Lecture 4

Before beginning the present lecture, I should give the solution to the homework problem posed in the last lecture: how, within the framework of coordinated content, might we define the notion of manifest consequence?. We deal first with the question of consequence among coordinated propositions. So suppose we have a coordinated argument of the form:

$$\underline{p_1, p_2, ..., p_n}$$

$$q$$

Since the argument is coordinated, there will be 'lines of coordination' between the occurrences of individuals in the premisses $p_1, p_2, ..., p_n$ which may extend to the occurrences of individuals in the conclusion q. Our question is: when is such an argument manifestly valid, i.e. when is the conclusion q a manifest consequence of the premisses $p_1, p_2, ..., p_n$?

Now corresponding to the above coordinated argument will be a standard non-coordinated argument:

$$\underline{p'_1, p'_2, ..., p'_n}$$

$$q'$$

obtained by replacing all coordinated occurrences of an individual with the same individual and all uncoordinated occurrences of an individuals with distinct individuals. In effect, we adopt the perspective of the subject and treat uncoordinated occurrences of the same individual as if they were occurrences of distinct individuals.

We may then say that the original coordinated argument is manifestly valid if the corresponding non-coordinated argument is standardly valid. In this way, we explain the notion of manifest validity for coordinated arguments in terms of a standard notion of validity. (There is a complication over the case in which there are occurrences of individuals in the conclusion that are not coordinated with any occurrences of individuals. An adequate treatment of such cases probably requires the adoption of some form of free logic.)

We may now extend the notion of manifest validity to non-coordinated arguments. So suppose that we have a *non*-coordinated argument of the form:

$$\frac{p_1, p_2, ..., p_n}{q}$$

We may then say that it is manifestly valid if, any lines of coordination on the premises p_1, p_2, ..., p_n can be extended to the conclusion q in such a way that the resulting argument:

$$\frac{p'_1, p'_2, ..., p'_n}{q'}$$

is manifestly valid. The intuitive idea behind this definition is that for any way in which someone might know the premisses of a manifestly valid argument there should be some way in which he might know the conclusion.

A couple of examples. The argument:

$$\frac{Fx, Gx}{\exists y(Fy \ \& \ Gy)}$$

is not manifestly valid. For suppose that the two occurrences of x in the premisses are uncoordinated. Then the corresponding noncoordinated inference:

$$\frac{Fx , Gx'}{\exists y(Fy \ \& \ Gy)}$$

is not standardly valid. On the other hand, the argument:

$$\frac{Fx, Gx}{Fx \ \& \ Gx}$$

is manifestly valid. Consider, for example, coordination-scheme on the premisses, say one in which the two occurrences of x are uncoordinated. Extend this scheme to the conclusion by coordinating the first occurrence of x in the premisses with the first occurrence of x in the

conclusion and the second occurrence of *x* in the premises with the second occurrence of *x* in the conclusion. The corresponding noncoordinated inference:

$$\frac{\text{F}x,\ \text{G}x'}{\text{F}x\ \&\ \text{G}x'}$$

is then standardly valid.

The resulting notion of validity and the complications over coordination might appear somewhat strange. But they are already implicit in our reasoning with variables, once we adopt a 'telegraphic' notation to indicate binding. For example, what corresponds to the inference from $\forall x \text{R}xxy$ to $\text{R}xxy$ will be the inference from $\forall \text{-R---}$ to R--- with coordination between the first, second and third blanks, the fourth and seventh blanks, and the fifth and sixth blanks.

I wish in this lecture to return to the topic of Frege's Puzzle. The version I gave before was constituted by the following five assumptions:

(1a) <u>Cognitive Difference</u> The two identity sentences 'Cicero = Cicero' and 'Cicero = Tully' are cognitively different;

(1b) <u>Cognitive Link</u> If the sentences are cognitively different, then they are semantically different;

(2) <u>Compositionality</u> If the sentences are semantically different, then the names 'Cicero' and 'Tully' are semantically different;

(3) <u>Referential Link</u> If the names 'Cicero' and 'Tully' are semantically different, they are referentially different;

(4) <u>Referential Identity</u> The names 'Cicero' and 'Tully' are not referentially different.
I argued for a relational solution to the puzzle. Under this approach, there would be an intrinsic semantic difference between the identity sentences and between the corresponding pairs of names but no intrinsic semantic difference between the names themselves. However, there were two related aspects of the puzzle that I did not take up. First, I only dealt with the abridged form of the puzzle, whose starting point was the claim that there was a semantic difference between the identity sentences. I did not discuss the status of the two cognitive assumptions - (1a) and (1b) - from which this claim might be derived. Second, I only applied the puzzle to a two-name sentence, such as 'Cicero = Cicero'; I did not also consider its application to a one-name sentence

such as 'Cicero is an orator'.

