DESCRIPTIONS: CONTEMPORARY PHILOSOPHY AND THE NYĀYA

J.L. SHAW

The aim of this paper is to discuss the Nyāya view of descriptive expressions or the sentences in which they occur in the light of the contemporary developments in logic and philosophy of language. This discussion would lead us to the question of how the concept of existence is related to a descriptive expression. The latter question would lead to the question of whether there are entities corresponding to the descriptions occurring in sentences such as "The present King of France is bald", "The winged horse captured by Bellerophon is black", and "The son of a barren woman is white". In this context I shall discuss whether the meaning of a definite description depends on the object to which it purports to refer.

This paper will be divided into two parts. In the first part I shall discuss the different prevalent theories of definite descriptions. In this context I shall discuss the theories of Frege, Hilbert-Bernays, Russell, Quine, Strawson, Geach, and the theory of some positive free logicians. In the context of our discussion of Frege it will be suggested that most of the theories in contemporary philosophy have followed the suggestions Frege has made in his discussion of empty terms. In the second part of this paper I shall explicate the Nyāya view in the light of the Nyāya theory of meaning and cognition. From the Nyāya theory of a sentence it will follow that a descriptive expression is not a term, but a sentence. In this respect it is a radical departure from all the theories of description discussed in contemporary philosophy. But since the Nyāya has accepted a bivalence theory of truth and since the Nyāya has not postulated a separate realm of objects in addition to past, present and future objects, this view is, in certain respects, similar to Russell's theory of description.

I

(1) Frege:

Frege's discussion of a definite description comes under his discussion of a proper name. A proper name, according to Frege, is a term which

signifies a definite object, if there is any. Hence definite descriptions, ordinary proper names, and demonstratives are considered as proper names in the system of Frege. He says:

> With the help of definite article and demonstrative, language forms proper names out of concept-words. ([1])
> If forming of a proper name in this way is to be legitimate, the concept whose designation is used in its formation must satisfy two conditions:
>
> 1. It may not be empty
> 2. Only one object may fall under it. ([2])

From this remark of Frege it follows that he is not in favour of using a definite description which is empty. In the sequel it will be shown that Frege's discussion of definite description suggests as many as three different theories of definite description and most of the contemporary discussion of definite descriptions are explications of different suggestions of Frege. Let us discuss the suggestions of Frege.

(a) There are certain remarks in Frege, which might suggest that one cannot use a definite description unless there is a descriptum for a definite description. He says:

> The regular connection between a sign, its sense and its nominatum is such that there corresponds a definite sense to the sign and to this sense there corresponds again a definite nominatum. ([3])
> When words are used in the customary manner then what is talked about are their nominata. ([4])

These passages suggest that we use a definite description to talk about a nominatum. Frege in his *Posthumous Writings* has made even stronger claims:

([1]) G. FREGE, *Posthumous Writings*, translated by P. LONG and R. WHITE, Basil Blackwell, Oxford, 1979, p. 178.

([2]) *Ibid*, p. 178.

([3]) G. FREGE, "On Sense and Nominatum", *Readings in Philosophical Analysis*, edited by Feigl and Sellars, Appleton-Century-Crofts Inc., New York, 1949, p. 86.

([4]) *Ibid*, p. 87.

> The sentence "Leo Sachse is a man" is the expression of a thought only if "Leo Sachse" designates something. ([5])

This passage suggests that a sentence which contains an empty term cannot express a thought. ([6]) Moreover, he thinks that in science and logic there is no use of a proper name unless it designates an object.

> In science the purpose of a proper name is to designate an object determinately; if this purpose is unfulfilled, the proper name has no justification in science. ([7])

He has made a similar remark about logic also:

> In logic it must be presupposed that every proper name is meaningful. ([8])

So the first trend of Frege's thought suggests that an empty proper name including a definite description should not be used in a rigorous science, and even if it occurs in a sentence, it does not express a thought. In the context of our discussion of the theory of Hilbert and Bernays we shall see that they have followed this trend of Frege's thought.

(b) The second trend of thought allows the use of an empty proper name provided we do not consider the sentence in which it occurs as true or false. In his *Posthumous Writings* he says:

> For a sentence containing a meaningless proper name either expresses no thought at all, or it expresses a thought that belongs to myth or fiction. ([9])

So this passage does not rule out the possibility of expressing a thought by a sentence which contains an empty term. Now the question is whether

([5]) G. FREGE, *Posthumous Writings*, p. 174.
([6]) There are many other passages in FREGE, which will contradict this claim.
([7]) G. FREGE, *Posthumous Writings*, p. 178.
([8]) *Ibid*, p. 179.
([9]) *Ibid*, p. 180.

this sentence can be true or false. Here comes his theory of presupposition. He says:

> The sentence "Odysseus deeply asleep was disembarked at Ithaca" obviously has a sense. But since it is doubtful as to whether the name "Odysseus" occurring in this sentence has a nominatum, so it is also doubtful that the whole sentence has one. ([10])
> He who does not acknowledge the nominatum cannot ascribe or deny a predicate to it. ([11])

These passages suggest that the ascription of a truth-value to a sentence is relative to the nature of a nominatum. If there is doubt about the existence of a nominatum, then there is doubt about the truth-value of a sentence in which the term for it occurs; and if there is no nominatum corresponding to a proper name, then there is no nominatum for a sentence. Now comes the oft-quoted passage of Frege:

> Whenever something is asserted then the presupposition taken for granted is that the employed proper names, simple or compound, have nominata. Thus, if we assert "Kepler dies in misery" it is presupposed that the name "Kepler" designates something. ([12])

Similarly, the sentence "Kepler did not die in misery" presupposes that the name "Kepler" designates something. So the fact that "Kepler" designates something is the presupposition for both an affirmative sentence of the above type and its negation. If the presupposition is not fulfilled, the sentences which presuppose it will not be considered as true or false. He says,

> If a sentence is neither true nor false, it has no meaning. Nevertheless it may still have a sense, and in such a case I say: it belongs to the realm of fiction. ([13])

([10]) G. FREGE, "On Sense and Nominatum", p. 90.
([11]) *Ibid*, p. 90.
([12]) *Ibid*, p. 90.
([13]) G. FREGE, *Posthumous Writings*, p. 232.

This remark of Frege might be interpreted in two different ways. It might be said that if there are only two values, viz., true and false, then a sentence which contains an empty term has no value at all, and hence it is part of the language of fiction and myth. The second interpretation is that if we admit a third value, then a sentence of this type cannot be regarded as true or false, but it can have this third value which might be represented by the term "indeterminate" or "neither true nor false".

(c) Now let us discuss the third trend of Frege's thought which is usually attribted to him by a large number of contemporary logicians. Frege claimed that neither the ordinary language nor the symbolic language of analysis is free from empty singular terms. He says, "This can be avoided, e.g., through the special convention that the nominatum ... be the number O." ([14]) This passage has been utilised by a number of philosophers including Carnap ([15]) to reconstruct Frege's theory of definite description, although Frege himself has assigned the class of those objects which fulfil the scope as the descriptum in cases where a description does not satisfy the uniqueness condition. For example, the descriptum of the unsatisfiable description $(\iota x)\varphi x$ is the empty class $\hat{x}\varphi x$. If we follow this method then we have to assign different descripta for different unsatisfiable descriptions. Instead of selecting a class for each unsatisfiable description, some logicians select a particular entity as the descriptum for all descriptions which do not satisfy the uniqueness condition.

(i) Some logicians have selected the number 0 which has been mentioned by Frege as the descriptum for every unsatisfiable description.

(ii) Some other logicians have chosen the null class to be the descriptum for every unsatisfiable description if Λ is included in the range of the values of the variables.

(iii) Carnap discusses the applicability of this method to a language system whose individuals are physical objects or events. He says: Every individual in such a system, that is, every thing or event, corresponds to a class of space-time points in a system with space-time points as individuals. Therefore, it is possible, although not

([14]) G. FREGE, "On Sense and Nominatum", p. 96.

([15]) R. CARNAP, *Meaning and Necessity*, The University of Chicago Press, 1956, pp. 35-39.

> customary in the ordinary language, to count among the things also the *null thing*, which corresponds to the null class of space-time points. ([16])

The *null thing*, according to Carnap, may be considered as a part of every thing and it may be taken as the descriptum for all unsatisfiable descriptions of this language.

