Chapter II

CHAPTER II

Frege's Doctrine of Proper Name

In the writings of Frege we find that he did not have very sophisticated view of proper names. He has not given a precise definition of it. What he made by the term "proper name" can be explicated by his use of the term 'object'. An object is the referent of a proper name. Moreover it is also claimed that his use of the term "proper Name" does not draw any distinction between a proper name and a definite descriptions. To put it more precisely, all singular terms are considered by him as proper names. Our view is substantiated by Dummett's claim. Dummett claims that Frege has not given any precise characterization of 'proper names'. He writes:

> He (Frege) usually contended himself with using as a criterion the fact that an expression constituted a substantival phrase in the singular, governed by the definite article. He remained indifferent to the fact that this criterion would be inapplicable to those languages which lack a distinction of a or between singular and plural, or to those even more numerous languages which lack a definite article: and equally indifferent to the fact that, even in those languages to which the criterion I applicable, it is inexact in both direction.[1]

But Frege, as Dummett also claim, did not propose merely a syntactical criterion of a proper name. The criterion is based on Frege's use of the term 'object'. Dummett claims that "... Frege's use of the

ontological term 'object' is strictly co-relative to his use of the linguistic term proper name.[2] So Frege's characterization of a proper name depends on his use of the term 'object'. His use of the term 'object', however cannot be explained without reference to his use of the term 'concept' and 'function'. Frege claims:

> A concept (as I understand) the word is predicative. On the other hand, a name of an object, a proper name, is quite inapplicable of being used as a grammatical predicate.[3]

What Frege is saying is that a predicate expression refers to a concept or function, and a proper name refers to an object. From this it does not follow that a proper name cannot be part of a predicative expression. In the sentence "The morning star is Venus", the predicate is not simply "Venus", and the word 'is' is not merely the copula. The word 'is' means 'is no other than'. Hence the predicate is 'no other than Venus'. The later expression refers to a concept. The object denoted by the subject expression "The morning star" falls under the concept *no other than Venus.* In the sentence "The morning star is a planet", the predicate expression is 'a planet', which refers to the concept *planet*, and the object denoted by the proper name "The morning Star" falls under the concept *planet.* But in the sentence "The concept of *planet* is acquired from experience", the subject term 'the concept of planet' does not refer to a concept, but to an object. Hence the concept of planet in this context cannot be said to be a concept. This remark has puzzled several interpreters of Frege, under literature of this topic has grown over the last three decades. Some of the comments of Frege are also responsible for the controversy. He has not made it explicit whether he is offering a linguistic criterion or an ontological criterion, or an epistemic

criterion, or a hint for drawing the distinction between a proper name and a predicative expression.

In his article, "On Concept and Object" he says,

> ... the singular definite article always indicates an object, whereas the indefinite article accompanies a concept word.[4]

Again he says:

> ...I was not trying to give a definitions, but only hints.[5]

If the criterion of Frege is just a linguistic criterion then it is not universally valid. If it is just a hint, then he has not given any definite criterion for such a fundamental distinction between concept and object. Some scholars say that a definite criterion can be formulated from the use he has made of these terms. Let us consider his examples:

(a) There is at least one square root of 4.

(b) The concept square root of 4 is realized.

In both (a) and (b), he claims, the same thought is expressed, but in (a) we are saying something about the concept *square root of 4*, and in (b) we are saying something the object expressed by the proper name, "The concept *square root of 4*. This will be surprising only to somebody who fails to see that a thought can be spilt up in many ways, so that how one thing, now another, appears as subject or predicate.[6] This remark of Frege suggests that the object concept distinction, at least in this case, depends on our manner of splitting up our thoughts. If this is considered as the criterion for the object-concept distinction, than it may be considered as an epistemic criterion. Let us have a cursory look of concept-object distinction.

Frege on Concept and Object

In order to say how did Frege confused between proper name and subject concept let us devote some time to his celebrated distinction between concept and object. A central theme, that becomes evident, in Frege's Philosophy of language that he develops in various ways in his writings is the importance for logic of takings the sentence as a whole as the basic item to be analyzed. In the *Foundations of Arithmetic*, he lays it down as a basic principle that it is only in the context of a sentence that a word has meaning. It is the thought conveyed by a whole sentence of which, when asserted, we can ask whether it is true or false, and so as having possible cognitive significance. The task of logic, in starting with whole sentences, is to examine the type of components out of which a sentence is constructed. It is important to see the underlying logical rule of this item and to be misled by superficial grammatical similarities or dissimilarities. Frege accomplished the disentangling of these logical components in a path breaking way. What distinguishes much of modern logic from traditional logic is the way sentences, in their Internal components as well as in their interconnections in sequences of sentences to yield entire arguments, are analyzed.

As contrasted with a superficial grammatical distinction between subjects and predicates that underlay much of traditional logic, Frege distinguish between the linguistic expressions of concept-word and proper names. To accomplish this he showed the great importance of making a useful comparison between the idea of a mathematical function and its 'arguments' on the one hand and the logical idea of a concept in application of an object on the other hand.

One underlying thing in Frege's analysis has to do with the notion of *assertion*. A sentence can be, but need to be asserted. Consider, for

example, the sentence "Socrates is wise". The sentence is grammatically well formed. It dose not violet any familiar rules of English grammar. Frege would say that this entire sentence has a sense. We understand it. The sense of a sentence as a whole Frege calls a *thought*. We can understand the thought expressed by this sentence without asserting it. In so far as the sentence is understood as expressing a thought it has an assertible content --- it would make sense to us whether it is either true or false. To assert this sentence is to use it to make an actual truth claim that the sentence is true. And to assert this sentence is to use the sentence with an assertoric force. Instead of assertoric force one might have given the same sentence an *interrogatory force*. Thus one might have ask a question by means of it: Socrates wise? Or by rearrangement of words, 'Is Socrates Wise?'