The relational response to the one-name version of the puzzle must be somewhat different from its response to the two-name version, since there is no intrinsic semantic difference it can recognize between 'Cicero is an orator' and 'Tully is an orator'. There is, however, a *relative* difference, i.e. a difference in the semantic relationships that each of these sentences bears to other sentences. For the first sentence will be strictly co-propositional with the sentence 'Cicero is an orator' - it will be a semantic fact that the they express the same proposition - while the second sentence will not be. This relative difference is perhaps adequate to our intuition of a semantic difference. But the question now arises as to whether a non-intrinsic semantic difference is sufficient to sustain what appears to be an intrinsic cognitive difference.

This is the topic of the present lecture. I wish first to consider how the Fregean and the straight referentialist might deal with the cognitive aspects of Frege's puzzle and I then wish to show how a relational form of referentialism is able to solve what appear to be intractable difficulties with the straight referentialist view.

The Fregean, of course, will take there to be a difference in sense between 'Cicero' and 'Tully'. From this it follows that there is a difference in sense between the sentences 'Cicero is an orator' and 'Tully is an orator'. And from this it follows that there is a cognitive difference between the sentences. For the sense of a sentence is a 'thought' or proposition; and so what we learn upon being told 'Cicero is an orator' is one proposition while what we learn upon being told 'Tully is an orator' is another proposition. Nothing could be more straightforward.

The referentialist, on the other hand, denies that there is a semantic difference between 'Cicero is an orator' and 'Tully is an orator'. Each sentence 'means' or expresses the same proposition, viz. the singular proposition that Cicero is an orator. At this point, he is likely to appeal to an ambiguity in the notion of cognitive difference. In one sense, there is no cognitive difference between 'Cicero is an orator' and 'Tully is an orator', since the nonlinguistic information one gathers upon being 'told' each sentence is the same, viz. that Cicero is an orator. In this case, then, the existence of a cognitive difference between the two sentences will be denied though the link between cognitive and semantic difference can be retained. However, in another sense there *is* a cognitive difference between 'Cicero is an orator' and 'Tully is an orator' since, upon being told each sentence, one gathers different linguistic information, viz. that the

sentence 'Cicero is an orator' or the sentence 'Tully is an orator' is true. In this case, therefore, there is a cognitive difference but no corresponding semantic difference. What we do not have, in either case, is a cognitive difference that requires a semantic difference.

Most referentialists have been happy to give a response of this sort even if their opponents have not been happy with their denial of a nonlinguistic cognitive difference. However, it seems to me that there are more serious difficulties with their position which even their metalinguistic strategy is not able to solve. But before turning to these, it will be helpful to set up a more general framework for discussing questions of cognitive significance.

We imagine a communication between two people who possess a common language. One of them asserts a certain sentence - say 'Cicero is an orator' - and thereby conveys some information to the other. Prior to the communication, the hearer will possess certain information. Call this information - or, at least, that part relevant to the communication - the *informational base*. Let us also call the asserted sentence the *informational input* and the increased information that the hearer possess once the communication has taken place the *informational output*. Thus relative to a given informational base I, an informational input s will result in a certain informational output J, something which we might symbolize by: $I \oplus s = J$.

Given an information base I, let us call J the *cognitive impact* of the sentence s. Thus the cognitive impact of a sentence is relative to an informational base and is in effect given by the difference between the informational output and the informational base. Given a sentence s, let its *cognitive potential* be the function which takes each informational base into the cognitive impact of the sentence relative to that base. Thus the *cognitive potential* of a sentence will tell us what cognitive impact it will have on a given informational base. (The distinction between impact and potential is formally analogous to Kaplan's distinction between content and character though the intended meaning and application are quite different.) Cognitive impact and cognitive potential are two things that reasonably be meant by 'cognitive significance'. However, a full solution to Frege's puzzle should provide us with a general explanation of a sentence's cognitive potential, i.e. of the cognitive impact it would have on any informational base.