Carnap claimed that if we follow this method of Frege, then a sentence which contains a definite description may be defined as follows:

$$\psi[(\iota x)\varphi x] \overset{\text{Df}}{=} (\exists x)[\varphi x \cdot (y)(\varphi y \supset x=y) \cdot \psi x] \vee [\sim(\exists x)(\varphi x \cdot (y)(\varphi y \supset x=y)) \cdot \psi a^*],$$

where "a*" stands for the descriptum of any unsatisfiable description.

It is claimed that there are certain advantages in this method of Frege. It permits universal specification and existential generalization on any description. Since each description has a descriptum, the rules $(x)Fx \supset Fy$ and $Fy \supset (\exists x)Fx$ are applicable where "y" stands for a description. Moreover, we can infer both $a=a$ and $(\iota x)\varphi x = (\iota x)\varphi x$ from $(x)(x=x)$, and $(\exists x)(\varphi x \cdot \psi x)$ from $\psi(\iota x)\varphi x$.

But this method does not satisfy the philosophers who have the Russellian type of robust sense of reality. Since we can infer $(\exists y)(y = (\iota x)\varphi x)$ from $(\iota x)(\varphi x) = (\iota x)\varphi x$, certain philosophers have raised the question of existence in this context. Moreover, since the empty set or the null class or its analogue is a value of the variable in this system, many metaphysical and epistemological questions have been raised as to the being of this type of object and our mode of knowledge of it. Hence it is claimed that a system which shuns this type of object is preferable to a system which accepts this type of object in its ontology.

Moreover, this method does not have any appeal to the philosophers of ordinary language. Since in ordinary language we do not presuppose a descriptum for every description, it is claimed that this method is not useful for explicating the different uses of the term "the so-and-so" as it occurs in our ordinary language. In the context of our discussion of free logic, we shall see how some positive free logicians have been influenced by this method of Frege in spite of its shortcomings from the standpoint of some ordinary language philosophy.

([16]) *Ibid*, p. 36.

(2) Hilbert and Bernays: ([17])

The system of Hilbert and Bernays follows the first trend of Frege's thought. In their system we are allowed to use a description if it satisfies the uniqueness condition. Carnap says,

> The method is quite convenient for practical work with a logico-mathematical system; or uses a description only after he has proved the uniqueness. ([18])

Hence in this system any sentence containing a definite description yields $(\exists y)(y = (\iota x)\varphi x)$. If a theory yields this type of consequence, then all positive existential sentences which contain definite descriptions would be trivially true, and all negative existential sentences of this sort would be self-contradictory. Since this is not the case in our ordinary language, this type of theory cannot give an account of the ordinary usage of "the so-and-so".

Carnap has noticed certain other disadvantages of this method. He says,

> ... the rules of formation become indefinite, i.e., there is no general procedure for determining whether any given expression of the form $7 - 2$ (i.e. $--(\iota x)(..x..)--$) is a sentence of the system (no matter whether true or false, provable or not). For systems also containing factual sentences, the disadvantage would be still greater, because here the question of whether a given expression is a sentence or not would, in general, depend upon the contingency of facts. ([19])

From the above remarks it follows that this theory is not very useful if we are concerned with the uses of "the so-and-so" as it occurs in our ordinary language.

(3) Russell:

There is no doubt that Russell's theory of description has had a phenomenal influence on contemporary philosophy. Both logical atomism

([17]) D. HILBERT and P. BERNAYS, *Grundlagen der Mathematik*, Vol I, Springer, Berlin, 1934. A concise English exposition is given in CARNAP's *Meaning and Necessity*.

([18]) R. CARNAP, *Meaning and Necessity*, pp. 33-34.

([19]) *Ibid*, p. 34.

and a type of linguistic philosophy are based on Russell's theory. It is sometimes considered as a paradigm of logical analysis.

It is claimed that in order to get rid of the Meinongian ontology Russell has propounded his theory of description. In the system of Meinong we cannot assert "the round-square does not exist" unless we presuppose the object *the round-square*. This is analogous to our presupposition of the existence of John when we assert "John is blackhaired". Hence the universe of Meinong is populated with not only actual or existent objects, but also with non-existent possible objects such as the winged horse and impossible objects such as the round-square.

In order to avoid this type of ontology Russell has defined the meaning of a descriptive expression *in use*. Since this is a departure from the traditional empiricists' position, Quine and others have appreciated this move of Russell. Russell has defined the sentence in which a definite description occurs. Moreover, unlike Frege, he has drawn a sharp distinction between a definite description and a logically proper name. A logically proper name is a simple symbol and its meaning is its denotatum, but this is not the case with a definite description. He says,

> A name is a simple symbol whose meaning is something that can only occur as subject, ... And a "simple" symbol is one which has no parts that are symbols. Thus "Scott" is a simple symbol, because, though it has parts (namely, separate letters), these parts are not symbols. On the other hand, "the author of *Waverley*" is not a simple symbol, because the separate words that compose the phrase are parts which are symbols. ([20])

Now let us consider the following sentences:

(1) Scott is honest.
(2) The author of *Waverley* is honest.

According to Russell (1) is not analysable into any other sentence if "Scott" is treated as a logically proper name; while (2) is analysed out into the following sentences:

(a) At least one person wrote *Waverley*.

([20]) B. RUSSELL, *Introduction to Mathematical Philosophy*, Simon and Schuster, New York, First Published 1919, p. 173.

(b) At most one person wrote *Waverley.*
(c) Whoever wrote *Waverley* is honest.

In symbols these sentences can be written in the following way:

(a′) (∃x)(Axw)
(b′) (x)(y)(Axw . Ayw . ⊃ . x = y)
(c′) (x)(Axw ⊃ Hx)

This analysis of Russell reveals the following points:

(i) First of all, Russell's thesis is quite consistent with the first trend of Frege's thought. Instead of eliminating only empty definite descriptions in isolation, Russell has paraphrased the sentences in which definite descriptions occur in such a way that all definite descriptions are eliminated. A definite description is no longer considered as a term. As a matter of fact, all ordinary proper names which are descriptions in disguise and all definite descriptions are eliminated by applying his theory of description. In his first trend of thought Frege wanted to eliminate only empty names or definite descriptions, but Russell succeeded in eliminating both empty and non-empty definite descriptions.
(ii) Secondly, Russell's analysis also reveals the distinction between a grammatical subject-term and a logical subject-term. Since the expression "the author of *Waverley*" occurring in the sentence "The author of *Waverley* is honest" has been analysed out in the analyans, it follows that it is not a logical subject, but a grammatical subject.
(iii) Thirdly, since "the author of *Waverley*" has been eliminated, what appears in the analysans is "(an) author of *Waverley*" as a predicate expression.
(iv) Fourthly, the above analysis also reveals that the sentence "The author of *Waverley* is honest" is not a simple or atomic sentence; it is a complex sentence consisting of three sentences.
(v) Moreover, the analysans does not contain any atomic sentence. Hence this analysis reveals the deceptive form of the analysandum.

According to Russell a definite description is an incomplete symbol and the purported referent of it is a logical construction. Russell sometimes uses the expression "logical fiction" for the purported referent of an incomplete symbol.

One of the important features of Russell's theory is that the use of a definite description does not presuppose the truth of

$$(\exists y)(y = (\iota x)\varphi x)$$

In this respect it is superior to the theory of Hilbert and Bernays, and the usual view attributed to Frege. In spite of this commendable feature, Russell's theory has been criticised by many free logicians during the past three decades. In Russell the following sentences are logically equivalent:

(1) $((\iota x)\varphi x = (\iota x)\varphi x)$
(2) $(\exists y)(\varphi y \,.\, (x)(\varphi x \supset x = y) \,.\, y = (\iota x)\varphi x)$
(3) $E!(\iota x)\varphi x$

Some of the followers of free logic are of the opinion that (1) is trivially true and is deducible from the logical truth $(x)(x = x)$, while (2) and

(3) being existential sentences are contingently true or false.

Similarly, the consequence

(4) $(E!(\iota x)\varphi x \equiv \varphi(\iota x)\varphi x)$

is not acceptable to some of the followers of free logic. In the context of our discussion of free logic we shall see how these consequences of Russell can be avoided.