Frege makes a fundamental distinction in the analysis of the internal logical structure of a sentence between *concept-words* and *names*. Let us explicate his view as he works out this distinction. In his paper "Function and concept", written in 1891, Frege makes clear how one can employ the mathematical idea of a *function* as a model by means of which to arrive by analogy and generalization, at the important logical idea of *concept*. Concepts play a crucial role in great variety of well-formed sentences, regardless of the subject matter with which this sentences deal.

Let us consider a simple example that Frege gives from the domain of arithmetic in which the idea of "function" makes it appearance. Let us take the following series of expressions, each of which stands for a number.

2. $1^3 + 1$

2. $4^3 + 4$

2. $5^3 + 5$

The first expression designate the number 3, the second the number 132, the third the number 255. Frege points out that it is important to distinguish a numerical expression that stands for,signifies, or designates a number itself. To put it in general terms we distinguish sign for an object from the object itself, just as we distinguish the name Socrates and the person Socrates. Frege remind us that we must distinguish in a similar way numeral or numerical expression from the number it represents. Thus the numerical '7' stands for the number '7'. But the same number '7' would be respected by other symbols or expression, for example, 'VII, '2^2 + 3,' or '4 +3'.

In our example above each of the numerical expressions represents 3, 132, and 255. However, when we examine the three expressions given above (2.1^3+1, 2.4^3+ 4, and 2.5^3 +5) we recognize in them a common pattern. Although it is common practice among mathematicians to use a 'variable number' x to convey this common pattern by writing, for example, '$2.x^3 + x$'. Frege prefers to show what this common pattern is without making use of the notion of a variable number. Instead he would show the pattern common to the series of numerical expressions in our example as

$$2.\ ()^3 + ()$$

The blank spaces enclosed in each of the two sets of parentheses can be filled by various numerals, provided (for the above pattern) the numerical that fills the first parentheses also fills the second parentheses. Thus we can substitute '1' in each of the above parentheses and obtained the first of the above expression ("2.1^3 + 1"), and so on. The placement of a particular numeral in each of the above blank spaces is known as providing a symbol in an argument place to

stand for an argument. What remains constant or invariant, even though the arguments many change form one example to the next, is the pattern "2. ( )^3 + ( )". This common pattern is known as the *function*. The same function appears in each of the three sets of expressions ("2.1 + 1", "2.4 + 4" and "2.5 + 5") even though the arguments are different. Corresponding to a particular argument for the function under consideration, here is obtainable a particular numerical value 3: for the argument 4, it has the numerical value 132, and so on. The numerical value is the resultant of combining the argument and function.

Frege points out that in this way of analyzing what a function, argument, and numerical value are; we can say that a function is *unsaturated* (or incomplete). By itself since a functional expression consists in part of blank spaces, it cannot designate any particular number. The argument, however, so far as it is a particular number is complete and determinate. Similarly when one supplies a particular argument to a specific function, numerical value [a particular number] that is also complete whole. Thus the notion of a function carries with it the important idea of a common pattern. It however is not a definite number. A function [in the mathematical sense] may be thought of as that which, though not itself a definite number, never the way connects up or co-relate two thing that are definite number, namely arguments and values.

With the foregoing background of how we are to think of the relations of 'function', 'argument', and 'value' in a mathematical context, Frege proceeds to exploits these distinctions for general logical or philosophical purposes. He shows how we can apply these distinctions to deal not only with expressions having to do with numbers, but how parallel distinctions among 'function', 'argument', and 'value', can be made in the logical analysis of language-uses in which are to be found descriptions or assertible sentences having to do with various types of

subject-matter. This will involve, among other things showing the close connection between the mathematical notion of a *function* and the more general notion of a *concept*. It will also involve going beyond the idea of a *numerical value* to achieve the notion of a *truth-value* for a sentence as a whole. In summing up the main points of these moves, Frege asks us to consider how closely that which is called a concept in logic is connected with what we called a function. Indeed, we may say at once a concept is a function whose value is always a truth-value.

Let us consider the expression whose general form is "the capital of ____", where the blank indicates we may substitute the name of some particular political unit --- 'India', 'France', 'the state of West Bengal', and so on. The incomplete expression 'the capital of ____' represents the common feature the invariant form, in which we may put a name in the blank space. The expression 'The capital of ____' may thus be regarded as a function: in the present case the expression serves as a descriptive function. In the blank space of this *descriptive function* ---- its arguments place --- one may put the name for an individual political unit ('India',' France',). By itself the functional expression "the capital of ---" does not represent a particular political entity (object). Once we substitute in the appropriate argument place of this descriptive function the name of a political entity, we can then treat the resultant expression (the combination of the descriptive functional expression and the name in the argument place) as an expression that designated a particular object or entity --- this time a particular city. Thus when we put in the argument place for the descriptive function 'the capital of ---' the name 'India', we have the complete expression 'the capital of India', and *this* linguistic expression has as *its* value the city New Delhi. The entire related ideas of 'argument', 'function', and 'value' can now serve, by this mode of extension, beyond their pure mathematical uses.