There are two levels at which one might try to account for the cognitive potential of a sentence - what one might call the levels of 'thought' or 'content' and of 'language'. On the one hand, we may focus on the nonlinguistic information that the hearer acquires, rather than on the

means by which it is acquired. Our task is then to provide an account of what that information is, given the sentence that is asserted and the non-linguistic information that is already known. On the other hand, we may focus, not merely on the non-linguistic information that the hearer acquires, but also on the linguistic means by which it is acquired. Our task is then to explain how, through their understanding of a common language, the speaker is able to convey information to the hearer.

The Fregean succeeds well at both tasks. On his view, the sentence 'Cicero is an orator' expresses a certain thought or proposition; and this is the non-linguistic information that the hearer acquires from the speaker. *How* he acquires this information is schematically as follows. Given the speaker's assertion of 'Cicero is an orator', the hearer knows that the sentence is true. Given his understanding of the language, the speaker knows that if the sentence is true then Cicero is an orator. He is thereby able to infer that Cicero is an orator.

Now it might appear as if the referentialist can do equally well, since nothing in the above account would appear to depend upon adopting a Fregean view of content. Thus the content of 'Cicero is an orator' is now a singular proposition rather than a Fregean thought. It is this that gets added to the hearer's information; and the way it gets added is through the hearer knowing what the content of the sentence is. The only difference in the two positions is in what they think belongs where. For the referentialist will take the cognitive difference between 'Cicero is an orator' and 'Tully is an orator' to belong 'upstairs', at the level of language, while the Fregean will take it to belong 'downstairs', at the level of thought.

However, I believe that this impression is misguided and depends upon focussing exclusively on the special case in which the informational base is 'empty', i.e. devoid of (relevant) information. Suppose that the hearer already has some information that he would express in the words 'Cicero is Roman' though not any information that he would express in the words 'Tully is a Roman', notwithstanding his having the use of both names. Then on being told 'Cicero is an orator', he would learn the singular proposition that Cicero is a Roman orator and be able to infer that there is a Roman orator. But this is not something he could do upon being told 'Tully is an orator', since he could not 'put together' the information conveyed with the information he already has. Thus he obtains some nonlinguistic information in the one case that he does not obtain in the other even though the nonlinguistic information conveyed by the two

input sentences is the same; and so the nonlinguistic information that he eventually obtains is not simply a function of the nonlinguistic information that he initially receives.

The reasons why this is a *special* problem for the referentialist is that he must be work with a conception of propositional knowledge that is closed under manifest rather than classical consequence. Given that a thinker knows the proposition that *x* F's and also knows the proposition that *x* G's, he does not necessarily know the proposition that *x* both F's and G's, no matter how logically competent he may be. The referentialist therefore faces the problem of explaining how the propositions can be 'put together' through the use of 'Cicero' though not through the use of 'Tully'. The Fregean, on the other hand, posits a difference in sense between 'Cicero is an orator' and 'Tully is an orator'; and he then has no difficulty in allowing that the hearer may infer the proposition that Cicero is a Roman orator from the propositions that Cicero is Roman and that Cicero is an orator, though not from the propositions that Cicero is Roman and Tully is an orator.

In the face of this difficulty, most referentialists have been tempted to go linguistic. In the first case, it is supposed that the hearer knows the truth of the sentence 'Cicero is Roman' and the truth of the sentence 'Cicero is an orator'. From this he may infer the truth of the sentence 'Cicero is a Roman orator'; and from this he may then infer, given his understanding of the language, that Cicero is Roman orator. Thus he makes the required inference at the level of language and it is only once he has made the inference at this level that he descends to the level of thought. In the second case, by contrast, the required inference at the level of language cannot be made and so the speaker has no means of acquiring the given non-linguistic information.

In going linguistic, the referentialists have implicitly abandoned the possibility of providing an account of the inferential process at the level of thought; and it is indeed difficult to see how they might. For there is no semantic difference between the two sentences; and so presumably the difference in their cognitive impact can only be attributed to some difference in the sentences themselves. But his characterization of the inferential process is highly implausible. For the inference will represent itself to the hearer as going from the premisses that Cicero is Roman and that Cicero is an orator to the conclusion that Cicero is a Roman orator; it will not represent itself as an inference that makes a detour through the language by which these propositions are expressed. And, in general, there is something quite bizarre about the idea that,

in drawing out the logical consequences of a given set of propositions, it should be necessary to reason explicitly about the language by which the propositions are expressed.

