Ontological Burden of Grammatical Categories

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§ 1 Quine's Unique Reading of the Existential Quantifier

Quine reads the existential quantifier throughout his philosophical activity in a unique way, i.e. in the so-called referential way. The polemical point in his referential reading consists in the fact that this requires that it be the only way by means of which we can be told what entities are taken to be in a theory or a discourse. According to this reading, the existential quantifier is the only vehicle which informs us the ontology of a theory or a discourse.

I agree with Quine as far as the rudimentary function of the existential quantifier is concerned. I mean with the rudimentary function such one that it plays when it quantifies the expressions of the singular name category. Let us call by convention the sentence of the form '*Fa*' purely ontological when '*a*' is a singular term being applied to just one object and '*F*' a predicate. In the standard logical systems, it is already *presupposed* that they are purely ontological. But as I shall show, in the ordinary discourse, it is not always the case that they are purely ontological, even when they are of the form '*Fa*'. The existence of such sentences will be of some theoretical consequence when we come to consider the possibility of another kind of vehicle of the ontology of a theory or a discourse. Anyway, I shall now concentrate on the case of purely ontological sentences.

Quine argues in his *DE1939* that if a word '*a*' designates some *entity*, then any context including the word '*a*' can be existentially generalized, for the context in question must be a statement *about* the entity. Clearly, the existential quantification is admitted as meaningful, just because the resulting sentence is taken to be *about that entity*. The normally accepted reading of the sentence '$(\exists x)Fx$', i.e., 'there is something which is *F*' should be rendered, taking Quine's reading strictly, as '*there is an entity such that it is F*'. According to him, this is the authentic reading of the sentences of the form '$(\exists x)Fx$'. He maintains in his *LA1939*;

> Now I grant that the meaning of quantification is covered by the logical rules; but the meaning which those rules determine is still that which ordinary usage accords to the idioms 'there is an entity such that', 'an entity exists such that', etc. Such conformity was the logicians objective when he codified quantification; existential quantification was designed for the role of those common idioms. (p. 198)

It should be noted that he here supposes that this reading correlated to the realm of entities is the only objective when logicians codified quantification.

This standpoint has not undergone nearly any change, and on the contrary it rather tended to take a sharper form. In his *EQ1968*, he maintains:

It is the existential quantifier··· that carries existential import. *This is just what existential quantification is for*, of course. It is a logically regimented renderring of the "there is" idiom. (p. 94)

Further, putting a strong accent on the ontological function of quantification, he states:

Existence is what existential quantification expresses. There are things of kind F if and only if $(\exists x)Fx$. This is as unhelpful as it is undebatable, since it is how one explains the symbolic notation to begin with. The fact is that it is unreasonable to ask for an explication of existence in simpler terms. (p. 97)

Let me quote one more passage from *EQ1968* where he claims that we must use the referential quantification if we at all want to commit ourselves to the ontology presupposed by a theory or a discourse:

I hold rather that the question of ontological commitment of a theory does not properly arise except as that theory is expressed in classical quantificational form, or insofar as one has in mind how to translate it into the form. I hold this for the simple reason that the existential quantifier, in the objectual sense, is given precisely the existential interpretation and no other: there are things which are thus and so. (p. 106).

In this passage, the expression 'classical' and 'objectual' mean the same as 'referential'. What Quine here claims with this passage is quite a strong one. Whoever is interested in the ontology of a theory has to use referential quantification. But is it really so? And I suppose that there is a good reason to bring up such a question, for Quine's claim as to the referential quantification finds its reason in that we have only one way of interpreting quantification which is related to ontology. And this seems to be rather dogmatic. I shall return to the point later.

One more point about 'being' should be made clear. Quine has just one notion of 'being'. In his *MthL1950*, p. 212, he states:

I shall find no use for the narrow sense which some philosophers have given to 'existence', as against 'being'; viz., concreteness in space-time··· The Parthenon is indeed a placed and dated object in space-time while the number 7··· is another sort of thing; but this is a difference between the objects and not between senses of 'be'.

