

ON SUBSTANTIVE NEGATION

Development of modern logic is believed to have been instrumental to the progress of science in recent years. Logical analysis is found to be almost indispensable for scientific progress.¹ But what help does logical analysis render? In reply to this question something definite can be said following Quine.

Logical analysis, according to Quine consists in paraphrasing natural language sentences and rendering them into logical notation.² The importance of such analysis over ordinary language analysis has also been emphasized by various distinguished philosophers. And the importance lies in the fact, or assumed fact, that logical analysis provides us with visible clarity,³ implying thereby ordinary language lacks such clarity and is thus ambiguous to the extent of misleading people in many cases. Questions such as "Is logical analysis necessary?" "Is it philosophically relevant?" and many others have been raised, discussed and answered. And so they need not be discussed again. The following two questions have also been discussed in general. I would, however, like to discuss them with reference to a particular problem viz. what may be called, the problem of substantive negation. We believe that case study needs to supplement general observations. Such studies sometimes act as corrective also of the danger of talking in vague generalities. The questions are :

- (i) Is ordinary language really that misleading as some philosophers seem to make out?
- (ii) Does logical analysis possess such clarity which it is supposed to possess?

I would like to show with reference to the problem of substantive negation that neither the ordinary language is that misleading nor is logical language that perspicuous. After showing this I would like to conclude first, that there is so far no conclusive reason why language of logic be preferred to ordinary language: and secondly, the claim that logical analysis is indispensable for scientific purposes need not go unchallenged.

I

What is a substantive negation ? To get an answer it would be helpful I think, if we consider the following sentences.

- (i) Table is brown.
- (ii) A Square is not a circle.
- (iii) Nothing is in the basket.
- (iv) Something is brown.
- (v) No true sentence is factual.
- (vi) Nobody is walking on the street.

It will be agreed that the sentences (i) - (iv) have the same form, viz. the subject predicate form. The word "table" occurring in the subject position in (i) is a substantive word and if we disregard the indefinite article in (ii), the word "square" by itself is a substantive word. In accordance with this general practice the word "No" in (v) is not the subject. It is not a substantive expression. But the word "Nothing" and "Something" occurring respectively in (iii) and (iv) compare more with "Table in (i) than with "No" in (v). Thus the word 'Nothing' at least in its occurrence in sentences like (iii) is a substantive expression. We mean by substantive negation such negative terms. The word "Nobody" occurring in the sentence (vi) is therefore a substantive negation by our standard.

We may question the advisability of adopting a particular convention. But to quarrel with an articulated convention is hardly philosophically prospective. If to say "nothing" "nobody" are substantive negation is no more than to articulate a convention, substantive negation would not merit philosopher's attention. Or again a mere grammatical distinction or form would not constitute a philosophical problem. Those who find substantive negation to be philosophically problematic do so because they think that this grammatical distinction or form mislead one to accept wrong philosophical views. In other words, substantive negations are somehow related with the ontology of negative fact.

The way we are led to postulate negative fact corresponding to substantive negation is held to be simple. There is an old doctrine that substantive expressions of a language are names of things or are in modern terminology, referring expressions. And there is a doctrine which owes, if not its origin, at least

its clear formulation, to contemporary philosophers, that genuine subject expressions are names or referring expressions. Thus whether because it is a substantive expression or because it is a referring expression, substantive negation pass for names. And as name there must be admitted to exist a thing or object of which the substantive word is the name. Corresponding to the substantive word "table" in the first sentence of the list an object is generally admitted to exist of which it is a name. Some are however caught in a fix when they face sentences like (iii). Existence of negative fact is not so obvious or is not so generally accepted. On the other hand, the substantive form of the expression strongly inclines us to postulate an object corresponding to "nothing". Only in ordinary english language we may have occassion to use words like "something", "nobody", "nothing" etc. in the substantive position. And as a result we may be misled to postulate negative fact, if we fail to notice that unlike words like "table" these word are not genuine substantives.

That they are not genuine substantives is not so apparent because the sentences in which they occur in the subject position do not differ in their grammatical form from the sentences in which some genuine substantive expression takes the subject position. But Quine has argued that while in case of genuine substantive no scope distinction of the quantifier is necessary, in the context of sentences in which substantive negative expressions occur such scope distinction is necessary for the preservation of truth value and meaningfulness. If, in other word, scope distinction is not introduced in case of sentences having "something", "nothing" etc. as substantives then there would result utter confusion.