Let us now follow Frege as he further extends that use of the model of 'function', 'argument', and 'value' to deal with other types linguistic expressions beyond the purely mathematical cases. Once such important extension has to do with the way we can examine entire sentence when used to make assertions. Consider the sentence 'Socrates is a philosopher'. Frege suggests that the sentence can be considered, for logical purposes, as made up of a functional part and an argument. One way of analyzing the sentence is to consider the expression '--- is a philosopher'. Where we have put in place of the name 'Socrates' a blank (an 'argument-place') while retaining the rest of the sentence ('is a philosopher'). Having done this, we can treat the entire expression '--- is a philosopher' as a function. Frege calls this kind of function a *concept.* The expression 'is a philosopher' stands for a concept. Instead of the name 'Socrates we put, as Frege points out, use other name for individual objects --- 'Plato', 'Aristotle', '4', the 'Eiffel Tower', and so on. When we plug in the names of 'Socrates', 'Plato', and 'Aristotle' in the argument-place of this linguistic expression ('---is a philosopher') we obtain various complete sentences. For each of these resultant complete linguistic expressions (sentence) we can now ask whether it is true or false. Truth and falsity are the possible truth-values for the sentence as a whole. For the sentence 'Socrates is a philosopher' we obtain the truth–value 'truth' (and similarly for the complete sentence 'Plato is a philosopher', 'Aristotle is a philosopher' --- where 'Plato' and 'Aristotle' are the expressions in the argument–places for the same concept (function), '--- is a philosopher') for each of the aforementioned arguments (Socrates, Plato, Aristotle), with this function (concept) we obtained sentence whose truth-value is 'truth'. However, when we put in the numeral '4' or the name 'the Eiffel Tower' we obtain sentence whose truth–value is 'the false' (or 'falsity').

The expression '--- is a philosopher' is the incomplete or unsaturated part of a sentence which, when supplemented by the name or other designation for an object, yields a complete sentence whose true-value can be determined. The unsaturated part ('--- is philosopher') Frege calls a concept-word (*Begriffswort*). According to Frege, in order for the entire sentence to be capable of determination as true or false, the concept-word it contains must be given a clear and determinate meaning, and the expression used as argument-signs must designate some object, some individual entity. A concept-word is a linguistic expression: it stands for a concept: it serves as a predicate. However, a concept is, for Frege, something objective, not itself part of language. At the same time, a concept is not someone's idea, a mental occurrence or psychogical event. That some object has a certain property --- falls under a certain concept (as Frege would put it) --- either is or is not the case, objectively. To say 'Socrates is a philosopher' is to say something about Socrates that he has the property of being a philosopher, or falls under the concept 'philosopher'. It doesn't tell us anything about someone's --- for example, the speaker's or hearer's-mental state. The *apprehension* of a concept is a psychological matter. However, the concept apprehended and the relations it bears to objects or other concepts are not a matter for psychological investigation.

What Frege call's 'concept-word' (*Begriffswort*) takes the place of what, in the order logic or in a simple grammatical approach would be called the *predicate* of the sentence. If we think of concept–word in Frege's sense as predicates, we must be careful to think of the term 'predicate' in the way he approaches the role of predicates in a perspicuous and logically correct restatement of the component parts of a sentence. A concept word is a predicate, but many expressions that would have been considered predicates in the older logic are not so for Frege, conversely what he assigns to a predicate role in his new logic

would not have been recognized as such in the traditional logic or in simple 'surface' grammatical analyses.

To summarize what has thus far been said about the use of concept-words: a concept–word is the predicative part of a sentence. As a predicate, a concept-word is to be understood in a logical rather than a psychological sense. It belongs to the use of language as analyzed and reconstructed to show its basic logical components. Frege does not use the term 'concept', as others do, to designate some part of the content of our mind, an image, or any other type of mental occurrence. Frege frequently use the term 'concept' in its narrower, special meaning, as synonymous with 'one-place predicate'. In this narrower use, 'concept' is differentiated from 'relation', since the later expression is typically used by him to stand for a binary (two-place) predicate. In its broader use, we could extend the use of the term 'concept' to include all type of predicates, whether one-place (monadic, unary), or many-place (polyadic). A concept-word (or combination of concept-words) is incomplete or unsaturated. By itself it does not constitute an entire sentence. It can be joined, however, with the name (or names) of individual objects to yield a complete sentence. Such a complete sentence is either true or false; the predicate (concept) is either *true of* or *false of* (applies to or does not apply to) the objects of which it is predicated.

With these preliminary points in mind, let us proceed, with Frege, to amplify and refine the analysis of the distinction between concepts and objects so far presented.

As already remarked a concept-word needs to be distinguished from those expressions, such as proper names, that designate individual object. A concept-word (or predicative expression) is incomplete or unsaturated. Whereas the expression designating an object is complete

or saturated. It follows from this that the name for an object could never serve, as such and by itself, as the predicative part of a sentence.

Further on Frege's analysis, the use of the word 'is' is not essential to marking the predicative part of a sentence. Although English contains the use of the word 'is', not all natural languages have equivalent words for 'is'.

Consider the sentences (Frege's example)

The morning star is Venus.

The morning star is a planet.

Although the word 'is' occurs in both sentences, it performs different roles in each. The first use of 'is' (in 'The morning star is Venus') marks the *identity* use of 'is'. The expressions 'the morning star' and 'Venus' that flank the word 'is' each designates the same object. Each expression serves as a *name* for an object. By itself, neither is predicative. In the sentence 'The morning star is a planet', the term 'is' is part of the predicate. The expression 'is a planet' stands for a *concept.* It is not a name for an object. The word 'is' (the copula) in this sentence is a sign of prediction.

