A NOTE ON DEVIANT LOGIC AND PRESUPPOSITION (*)

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According to Frege (1), if a sentence contains a singular term which lacks a reference, then the sentence itself must lack reference, and so be without truth-value. A sentence which contains a non-denoting term or phrase may well make sense, but neither it nor its negation can have a truth-value unless its components denote. He does not conclude from his analysis that a non-bivalent calculus in which the notion of presupposition could be formalized should be developed. There have been attempts at developing such calculi, and I am particularly interested here in the reasons that Dr. Susan Haack gives (in her book on deviant logic-(2)) for preferring one type of calculus over another. She compares Woodruff's system unfavourably with that of Smiley (3), where both systems are many-valued, and justifies her preference with the following argument:

«A major difference between Smiley's and Woodruff's 3-valued calculi is that the former, but not the latter, obeys the principle that whenever a component of a compound wff. lacks truth-value, so does the whole wff......This, prima facie, is a point in favour of Smiley's system; for it is a principle of Frege's sense/reference theory that the reference of a sentence depends upon the reference of its parts, so that it lacks reference if they do.»

I shall argue that Haack does not succeed in showing that Smiley's account is preferable to others even though it incorporates the thesis that a Fregean notion of presupposition must be supported by Frege's theory of sense and reference. It is generally appreciated that the theory that the reference of a sentence depends upon the reference of its parts fails to account for some of the complications which arise when the sen-

tences which generate the presuppositions are compound sentences. But it has not been appreciated that this anomaly is a problem which should be taken into account in any calculus or canonical notation dealing with presupposition.

Smiley defines compound sentences as those built up from simple sentences by means of the connectives and quantifiers. My claim is that if we maintain the Fregean principle that the truth-valuelessness of a component of a compound sentence must lead to the truth-valuelessness of the whole sentence, then we shall obtain results which are rather counter-intuitive theoretically, and which can be avoided by modifying that principle. For example, according to the principle, both the sentences:

(1) The French speak French and the present King of France is bald.
(2) The French speak English and the present King of France is bald.

presuppose that there exists a present King of France, and if this presupposition fails in both sentences (as it does) then both must be truth-valueless according to Smiley's definition of presupposition. There are good reasons for objecting to such a conclusion. It does seem that (1) need not be false, because one conjunct is true and the other is neither true nor false, and that (2) must be false because one of its conjuncts is false. The Fregean principle will not show any difference in the truth-values of (1) and (2), and we require a calculus that will do just that. It is true that we already have a semantic theory which can mark the differences between (1) and (2), but we are surely justified in seeking a calculus of presupposition which can reflect such a difference in refusing to call both (1) and (2) truth-valueless. It might be said that we can mark the difference whatever we say of the truth-valuelessness or otherwise of (1) and (2). After all, regardless of what we say on the issue of truth-valuelessness, we know that had the second conjunct of (1) been true, the conjunction would have been true; and had the second conjunct of (2) been true, (2)

could still not be true. Then what is unsatisfactory about saying that (1) and (2) are both truth-valueless, given that we do not fail to mark the semantic difference between them ? The answer is that the application of the Fregean principle obscures this semantic difference in certain awkward examples of compound sentences, and we should expect of a calculus that it should rather illuminate the relationship between the parts of the compound sentence.

Another awkward case for the Fregean principle as a method of relating the truth-value of a *compound* sentence to the truth-values of the presupposition of the syntactically coherent parts of that sentence arises with the production of sentences which have contradictory presuppositions. An example would be

(3) Either John has been worried since his job finished, or John will not be worried so long as his job lasts.

According to Frege (see the long footnote about Schleswig-Holstein in (1)), the phrase

since his job finished

only gives an apparent time-specification (which thereby lacks reference) unless

(4) John's job has already finished

is true; and the same procedure will show that the phrase

so long as his job lasts

can only be given an apparent time-specification and so lacks reference unless

(5) John's job has not yet finished

is true. If (4) and (5) are the presuppositions of (3), then (3) is necessarily devoid of truth-value. Yet it is clearly true that (3)

could have a truth-value, e.g., we can see quite easily how it could be true. Is there any way in which we can adapt the Fregean principle so that we may get more intuitive results?

We then require an account of the relation between a sentence's presuppositions and the sentence which will not have these paradoxical consequence. A suggestion would be to restrict presupposition as a relation of *simple* sentences, those sentences which contain no logical connectives, and then to develop a calculus which can show how these presuppositions are reflected in the truth-value of any compound sentence of which the simple sentences are a part. If we adopt a suggestion of Herzberger (4) and present aspects of Van Fraassen's presuppositional system (5) in the form of truth-tables we shall be able to deal with those cases which seem anomalous on the Fregean principles in a more acceptable way. The truth-tables for the connectives are:

(where I = truth-valuless

  $\bar{F}$ = non-false

  $\bar{T}$ = non-true

&	T	F	I
T	T	F	I
I	F	F	F
I	I	F	$\bar{T}$

V	T	F	I
T	T	T	T
F	T	F	I
I	T	I	$\bar{F}$

⊃	T	F	I
T	T	F	I
F	T	T	T
F	T	I	$\bar{F}$

If we examine the presuppositions of the constituent sentences of (1) and (2) which are simple we can then see why (2) must be false due to the falsity of one conjunct and also why (1) need not be false, because one conjunct is true and the other without truth-value. The form of (3) is more complicated as 'Pv—Q', where «P presupposes R, or '—Q' presupposes '—R'» expresses the relationship of the components of (3) to its contradictory presuppositions. We can represent the distribution of values for this formula in the following truth-table:

R	'—R'	P	'—Q'	'Pv—Q'
T	F	T v F	I	T v I
F	T	I	T v F	T v I

Thus it can be seen that the disjunction is either true or truth-valueless; it is true if one disjunct is true and the other truth-valueless. If one disjunct is false and the other truth-valueless, then the disjunction itself is truth-valueless.

If we deal with these cases of compound sentences and their presuppositions on the lines of the Fregean principle (as in Smiley's account of presupposition) then we shall fail to mark distinctions which we are justified in wanting to draw between such sentences. We should otherwise be obliged to call sentences with plainly different truth-values, like (1) and (2), both without truth-value just because in both there is a non-referring component. Sentences like (3) with contradictory presuppositions would be without truth-value, even though in particular cases this is obviously not right. We can justify our intuitions about the unsatisfactory nature of such a distribution of values by proposing that only simple sentences can have presuppositions, and that the calculus outlined above is used to demonstrate how these presuppositions affect the truth-value of the compound sentences of which they are a part. Van Fraassen does not himself appreciate the desirability of limiting presupposition to simple sentences. The re-formulation of his definition of presupposition that is suggested here is the following:

P presupposes Q iff.
  i. P is a simple formula
 ii. P entails Q
iii. —P entails Q.

(There are, of course, problems with this definition in that it does not exclude apparently unrelated logical truths from presupposing such sentences, but this issue is not relevant here.)

Haack claims that one reason for preferring one presuppositional calculus over another would be that the former conforms to the Fregean principle that whenever a component of a compound wff. fails to refer, then the whole wff. is without truth-value. I have produced examples of formulae with which this principle is unable to deal satisfactorily, and I have suggested a more acceptable method of computing the relationship between the compound sentence's truth-value and the truth-values of the presuppositions of its components. The conclusion is that we should modify the Fregean principle, on the lines put forward in this note.

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REFERENCES

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