Some logicians think that such are the cases when we feel the relevance of modern logic. Modern logic has given us a language the form of which is visibly clear. And if we formalize the ordinary language sentence (iii) in that language the apparent necessity of admitting negative fact simply vanishes. So long we have at our disposal a language known as ordinary language; we shall take it in its face value. But once another language which is not only different from ordinary language but also claimed to be better, is made available to us, we shall either speak in terms of that ideal or constructed language or translate the ordinary

language sentences, whenever necessary, into that language. This would, as we shall see, help us avoiding many problems which were generated, as is thought, by the ordinary language.

Before showing how "nothing" fails to be a genuine substantive by the standard of necessity of scope distinction it would not be out of the context if we show how "something" also fails by the same standard. In ordinary language we can change the sentence.

(1) Socrates is a Greek and Socrates is wise,
into

(2) Socrates is a Greek and is wise.

And this change can be made without inviting any harm thereby. And we can again change (1) and (2) into (3) and (4) respectively by replacing "Socrates" by "something" thus.

(3) Something is a Greek and Something is wise.

(4) Something is Greek and is wise.

So far we find that "something" behaves in the same way as "Socrates". Just as "Socrates" in all its occurrences in the above sentences refers to the same single individual, the word "something," the natural language counterpart of the existential quantifier has the same one single thing within its scope. Thus "Socrates" and "Something" in (2) and (4) respectively take both the predicates. If the existential quantifier in its first occurrence in (3) has X within its scopes it has the same X for its scope in its second occurrence. Thus (3) and (4) yield respectively to

(5) $(\exists x) Fx \ \& \ Gx$

(6) $(\exists x) X \text{ is both } F \text{ and } G$

We may generalize. As in the case of agreed genuine substantive "Socrates", so also in every case of such substantive scope distinction will be unnecessary. Thus criterion for genuineness of a substantive expression is that scope distinction of quantifier will not be necessary. Or, in other words, replacement of X in every occurrence of X in forms (5) and (6) above will result in the following two sentences of the same truth-value.

(7) Russell is a philosopher and Russell is British.

(8) Russell is a British philosopher.

And this can quickly be verified. We may try the criterion in case of the name Russell agreed to be genuine. (Let us also agree to interpret the predicate letters F and G respectively as "philosopher" and "British"). The result of the application of the criterion is that "Russell" turns out to be a genuine substantive. But if we try this criterion in case of the supposed substantive "something" we shall see that it fails by our criterion. We shall presently see how it fails. But now one point needs mentioning. And that is this. Just as "something" is not a genuine substantive similarly "nothing", "nobody" etc. are also not genuine substantives. That they are not shall be shown right now.

Expressions such as "something", "nothing" etc, can be proved as spurious substantives if we interpret our F and G respectively as "round" and "square". For then we get the following pairs of sentences such that one in each pair is false while the other is true.

Thus (9) and (10a) are true while (10) and (9a) are false.

(9) Something is round and something is square.

(9a) Something is round and square.

(10) Nothing is round and nothing is square.

(10a) Nothing is round and square.

But the two forms of the sentences of each pair differ only in respect of scope of quantifier,⁴ And if the scope distinction affects the truth value of the sentences then we cannot say that scope distinction is not necessary or is not necessary for preservation of truth value. Thus by our criterion "Russell" and "Socrates" are genuine names while "something", "nothing" though used as substantives are not genuine substantives or names but spurious substantives.

II

From the discussion in section I, one might object that at this stage even if I want to establish ordinary language to be not really misleading, I can not simply do it. The reason is I am already committed to the view that ordinary language is misleading. And because of this nature of its, logical analysis is necessary.

To this I may only say that the above discussion in section I, consists in the view point of the philosophers belonging to the camp of formal logicians. And what I have tried is merely to represent their view. This does not entail in any way my inclination towards accepting that position.

Now, let us come back to our point. To the question "Is ordinary language really misleading?" philosophers of different conviction react in their own way. For instance, A. J. Ayer is of the opinion that ordinary language is misleading and it does mislead philosophers including ordinary men. In his discussion about substantive negation he refers to such a view.⁵ Again unlike Ayer, who represents such an extreme position so to say, Lazerowitz would perhaps take a moderate stand. In connection with his discussion on "Negative terms", he thinks, it will be wrong to construe that when philosophers, to be more precise, metaphysicians, use ordinary language words such as "nothing" "nobody" etc in the substantive position of a sentence, they do it out of utter confusion. They are not really misled by sentences having the form "..... see nobody in my armchair."⁶ For even when repeatedly made cautious about the dangers involved in the use of such sentences, they refuse to stand corrected.⁷ One need not, and for that matter should not conclude from this that such persons lack the power of understanding either. Thus when words like "nothing", "nobody" etc. occur in the substantive position of a sentence, people can and in fact do understand the sense⁸ associated with it. It seems that the reader/hearer, including ordinary men, know the difference between a "grammatical substantive" and a "semantical substantive."⁹