To make matters worse, the linguistic account does not even work. The problem is with the inference from the truth of 'Cicero is Roman' and the truth of 'Cicero is an orator' to the truth of 'Cicero is a Roman orator'. For whether he is justified in making this inference will depend upon his having the same 'take' on the name 'Cicero'. If, for example, he thinks there are two names 'Cicero', one for the statesman and the other for the orator - just as in Kripke's 'Padereweski' example - then the inference will be no more justified than the corresponding inference from the truth of 'Cicero is a Roman' and 'Tully is an orator'. Thus the referentialist faces the same problem as the level of the names as he faced at the level of the individuals. Just as the inference from the two propositions concerning the individual Cicero is not necessarily justified, nor is the inference from the two propositions concerning the name 'Cicero'. Of course, we know in both cases that the inference *is* justified but the problem is to provide some explanation, compatibly with the referentialist semantics, as to why this is so.

Nor does it help to move to the level of tokens. Of course, there may be no token of 'Cicero is a Roman' to which the hearer can appeal. But let us suppose that, prior to being told 'Cicero is an orator', the hearer verbalizes his knowledge that Cicero is Roman in those very words. Let us use 'C1' for the hearer's token of 'Cicero' and 'C2' for the speaker's. Then it might be thought that the hearer reasons as follows: C1 refers to a Roman; C2 refers to an orator; but C1 and C2 both refer to Cicero; and so Cicero is a Roman orator. But it is conceivable, and might even seem inevitable, that the hearer will have different 'takes' on the very same tokens. Perhaps he relies on one perception of the token in thinking that C1 refers to a Roman and relies upon another perception or upon some memory of the tokens in thinking that C1 and C2 both refer to Cicero. In any event, there is no guarantee that the inference is justified; and so we *still* need to know what makes it justified in this particular case.

Another, quite separate, difficulty - for tokens and types alike - is that one would liked to see some of the premises in the above pieces of reasoning as themselves the possible product of inference. It is reasonable to suppose, for example, that C1's referring to a Roman might be inferred from C1's referring to Cicero and Cicero being a Roman. But of course, all of these subsidiary inferences are suspect, since they presuppose the hearer having the same 'take' on

Cicero from one occurrence to the next; and this means that we cannot trace the reasoning back to its natural starting point.

This last difficulty can be generalized to a sweeping objection to any referentialist account of cognitive potential. Given that we are in possession of the information that x F's and the information that x G's, it sometimes appear that we are justified in putting this information 'together' and inferring that x both F's and G's. But how? The natural hypothesis - and the only one to which it would appear that the referentialist can appeal - is that we are in possession of some further information and that it this information, along with the given premisses, that justifies us in drawing the conclusion. Now presumably, this additional information also justifies us in putting together the given information when the properties in question are strengthened. In other words, it justifies us in going from x F's and F'''s for some additional property F' and from x G's and G'''s for some additional property G' to the conclusion that x F's, F'''s, G's, and G'''s. But it can now be demonstrated that in these circumstances the thinker must be in possession of purely qualitative means for identifying x. In other words, there must be a purely qualitative property I which is such that he is justified in inferring from what he knows that x is the one and only individual to possess I. Thus adjunctive inference becomes impossible without individuation.

Now it is very plausible to suppose that the transmission of information in the case of a non-empty base requires that the hearer be able to 'put together' the information concerning the individual that he already has with the information concerning the individual that he learns from the speaker. These are two separate sources of information, as it were; and so presumably he must put them together in some way. However, it follows from the above result that this is only possible if the hearer already possesses some purely qualitative means of identifying the individual.

This is close to constituting a reductio of the referentialist's position. For one of the principal motivations for the position - if not *the* principal motivation - is that a speaker of a language may not be in possession of a purely qualitative means of identifying an individual for which he has a name. But what the above argument shows is that he must be in possession of such an identifying description if the name is to play its normal role in communication. Thus the cognitive aspect of Frege's puzzle poses a serious threat to referentialist even if we allow him to

reject Transparency and to adopt a linguistic account of cognitive impact.

