Speaker's Reference, Theoretical Terms and Continuity of Paradigms

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According to the incommensurability thesis, during scientific revolutions, a paradigm shifts to another one, in a way that theoretical terms of the later paradigm change their meanings from the former. The meaning of a term or statement results from the role it plays in a theory. Changes in theories or paradigms can bring about significant changes in meaning of a term or a statement.

In this paper I want to show that the type of terms chosen by a scientist plays some roles in interpreting history as continues or discontinues. The argument has been divided into two parts:

1) The first part deals with different semantic roles of definite descriptions and nondiscriptive terms in causal theory of reference. Firstly, I suppose that descriptions are theory dependent and names are independent of theories, and secondly, it is argued that when speaker's reference of some tokens of a nondescriptive term is different to its semantic reference, it is possible for semantic reference to shift to speaker's intended object. Gareth Evans' example about "Madagascar" is an excellent case for this process. However when speaker's reference of a description is different to its semantic reference, shifting the reference is impossible.

Note: I will briefly propose the conditions under which could be conceptual continuity. If in the first theory, one term pragmatically refers to something (for example oxygen) and in the second theory a term have the same reference and refers to it semantically then there will be not conceptual continuity. But if in the first theory a pragmatic reference caused a semantic shift of reference to an object and in second theory a term refers semantically to the same object then there will be a conceptual continuity.

2) The second part is dedicated to show there are some cases in which a scientist can choose a description instead of a name (or vice versa) and her choice does not change the content of her theory. When a scientist discovers a substance which fits the descriptions given by her, she can use either a description or she can name it by a nondescriptive name for referring to its samples.

Therefore I conclude that the scientist's simple choice might play a role in blocking conceptual incommensurability.

The historical case which I examined is phlogiston theory. "Dephligisticated air" in phlogiston theory, in some cases gets fixed by a description and don't refer to any kind and in other cases get fixed ostensively and so refers to oxygen. Causal theory of reference can explain them by resorting to Gricean distinction between speaker's reference and semantic reference. The distinction is based on debates about analysis of definite descriptions. Kripke(1977) shows that Donnellan's "referential use" of descriptions is an extension of speaker's reference and concerns the pragmatics of language and not semantics. So the "dephlogisticated air" either semantically refers to oxygen or

it does not refer semantically to any kind but some of its tokens pragmatically refer to oxygen.

I will imagine two different counterfactual scenarios:
-    Firstly, suppose that Priestley instead of "dephlogisticated air" used a definite description for calling it. For example suppose he used "the air that is purified from phlogiston". Being a description, the meaning of it depends on the meaning of their parts. So "The air that is purified from phlogiston supports combustion and respiration better than ordinary air", according to Russell's analysis of definite descriptions, will be equal to "there is a unique kind of Air that is purified from phlogiston and it supports combustion and respiration better than ordinary air". The statement will not refer to any natural kind if "phlogiston" cannot refer to anything. If a speaker succeeds to refer to oxygen by using one token of the description, then it would refer pragmatically (not semantically) to oxygen. So there is no any chance for escaping from incommensurability.
-    Secondly, suppose Priestley has chosen a nondescriptive name (or natural kind term) instead of "dephlogisticated air". In this case, there are two different ways that the reference can be fixed. It can be fixed ostensively or the fixing can be done by descriptions. If the term was introduced ostensively by pointing to the oxygen sample produced in Priestley's laboratory then the term would refer to oxygen, and it would do it semantically. If fixing the reference was done by a description then the term would be nonreferring. But the reference of the term had a chance to shift to oxygen. In this case, if the reference shifts to oxygen then conceptual continuity will be saved. As I will argue, this kind of shifting is not possible for definite descriptions, like "the air that is purified from phlogiston".

So depending on what sort of term "dephlogisticated air" is, it has two different routes for referring. It will refer semantically to oxygen if it is a nondescriptive name or it will pragmatically refer to the same kind if it is a description. If the term, in the theory of phlogiston, semantically refers to oxygen, the scientific paradigms in history of science are conceptually continuous. But if it pragmatically refers to oxygen, shifting the paradigm to a new one, i.e. shifting from phlogiston theory to Oxygen theory is revolutionary. Therefore progress or revolution in science depends on what type of terms scientists choose as a theoretical term.

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