Go back to the sentence 'The morning star is Venus'. We said the word 'is' is here used in its *identity* rather than *predicative* sense. However, as Frege points out, it is possible to rewrite the sentence containing the identity use of 'is' so that it takes on a predicative form. For this purpose the sentence 'The morning star is Venus' would be written as 'The morning star is *no rather than Venus*'. Now, however, the expression 'is no other than Venus' conveys a concept: it constitutes the predicate of the sentence. The name 'Venus' has been absorbed within the entire predicate ('is no other than Venus') and this predicate expression does not designate an individual object. Like all other

predicates, it too is unsaturated. It represents a concept that could be predicatively as a description (whether true or false) of any individual object. The word 'is' in the predicate 'is no other than Venus' is part of the entire predicative expression and so is a sign of predication. The predicative expression 'is no other than Venus' is still a *concept* even though only one object falls under that concept.

In the identity use of 'is', the position of the two expressions 'The morning star' and 'Venus' is interchangeable or reversible. We have a meaningful and equally true (or equally false) statement by writing 'Venus is the morning star' or 'the morning star is Venus'. However, given the sentence:

'The morning star is a planet'.

The expressions 'the morning star' and 'is a planet' are not interchangeable. (Let it be noted, by the way, that the sentence 'The morning star is *the planet Venus*'. The latter sentence employs the identity use of 'is', since the expression '*the* planet Venus' in Frege's usage is a *proper name* for a particular object.) The sentence 'The morning star is a planet' is not reversible since it makes use of the word 'is' in its predicative role.

The next point has to do with Frege's distinction between *falling under a concept and the marks of a concept.* Consider once more the sentence:

The morning star is a planet.

Following Frege, we say the expression 'the morning star' names an object, whereas the expression 'is a planet' is predicative and conveys a concept. Wherever we have a situation of this sort —- where a sentence attaches a predicate expression to the name of an individual object – we can say *the object falls under the concept.* The notion of *falling under a concept* is Frege's way of expressing what is traditionally described by saying an individual (object) 'has a certain property', or (as some would

interpret this) 'the universal (expressed by the predicate) is exemplified in the individual (subject)'. What is meant by the use of the phrase 'to fall under a concept' is that it holds for the relation between an individual object and a concept. It makes no sense, for example, on this stipulation of meaning to say that something or other false under an object. It is only of *concepts* (as 'is wise', 'is a planet', 'is a square root') that can say (truly or falsely) that some individual object falls under that concept.

The following quotations from Frege will serve as a review and summary of a number of the points we have been considering in connection with the basic distinction between concepts and objects:

First of all, I must emphasize the radical difference between concepts and objects, which are of such a nature that a concept can never substitute for an object or an object for a concept...the nature of concepts, can be characterized by the fact that they are said to have a predicative nature. An object can never be predicated by anything. When I say, 'The evening Star is Venus', and then I predicate not Venus, *but coinciding with Venus*. Linguistically, proper names correspond to objects. Concept–words (*nomina appellativa*) to concepts. However, the sharpness of this distinctions somewhat blurred in ordinary language by the fact that what originally were proper names (e.g. 'Moon') can become concept–words, and what originally were concept-words (e.g. 'god') can become proper names, concept-words occur with the indefinite article, with words like 'all', 'some',' many' etc... Now between objects and (first-level) concepts there obtains a relation of subsumption: an object falls under a concept. For example, Jena is a university town. Concepts are generally composed of component-concepts — the characteristics. Black silken cloth has the characteristic black, silken and cloth. An object falling under this concept has this characteristic as its properties. What is a characteristic with a respect to a concept is a property of an object falling under that concept. Quite

distinct from this relation of subsumption is that of the subordination of a first–level concept under a first–level concept, as in 'All squares are rectangles'. The *characteristics* of the subordinate concept (rectangle) are also *characteristics* of the subordinate one (square). When I say, 'There is at least one square rgot of 4', I am predicting something not of 2 or –2 but of the concept square root of 4. Neither am I giving a characteristic of this concept: rather, this concept must already be completely known. I am not singling out any components of this concept, but am stating a certain composition of the concept in virtue of which in differs for example from the concept *even prime number greater than 2.* I compare the individual characteristic of a concept to the stones constituting a house: I compare what is predicated in our proposition to a property of the house, e.g. its spaciousness. Here, too, something is predicted: not, however, a first level concept, but a concept of the second level. Square root of 4 relates to there is existence in a very similar way in which Jena relates to university town. Here we have a relation between concepts: not, however, a relation between first level concepts, as in the case of subordination, but a relation of a first–level concept to a second–level concept, which is similar to the subsumption of an object under a first-level concept. The first-level concept here places a role similar to that of an object in the case of subsumption. Here, too, one cloud speaks of a subsumption: but this relation, although indeed similar, nevertheless is not the same as that of the subsumption of an object under a first–level concept. I shall say that the first level concept falls (not under, but) within a second level concept. The distinction between concept of the first and second levels is just as sharp as that between object and concept of the first level: for objects can never substitutes for concepts. Therefore an object can never fall under a second–level concept: such would be not false but nonsensical. If one tried something like this linguistically, one would get neither a clue nor a false thought, but not thought at all.... A different feature of first level concept is expressed by the proposition that if an object falls under

such a concept, another object distinct from the preceding one also falls under it. Here we have a second concept of the second level. From both, as second-level characteristics, we can form a third second-level concept within which falls all those first-level concepts under which fall at least two distinct object. The concepts prime number, planet, and human being would be such as fall within this second-level concept.[7]

Another useful summary statement of some central points concerning concepts and object is the following excerpt from *The Foundations of Arithmetic*:

That a statement of number should express something factual independent of our way of regarding things can surprise only those who think a concept is something subjective like an idea. But this is a mistaken view, if, for example, we bring the concept of body under that of what has weight, or the concept of whale under that of mammal, we are asserting something objective: but if the concepts themselves were subjective, then the subordination of one to the other, being a relation between them, would be subjective too, just as a relation between ideas is. It is true that at first sight that proposition:

