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# **Carnap on Fregean Sense and Reference**

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### **Abstract**

*In this paper we shall discuss an important aspect of Frege's philosophy of language which is related to his distinction between sense and reference. He is the first philosopher who introduces the notion of sense to solve some problems related to our language in his paper 'On Sinn and Bedeutung' which is published in 1892. Frege holds that the reference of a sentence in its ordinary use is its truth value. But, the reference of the same sentence in indirect context is the thought expressed by it which is considered by Frege as its sense in ordinary context. Carnap holds in his *Meaning and Necessity*, that Frege's views regarding the reference of a sentence in indirect context and the nature of thought cannot be acceptable. So he introduces notion of extension and intension to replace Fregean notions of reference and sense respectively. In the first section of the paper we shall try to discuss Frege's view about sense and reference; and in the second section of the paper we shall try to explain Carnap's view regarding Fregean sense and reference and Carnap's distinction between extension and intension.*

***Keyword: Sense, Reference, Name-Relation, Extension and Intension.***

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It is generally thought that a name (word) or an expression stands for an object which is considered as the reference of that name or expression. Now the question is: 'How do names refer (?)'. Frege tries to offer a mechanism by which names stand for object by means of his theory of sense and reference. For Frege, a name has sense only by virtue of the fact that it also has a reference and its sense is in fact the way its reference is presented. Thus, according to Frege, the reference of a proper name is a definite object which is the bearer of the name, and the sense of a proper name determines its reference. For Frege, the sense of a proper name is the specific mode or manner of designating an object which is the bearer of the name. The reference of a proper name 'Plato' is the individual Plato and the sense of a proper name 'Plato' is 'The teacher of Aristotle'.

Frege introduces the notion of sense to explain the cognitive difference between the statements of the form 'a=a' and the statements of the form 'a=b'. Frege points out in his Volume- VI, Issue-IV

paper ‘*On Sinn and Bedeutung*’, that cognitive significance of the identity statement ‘The morning star is the morning star’ is different from the identity statements ‘The morning star is the evening star’. The former statement has the form ‘ $a=a$ ’ and identity statements of this form are analytic, *a priori* or trivially true. Frege points out that identity statements of the form ‘ $a=a$ ’ are *a priori* are, in Kantian terminology, analytic. For example, to know the truth value of the statement ‘The morning star is the morning star’, we need not depend on sense-experience. We cannot deny the truth value of this proposition without involving contradiction. Thus the identity statement ‘The morning star is the morning star’ is analytic. On the other hand, the identity statements of the form ‘ $a=b$ ’ are not *a priori*, for they are informative. For example, to construct the identity statement ‘The morning star is the evening star’, we depend on our sense experience. Our scientists need several observations to discover that the morning star is the evening star. When someone hears the identity statement ‘The morning star is the evening star’, it increases his knowledge. In this sense, identity statements of the form ‘ $a=b$ ’ are informative. Frege says,

*The reasons which seem to favour this are the following:  $a=a$  and  $a=b$  are obviously statements of differing cognitive value [Erkenntniswert];  $a=a$  holds a priori and, according to Kant, is to be labelled analytic, while statements of the form  $a=b$  often contain very valuable extensions of our knowledge and cannot always be established a priori. The discovery that the rising sun is not new every morning, but always the same, was one of the most fertile astronomical discoveries.<sup>1</sup>*

Frege holds that identity is a relation between two proper names instead of a relation of an object to itself. According to him, if we think that identity is a relation of an object to itself, then the identity statement ‘ $a=b$ ’ (if it is true) asserts that the object designated by ‘ $a$ ’ is the very same object designated by ‘ $b$ ’. Thus the identity statement ‘ $a=b$ ’, like ‘ $a=a$ ’ asserts that an object is identical with itself. Frege thinks that the objectual self-identity interpretation of identity statements cannot satisfactorily explain the informative content of the identity statement ‘ $a=b$ ’.