The difficulties in the referentialist position completely disappear once we go relationist. The critical point lies in the adoption of a relationist theory of inference. We wish to explain how the hearer might be justified in inferring that Cicero is Roman orator from his earlier knowledge that Cicero is Roman and his subsequent knowledge that Cicero is an orator. What makes the inference justified, according to the relationist, is the fact that the hearer acquires *coordinated* knowledge of the two propositions. It is not merely that he knows that Cicero is Roman and knows that Cicero is an orator but, in representing these two pieces of information to himself, he represents the subject of each piece of information as the same. It is, if you like, built into the representational character of the thoughts that they are thoughts of the very same object. And, given that this is so, there can then be no question in his mind that the inference is justified.

We might also think of coordination as a fact about *what* the hearer knows. He does not simply know the non-coordinated propositions that Cicero is Roman and that Cicero is an orator; he also has knowledge of a coordinated *system* of propositions, one in which the subjects of the two propositions are coordinated; and the argument from these coordinated premisses to the conclusion will then be valid as long as the conclusion is appropriately coordinated with the premisses. There will therefore be no difficulty, as there was for the referentialist, in seeing the inference as justified at the level of content or thought, rather than by means of a linguistic detour. Nor will there be any difficulty in seeing the inference as justified at the level of language, since the problems over the coordination of the types or tokens can be solved in the very same way.

Although I have said that coordination can be regarded as a fact about what the hearer knows, it is essential to the present point of view that it not be regarded as a further piece of non-coordinated information, for the only way in which this further piece of information could have the desired effect is by itself being coordinated with the original premisses. Nor can the cognitive role achieved by coordination be achieved with the help of further non-coordination information, even if this further information does not itself establish coordination. For, as we have seen, any further non-coordinated information that might justify the inferences that coordination is capable of justifying must go far beyond anything that the referentialist would be willing to admit. It

therefore appears that it is only by going relationist that the referentialist can solve the cognitive aspects of Frege's puzzle.

The present approach is able to achieve many of the benefits of the Fregean approach within the referentialist framework. Indeed, the relationist can represent the inferential processes implicit in the transmission of information in much the same way as the Fregean - the reasoning from the inside looks the same, as it were. But where the Fregean finds sameness in sense, the relationist sees coordination.

There is, however, a fundamental respect in which the relationist approach is different from the Fregean and referentialist alternatives. For the Fregeans and referentialists both adopt a simple incremental model of information transmission; the new information, whether in the form of the proposition expressed or the truth of the sentence by which it is expressed, is simply added to what is already known. This simple incremental model must now be replaced by an interactive or relational model. For the new information may hook up, through various coordinative ties, with what is already known; and how it hooks up will make a difference to what the hearer subsequently learns. We do not merely add something to the pot; we also give it a stir.

This difference in approach results in a curious compromise between the two alternative views. For the referentialist, the information associated with a name is irrelevant to its cognitive significance, i.e. to the contribution it makes to the cognitive impact of the sentences that contain it. For the Fregean, by contrast, some of the information associated with the name will be constitutive of its meaning; and this will be relevant to its cognitive significance, even though the rest is not. The relationist agrees with the Fregean on the relevance of the associated information, but he disagrees both on *how* it is relevant and on the *extent* to which it is relevant. For it will not be relevant through constituting the meaning of the name and hence being part of what is conveyed by the sentential input. Rather, it will be relevant through being constitutive of what one already knows and hence a determinant, along with the sentential input, of cognitive impact. This difference is dramatically illustrated by the case of the empty informational base. Suppose that the hearer knows nothing about the bearers of 'Cicero' and 'Tully'. Then under the relationist view, he gains no substantive nonlinguistic knowledge upon being told 'Cicero = Tully' while, under the Fregean view, he learns what we would learn in any other case, viz. that the senses associated with the names are of the same object. Moreover, the *whole* of the information

associated with the name will be relevant for the relationist in this regard and not merely some distinguished part.

Even if we grant that some identifying information may be associated with a name, the Fregean view seems to be based upon a untenable distinction between that information which is constitutive of the meaning of the name and that which is not. One does not need to be a general sceptic about the analytic/synthetic distinction to believe that the distinction has no clear application in the case of names. Of everything that I know concerning the bearer of most names, there is nothing - or very little - that stands out as constitutive of their meaning. I believe it to be a great advantage of the relational approach that it can grant the cognitive significance of the information we associate with a name without having to maintain that any of that information is of a peculiarly semantical sort.

In the next lecture I wish to deal with another important aspect of communication, viz. our ability to reproduce or report what others say or believe. I shall pay special attention to Kripke's puzzle about belief and will argue that, again, it is only by going relational that the puzzle can be solved.