ICPR Workshop on Rudolf Carnap's *Meaning and Necessity: A Study in Semantics and Modal Logic*
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Rudolf Carnap (1891-1970) is generally regarded as one of the most significant representative of logical positivism. Born in Germany, he was educated at the universities of Freiburg and Jena. At the University of Jena, he had attended the classes of Frege. In his brief autobiography published in P. A. Schilpp's edited volume *The Philosophy of Rudolf Carnap*, he mentioned, among others, Reichenbach, Moritz Schlick, Frege, Bertrand Russell, Wittgenstein, Tarski, C.W. Morris, C. G. Hampel and Quine as prominent philosophers of his time with whom he had interactions. In his book *Meaning and Necessity: A Study in Semantics and Modal Logic* (1947), Carnap primarily discussed doctrines of Frege, C.I. Lewis, Quine, Russell, Tarski, and Church.

The notion of "Logical Syntax" played a very significant role in his philosophy. About it, in *The Philosophy of Rudolf Carnap*, he maintained, "I thought of the logical syntax of language in the strictly limited sense of dealing with the form of the expressions of the language, the form of an expression being characterized by the specification of the signs occurring in it and of the other in which the signs occur. No reference to the meaning of the signs and expressions is made in logical syntax. Since only the logical structure of the expressions is involved, the syntax language, i.e. the metalanguage serving for the formulation of logical syntax, contains only logical constants." (p.65) Carnap held the view that philosophical problems are merely syntactical problems as they are construed in metalanguage.

In 1931 Carnap gave three lectures on metalogic and defined it as "the theory of the forms of the expressions of a language." Later on in the place of "metalogic", he used "syntax" or "logical syntax". In logical syntax he distinguished between "object language", i.e. language which is the object of the investigation, and "metalanguage", i.e. the language in which the theory of the object language, in other words the metalogic/syntax/logical syntax, is formulated.

Carnap held that language analysis, as an important tool of philosophy, was first systematized in the form of logical syntax. However, semantics, i.e. the theory of the concepts of meaning and truth played a very significant role, as the logical syntax is concerned only with the form of the linguistic expressions and not their meanings.

Carnap's *Meaning and Necessity: A Study of Semantics and Modal Logic* (1947) was an outgrowth of his manuscript "Extension and Intension" (1943) which he had sent for review and discussion to his friends Quine and Alonzo Church. Prior to the *Meaning and Necessity*, Carnap published two books on the notion of semantics: the *Introduction to Semantics* (1942) and *Formalization of Logic* (1943) in which he explained both the theory of truth and the theory of logical deduction dealing with concepts like logical implication, logical truth, etc. Carnap accepted that his conception of

semantics had started on the basis of Tarski's notion of semantics. Carnap's notion of semantics could be distinquished from that of Tarski in holding following two points: (a) the distinction between logical and non-logical constants, and (b) logical and factual facts.

The *Meaning and Necessity* is divided five chapters and five supplements and for the purpose of study could be bifurcated into two parts: meaning and modal logic. Here Carnap claimed to have provided a new method for analyzing the meanings of linguistic expressions as well as to lay a semantic foundation for modal logic. For Carnap, this method rejected the traditional method that held that in ascribing meaning, a linguistic expression names either concrete or abstract entities. The new method of Carnap replaced concrete or abstract entities with the notions of extensions and intensions.

Certain modal expressions of English language, e.g. 'should', 'ought', 'might', 'must', necessity, possibility, and impossibility, etc. have been the subject matter of Modal Logic. It was extensively treated by Aristotle. In the contemporary philosophy, according to Carnap, for the first time, C. I. Lewis (1918) constructed the logic of modalities in the framework of symbolic logic. After defining semantical concepts like logical truth etc., Carnap proposed to interpret the modalities as those properties of propositions which correspond to certain semantical properties of sentences expressing the propositions, e.g. a proposition is necessary if and only if a sentence expressing it is logically true.

Carnap divided semantics into following two categories: 1. The semantics of extensions. It deals with concepts like extension, name-relation, denotation, satisfaction, and truth etc. 2. The semantics of intensions (non-extensional terms). It deals with concepts like intension, L-truth, sense, synonymy, and the like. Disagreeing with Carnap, Quine held former as theory of reference and latter as theory of meaning.

Gilbert Ryle in his review article published in the journal *Philosophy* (Vol.24, No.88, January 1949, pp.69-76) of *Meaning and Necessity* has thoroughly criticized Carnap's point of view. According to Ryle, "One of Carnap's major concern is to resolve the long-standing dispute whether predicate-expressions stand for (or denote) properties or classes. Believers in universals assert the former; believers in classes assert the latter. Carnap's eirenicon is to say that they do both at once. They have classes for their extensions and properties for their intensions. But the dispute was a spurious one….Carnap's way of (nominally) dispensing with the "Fido"-Fido principle does not release him from the Frege-Meinong embarrassments about sentences." (p.75) Further, according to Ryle, "Carnap flounders uneasily over the question, How do false sentences mean anything?" (p.76) For Ryle, the theories of Meaning of Necessity, "…belong to the age that waxed with Mill and began to wane soon after the Principles of Mathematics. The muddled terminology of extension and intension which belonged to the muddled and obsolete doctrine of terms is disinterred in order to help construct a two-dimensional relational theory of meaning, at a time when it out to be notorious that relational theories of meaning will not do….The importance of semantic problems in philosophy and logic cannot be over-estimated. It is because I fear that the solutions of these problems may be impeded by the dissemination of his mistakes that I have reviewed so scoldingly the treatise." (p.77)

It's significant to note that Ryle confines his criticism of *Meaning and Necessity* with its meaning aspect and says almost nothing about its modal logic except the following: "he (Carnap) says nothing about most of our ordinary ways of using words like 'May', 'must', 'cannot', 'possible', and 'necessary'. He discusses the 'mays', 'musts' and 'need nots' of logic, but not those of legislation, technology, games, etiquette, ethics, grammar or pedagogy. Above all, he says nothing about laws of nature or the concepts of natural necessity, possibility or impossibility." (p.69)

A critical study of Carnap's book demands reflections on the theories, not only in the Analytic tradition of the West but also in the Indian Philosophy, of truth value and meaning of an expression. We find profound analysis in Indian Pramana Theory of the issues as raised in logic and philosophy of language in the analytic tradition. The Navya-Nyaya has developed its technical language based on intentional meaning of cognitions. Grammarians, Nyaiyaikas, Mimamsakas, and Buddhists have provided tools to delineate meaning and truth-value of a proposition. This workshop provides an opportunity to critically expound Carnap's text as well as to look on its Indian counterpart.

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