'All whales are Mammals'

seems to be not about concepts but about animals: but if we ask which animal then are we speaking of, we are unable to point to any one in particular. Even supposing a whale is before us, our proposition still does not state anything about it. We cannot infer from it that the animal before us is a mammal without the additional premises that it is a whale, as to which our proposition says nothing. As a general principle, it is impossible to speak of an object without in some way designating or naming it, but the word 'whale' is not a name for any individual definite object but nevertheless an indefinite object. I suspect that 'indefinite object' is only another term for concept, and a poorer, more contradictory one at that. However true it may be that our proposition

can only be verified by observing particular animals that proves as to its content: to decide what it is about, we do not need to know whether it is true or not, nor for what reasons we believe it to be true. If, then, a concept is something objective, an assertion about a concept can for its part contain something factual.

The business of a general term is precisely to signify a concept. Only when conjoined with the definite article or a demonstrative pronoun can it be counted as the proper name of a thing, but in that case it ceases to count as a general term. The name of a thing is a proper name. An object, again, is not found more than once, but rather, more than one object falls under the same concept simply because only one single thing falls under it, which thing, according, is completely determined by it. It is to concepts of just this kind (for example, satellite of the Earth) that the number I belongs, which is a number in the same sense as 2 and 3. With a concept the question is always whether anything, and if so what, falls under it. With a proper name such questions make no sense. We should not be deceived by the fact that language makes use of proper names, for instance Moon, as general terms, and vice versa; this does not affect the distinction between the two. As soon as a word is used with the indefinite article or in the plural without any article, it is a general term.[8]

Frege makes a fundamental distinction between proper names and predicate expressions (concept – words and relation). Frege's use of the expression 'proper name' is a broad one. It includes not only what we should ordinarily recognize as proper names (e.g. 'Abraham Lincoln', 'Socrates'), but also any linguistic device such as definite descriptions- e.g.,' the tallest mountain in Alaska'- that might be used to designate an individual object. In short, Frege's use of the label 'proper name' is equivalent to that of 'singular term', whether simple or complex.

In Frege's view, proper names (as he understands this expression) stand for something *complete*. A proper name, in order to serve as such, has a sense associated with it. Not all proper names, however, have a referent. In a well-designed scientific language, every proper name would have both a single clear sense and a referent. It is by means of the sense of a proper name that we could pick out the individual referred to by that name. In ordinary language, a proper name such as 'Abraham Lincoln' has one or more senses or definite descriptions associated with it. We could use one of these senses or definite descriptions as a replacement for the proper name. For example, in place of 'Abraham Lincoln' we could use the expression 'the president of United States assassinated during the 'Civil War' to pick out the individual meant.

Frege distinguishes concept-words and relation expressions from 'proper names' (singular terms). Concept words and relation expressions are the predicative components of complete sentences. As such, predicative expressions are 'incomplete' or 'unsaturated'. By themselves they do not designate any object, nor can one ask whether they say anything true or false. It is only of a complete sentence that one can ask whether it is true or false. A complete sentence is formed in one of two ways: by joining singular term (or terms) to a predicate expression (e.g., 'Socrates is a philosopher'), or by using quantifiers in a general proposition to bound variables (e.g., 'For all values of *x*, if *x* is a man , then *x* is mortal') . Uptill now we have exploited the distinction between sense and reference without giving an exposition of this distinction. In the next section our task will be to give an exposition of this bifurcation following Frege.

Sense And Reference

In his work as a philosopher and logician, Frege constantly stresses the indissoluble link between thought and language. For him it is of crucial importance to examine the role that language plays in expressing and communicating thought, both in order to see what the actual resources of language are and how, under the guidance of critical logic, we may clarify and bring into the open an improved apparatus for using language to serve our cognitive interests. The use of language to give us *truth* about the world dominated and preoccupied Frege's approach to language. Logic, for him, is the tool by which we can best serve that interest.

Frege's important work as a philosopher of language and philosophical logician is the working out explicitly of the various meanings of 'meaning' itself. What he has to say here, especially as it relates to the basic distinction between *sense* and *reference*, is of the highest importance. This is the case form the point of view of understanding the internal structure of his own philosophy, as well as in terms of appreciating the influence his analysis has had one subsequent writings in the analytic, post-Fregean tradition. Since the basic distinction between sense and reference, as aspects of 'meaning', has a fundamental relevance to an overriding interest in the truth, it may be summed up by saying that the distinction has to do with making clear certain truth-conditions in our use of language. These truth-conditions need to be discriminated and satisfied in a logically controlled use of language.

The basic distinction between sense and reference was first worked in Frege's classic paper "*Uber Sinn Bedeutung*" (1892) and subsequently employed by him in all his writings. Let us turn, then to an examination of the statement of this distinction as Frege presents it in that paper.

Frege makes it clear that his initial motive for introducing the distinction between sense and reference is that he might use that distinction in helping to solve the philosophic problem of how to correctly analyze certain types of identity statements. Frege will show that the reason for his earlier failure to deal successfully with identity statements is that he failed to make the necessary distinction between sense and reference. Once made, the distinction has wider uses, for the distinction will clarify something of general importance in dealing with any form of linguistic expression employed for cognitive purposes. It will apply to types of sentences other than identity statements. It will apply not only to sentences taken as a whole, but also to the constituents of sentences. While initially the distinction will be worked out in connection with his paradigm example-that of proper names --- it will hold for concept-words as well. In short, not only names have their sense and reference; other constituent parts of well-formed sentences have their sense and reference too: and not only the constituent parts of sentences have sense and reference, but sentences as well as wholes, have their sense and reference, and the sense of the constituent parts of sentences help determine the sense of the sentence as a whole. Frege will show that not only does the distinction between sense and reference have these multiple applications to different units of linguistic expression, it also serves to clarify the logical analysis to be given to the differences between direct and indirect speech.