In *EQ1968*, we read:

Our theory of nature grades off from the most concrete fact to speculations about the curvature of space-time···; and our evidence grades off correspondingly, from specific observation to broadly systematic considerations. (p. 98)

Continuing the passage, he tries to settle the place of the notion of existence in philosophy as follows:

Existential quantifications of the philosophical sort belong to the same inclusive theory and are situated away out at the end, farthest from observable fact. (p. 98)

Summarizing what I have pointed out until now, Quine's reading of quantification is in two senses unique. First, regardless of objects of consideration, the meaning of existence is the same. Secondly, the ontology of a theory can be expressed only by virtue of the referential quantification.

§ 2 Intuition of the Referential Quantification and Criterion of Ontological Commitment

I shall here try to represent more closely the meaning of referential quantification, putting accent on the intuition on which the interpretation acquires its sense.

I have already introduced the notion of purely ontological sentences. A sentence of the form '*Fa*' is purely ontological if and only if the expression '*a*' designates just one entity and of that entity the predicate '*F*' holds. One of the most basic, and rudimentary function of a sentence is to inform us that of some entity something holds, i.e. to be purely ontological. It is from this basic function that the interpretation in question acquires the reason of its theoretical rightfulness.

The well-known criterion of Ontological Commitment established by Quine is phrased as *to be is to be the value of a variable.* Though the phrase remained the same[1], the intention underwent a slight change. Quine established this criterion in his *DE1939* and *LA1939*, and what he then had in view was to put forward the logico-linguistic means by virtue of which one could decide whether an expression was a *name in the semantic sense* or not. The criterion was, at the beginning of its history in philosophy and logic, intended to be the *criterion of namehood* of expessions. He distinguishes there the notion of noun from that of name[2]. In this point, Quine follows the very Russellian trend, but on the contrary to Russell's theory of names as disguised descriptions, Quine rightly recognizes the meaningfulness of nouns. He states in *DE1939*:

··· a noun can be meaningful in the absence of a designatum. (p. 703)

Further, he maintains:

Grammar and lexicography tell us, independently of questions of existence, that the word "Pegasus" is a noun and that it is equivalent to the phrase "the winged horse captured by Bellerophon"; it is left to history and zoology to tell us further that the word "Pegasus" is not a *name* in the semantic sense, i.e. it has no designatum. (p. 703)

Though Quine is ready to eliminate the expressions of noun category which are not names in the semantic sense by appealing to the theory of description, anyway he

1 Compare, for example, the formulation in *DE1939*, p. 708, and that in the third edition of *Methods of logic 1950*, 1972, p. 234. We find the same formulation.

2 'name' will be used in this paper 'name in the semantic sense'.

retains the place for nouns in general. Now the problem is how to demarcate the names in the semantic sense from those which are nouns but not names. What he seeks is the logico-linguistic way for the demarcation. In *DE1939*, he states:

> Perhaps we can reach no absolute decision as to which words have designata and which have none, *but at least we can say whether or not a given pattern of linguistic behavior construes a word W as having a designatum.* (p. 706, italics mine)

We find also a passage which amounts to the one stated above in *LA1939*. Using a good old terminology 'syncategoremata' which in Quine's sense amounts to names in the semantic sense, he states his plan for establishing the standard of demarcation as follows:

> Ontological questions can be transformed, in this superficial way, into linguistic questions regarding the boundary between names and syncategorematic expressions. Now where, in fact, does this boundary fall? The answer is to be found, I think, by turning our attention to variables. (p. 197)

It may be advisable to note that he distinguishes two kinds of ontological statements, namely the *singular existence statements* and the *general existence statements*[1]. The former has the form 'there is such a thing as so-and-so', while the latter has the form 'there is a so-and-so'. The former purports to say that there is just one entity which the 'so-and-so' designates. The truth condition of the latter kind is that there is an entity which is so-and-so, and not necessarily just one. He states that this can be expressed in the logical symbolism by means of existential quantification[2]. Let us abbreviate the singular existence statement as '$ob(a)$', reading it as 'there is such a thing as a'. At this stage, Quine acknowledges some special ontological meaning of the singular existence statements, and the ontological meaning of the second kind of existence statements is not very much accentuated, while one year later the situation will be completely reversed.