Had it been otherwise how could one account for the fun created by Lewis Carroll's use of the word "nobody" in his *Alice Through The Looking Glass*? Even though in that book the author represents the king to be confused by the use of this word, yet that we ordinary men do genuinely enjoy the writing is beyond doubt. Lazerowitz, to emphasize this point goes as far as to quote the particular passage in his book.¹⁰ He, rightly enough, thinks that sentences involving negative terms in the substantive position are neither nonsense nor do they mislead us. So far we are in complete agreement with him though his

opinion about the metaphysicians,¹¹ which he articulates in the same context, may be challenged.

We have seen then, how Ayer and Lazerowitz would consider the case of ordinary language. My own view regarding the issue is however, different from both. To my mind ordinary language has an in-built device or mechanism of its own, to avoid such confusions, if at all they are there. So, though it has been shown by logical analysis that while words like "Socrates" etc, are genuine substantives, words like "nothing" etc, are not, yet I should say, this sort of analysis is uncalled for as long as there arises no problem within ordinary language itself. So then, it will not be fair enough to hold that without any provision for scope distinction of the quantifier, ordinary language cannot satisfy the scientific demand of visible clarity.

To explain our point let us consider the sentence "something is round and square". This sentence has been shown to be false. But would really ordinary language allow us to assert its falsehood if presented in the above form? I think not. For unless by "something" we take "same thing", the sentence cannot be said to be false. And in ordinary usage when a person purposely wants to utter a falsehood would rather prefer a sentence of the form "same thing is round and square" or, "something is round and is also square."¹² Similarly, instead of writing "nothing is round and square" we may write "Nothing is both round and square." Or, if we want to utter a falsehood we may say, "nothing is either round or square". Thus in ordinary language, I should say, there is less chance of confusing or being misled.

So then till now I have argued that ordinary language is not misleading and even if in some cases it appears to be so, then also there is a way within ordinary language itself to tackle with such ambiguities. For this purpose there is no need of logical analysis. In a speaker-hearer situation, as long as there holds a successful communication between the two, no problem need be dug out in such cases. Therefore, ordinary language analysis need not be replaced by logical analysis which is generally held by the formal logicians. (Though Quine himself at same place recognizes that one need not engage oneself in logical analysis with a view to replacing ordinary language analysis).

Now that we have dealt with the question "Is ordinary language really misleading," we may consider the other question viz. "Does logical analysis itself possess the claimed clarity?"

Logicians like Quine and others hold that substantive negation should be eliminated from the language altogether and it needs to be analysed in terms of quantification and truth functional negation. And this truth functional negation is helpful for science also. So, the only sense of negation which is unproblematic, at least as they think, is the notion of truth-functional negation. Thus the sentence "nothing is an F" which involves a negative term as the substantive, when logically analysed in terms of quantification and truth-functional negation, turns out to be either " $\neg(\exists x)Fx$ " or " $(x)\neg Fx$ ", which has the desired visible clarity.

Now, unless it can be successfully shown that the notion of quantifier and truth-functional negation, in terms of which substantive negation has been eliminated, are themselves unproblematic no sensible person would agree to give up the ordinary notion of substantive negation and thereby prefer a formal language.

But unfortunately for the formal logicians and may be fortunately for others, such is not the case. Neither the notion of quantifier nor the notion of truth functional negation is unproblematic. Problemes relating to the interpretation of quantifiers are many and well known.¹³ And whether the meaning of logical particles of ordinary language including "not" is truth functional has been questioned by persons who do not belong to the camp of ordinary language philosophers.¹⁴ It is not possible in this paper to discuss the various interpretations and objections in detail. We may just mention a few among them.

Let us first take into consideration the notion of quantifier. In the first place, under one interpretation of the quantifier we can quantify only in the context where substitutivity of identicals hold and referentially opaque contexts are contexts where substitutivity of identicals does not hold. In the second place, according to Frege, the quantifier has a single domain of discourse, which many others do not agree with. In the third place, the introduction of the theory of quantification of empty universe and to this many eminent philosophers including L. J. Cohen, have expressed

their doubt. In the fourth place, the values over which the quantifier is to range is also not unproblematic. For, there is a serious problem regarding individuals being values of variables or classes being values of variables. Lastly, though there is a decision procedure for the first order predicate calculus, there is no such procedure for higher order calculus.