In what follows we shall begin, as Frege does, by examining the question of what analysis to give certain types of identity statements.

We shall then follow Frege in focusing our attention on the way in which the distinction between sense and reference appear in its clearest from in connection with proper names, and then turn briefly to the application of the distinction beyond these primary examples.

An identity statement is of the general form 'a=b'. It can be read as 'a is the same as b' or 'a and b coincide'. The problem is how to analyze such identity statements. What are their distinctive features? What logical roles are played by their several components?

The first question that may be asked has to do with how to understand the role of the identity 'equality' sign. '=', Translated as 'is the same as' (or 'coincide with'). It obviously expresses a relation of some sort — but between what? As it stands, the identity sign is an example of an incomplete or unsaturated expression. It needs to be completed by appropriate expressions which, together with the identity expression will yield a complete sentence. The question Frege considers is this: if the identity sign '=' (or the words that translate it, 'is the same as') has to do with a special relation of some sort, then we must ask about what, between what, or as holding for what, does the identity relation have to do? This question is by no means a simple one. No quick, widely agreed–to answer is readily available. Frege tells us of his earlier attempts to answer this question and why he found this attempts to be unsatisfactory. He then offers an answer that is superior to his earlier theories as well as to those of others. He identifies two such earlier (and now to be discarded) theories or attempted analyses of the nature of identity statements.

1. One possible answer to the question of what an identity statement asserts is this: identity is a relation of objects. The general linguistic from of an identity statement makes use of an equality sign '=' flanked on either side by two other expressions. The

expressions that flank the identity sign may be either the same or different. Thus 'a=a' and 'a=b' are both identity statements. If we take the identity relation as holding for objects, than one would interpret any identity statement, if true, as asserting that some object is the same as itself. If the object is designated by 'a' than the statement 'a=a' asserts than the object designated by 'a' at the left of the identity sign is the same object as the object designated by the 'a' at the right of the identity sign. And in the case of the identity statement 'a=b', this interpretation of what an identity statement asserts would be: the object designated by 'a' at the left of the identity sign is the very same object designated by 'b' at the right of the identity sign. In either case ('a=a' or 'a=b'), what the identity relation has to do with is the relation of any object to itself, namely that it is itself — it is the very same object — and not some other. Let us call this interpretation of the 'identity relation' objectual self-identity interpretation. Frege says this interpretation fails to give a satisfactory analysis of identity statements. For one might be in complete agreement with the claim, in a general ontological context, that every object is self-identical. However, this interpretation does help us to deal with an obvious and important difference in the logical status of the two distinct examples of identity statements, a=a and a=b. while both are admittedly identity statements, the second type of identity statement can convey a kind of information that the first does not. They differ in cognitive status. The second kind of identity statement may contain an important empirical discovery. That every object has a relation of self-identity to itself, while true, contains no special information. Frege's problem is how to explain what makes it possible for there to be such informative identity statements. Thus we find that the objectual self-identity interpretation of identity statements cannot suffice as a satisfactory analysis of identity statements. There is evidently

something more to the analysis of an identity statement that we must take account of than a purely objectual or ontological analysis seems to provide.

2. Frege turns, next, therefore, to a second possible analysis of identity statements. Now his interpretation approaches the question of the identity relation not as having to do with some special relation between two names insofar as they serve as signs for some object. The identity relation is a sign relation, not a purely ontological matter. As Frege points out, what is intended to be said by a=b seems to be that the signs or names 'a' and 'b' designate the same thing.

However, Frege finds fault with this theory as well, even though, in some respects, it is an advance over the first theory. It is an advance in so far as it stresses the need to bring in the connection (relation) between the signs, as essential to understanding the identity relation. One cannot get a satisfactory analysis of this relation by remaining exclusively on the ontological side, on the side of the object itself. If it is an identity statement one is interested in examining, one must examine something about the linguistic means used. This will involved studying relation of the linguistic science to each other, and the relation these signs have to the objects which in someway they signify. To realize even this much is an advance over the first approach. However Frege argues that it is not yet a complete answer because as a means of examining the identity relation in so far as this has to do with the relation between the sign and the thing signified, it fails to fasten on what is important in this part of the sign–relation as expressed by the identity statement.

Consider the identity statement whose form is 'a=b'. Let us assume that what is involved in the identity relation is that the sign 'a'

and the sign 'b' are related by the identity relation to each other because each independently, designates or refers to one and the same object. What we need, on the present interpretation, is that the following conditions be satisfied in order for the identity relation to hold: (1) there are signs that are readily distinguishable from one another in terms of their own physical properties — e.g., shape or sound — and serving, by virtue of these properties, as signs; (2) an object with each sign is correlated: (3) the signs, though different from each other, refer to the same object. For the sake of having a level for this view, although Frege himself does not use it, let us call this the pure reference interpretation of the identity relation.