I may, for the sake of clarity, restate the truth condition of '$ob(a)$' as follows with the help of diagram:

TS. '$ob(a)$' is true if and only if the following diagram holds;

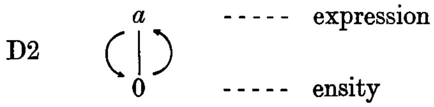
$$\text{D1} \qquad \begin{array}{cl} a & \text{------ expression} \\ | & \\ 0 & \text{------ entity.} \end{array}$$

And I shall call this relation between the expression 'a' and its designatum the symbolic relation between them[3]. The vertical line connecting them signifies the

1 *DE1939*, p. 701.
2 *DE1939*, p. 702
3 I borrow this terminology from Leśniewski. In *ZS1912*, §6, he introduces the notion of symbolic relation, stating: the relation of expressions to the objects which are denoted (in other words — symbolized) by the expressions I call the symbolic relation. (p. 212, my translation)

symbolic relation between them. The symbolic relation between 'a' and its designatum consists of two parts, or functions. When there is a symbolic relation between an expression 'a' and its designatum, then we refer by means of 'a' to its designatum, and in turn the object is introduced into the language by the expression 'a'. I call the former function the referring function of the expression 'a', the latter the introducing function of the expression 'a'[1].

Now we may rewrite the D1 in the more full style which visualize also these two functions of the symbolic relation.

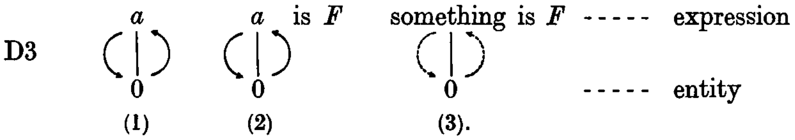


I now try to state the basic intuition relying on which Quine established his first formulation of Ontological Commitment as to the namehood of expressions. I quote one more passage from his *DE1939* which may give us a clue to understanding what he had in view. He states the relation between '$ob(a)$' and a statement containing the expression 'a' as follows:

The singular existence statement does not affect the truth value of the statement "a is F". However, it does prove to have other effects. If the word "a" designates an entity, then the statement "a is F"[2] is a statement *about* that entity. It affirms the F-ness thereof, and implies that something is F:

$$(\exists x)(x \text{ is } F)\,. \quad \text{(p. 705)}$$

What Quine states in the passage quoted above will amount to the following diagram:



The inference of 'something is F' from 'a is F' is carried out by weakening the symbolic functions[3], which is denoted by changing the style of arrows. This inference is carried out because in D3, (1) holds, i.e. '$ob(a)$' holds. And if the inference form (2) to (3) is possible, then it in turn will mean that '$ob(a)$' holds, i.e. (1) holds.

1 I borrow these terminologies from Strawson.

2 In the original text, Quine uses in place of "a" "appendicitis" and for "F" "dreaded".

3 Leśniewski introduced this terminology in his *ZS1912*: Every linguistic expression is either what denotes something or what denotes nothing, in other words....either what symbolizes something or what symbolizes nothing. I call the property of an expression due to its symbolizing something the *symbolic function* of the given expression. (p. 212, §6, my translation)

On this ground, Quine states in *DE1939*:
To say that there is such a thing as a, or that "a" designates something, is to say that the operation of existentially generalizing with respect to "a" is *valid*; $\cdots$A word W designates if and only if existential generalization with respect to W is a valid form of inference. (p. 706)

We may formulate what Quine states above as follows:

QOC1. $ob(a)$ iff for every ϕ: $\phi(a) \vdash (\exists x)\phi(x)$

From QOC1, we obtain with ease the following version:

QOC2. $ob(a)$ iff for every ϕ: $(x)\phi(x) \vdash \phi(a)$.