Now let us hurriedly note a few points related to the notion of truth-functional negation. It may be argued that truth-functional negation cannot be the only sense given to negation. For instance, we find a very different sense attached to negation on the Intuitionistic logic. And this logic has gained a very important position in recent times. In fact, it is held that for all scientific purposes truth-functional negation is not at all adequate a notion. Rather the purpose of science can be better, if not best served by negation considered in the sense given by Intuitionistic logic. It may also be argued that truth-functional negation fails to capture the sense of factual incompatibility involved in the ordinary notion of negation.¹⁵ Then again, truth-functional use of negation eliminates term negation altogether from its scope and it explains all kinds of negation by the help of sentence negation. But one might object to this narrowing down of the scope of negation.

Thus unless these problems of conflicting interpretations are solved satisfactorily and without introducing the artificiality of too complex technicalities, will be misleading to speak and behave in such way so as to suggest that language of logic is free from all problems. And we have already argued that ordinary language does not lack in in-built mechanism to deal with problems like the substantive negation. As a concluding remark I may say that from the above discussion one need not get the impression that we do not attach any importance whatsoever to logical analysis. For, to construct our position in that manner, would be to misconstrue it. Logical analysis is helpful in the realm of science, but to extend its application so as to eliminate ordinary language altogether as misleading, would be drawing too rash a conclusion. And in that case this extension would be as unwarranted extension.

NOTES

1. Quine, W. V. (p. 35) *Ways of Paradoxes and other Essays* (Revised edition) Harvard university Press.
2. *Ibid* (p. 34). 2 *also Quine, Methods of Logic*, (p. 40).
3. Quine *Methods of Logic*, Routledge & Kegan Paul (1952)
4. *Ibid* As Quine says in the *Methods of Logic* (p. 85) that the difference can be shown in "just how large a statement is to be comprised within the scope of a given occurrence of the word."
5. Ayer, A. J. *Philosophy and Analysis*, Oxford (1954) in Macdonald M. (ed)
6. Lazerowitz, M. *The Structure of Metaphysics*, Routledge & Kegan Paul (1968) (p. 182)
7. *Ibid* (pp. 188-9) "It seems plain that if we go on the assumption that the metaphysician is either mis-describing the use of 'nothing' or has been led into talking nonsense because of a misconception of its use we can give no reasonable account of his resistance to correction. There can be no hope of understanding why he does not feel corrected."
8. The word "sense" has been taken in its ordinary usage.
9. Lazerowitz, M *The structure of Metaphysics* Routledge and Kegan Paul (1968) (p. 191).
10. *Ibid* (pp. 190-1)
11. *Ibid* (p. 191.) ".....and we may well conjecture that he too is playing a verbal game. But he plays his game with 'nothing' with a different attitude. He takes it serious by, without his tongue in his cheek".
12. If someone argues that there is no fixed criterion in ordinary language to determine when "something" should be taken to mean "same thing" and when not; in reply to this objection, a criterion may be formulated, which is something like this. When the predicates would be incompatible then it should not be taken as "same thing", unless one purposely desires to assert a falsehood. But this criterion is in terms of incompatible predicates, which implies it must have reference to facts and to this the strict formal logician would resent. Let us see what we actually do there. We

say "something is round and square" and hold that square and round are incompatible predicates, therefore, the statement, if is intended as a true one, need not be taken to mean "something" at least. But granting for the present that contradiction in the sense in which the logicians use, is unproblematic we can still say that here contradiction can be shown without reference to facts. If in place of 'square', we take "not-round". But one might object that if "square" becomes "not-round" in relation to "round", then supposing the sentence then is "X is square and green" here also "green" should be treated as "not-square" by the same logic. To this we shall say that the predicates must remain either in the same range or the properties must come under the same determinable.

13. cf. Cohen, L. J. "Logic and the empty universe" in Iseminger, G. ed. *Logic and Philosophy*.
14. Cohen, L. J. "Some remarks on Grice's view on logical particles of natural language," in *Pragmatics of natural language* (ed) Y. Barhillel.
15. Mukhopadhyay P.K. "Wittgenstein on negation" in *Journal of the Department of Philosophy Vol, (Iv) 1979-80* (p.62). University of Calcutta.