(4) Quine:

Quine tries to cut across the cleavage between logically proper names and descriptions, which is one of the fundamental theses of Russell. According to Quine all proper names including logically proper names, can be transformed into definite descriptions, and by applying Russell's theory of description all definite descriptions can be eliminated from the sentences in which they occur.

Now the question is how to transform logically proper names such as "John", "this" and "that" into definite descriptions. Quine has suggested a general method of reducing a logically proper name to a definite description in the following way:

(1) a is F
(2) The thing which is-a (or a-ises) is F.

Hence the sentence "This is a man" can be transformed into the sentence "The thing which is-this (or this-ises) is a man", and the sentence "John is honest" can be transformed into the sentence "The thing which is-John (or Johnises) is honest".

Quine claims that his method of treating all singular terms as descriptions has certain advantages. He says, "The advantage of treating all singular terms as descriptions is of a more theoretical kind: that of sparing us having to admit into the framework of our technical theory a distinction between a category of descriptions and a category of non-descriptive singular terms." ([21])

Since non-descriptive singular terms, i.e. logically proper names, raise certain problems in the theory of knowledge and meaning such as our mode of cognition of a particular which is the denotatum of a logically proper name and the sense of it, Quine avoids these problems by translating all names into definite descriptions. Since Quine has followed Russell's theory of description, all definite descriptions are to be eliminated in terms of quantifiers and variables. The sentence "This is a man" would take the following form in his notation:

> $(\exists x)(Tx \,.\, (y)(Ty \supset x = y) \,.\, Mx)$, where "T" stands for "thisises" and "M" for "is a man".

In addition to this theoretical advantage, Quine has mentioned a few more advantages. ([22])

(a) A simplification of question about existence: In Quine's language,

> We dispense altogether, in theory, with the perplexing form of notation "a exists", for we know how to translate singular existence statements into more basic logical terms when the singular term involved is a description. ([23])

From this remark it follows that we do not have to raise the question whether the sentence "a exists" or "this exists" is meaningful or not. The Frege-Russell and the early Wittgenstein traditions are riddled with this perplexing question.

(b) The elimination of singular terms simplifies the rules of inference:

([21]) W.V.O. QUINE, *Methods of Logic*, Holt, Rinehart and Winston, 1950, p. 219.

([22]) A good summary of QUINE is to be found in Strawson's paper "Singular Term, Ontology and Identity", *Mind*, 1956.

([23]) W.V.O. QUINE, *From a Logical Point of View*, Second edition, Harper and Row, New York, 1963, p. 167.

> The rules of inference by existential generalisation and universal instantiation, in the anomalous form in which they have to do with singular terms, are reduced to the status of derivable rules and thus eliminated from the theoretical foundation of logic. ([24])

(c) The elimination of truth-gaps:
Frege's question whether the sentence "Kepler died in misery" is neither true nor false, if "Kepler" does not designate an object, does not arise in the system of Quine. The symbolic counterpart of this sentence, viz.,

$$(\exists x)(Kx \,.\, (y)(Ky \supset x = y) \,.\, Dx)$$

would be false in Quine's system if nothing Keplerises. In Russell's system the sentence "Kepler died in misery" would be meaningless if "Kepler" does not designate anything and it is treated as a logically proper name. So Quine cuts across the presupposition theory of Frege (or the truth-value gap theory) on the one hand, and the Russellian thesis on the other.
(d) The freeing of reference from contextual dependence:
The meaning of terms such as "I", "this", and "that" depends on the context of their utterance or the circumstances of their use. By translating these singular terms into the logical notations of variables and quantifiers Quine can eliminate contextual dependence and thereby ambiguity due to contextual dependence.

On this point we find a continuity among Frege, Russell and Quine. Frege raised the question how to eliminate non-designating singular terms from our language. Russell showed the way in his theory of description how to eliminate definite descriptions both empty and non-empty, and Quine, following the footsteps of Russell, succeeded in eliminating all singular terms from his technical language.

(5) Strawson:

Strawson's presupposition theory of singular terms is an explication of Frege's second trend of thought. He has raised certain objections against the Russell-Quine manner of eliminating definite descriptions.

On Russell's theory the sentence "The present King of France is wise" is analysed out into the conjunctive sentence "At least one person is a King of France, at most one person is a King of France, and whoever is

([24]) *Ibid*, p. 167.

a King of France is wise". Since the first conjunct is false, the conjunctive sentence as a whole is false. According to Strawson the very question whether the King of France is wise or not does not arise since there is no King of France. He paves the way for his objection to Russell's theory by introducing a distinction between a sentence, a *use* of a sentence, and an utterance of a sentence, or correspondingly between an expression, a *use* of an expression, and an utterance of an expression.

Let us consider the sentence "The present King of France is wise". The same sentence can be uttered at various times but its uses might be different on different occasions. If it is uttered during the reign of Louis XIV, it refers to him, but if it is uttered during the reign of Louis XV, it refers to him. It might be the case that one use is true while the other use is false. Truth and falsity, according to Strawson, are not related to a sentence, but to its *use*. Moreover, a sentence is not about a person, because the same sentence can be used to refer to different persons on different occasions. It is only a particular *use* of a sentence that refers to a particular person. One of the major objections of Strawson is that Russell has confused meaning with referring or mentioning. This is due to a confusion between a sentence and its use. He says,

> Meaning is a function of the sentence or expression; mentioning and referring and truth or falsity, are functions of the use of the sentence or expression. To give the meaning of an expression is to give *general direction* for its use to refer to or mention particular objects or persons; to give the meaning of a sentence is to give *general direction* for its use in making true or false assertions. ([25])

Now Strawson applies this distinction between meaning and use to Russell's example. Since truth and falsity are related to the use of a sentence, and meaning or significance is related to a sentence, we cannot say that a sentence is true or false if it is significant. According to Strawson if the sentence "The present King of France is wise" is uttered today, it cannot be said to be true or false. Since there is no King of France, we fail to use this sentence. Sometimes Strawson uses the expression "spurious use" to characterise this type of use. Since we fail to use the sentence "The

([25]) P.F. STRAWSON, "On Referring", reprinted in *Contemporary Readings in Logical Theory*, edited by Copi and Gould, The Macmillan Co., New York, 1967, p. 112.

present King of France is wise", the question of its truth or falsity does not arise. According to Strawson, the sentence "The present King of France is wise" presupposes the existence of the King of France. The question of its truth or falsity does not arise because of presupposition-failure. According to him if the statement p presupposes the statement q, then the truth of q is a precondition for ascribing truth or falsity to p. If q is false, then neither truth nor falsity can be ascribed to p, although p is a significant sentence. P.T. Geach ([26]) has also raised a similar objection to Russell's theory of descriptions. He says,

> It is important to distinguish my view that the existence of the present King of France is *presupposed* by the assertion "The King of France is bald" from Russell's view that his existence is *implied* by this assertion. If p implies q, and q is false, p is of course false. But to say p presupposes q is to say that p is an answer to a question that does not arise unless q is true. If q is false, or if q in turn is an answer to a question that does not arise, the assertion of p is not false but simply out of place. ([27])

Let us consider the objection of Strawson and Geach. They claim that the ordinary usage of statements containing descriptive phrases is such that the question whether the object specified as the so-and-so has such-and-such properties does not arise unless there is the so-and-so. The thesis of Strawson and Geach would be valid if all such uses come under their proposed theory. Their thesis has some appeal because they have chosen an example where the reference-failure is known to all of us. Vorsteg ([28]) has given certain examples which support the opposite thesis. Let us consider his examples:

(1) The skull of Piltdown man was dug up near Sussex, England.
(2) The first manned space-vehicle to the moon was launched this morning by the Russians.
(3) The only person known to have lived over 110 years was J.C. Mulroney.

([26]) P.T. GEACH, "Russell's Theory of Descriptions", reprinted in *Philosophy and Analysis*, edited by MacDonald, Philosophical Library, New York, 1954.
([27]) *Ibid*, p. 34.
([28]) R. VORSTEG, "Descriptions and Existential Entailment", *The Monist*, 1967.

So far as the first example is concerned, many people once believed it to be true. Now it is proved to be false. If the statement occurs somewhere, we can legitimately say that it is false.