Quine reachs now the following definition of the names in the semantic sense:
And names are describable simply as the constant expressions which replace these variables and are replaced by these variables according to the usual laws. In short, names are the constant *substituends* of variables. (p. 707)

Quine now, identifying the realm of entities with the range of values of the variables, comes to the important conclusion:
Here, then, are five ways of saying the same thing: "There is such a thing as a"; "the word 'a' designates"; "the word 'a' is a name"; "the word 'a' is a substituend for a variable"; "a (itself) is a value of a variable". *The universe of of entities is the range of values of variables. To be is to be the value of a variable.* (p. 708, italics mine)[1]

We now arrived to the famous formulation of Ontological Commitment. As shown, it is easy to see that its original purpose was to set up the standard of the namehood of expressions.

I now suppose it is quite in order to clarify his logico-philosophical presumptions on which this criterion is founded. The first point to be made clear is that the weakning of the symbolic functions is performed basing on the relation which already exists. Note that no symbolic relation is therewith established. The second point is that the weakening is performable only on the expression which is in a symbolic relation with something. The third point is that this 'something' which stands in a symbolic relation to expressions must be an entity, i.e. the symbolic relation can exist only between expressions and entities. These are connected with his two stubborn believes as to 1) the objective in codifying quantification, and 2) the range of values of variables. We must, if we go with Quine, read 'something is F' always 'some entity is F', or in general, '$(\cdots$ something$\cdots)$' always as '$(\cdots$some entity$\cdots)$'. The last point to be picked up is whether a sentence of the form 'F (something)' is really of the form '$(\exists x)Fx$'. The answer is yes. But we shall need a little more careful consideration on the function of quantification in the referential sense.

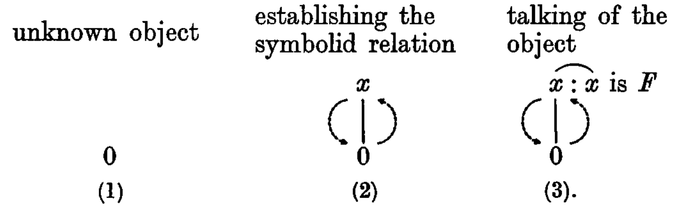
In some logical contexts, we often meet two readings of quantification '$(\exists x)$'.

1 In the original, Quine uses for 'a' 'appendicitis'.

A sentence of the following form '$(\exists x)Fx$'. is read once as 'something is F' and once as 'there is something which is F'. It seems that, in usual cases, they make no distinction between these two readings. What I aim to make clear is the difference which exists between them. I shall argue this point taking quantification in the referential sense. Let us take a sentence 'Fa' which is purely ontological. If 'Fa' is purely ontological, then there is an entity which is the designatum of 'a' and there holds a symbolic relation between them. In this case, there is already a symbolic relation on which we may weaken the symbolic function of the expression 'a'. As shown in D3, it is easy to convert 'Fa' to 'F (something)'. That is to say, if there is a symbolic relation, then the *indefinite pronominalization* is performable[1].

Now let us turn to the reading 'there is something which is F'. It seems that there is quite a specific case where this reading works typically. In many cases we have no linguistic means to refer to the objects of which the existence is assured. Notice that in such cases it is the objects themselves that are not definite, whereas in the former case by the performance of indefinite pronominalization the linguistic function is made indefinite. In what way are we able to speak about them ? Comparing this situation with that of D3, we soon realize that there lacks the symbolic relation. Hence if we should like to talk of them at all, then we must at the outset establish a symbolic relation. The process of talking of them will be as follows:

D4



The primary function of $(\exists x)$ seems to be to establish a symbolic relation at first. I use the letter 'x' as the stipulatory name for the unknown object in order to establish a tentative symbolict relation. I prefer the letter 'x' rather to the pronoun 'something', for the indefiniteness is on the side of object.

I pass on to the problem of predication. This is by no means simple in this case. What has been done until now is only the establishment of the indefinite symbolic relation, and nothing more. What we want to do is to speak about of the object, and, in order to speak of some object, we need its name. In this case, we have the tentative name 'x', which is now establishing the tentative symbolic relation to the object. We must use this name in predication. We naturally use this name 'x' in predicating 'F', saying 'x is F'. But this 'x' must refer back to

1 I take the terminology from Hiż *AE1973*. cf. p. 184.

the object of which we intend to speak. Now this referring back can be carried out only through the symbolic relation. So the 'x' in the predication and in the tentative symbolic relation must be linked. This linking function seems to belong also to '$(\exists x)$. This linking function is signified in D4(3) with a slur. In those cases, the quantifier '$(\exists x)$' functions in a double way:

FQ1 establishment of a tentative symbolic relation

FQ2 linking function between the symbolic relation and predication part.