There is no requirement, on this pure reference approach, that the sign itself give us any information about the object. It is enough if both signs refer to the same object. It is enough if every sign have certain physical properties of its own by means of which it can be distinguished from another sign having the same reference. However, the properties of the sign need not be taken as giving us any information about the object to which it refers. One example of the identity statement 'a=b' would be 'vii=7'; another would be 'Tulli=Cicero'. In the first case, though the numerical expressions 'vii' and '7' have different physical properties (e.g., shapes) they refer to the same object, i.e., the same number. Similarly, while the names 'Tulli' and 'Cicero' differ as signs in terms of sound and lettering, they refer to the same persons. Each sign, on this view, can thus be arbitrarily chosen in terms of its own physical properties. What the identity statement 'a=b' tells us is the fact two such arbitrarily chosen signs nevertheless refer to the same object. However the statement 'a=b', need not give us any knowledge about the object co-referred to by 'a' and 'b'. Thus the statement 'a=b' need not give us any more information or knowledge about the object then is contained in the statement '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.*

Yet the fact remains, Frege argues that the identity statement 'a=b' is sometimes informative and is not known to be true nearly in virtue of a definition. It gives us knowledge about the object referred to. And the information we get from an identity statement of the form 'a=b' is not therefore simply exhausted by or reducible to the following items: (1) the material properties of the signs 'a' and 'b' are different; (2) there is an object, different from 'a' and 'b', of which 'a' and 'b' serve as signs; (3) one and the same object is being referred by 'a' and 'b'. This kind or amount of knowledge is not enough to explain the fact that some identity statements themselves give us additional knowledge (information) about the object referred to by 'a' and 'b'. The identity statement ('a=b') that gives us such additional knowledge (knowledge which is now registered as a discovery) must evidently contain in its very statement some feature in the use of signs 'a' and 'b' we have so far overlooked. It is this (so far) overlooked factor in the signs 'a' and 'b' that can yield knowledge about the object to which each refers. This missing element is what Frege new theory will makes explicit. It is what he calls sense connected with the use of the sign in an identity statement. The pure reference theory neglects to take into account this sense component in the use of a sign. It is the presence of the sense component, however, that explains the fact that some identity statements mark discoveries, and there by registered additions to our store of knowledge. The statement 'a=b' can have cognitive value, he will argue, because the senses attached to the sign 'a' and the sign 'b' are different. Thus, if the senses of 'a' and 'b' where the same, 'a=b' would not have any more cognitive value than 'a=a'.

We turn, than, to the third theory of the identity-relation — one Frege himself proposes in the paper '*Uber Sinn and Bedeutung*'. This theory makes the crucial distinction between sense and reference in the use of a linguistic sign. It is necessary to take into account the presence of both factors in the use of a linguistic sign. In particular, by doing this, we shall understand among other things, how certain identity statements can be informative and thus are not known to be true *a-priori.*

What, then, does Frege mean by 'sense', and how is it different from reference in the use of a sign?

As a preparation for answering this question let us pause to introduce, first, a clarification in our use of the term 'reference' let us distinguish between (1) *the relation of reference* and (2) *the referent.* Let us assume, by way of example, that we have a sign 'a' that serves as a sign for some object O. we shall use the term 'reference' interchangeably with the term 'designation', 'denotation' and 'standing for'. The sign 'a' will be said to have a relation of reference to the object O when it designates, denotes or stands for O. The sign is in the reference-relation to the object it designates. The object designated is the referent in the reference relation. The sign (e.g. a proper name) is the linguistic sign in the reference-relation that refers to (designates, denotes, stands for) the object as referent.

Frege claims that in understanding the possibility of a reference relation in which a sign refers to its referent, we should note *the sense* connected with the sign. The reference to the referent is not a wholly arbitrary or conventional matter. The reference-relation is established by virtue of the fact that there is a sense which belongs to the sign. Let us take some examples, first, of the sort of things Frege means by 'sense'.

Here is an often cited example. The statement 'The Morning Star is the Evening Star' is an identity statement (the word 'is' expresses this identity relation). The expression 'The Morning Star' has a certain sense. By virtue of this sense, it tells us where and when to look for a certain heavenly body. The expression 'The Evening Star' has a different sense from that of the expression 'The Morning Star'. It tells us where and when to look for a certain heavenly body. Each, independently, and by virtue of its sense, serves as a referring device to pick out an object. The fact that the object thus picked out by each referring phrase, each having its own distinctive sense, nevertheless is the very same object — the planet Venus — was not always known. It represents an important astronomical discovery. It was not known a *priori*. Therefore the statement 'a=b' (if taken to symbolize the sentence' The Morning Star is the Evening Star') is not known a *priori* as would be the case with 'a=a' (e.g. 'The Morning Star is the Morning Star).

The sense of each referring expression offers a *mode of presentation* of its referent. The sense of an expression may serve as an item of information about, a description of or a means of picking out the referent. It provides us, accordingly, with what may be called a *criterion of identification* for the object referred to by this means. Where we have different singular referring expressions (proper names) each of which has its own sense, we have different criteria of identification for the same object. (Should the different senses be logically incompatible with each other, of course they could not then be used to describe properties of the same object. However, what may seem to be incompatible criteria of identification may not in fact be logically incompatible. Thus the statement, 'The murderer of Mrs. Jones is the prisoner who is extremely devoted to helping injured birds' may be a true identity statement.)

The distinction between sense and reference clarifies the different ways in which may approach the analysis of the term 'meaning' itself.

For the pre-analytic, rough use of the term 'meaning' can now be replaced by a number of distinctions in the use of the term. Thus we might mean by 'meaning' (1) the personal, subjective (and therefore variable) associations, images, or ideas an expression calls up in some mind; (2) the sense of the expression; (3) the referent of the expression. For Frege, only (2) and (3) are of relevance for logic and a scientific use of language. He rejects the relevance of subjective associations or ideas on the ground that they are inappropriate for the construction and use of logically tight scientific language.