As regards (2), we can say that it is false if it is learned from the newspaper or TV that no such space-vehicle was launched. In spite of reference-failure we cannot say that there is no question of truth or falsity.

Similarly, we can say that (3) is false if no such person was to be found or more than one has lived more than 110 years. This example also substantiates the view that reference-failure does not imply that there is no question of truth or falsity.

Now the question is how to determine which sentence is false because of reference-failure and which sentence is neither true nor false because of reference-failure.

The answer to this question depends on the context in which the hearer-speaker situation is involved. The view of Strawson and Geach that "The present King of France is wise" is neither true nor false, seems to be plausible because both the hearer and the speaker know that France is a Republic. What is presupposed by a statement and what is not presupposed by a statement depend on the context of utterance and the hearer-speaker situation. So we cannot generalise either the thesis of Strawson and Geach or the thesis of Russell. Russell's thesis, it seems to us, can give a better account of the usage of the term "the so-and-so" where the reference-failure is not known to the speaker or the hearer.

(6) Free Logicians:

Since several systems of free logic have been introduced by logicians such as Leonard, Hintikka, Lambert, Rescher, Schock, and van Fraassen, we cannot say that there is some common view with respect to the theory of description, although all of them claim that logic should be free of existence assumptions with respect to its terms, general and singular. The traditional logic is committed to the existence assumption of its terms, both general and singular. ([29]) This is evident from the traditional square of opposition. From the truth of A proposition (i.e. all S is P) the truth

([29]) K. LAMBERT, "On the Philosophical Foundations of Free Logic", *Inquiry*, Vol. 24, 1981, p. 148.

of I proposition (i.e. some S is P), and the falsity of E proposition (i.e. no S is P) and O proposition (i.e. some S is not P) can be inferred. Since the modern symbolic logic does not presuppose that the general terms are non-empty, the traditional square of opposition does not hold good. Hence the truth of A proposition does not imply the truth of I and the falsity of E proposition. Both "All S is P" and "No S is P" are true if "S" is an empty term. In this respect the modern logic has made logic free of existence assumption with respect to its general terms, but it has retained the existence assumption with respect to singular terms. This is evident from the rule of existential generalisation, viz.,

$$\varphi y$$
$$\therefore (\exists x)(\varphi x)$$

and the corresponding reference formula

$$\varphi y \supset (\exists x)\varphi x$$

Similarly, the rule of universal instantiation, viz.,

$$(x)(\varphi x)$$
$$\therefore \varphi y$$

and the corresponding reference formula

$$(x)\varphi x \supset \varphi y$$

substantiate the thesis that the modern symbolic logic is not free of existence assumption with respect to singular terms. Hence the free logicians are devising systems of logic which will not presuppose that the singular terms such as y in our examples above, are non-empty. For this reason they have rejected the rules of existential generalisation and universal instantiation and their corresponding reference formulas in the above form.

Now the question is how to characterise the description theories of free logicians. Let us quote Lambert who has done a great service to the development of free logic. He says that free logicians "have developed theories of definite descriptions that (1) construe expressions of the form 'the so and so' as genuine singular terms (contra Russell and Quine) but (2) do not assign anything in the domain of discourse to those cases of 'the so and so' in which 'so and so' fails to be true of exactly one thing

in the domain of discourse (contra Frege's chosen object theory). Theories satisfying (1) and (2) are called free description theories." ([30])

Now the question is what would be the truth-value of a sentence which contains an empty definite description. That is to say, whether we can assign the value true or false or neither true-nor-false to sentences such as "The present King of France is wise" or "The present King of France is the present King of France". On this point free logicians are divided in their opinion and we come across three types of theses. ([31])

(a) Some free logicians consider any sentence of the form

$$(\iota x)\varphi x = (\iota x)\varphi x$$

as true. Hence the sentence "The present King of France is the present King of France" would be true according to this view. Some others have assigned the value true to any simple identity sentence which contains an empty singular term. A logic of this sort is called "positive free logic".

(b) But some other free logicians, such as Tyler Burge, think that sentences such as "The present King of France is the present King of France" and "Pegasus is identical with Heimdal" are false. In this respect their view is not different from Russell's. A free logic of this type is called "negative free logic".

(c) Some other free logicians such as Brian Skyrms have followed the thesis of Strawson, originally suggested by Frege. According to this version of free logic a simple sentence which contains an empty singular term is truth-valueless. Hence the sentence "The present King of France is the present King of France" is neither true nor false, although the sentence "The present King of France exists" is treated as false. A free logic of this sort is called "neuter free logic".

Since most of the free logicians favour the thesis of positive free logic, let us discuss their views.

Leonard claimed that Russell's theorem

$$14.28\ \mathrm{E!}\ (\iota x)\varphi x \equiv (\iota x)\varphi x = (\iota x)\varphi x$$

([30]) K. LAMBERT, "Notes on Free Description Theory: Some Philosophical Issues and Consequences", *Journal of Philosophical Logic*, Vol. I, 1972, p. 184.

([31]) K. LAMBERT, "On the Philosophical Foundations of Free Logic", *Inquiry*, Vol. 24, 1981, pp. 151-152.

is unacceptable on the ground that the right-hand side of this biconditional seems to be trivially true. According to him as a = a is derivable from the axiom (x)(x = x), similarly $(\iota x)\varphi x = (\iota x)\varphi x$ is derivable from the axiom (x)(x = x). But we cannot apply the rule of existential generalisation to $(\iota x)\varphi x = (\iota x)\varphi x$. In order to derive $(\exists x)(x = (\iota x)\varphi x)$ from $(\iota x)\varphi x = (\iota x)\varphi x$ we need the additional premise $E!(\iota x)\varphi x$. Hence the reference formula

$$\varphi y \supset (\exists x)\varphi x$$

is replaced by the formula

$$(\varphi y \,.\, E!y) \supset (\exists x)\varphi x$$

Similarly, the reference formula

$$(x)\varphi x \supset \varphi y$$

is replaced by the formula

$$((x)\varphi x \,.\, E!y) \supset \varphi y$$

With respect to Russell's theorem

$$14.22\quad E!(\iota x)\varphi x \equiv \varphi(\iota x)(\varphi x)$$

he says, "The right-hand member appears to be analytic, and should be assertible without restriction to descriptions that exist." ([32])

Hintikka ([33]) has also rejected Russell's theory of definite descriptions. Unlike Russell's theory $\Psi(\iota x)\varphi x$ itself does not imply $(\exists x)\varphi x$. In order to derive $(\exists x)\varphi x$ from $\Psi(\iota x)\varphi x$ we require the additional premise $(\exists y)(y = (\iota x)\varphi x)$.

Since we can substitute both names and definite descriptions for the free individual variables, the Russellian law

$$\Psi(\iota x)\varphi x \supset (\exists y)\varphi y$$

is replaced by the law

$$(\Psi(\iota x)\varphi x \,.\, (\exists y)(y = (\iota x)\varphi x)) \supset (\iota y)\varphi y$$

([32]) Henry S. LEONARD, "The Logic of Existence", *Philosophical Studies*, 1956, p. 62.
([33]) K.J.J. HINTIKKA, "Towards a Theory of Definite Descriptions", *Analysis*, 1959.

In Hintikka's theory of description the formula

$$\varphi(\iota x)\varphi x$$

is also assertible unconditionally. Lambert ([34]) has shown that it is a direct consequence of Hintikka's axiom:

$$(y = (\iota x)\varphi x) \equiv ((x)(\varphi x \supset x = y) \,.\, \varphi y)$$

Since the unconditional assertion of $\varphi(\iota x)\varphi x$ leads to the dubious statement

$$E!(\iota x)(E!x)$$

Lambert has accepted a conditional assertion of $\varphi(\iota x)\varphi x$. In his system the following is a theorem:

$$E!(\iota x)\varphi x \supset \varphi(\iota x)\varphi x$$

He claims that this theorem "neatly avoids the too weak '$\varphi(\iota x)\varphi x$' and the too strong '$E!(\iota x)\varphi x \equiv \varphi(\iota x)\varphi x$' of Russell's." ([35]) But he is not happy with the conditional assertion of $\varphi(\iota x)\varphi x$ either because he thinks that statements such as "The flying horse captured by Bellerophon is a flying horse" looks like a logical truth. However, he retains the logical truth of any statement of the form

$$(\iota x)\varphi x = (\iota x)\varphi x$$

which is derivable from $(x)(x = x)$, which in turn is derivable from his set of axioms. ([36])

Let us sum up our discussion of the views of positive free logicians. Consider the following sentences:

(1) The present King of France is wise.