In ordinary discourse, these functions appear in the following forms:

FQ1′ there is an (entity of which the tentative name is) x

FQ1′ such that it.

A more fluent way to express them is:

FQ1″ there is something

FQ2″ which.

These two functons are amalgamated in '$(\exists x)$'. As an illustration of the semantically basic function of existential quantification I propose the following diagram:

DQ1 $x: (\cdots x \cdots)$.

Compare DQ with the reading of quantification as '$(\cdots$something$\cdots)$, the semantic structure of which is:

DQ2 $(\cdots$ something $\cdots)$.

The structure of DQ2 is simpler than that of DQ1. Note that the structure DQ2 can be converted to that of DQ1. Supposing that the pronoun 'something' in DQ2 has a symbolic function, we at first take up the symbolic function as itself, and thereafter by the help of the slur, we correlate this 'something' to the relative pronoun. Hence the reading '$(\cdots$something$\cdots)$' is to render to the reading 'there is something which$\cdots$'. Note that DQ1 can be converted to DQ2, of which I shall not discuss here. Therefore, the two readings are convertible to each other, while there is a conspicuous semantic difference.

I shall now try to explain the shift in intention of Quine's criterion of Ontological Commitment. Recall Q0C1 or Q0C2. There the matter concerned was the namehood of expressions. But a little later, its intention underwent a slight change. The main buisiness of the criterion now becomes about what *kind* of entities, and in general not about some particular so-and-so, a theory must presuppose in order to be true at all. It seems there were two reasons which caused this change. The first was the problem about empty names, and the second was that about nameless objects.

I begin with the problem about empty names. The problem is connected essentially with the validity of the laws of quantification and tightly with the notion of existence. Discording with Russell[1], Quine takes it meaningful to predicate existence to names. In his *ML1940*, he states:

To say that *something* does not exist, or that there *is* something which *is not*, is clearly a contradiction in terms; hence '(x) (x exists)' must be ture. (P. 150)

The puzzling passage at the beginning of his *oWTI1948* should phreaps be read in this sense. We read there:

A curious thing about the ontological problem is its simplicity. It can be put in three Anglo-Saxon monosyllables: 'what is there?' It can be answered, moreover, in a word–'Everything'—and *everyone will accept this answer as true.* (p. 1, italics mine)

But I must confess that I did not understand when I read it for the first time, and now I discord with him. But how do we reach, if ever, formally this puzzling conclusion? It seems that there are two ways to show it, one of which is the following[2]:

1.1	$(\exists x)\sim ob(x)$	(*Hyp.*)
1.2	$\sim ob(x_1)$	(1.1)
1.3	$(\exists y)\sim ob(y)$	(1.2)
1	$\sim ob(x_1) \vdash (\exists y)\sim ob(y)$	(1.2, 1.3)
2	$ob(x_1)$	(1,Q0C1)
3	contradiction	(1.2, 2)
4	$\sim(\exists x)\sim ob(x)$	(3, 1.1)
5	$(x)ob(x)$	(4)[3].

Now it is easy to see how the troublesome problem appears with respect to the laws of quantification, if we admit empty names in the list of terms of our logic. Quine writes in *ML1940*:

But this rule of inference leads from the truth '(x) (x exists)' not only the true conclusion 'Europe exists' but also to the controversial conclusion 'God exists' and the false conclusion 'Pegasus exists', if we admit 'Europe', 'God', 'Pegasus' as primitive names in our language. (p. 150)[4]

This troublesome situation can be avoided, Quine argues, if we regiment our

1 For Russell the predication of existence to names in the semantic sense is simply meaningless, and nonsense. cf. his *PLA1918*, p. 233, p. 241. It seems that this is because his notion of name is definable only by means of the notion of presupposition. Roughly speaking, a sentence has a presuppositional structure if it is of the form 'p is impossible without q being the case', which implies 'if p then q'. Let 'p' be '"a" is a name' and 'q' be '"a" has a designatum'. Then we get Russellian presuppositional restrictive condition of names.

