as well as (ii), at least in their present form, should be abandoned.

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[19] Cf. especially Karttunen (1971).