Thus, Frege holds that identity is a relation between two proper names. However, Mill’s view about the proper name cannot satisfactorily explain the informative content of identity statement ‘ $a=b$ ’ even if we consider the relation of identity as the relation between two proper names. According to Mill, a proper name has no meaning above and beyond the object to which it refers. For example, the proper name ‘Aristotle’ just means the individual Aristotle which it refers. Thus, the identity statement ‘ $a=b$ ’ has no informative content so far as it merely asserts that ‘ $a$ ’ and ‘ $b$ ’ designate or refer to the same object to explain this Munitz writes,

*Thus the statement ‘ $a=b$ ’ need not give us any more information or knowledge about the object than is contained in the statement ‘ $a=a$ ’. The statement ‘ $a=b$ ’*

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<sup>1</sup> G.Frege, ‘*On Sinn and Bedeutung*, in M. Beaney (ed.), *The Frege Reader*, p.151  
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would be known to be true, just as we know 'a=a' is true. For if all that is involved in knowing that  $a=b$  is that the sign 'a' refers to some object, and the sign 'b' refers to some object, and the sign '=' means 'has the same referent as', then the entire statement ' $a=b$ ' is true by virtue of this definition.<sup>2</sup>

Frege accepts the sense of a proper name to explain informative content of identity statement ' $a=b$ '. According to Frege, every proper name has sense by means of which it determines its reference. Frege holds that the mechanism of reference is essentially indirect. That means that a proper name refers to an object as its reference via its sense. For Frege, identity statement ' $a=b$ ' unlike ' $a=a$ ' is informative because the sense (the mode of presentation or determination of reference) of 'a' is different from that of 'b', although they have same reference. Frege writes,

*Now if we were to regard equality as a relation between that which the names 'a' and 'b' designate [bedeutun], it would seem that  $a=b$  could not differ from  $a=a$ , i.e. provided  $a=b$  is true. A relation would thereby be expressed of a thing to itself, and indeed one in which each thing stands to itself but to no other thing. What we apparently want to state by  $a=b$  is that the signs or names 'a' and 'b' designate [bedeuten] the same thing, so that those signs themselves would be under discussion; a relation between them would be asserted. But this relation would hold between the names or signs only in so far as they named or designated something. It would be mediated by the connection of each of the two signs with the same designated thing. But this is arbitrary. Nobody can be forbidden to use any arbitrarily producible event or object as a sign for something. In that case the sentence  $a=b$  would no longer be concerned with the subject matter, but only with its mode of designation; we would express no proper knowledge by its means. But in many cases this is just what we want to do."*<sup>3</sup>

According to Frege, the reference of a sentence in ordinary context is its truth-value and the sense of a sentence is the thought expressed by it. For example, the reference of the sentence 'Hume is an empiricist' is its truth-value, whereas, its sense is the thought expressed by it. But for Frege, the reference of a sentence in indirect context is the thought expressed by it which is the sense in ordinary context. For example, when the sentence 'Hume is an empiricist' is used in indirect context like 'Philosophers believe that Hume is an empiricist', the reference of 'Hume is an empiricist' is in this type indirect context is the thought expressed by it.

<sup>2</sup> M.K. Munitz, *Contemporary Analytic Philosophy*, p.111

<sup>3</sup> G.Frege, 'On Sinn and Bedeutung, in M. Beaney (ed.), *The Frege Reader*, pp.151-152

## Section-II

Frege's method of semantic analysis of linguistic expression of a language with the help of the notions of the sense and the reference or nominatum is called by Carnap the method of the name relation. Carnap says,

'The name-relation is customarily conceived as holding between an expression in a language and a concrete or abstract entity (object), of which that expression is a name. Thus this relation is, in our terminology, a semantical relation.'<sup>4</sup>

Carnap speaks of some of the disadvantages of this method in his book *Meaning and Necessity* and introduces a method which he thinks is free from these disadvantages. His method is the method of extension and intension. In *Meaning and Necessity* Carnap gives a different method, the method of *extension and intension*, to deal with the problem of substitutivity in an oblique context. Carnap holds that in an oblique context, the indirect reference of an expression is what its customary sense is, and in such a context an expression cannot be substituted by an expression having the same customary reference. In the method proposed by him every expression has an intension and an extension. The intension and extension of an expression somehow correspond to Frege's sense and reference of an expression in direct context. The extension of an individual expression is the Individual to which it refers. And the intension an individual expression is a concept of a new kind. Carnap says,