(2) The present King of France is a present King of France.

(3) The present King of France is the present King of France.

Many positive free logicians believe that these sentences do not have the same truth-value. ([37]) Most of them would consider (1) to be truth-

([34]) K. LAMBERT, "Notes on E! III: A Theory of Descriptions", *Philosophical Studies*, 1962.

([35]) *Ibid*, p. 57.

([36]) K. LAMBERT, "Notes on E! IV: A Reduction in Free Quantification Theory with identity and Descriptions", *Philosophical Studies*, 1964, pp. 85-87.

([37]) K. LAMBERT, "On Philosophical Foundations of Free Logic", p. 188.

valueless; some of them, like Hintikka, have asserted (2) unconditionally, while others, like Lambert, have asserted (2) conditionally; but all of them have claimed that (3) is unconditionally true. In this respect the positive free logicians have also followed the suggestion of Frege. In assigning the value true to any sentence of the form

$$(\iota x)(\varphi x) = (\iota x)(\varphi x)$$

the free logicians have extended Frege's thesis that "a = a is valid a priori" to non-designating terms as well.

II

In this section I would like to discuss the Nyāya analysis of a descriptive expression. Since this discussion is related to the Nyāya concepts of a sentence, meaning of a sentence, understanding the meaning of a sentence, I would like to discuss these concepts briefly in the course of our discussion.

(A) The Nyāya, like the contemporary discussion on singular terms, has drawn a distinction between a proper name and a definite description. The Nyāya also talks about the meaning of a singular term. But since the Nyāya use of the word "meaning" ("*artha*") cannot be fully captured by the term "reference" or "sense" alone, and since in Western philosophy the word "meaning" has different meanings in different philosophical systems, it is not always clear in what sense the Nyāya philosophers have accepted a theory of meaning as distinct from a theory of reference. For this reason I would like to introduce the neutral terms "meaning-relation" and "meaning-complex" in this context. The "meaning-relation" refers to the relation between an expression and what is referred to (or meant) by that expression. The first term of a meaning-relation is the expression and the second term is the meaning-complex which is referred to by the expression. From our discussion it will follow that the second term of the meaning-relation is, in some sense, a combination of sense and reference so far as the meaning of an atomic expression is concerned. The

([38]) For a more comprehensive discussion see J.L. SHAW, "Proper Names: Contemporary Philosophy and the Nyāya", in *Analytical Philosophy in Comparative Perspective*, edited by B.K. Matilal and J.L. Shaw, D. Reidel Co, Holland, 1985.

meaning of a proper name such as "Scott" can be stated in the following way:

(1) The word "Scott" means < the individual Scott, R, the property of being Scott >.

By using λ-operator (1) may be rewritten as

(1′) The word "Scott" means < the individual Scott, R, $(\lambda x)(x =$ Scott) >.

Now it may be suggested that an analysis similar to (1) may be given for a non-empty definite description such as "the author of *Waverley*".

(2) The expression "the author of *Waverley*" means < the person i.e. the author of *Waverley*, R, the property of being the author of *Waverley* >.

Here also by using the λ-operator (2) may be rewritten as

(2′) The expression "the author of *Waverley*" means < the person i.e. the author of *Waverley*, R, $(\lambda x)(x =$ the author of *Waverley*) >.

(1) expresses the meaning-complex of a proper name, and (2) expresses the meaning-complex of a non-empty definite description. In these meaning-complexes "R" stands for the relation of the third member to the first member. In (1) the first member of the meaning-complex is the referent of a proper name. According to the Nyāya, if a proper name does not refer to a *real* entity, then it is not a genuine proper name. An irreferential proper name is either a description in disguise or a meaningless expression. Here the term "real" does not mean that its referent must be a present or an actual object. The Nyāya would allow the use of a proper name to name a past, present or a future object. In this respect the Nyāya view is different from Russell's use of a proper name. According to Russell the referent of a proper name is a present or an actual object and the user must be acquainted with it. But there is no such requirement for the Nyāya thesis. Hence ordinary proper names such as "Socrates" are genuine names according to the Nyāya.

The third member of the meaning-complex in (1) is the reason for applying the term to the object to which it applies. That is to say, it is the ground (i.e. the ontological basis) or the reason (i.e. the epistemic reason) for applying the term to the referent. Hence the property of being Scott becomes the reason for applying the word "Scott" to the person Scott.

As regards the nature of the property of being Scott there is some difference of opinion among the Nyāya philosophers. Some Nyāya philosophers consider it to be an unanalysable, a non-repeatable and unique property of the individual, while others consider it to be a class-character which is analogous to a universal. In this context the Nyāya conception of a property requires some explanation. A property, according to the Nyāya, is a real entity and it has a locus. Hence it may be defined as follows:

P is a property iff $(\exists x)$(x is a locus of P). From this definition it follows that things such as a chair or a table, qualities such as a particular colour of a table, actions such as running, and universals such as horseness, become properties of their loci. All properties other than class-characters such as horseness are called "imposed properties", and an imposed property is either unanalysable, or analysable into a set of atomic properties. Now if the property of being Scott is an unanalysable imposed property, it is related to its locus, i.e. Scott, by a self-linking relation. Since the terms "relation" and "self-linking relation" are technical terms, they require some explanation. A relation, according to the Nyāya, could be any entity so long as it makes one object appear as a qualifier of another object at the epistemic level, and it relates these two objects at the ontological level so that the complex might be called "a fact". So a formal definition of a relation might be stated in the following way:

> R is a relation iff (i) it is due to R that x appears as a qualificand and y appears as its qualifier in the cognition xRy, and (ii) it is due to R that x and y form a unified object (or fact) which corresponds to "xRy".

Again, relations have been divided into two types, viz., occurrence-exacting and non-occurence-exacting. In the case of an occurrence-exacting relation the second term occurs in the first term, but in the case of a non-occurrence-exacting relation the second term does not occur in the first term. Relations like conjunction, inherence and self-linking are occurrence-exacting, but relations like identity and pervasion are non-occurrence-exacting. A self-linking relation, according to the Nyāya, is not an ontologically distinct entity apart from its terms. When one of its terms plays the role of a relation, it is called "a self-linking relation". Usually it is ontologically identified with its first term. Relations such as the relation of the property of being the author of *Waverley* to its possessor, the rela-

tion of the absence of a cat to its locus, and spatial or temporal relations, are considered as self-linking. In our above example, if the property of being Scott is an unanalysable imposed property, it is related to the individual Scott by a self-linking relation. But if the property of being Scott is considered as a class-character, then it is related to different Scott-stages such as the Scott of boyhood, the Scott of adulthood and the Scott of old age, by the relation of inherence.

As regards the nature of the third member of the meaning-complex which is the reason for applying the term to the object it applies, there is some difference of opinion among the Nyāya philosophers. But most of the Nyāya philosophers have considered it to be a mode of presentation of the referent such that it determines the referent or the referents of a term. In this respect it is analogous to the Fregean sense of a proper name.

Now let us contrast (1) with (2) to reveal the distinction between a proper name and a definite description.

First of all, the meaning-relation in (1) is such that it depends on the intention of the name-giver. According to the Nyāya it takes the form "Let such-and-such name refer to or denote such-and-such object under a certain mode of presentation". But there is no such intention in the case of a definite description. Hence the meaning-relation in (2) does not presuppose a name-giver. The meaning of "the author of *Waverley*" as distinct from its reference is determined by the meaning of its parts and the syntactic relation between the terms which have occurred in this description. If the terms "author" and "*Waverley*" are treated as atomic terms, then their referents would depend upon the intention of the name-giver. But neither the referent nor the sense of "the author of *Waverley*" would depend upon the intention of any name-giver. In this respect the Nyāya view is similar to Russell's thesis that a name is a simple symbol which refers to an individual or a particular, and a description consists of several words the meanings of which are already fixed and the meaning of a description results from these meanings. ([39])

Secondly, in (1) the third member of the meaning-complex is the property of being Scott, while in (2) it is the property of being the author of *Waverley*. The former is an unanalysable property whether imposed

([39]) B. RUSSELL, *Introduction to Mathematical Philosophy*, p. 174.

or class-character, while the latter is an analysable imposed property. The property of being the author of *Waverley* is to be analysed in terms of the author, *Waverley* and the relation of the latter to the former. If these terms are also non-atomic, then they are to be analysed in a similar way.