The reference and sense of a sign are to be distinguished from the associated idea, if the reference of a sign is an object perceivable by the senses, my idea of it is an internal image, arising from memories of sense impressions which I have had and acts, both internal and external, which I have performed. Such an idea is often saturated with feeling; the clarity of its separate parts varies and oscillates. The same sense is not always connected, even in the same man, with the same idea. The idea is subjective; one man's idea is not that of another. There result, as a matter of course, a variety of differences in the ideas associated with the same sense. A painter, a horseman, and a zoologist will probably connect different ideas with the name 'Bucephalus'. This constitutes an essential distinction between the idea and the sign's sense, which may be the common property of many and therefore is not a part of a mode of the individual mind. For one can hardly deny that mankind has a common store of thoughts, which is transmitted from one generation to another.

In the light of this, one need have no scruples in speaking simply of the sense whereas in the case of an idea one must, strictly speaking, add to whom it belongs and at what time. It might perhaps be said; just as one man connects this idea and another that idea with the same word, so also one man can associate this sense and another that sense.

But there still remains a difference in the mode of connection. They are not prevented from grasping the same sense; but they cannot have the same idea...if two persons picture the same thing, each still has his own idea. It is indeed sometimes possible to establish differences in the ideas or even in the sensations, of different men; but an exact comparison is not possible, because we cannot have both ideas together in the same consciousness.

The reference of a proper name is the object itself which we designate by its means the idea which we have in that case is wholly subjective; in between lies the sense, which is indeed no longer subjective like the idea but is yet not the object itself.[9]

While in accordance with the foregoing account we might use the term 'meaning' to encompass both the sense and the reference of a linguistic expression, there is a narrower use that restricts the term 'meaning' to the sense of an expression. According to this latter stipulation to understand an expression — to know what it means — is to know what its sense is. This does not require, however, that the expression, though meaningful, i.e. with a determinate sense, must, therefore, have a referent. Considering the expression, 'the person who has a perfect command of all languages that have ever been used by human beings anywhere on earth and throughout the entire history of the human race'. While this expression has a sense, it does not follow that there is some actual person to which this description could be applied. Whether there is or is not such a referent remains to be established by whatever appropriate routes of inquiry or appeal to evidence is available. Understanding of meaning (sense) of a description and factual knowledge — i.e. knowing there is an actual object to which a description applies — are thus two different matters. The latter, however, presupposes the former.

For Frege, all expressions in a well-constructed language have sense. Ideally, each expression would have a single, uniform sense, shared and understood by all competent users of the language. It is on the basis of the sense of an expression that one can specify the conditions for the truth or falsity of the sentence as a whole. For Frege, every constituent of a well-formed sentence has a clear and determinate sense. The sentence as a composite whole, too, must have a sense if we are going to be able to assess its truth or falsity. The sense of a sentence as a whole Frege calls *the thought.* This is not some collection of subjective ideas. It is, for Frege, something objective, public, uniform. His use of the expression 'the thought' corresponds to what other intend by the word 'proposition'. The sense (thought) of a sentence — whatever the variable, conventional symbolic means for conveying that sense — is a definite proposition.

In his later writings Frege spoke of the referent of all true sentences as the Truth, and the referent of all false sentences as the False. In treating of the relation of reference of a sentence as a whole, he fell back on the model of a proper name. Just as a proper name, in a well-constructed language, has a sense and a referent, so too, Frege supposed, we can think of a sentence as a whole as expressing a sense (the thought) and as having a referent. Instead, however, of thinking of each true sentence as correlated with its own unique referent (as in the case of names, 'Socrates' refers to Socrates and 'Plato' refers to a different individual) Frege assimilated the referents of all true sentences to a single referent –'this true'.

Frege is therefore driven into accepting the *truth-value* of a sentence constituting its reference. By the truth of a sentence he understands the circumstance that it is true or false. There are no further truth-values. For bravely he calls the one the truth, the other the false. Every declarative sentence concerned with the reference of its words is

therefore to be regarded as a proper name, and its reference, if it has one, is either the True or the False.[10]

The assimilation of the role of sentences, in this respect, to the role of names (whatever the conceptual economy achieved), is open to serious objections. It leads Frege to overlook the important differences between sentences and names, i.e. the need to distinguish the different ways in which we determine the 'referents' of each. Later philosophers, working broadly in the Fregean tradition, have criticized Frege on this score and have offered their own proposals for dealing with this question. Among others Wittgenstein, in his *Tractatus Logico-Philosophicus*, introduces the notion of facts as the referential correlates of propositions. With each true atomic proposition is correlated its own referent, a unique fact in the world.

In addition to the foregoing ways of exploiting the distinction between sense and reference (for the analysis, of identity statements, the treatment of proper names, and the way in which the distinction applies to entire sentence). Frege points out how this distinction can be helpful in dealing with various forms of *indirect speech*. However we will not discuss this point here as it will not be relevant to the present issue.

Reference

1. Gottlob Frege, " On Sense and Reference" in *Translations from the Philosophical Writings of Gottlob Frege*, edited by Peter Geach and Max Black, 2nd edition, Basil Blackwell, Oxford, 1960, p. 57..
2. Ibid., p. 55.
3. Frege, G., Translations from the philosophical writings of Gottlob Frege, ed. By P. Geach and Max Black, p. 43.
4. Ibid., p. 45.
5. Ibid., p. 45
6. Ibid., p. 49.
7. From a letter from Frege to Heinrich Liebmann (8.25.1900) in Frege, *On the Foundations of Geometry and Formal Theories of Arithmetic*, pp.3-5.
8. Frege, Foundations of Arithmetic, pp. 60-61, 63-64.
9. Ibid, pp.59-60.
10. Ibid., p.63.