*"A sentence is said to be extensional with respect to a designator occurring in it if the extension of the sentence is a function of the extension of the designator, that is to say, if the replacement of the designator by an equivalent one transforms the whole sentence into an equivalent one. A sentence is said to be intensional with respect to a designator occurring in it if it is not extensional..."*<sup>5</sup>

We can take the expression in the language, such as sentence, individual expressions and predicate-expressions to explain the distinction between extension and intension. For example, 'Kant is a philosopher' is a sentence, the expression 'Kant' is an individual expression and 'a philosopher' is a predicate-expression. Carnap calls the sentence and the individual expressions the 'designators' and the predicate-expressions 'predicators'. The designators and the predicators have both extension and intension.

For Frege, in an ordinary context the reference of an expression is the object that it stands for. For example 'Rabindranath is the author of Gitanjali' the name 'Rabindranath' occurs in an ordinary context. Now if in this true sentence we replace the name 'Rabindranath' by another expression having the same reference, for example, by the name 'Bhanusing' the truth-value of the whole sentence remains unchanged. But when an expression occurs in an indirect or oblique context it does not have its ordinary reference.

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<sup>4</sup> R. Carnap, *Meaning and Necessity*, p.97

<sup>5</sup> R. Carnap, *Meaning and Necessity*, p.1

For Frege this type of expression occurs in an indirect context, and in such a context the expression does not designate the object which is ordinarily its referent. Such type of expression according to Frege, an expression has its indirect reference, which in ordinary context is the sense of the expression.

Carnap's notion of intension and extension of expressions and Frege's notions of sense and reference of expressions coincide in ordinary context, but not in oblique context. For Carnap the extension of a sentence is its truth-value, and the intension is the proposition expressed by it. Proposition are here regarded as objective, non-moral, extra-linguistic entities. It is also applicable in the case of false sentences. He says that the intension of a sentence is the proposition expressed by it. The extension of an individual expression is the individual to which it refers. On the other hand, the extension of the definite description is the individual to whom the description applies. For him, the intension of an individual expression is the individual concept expressed by it. The extension of a predicate expression is the corresponding class. The intension of a predicator is the corresponding property.

The difference between Frege's method of name-relation and Carnap's method of extension and intension is that, in Carnap's method the designators are not taken to name anything. In Carnap's method the extension and the intension of an expression remains the same no matter what the context is; while in Frege's method the sense as well as the reference of an expression change in accordance with the context in which the expression occurs. Carnap does not allow substitution of an expression by another expression in an intensional or oblique context unless the two expressions have the same intension, i.e., they are L-equivalent.

Carnap in his *Meaning and necessity* points out some disadvantages of Frege's method. According to Carnap the method of name-relation which Frege adopts, involves some additional complications. Frege's theory of 'sense' and 'reference' are similar to Carnap's 'intension' and 'extension' of an expression. Carnap's concept of intension is similar to that Frege's concept of sense. Carnap thinks that Frege decided to make such a distinction because he holds that in an oblique mode of speech the (indirect) reference of an expression is its customary sense; and he also assumed that the reference and sense of an expression must always be different. For this reason he had to introduce a third entity which is the oblique or indirect sense. But Frege nowhere explains what this indirect sense is. Frege's method of name-relation leads to complicated multiplicity of names. For example, according to Frege, the sentence 'Descartes is a philosopher' is a name, it is the name of a truth-value. The sentence also expresses a thought, which is a different entity. In order to speak about this entity we have to introduce a second name. This second name also has a sense, and in order to speak about that sense we have to introduce a third name and so on to infinity.<sup>6</sup>

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<sup>6</sup> Cf. R. Carnap, *Meaning and Necessity*, p.129  
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