Thirdly, in (1) the relation of the third member to the first member in the meaning-complex is either inherence or a self-linking relation depending on whether the third member is a class-character or an unanalysable imposed property; but in (2) the relation of the third member to the first member in the meaning-complex is always a self-linking relation. That is to say, the property of being the author of *Waverley* is related to Scott, i.e. its possessor, by a self-linking relation.

Fourthly, a proper name, according to the Nyāya, is a term, while a descriptive expression is a sentence. For this reason, a description such as "the author of *Waverley*" is true or false. In order to explain the philosophical significance of this point and some other related points, we have to draw the distinctions among the terms "sentence", "meaning of a sentence", and "understanding the meaning of a sentence".

A sentence, according to the Nyāya, is an ordered n-tuple such that $n \geqslant 2$ morphemes or meaningful expressions. A set of morphemes having mutual syntactic expectancy would constitute a sentence; and the mutual syntactic expectancy is determined by the rules of language. From this definition of a sentence it follows that expressions such as "cooks", "cooks rice", "an author", "an author of *Waverley*" and "the author of *Waverley*" are sentences. But the meaning of a sentence or a non-atomic expression, according to the Nyāya, is not just a function of the meanings of its parts which are morphemes. For this reason the meaning of the sentence "Socrates is a man" is not just a function of the meanings of "Socrates" and "a man". The meaning of the entire sentence includes the relation between the referents of "Socrates" and "a man". In this case the relation is identity between Socrates and one of the referents of "man". The relation of identity which is a part of the meaning of the entire sentence is due to the syntactic expectancy between the two terms of this sentence. But the meaning of a sentence as distinct from the meanings of its terms lies in this relation which relates the referents of its terms.

According to the Nyāya every well-formed sentence or expression has a meaning, but every well-formed sentence or expression does not generate a cognition either in a hearer or a speaker. In order to generate a cognition a sentence must have semantic expectancy between the referents of

its terms, and spatio-temporal contiguity or proximity between the tokens of these expressions. For this reason sentences such as "He irrigates the field with fire" do not generate any cognition, although they are meaningful sentences.

From the above discussion it follows that (i) a descriptive expression, definite or indefinite, is a sentence, (ii) its sense, as distinct from its referent, includes a relation between the referents of its parts and (iii) we understand the meaning of a non-empty descriptive expression.

(B) Now let us discuss the nature of identity and existential sentences which contain proper names or non-empty definite descriptions. Consider the following sentences:

(a) Scott is Scott.
(b) Scott is Sir Walter.
(c) The author of *Waverley* is the author of *Waverley.*
(d) Scott is the author of *Waverley.*
(e) The author of *Waverley* is Scott.
(f) The author of *Waverley* is the author of *Ivanhoe.*
(g) Scott exists.
(h) The author *Waverley* exists.

According to the Nyāya each of the above sentences is meaningful and has a truth-value, and we can know their truth-values, although (a), (b) and (c) do not generate any cognition. Since this discussion presupposes the Nyāya concept of a qualificative cognition, let us briefly point out some of the features of a qualificative cognition.

A qualificative cognition has a qualificand, a qualifier and a qualification relation which relates the latter to the former. A qualificand is the epistemic analogue of a subject-expression and a qualifier is the epistemic analogue of a predicate-expression. Any qualificative cognition can be expressed by the form "*aRb*", where *a* is the qualificand, *b* is the qualifier and *R* is the qualification relation. If *a* is the qualificand and *b* is the qualifier in the cognition *aRb*, then *a* has the property of being the qualificand and *b* has the property of being the qualifier and *R* has the property of being the qualification relation. By these relational abstract properties the Nyāya emphasizes the role of these objects in a qualificative cognition. Moreover, according to the Nyāya, both the qualificand and the qualifier in a non-atomic qualificative cognition are presented to us under some mode of presentation. That is to say, the property of being the qualificand residing in a qualificand is limited by a property, and the pro-

perty of being the qualifier residing in a qualifier is limited by a property and the relation which relates the qualifier to the qualificand. In the cognition generated by the sentence "A flower is red", a flower is the qualificand, a red colour is the qualifier and the relation of a red colour to a flower, which is the inherence relation, is the qualification relation. The property of being the qualificand residing in a flower is limited by the universal flowerness, and the property of being the qualifier residing in a red colour is limited by both redness and the relation of inherence which relates a red colour to a flower. But in an atomic qualificative cognition generated by an expression such as "a flower", a particular flower is the qualificand and the universal flowerness is the qualifier. In this cognition neither the qualificand nor the qualifier is presented to us under the mode of a property-limitor, but the qualifier is presented to us under the mode of a relation which relates the flowerness to a particular flower. Hence in a non-atomic qualificative cognition of the form *aRb*, *a* is presented under the mode of *a*-ness, and *b* is presented under the mode of *b*-ness and *R*. But in an atomic qualificative cognition neither *a* nor *b* is presented under the mode of a property-limitor, but *b* is presented under the mode of the relation-limitor *R*.

As regards the nature of a non-atomic qualificative cognition, two more points are to be mentioned in this context.

According to the Nyāya an identity sentence of the form "x is x" or "the (an) x which is F is F" does not generate a cognition. The parts corresponding to the subject-terms and the predicate-terms of such sentences would generate separate cognitions, but there is no one unified cognition corresponding to a sentence of these forms. Hence sentences such as "Scott is Scott" or "The author of *Waverley* is the author of *Waverley*" would not generate cognitions, although they are perfectly meaningful sentences and have truth-values, and their truth-values can be known. Moreover, a contradictory sentence such as "Scott is not Scott" or "The author of *Waverley* is not the author of *Waverley*" does not generate a cognition, although it is a meaningful sentence and has a truth-value.

Now let us discuss the nature of sentences (a)-(h). According to the Nyāya there is no difference in meaning or truth-value between (a) and (b), although they are different sentences. The meaning-complex of the name "Scott" is the same as the meaning-complex of the name "Sir Walter". Since the property-limitors corresponding to the subject-expression and the predicate-expression of (a) or (b) are identical, neither

(a) nor (b) would generate a cognition, although the term "Scott" or "Sir Walter" would generate a cognition.

As regards our knowledge of the truth-values of (a) and (b), the Nyaȳa claims that we know (a) to be true when we know any sentence about Scott such as "Scott is an author" to be true, and we know (b) to be true when we know any sentence about Scott and Sir Walter to be true. Hence the truth of such sentences is known in the context of the truth of some other sentences.

The meaning of (c), (d) or (e) is different from that of (a) or (b). Since the expression "The author of *Waverley*" ([40]) occurs in (c), (d) and (e), and since the third member of the meaning-complex corresponding to "The author of *Waverley*" is the property of being the author of *Waverley*, the meaning of (a) or (b) cannot be identical with that of (c), (d) or (e). But there is some difference in meaning among (c), (d) and (e). Since the term "Scott" does not occur in (c), its meaning cannot be identical with the meaning of (d) or (e). But the difference in meaning between (d) and (e) is to be explained, at the cognitive level, in terms of their properties of being the qualificand, the properties of being the qualifier and their limitors. In the cognition corresponding to (d) the property of being the qualificand is limited by the property of being Scott, and the property of being the qualifier is limited by the property of being the author of *Waverley* and the relation of identity. Since this is not the case in the cognition corresponding to (e), the meaning of (e) cannot be identified with that of (d), although if one is true, then the other is true. The latter is due to the transformation rules which include the rules for identity. Hence the Nyāya preserves the logical equivalence between (d) and (e), but does not equate their meaning or the cognitions generated by them.

As to the question whether (c) generates a cognition, the Nyāya claims that since the subject-expression is the same as the predicate-expression, (c) cannot generate a cognition which is different from the cognition generated by "The author of *Waverley*". But we can know the truth of (c) when we come to know the truth of the sentence "The author of *Waverley*" itself or the truth of any sentence about the author of *Waverley* such as "The author of *Waverley* is wise".

When we compare (f) with (a)-(e), it is obvious that its meaning is dif-

([40]) Since the term "the author of *Waverley*" is a sentence in the Nyāya system, I shall use capital "T" to signalise it as a sentence.

ferent from them. Since (f) contains the expression "The author *Ivanhoe*", and the meaning-complex of it contains the property of being the author of *Ivanhoe*, its meaning cannot be identified with the meaning of any other identity sentence mentioned in our above list. Moreover, since the property-limitors, viz. the property of being the author of *Waverley* and the property of being the author of *Ivanhoe*, are different, it would generate a cognition.

Now let us consider the nature of the truth of these identity sentences. With respect to (a) the Nyāya view is that it is always true in the sense that it is true in every possible world (or situation) where the name "Scott" refers to an individual, and the sentence "Scott is not Scott" is always false. If the name "Scott" does not refer to anything, then it is an ill-formed or meaningless expression. Moreover, according to the Nyāya, the referent of a proper name need not be a present object and the user of a name need not be acquainted with it. In this respect the view of the Nyāya is different from that of Russell.

If the names "Scott" and "Sir Walter" refer to the same individual under the same mode of presentation, then there is no difference in meaning and truth-value between (a) and (b). As regards (c), the Nyāya view is that the truth of it depends upon the truth of the sentence "The author of *Waverley*". But the meaning of "The author of *Waverley*" does not depend upon the existence of the individual which has the property of being the author of *Waverley*. Hence (c) cannot be true by virtue of its meaning. Similarly, (d), (e) and (f) are not necessary truths.

Now let us discuss the nature of an existential sentence and compare it with an identity sentence. In this context it is to be noted that the Nyāya has used the word "exists" in different senses, but I shall discuss only two of these senses.

(i) "x exists" means "x is real".
(ii) "x exists" means "x has occurred somewhere", i.e. "$(\exists y)$(y is a locus of x)".

If we take the first sense, then (g), i.e. "Scott exists", is true but "Scott does not exist" becomes meaningless because the predicate "does not exist" does not represent a locatable property. This follows from one of the criteria for forming a significant negative expression, which will be discussed in the context of empty terms. Moreover, "Scott exists" does not mean the same as "Scott is Scott", although they are equivalent. Since the

meaning-content of the former includes the property existence, but not the latter, they cannot have the same meaning. So according to the Nyāya "Scott is Scott" and "Scott exists" are true; but "Scott is not Scott" is false, and "Scott does not exist" is meaningless, for it violates one of the criteria for negation, if "exists" is interpreted in the first sense.

Now if "exists" is taken in the second sense, then "Scott exists" is true and "Scott does not exist" is false. Since the predicate "does not exist" represents the property *absence of occurrence* which is locatable in ubiquitous objects such as time, it does not violate the rules for forming a negative expression. But the sentence "Time exists" would be false and "Time does not exist" would be true, for time does not occur somewhere in the Nyāya ontology, although "Time is time" remains true. Hence if we take "exists" in the second sense, then the terms "exists" and "identity" differ not only in their meanings, but also in their references. In this respect there is a striking similarity between the view of the Nyāya and that of Quine. In his *Set Theory and Its Logic* Quine ([41]) claims that

(i) $\alpha = \alpha$, is true,

but (ii) $(\exists x)(x = \alpha)$, is false, if "α" stands for an ultimate class.

Thus, by drawing a distinction between identity and existence, Quine has resolved the paradox arising from the existence of a universal class. The Nyāya has also drawn a similar distinction between identity and existence in the context of a ubiquitous object such as time, which is an analogue of a universal class. If "Time exists" is also true, then time no longer remains a ubiquitous object. This is analogous to Quine's thesis that of "$(\exists x)(x = \alpha)$" is true, then α ceases to be a universal class.

Now let us discuss whether (h) is true and means the same as (c). According to the Nyāya, (h) is true if "exists" is taken in either of the senses. If we take it in the first sense, then existence being a property of everything becomes a property of the author of *Waverley* also. Hence (h) becomes true, but its negation, viz., "The author of *Waverley* does not exist" becomes meaningless as it violates one of the criteria for negation. If "exists" is taken in the second sense, then both "The author of *Waverley* exists" and "The author of *Waverley* does not exist" remain meaningful, but the former is true and the latter is false. Moreover, according to the

([41]) W.V.O. QUINE, *Set Theory and Its Logic*, Harvard University Press, Cambridge, Mass, 1963, pp. 40-46.

Nyāya, the meaning of "The author of *Waverley* exists", with "exists" taken in either of the senses, cannot be identified either with the meaning of "The author of *Waverley*" or with that of "The author of *Waverley* is the author of *Waverley*". Since the word "exists" has reference to the property existence and there is no such expression in either of the latter two sentences, the meaning of "The author of *Waverley* exists" cannot be identified with the meaning of either of them, although all of them are true. Hence in such cases the equivalence can be preserved but not the identity in meaning. Furthermore, there are cases where even this equivalence cannot be preserved if we take "exists" in the second sense. Consider the following sentences:

(i) The receptacle for past, present, and future objects.
(j) The receptacle for past, present, and future objects exists.
(k) The receptacle for past, present and future objects is the receptacle for past, present and future objects.

For the convenience of our discussion let us suppose that time is being referred to by "The receptacle for past, present and future objects". Hence (i) is true, but (j) is false if we take the second sense of "exists", although (k) is true. This shows that even the equivalence between

$$\text{(i) } E!\,(\iota x)Fx, \quad \text{and} \quad \text{(ii) } (\iota x)Fx = (\iota x)Fx$$

cannot be preserved. In this respect the Nyāya view is different from Russell's theory which preserves the equivalence between (i) and (ii), but closer to the views of some free logicians who do not preserve the equivalence between them. Moreover, the Nyāya has shown the non-equivalence between (i) and (ii) without introducing an empty term such as "Pegasus" or "Heimdal". In this respect it is different from the views of some free logicians.

(C) Now let us discuss the Nyāya theory of empty descriptive expressions.

First of all, an empty description, definite or indefinite, is a sentence. If there is a mutual syntactic expectancy between the parts of a description, then it is a meaningful sentence. Hence expressions, such as "The (A) horn of a hare", "The (A) table which is brown and not brown", and "The (A) round square" are considered as sentences.

Secondly, an empty term is necessarily a complex expression and its atomic parts must be non-empty.

Thirdly, since we are going to discuss negative sentences which contain empty descriptions, we should introduce the Nyāya criteria for forming a significant negative expression. The negation of an expression would be significant if the following conditions are fulfilled:

(1) If "t" is a meaningful expression, then "not-t" is meaningful provided "t" does not represent a universal property such that nothing lacks it. In this context it is to be noted that according to the Nyāya the terms "existence" in the first sense, "knowability" and "nameability" refer to universal properties. Since every object exists, is knowable and nameable, we cannot locate the absence of these properties in any object. Hence the terms "non-existent", "unknowable" and "unnameable" are not significant expressions. From this view of the Nyāya it follows that the rules of obversion, contraposition and double negation are not universally valid.

(2) If "not-t" is significant, then the term "t" must not be empty. From this criterion of negation it follows that the expressions such as "absence of a (the) hare's horn" or "not round square", are not significant negative expressions. Instead of saying "absence of a hare's horn" the Nyāya would say "Absence of a horn in a hare" or "A hare has an absence of a horn".

Now I would like to discuss the meaning of an empty description, the truth-value of it, whether it generates a cognition, and how we know the truth-value of it. Let us consider the following descriptions:

(a) The hare's horn.
(b) The table which is brown and not brown.

Since (a) is an empty term, its meaning-complex, if there is any, cannot be given in terms of reference. It may be suggested that its meaning can be explained in terms of the complex property of being the hare's horn. But according to the Nyāya a real property must have a locus. Since it is an empty term, the property of being the hare's horn does not have any ontological status. Now the question is whether this unreal property has any epistemic status. On this point the Nyāya claims that this property is not real at epistemic level either, although the expression (or the sentence) "The hare's horn" generates a cognition, and its meaning cannot be explained in term of the property of being the hare's horn. The cognition generated by (a) can be represented in the following way:

(a′) (The particular horn *R1* hornness) *R2* (a particular hare *R3* hareness)

Here *R1* is the relation of hornness to the particular horn, *R3* is the relation of hareness to a particular hare, and *R2* is the relation of a hare to the horn. *R2* which is the converse of the relation of belonging is called "inherence relation" in the Nyāya ontology. The left-hand side of *R2* in (a′) is the qualificand, and the right-hand side is the qualifier of this cognition. Since *R2* does not relate a hare to the horn, there is no real property of being the hare's horn. Now the question is whether *R2* is unreal. The Nyāya claims that the *R2* which is real elsewhere is cognised wrongly between a hare and the horn. Hence the cognition generated by (a) involves the *imposition* of a real relation in this case. Since *R2* in this case does not relate a hare to the horn, the cognition is invalid and the sentence is false.

Now the question is whether (b), which purports to refer to an impossible object, generates a cognition. Here the Nyāya refers to the preventer-prevented relation between cognitions, which is analogous to the contradictory or contrary relation between sentences, and claims that the cognition of the brown table prevents the cognition of a not-brown table and vice versa. Hence there is no one unified cognition corresponding to (b).

Now the question is, if (b) cannot generate a cognition, then how can the Nyāya explain its meaning?

The answer to this question lies in the Nyāya concept of a relation i.e. the role of a relation or the conditions for its reality. As we pointed out earlier that a relation has two roles, viz., it makes one of the terms a qualifier of another at epistemic level, and it makes a fact out of two terms. In the case of the hare's horn the relation of a hare to the horn performs the first function but not the second one. But in (b) none of the functions is satisfied. The meaning of (b) as distinct from the meanings of its two terms lies in the relation along with its direction between the referents of its terms. The relation which is the meaning of a sentence as distinct from the meanings of its parts is due to syntactic expectancy between the two parts of a sentence. Hence the meaning of a sentence does not depend on understanding the meaning of a sentence or the cognition generated by the sentence.

As regards the truth-values of (a) and (b), the Nyāya claims that each of them is false. Since the relation of a hare to the horn does not hold good, (a) is false. Similarly, since the relation of a brown colour and its

absence to the table does not hold good, (b) is false. Now the question is, how do we know the truth-value of a sentence such as (b) which does not generate a cognition?

The Nyāya claims that we come to know the falsity of (b) when we know the truth of the sentence "The brown table" or the truth of the sentence "The non-brown table".

From the above discussion it follows that (i) the meaning of description, empty or non-empty, depends on the relation along with its direction, which is due to the syntactic relation between the two parts of a descriptive expression; (ii) some empty descriptions generate cognitions but not every empty description; (iii) every description has a truth-value; and (iv) we can know the truth-value of any descriptive expression either in isolation or in the context of some other sentence.

(D) Now let us discuss the nature of some sentences, including identity and existential sentences, which contain empty descriptions. Consider the following sentences:

(1) The hare's horn is sharp.
(2) The hare's horn is not sharp.
(3) The hare's horn exists.
(4) The hare's horn does not exist.
(5) The hare's horn is the hare's horn.
(6) The hare's horn is not the hare's horn.
(7) Pegasus is Pegasus.
(8) Pegasus is not Pegasus.

The meaning of (1) as distinct from the meanings of its parts lies in the relation of sharpness in a particular object, i.e. a particular sharp quality to the hare's horn, and the meaning of "The hare's horn" as distinct from its parts lies in the relation of a hare to a unique horn. (1) would generate a cognition in a hearer or a speaker. But since there is no real relation between a hare and a horn, the cognition represented by "The hare's horn" is invalid, which is the epistemic counterpart of falsity, and consequently the cognition represented by (1) as a whole is invalid, and the sentence "The hare's horn is sharp" is false. We come to know the falsity of (1) when we know the falsity of "The hare's horn", and we come to know the falsity of the latter when we know the falsity of "A hare's horn". Similarly, (2) is false. Here we ascribe the absence of a sharp property to the hare's horn. This sentence will also give rise to a cognition

and the complex cognition will be invalid due to the invalidity of the cognition corresponding to the expression "The hare's horn". In this respect the Nyāya view is similar to Russell's theory of definite description. As in Russell both "The present King of France is bald" and "The present King of France is not bald" are false, so are they in the Nyāya system. According to Russell they are false due to the falsity of "At least one person is a King of France", but according to the Nyāya they are false due to the falsity of "A King of France".

The meaning of (3) cannot be equated with that of "The hare's horn", and hence they do not give rise to the same cognition. Since the word "exists" has two meanings in such contexts, (3) means either

(3′) The hare's horn has existence,
or (3″) The hare's horn has occurred somewhere.

Hence the cognitions corresponding to two different meanings of (3) would be different. Since a hare is not related to a unique horn by the relation of inherence, i.e. the converse of the belonging relation, the cognition corresponding to "The hare's horn" is invalid, and hence the cognitions corresponding to both (3′) and (3″) are invalid and the sentences are false.

As regards (4) the Nyāya claims that if it asserts the absence of the hare's horn, then it violates one of the rules for forming a significant negative expression, and hence it is not a well-formed expression. But if (4) is paraphrased as

(4′) The horn has absence of a hare (by the relation of inherence),
or (4″) The horn does not belong to any hare,

then it is true, and it gives rise to a valid cognition. For this reason in the technical language of the Nyāya instead of (4), either (4′) or (4″) would occur. But if (4) is taken in the literal sense, then it violates one of the rules for negation.

The meaning of (5) cannot be identified with that of (3). Moreover (5) being an identity sentence would not generate a cognition either in a hearer or in a speaker. But both of them are false. Since the relation of inherence does not relate a hare to the horn, the sentence "The hare's horn" is false, and consequently (5) is false. But we come to know the falsity of (5) when we know the falsity of "The hare's horn".

Now (6), taken literally, violates one of the rules for forming a significant negative expression. Since we cannot negate an empty term, (6)

becomes an ill-formed expression. Since it is an ill-formed expression it cannot generate a cognition. Hence the question of its truth or falsity does not arise.

With respect to (7) the Nyāya, like Russell, argued that it has to be expanded in the form:

(7′) The winged horse captured by Bellerophon is the winged horse captured by Bellerophon.

Since a horse does not have any wings, the sentence "The winged horse" is false, and hence "The winged horse captures by Bellerophon" is false and consequently (7′) is false. Since (7′) means the same as (7), the latter is false. (7) being an identity sentence, like (5), does not generate any cognition. But we come to know the falsity of (7) when we know the falsity of "The winged horse" or the truth of "A horse does not have any wings".

(8), like (7), is to be expanded in the form:

(8′) The winged horse captured by Bellerophon is not the winged horse captured by Bellerophon.

Since it also violates one of the rules for forming a negative expression, it is not a well-formed expression, and hence it cannot generate any cognition and the question of its truth or falsity does not arise.

From the above discussion it follows that a complex or non-atomic sentence which contains an empty descriptive expression is either false or violates one of the rules for forming a significant negative expression, and the so-called irreferential names are definite descriptions in disguise. ([42])

Victoria University of Wellington J.L. SHAW
New Zealand

([42]) In the second section I have included some of the discussion from (i) Jagadīśa's *Śabdaśaktiprakāśikā*, Part I and II, with Bengali translation and commentary by Pandit Madhusudana Nyāyāchārya, (ii) M.C. Nyāyaratna's *Navya-Nyāya Bhāsāpradīpaḥ*, edited with commentary by Pandit Kalipada Tarkāchārya, (iii) Gadādhara's *Śaktivāda*, (iv) Pandit Visvabandhu Tarkatīrtha's unpublished article on "Proper Names", written in Bengali, (v) Raghunātha Śiromaṇi's *Padārthatattva-nirūpaṇam*, with Bengali translation and commentary by Pandit Madhusudana Nyāyāchārya, (vi) Pandit Madhusudana Nyāyāćhārya's "Śabda-prāmāṇya", *Our Heritage*, 1970, and (vii) Udayana's *Ātmatattvaviveka*, Part I, with Bengali translation and commentary by Śrī Dīnanātha Tripāthi. Moreover I am greatly indebeted to Pandit Visvabandhu Tarkatīrtha with whom I have discussed almost all the points mentioned in this section.