2 I.e. using the notion of presupposition, or without the notion of presupposition. What I show below is, naturally of the second kind.

3 Another formulation is given in Lejewski *LE1954*, p. 105.

4 The inference is what he calls *universal instantiation.*

language so that it does not contain any name, and we get such a language always by converting names, or nouns in general, to predicates by means of Theory of Description, losing nothing in its informative ability. In *oWTI1948*, Quine states:

Names are, in fact, altogether immaterial to ontological issue, for I have shown··· that names can be converted to descriptions, and Russell has shown that descriptions can be eliminated. *Whatever we say with the help of names can be said in a language which shuns the names altogether.* (p. 12, italics mine)

The second point that is to be argued here, and that led Quine to shunning names is the problem of nameless objects. It sometimes occurs that we must talk about objects which are nameless. In *CVO1951*, he states:

The use of alledged names··· is no commitment to corresponding entities. Conversely, through our variables of quantification we are quite capable of committing ourselves to entities which cannot be named individually at all in the resource of our language; witness the real numbers, which, accordingly to classical theory, constitute a larger infinity than does the totality of constructible names in any language. (p. 205)

Later in *EQ1968*, repeating the same point, he states:

The existence sentence "there are unspecifiable real numbers" is true, and expressible as an existential quantification; but the values of the variable that count for the truth of this quantification are emphatically not objects with names. *Here then is another reason why quantified variables, not names, are what to look for the existential force of a theory.* (p. 95)

These situation gives him another reason for banning names from the list of our logic. Note that Quine at the same time gives a strong argumentation for the referential interpretation of quantification.

For those reasons stated above, Quine is led to the language without names. In such a language, the criterion of Ontological Commitment in the form of Q0C1 or Q0C2 does not function, for there is no name there. Now what does the criterion of Ontological Commitment look like for such a language? It is not difficult to give an answer to it, when one admits the Quinian reading of quantification. Let us take a purely ontological sentence '*Fa*', and consider its quantified form '$(\exists x)Fx$'. I take now DQ1 as the principal function of '$(\exists x)$'. And recall what Quine required of the value-range of variables, i.e. that it be the realm of entities[1]. With these two, one may easily establish the criterion of Ontological Commitment. The semantic situation which the sentence '$(\exists x)Fx$' expresses is the following one:

D5

x : x is F ----- expression

0 ----- entity,

1 cf. *DE1939*, p. 707, p. 708.

and a closer look on the diagram shows that the 'x' which is related to the realm of entities through the symbolic relation covers in an indefinite way the whole realm of entities, and the phrase 'x is F' is, by the help of the slur, selecting the entities that are of the *kind F*. It is clear that on the presumptions stated above we can conclude that if a theory states the truth of '$(\exists x)Fx$', then entities of the kind F must be.

Quine states the criterion of Ontological Commitment for the language without names, what he calls the *canonical language*, as follows:

A theory is committed to those and only those entities to which the bound variables of the theory must be capable of referring in order that the affirmations made in the theory be true. (pp. 13–14, *oWTI1948*)

or more explicitely, in *RU1953*:

In general, entities of a given sort are assumed by a theory if and only if some of them must be counted among the values of the variables in order that the statements affirmed in the theory be true. (p. 103, Quine's italics)[1]

In *EQ1968*, we find a phrase which we may accept as the criterion of Ontological Commitment for the language without names:

Q0C3 Existence is what existential quantification expresses. *There are things of the kind F if and only if* $(\exists x)Fx$. (p. 97, italics mine)

Applying this criterion to nouns, the namehood of them will be expressed as follows:

Q0C4 $ob(a)$ if and only if $(\exists x)(x=a)$[2].

A very queer situation arises when we quantify the part of predicate of a sentence, say 'Fa'. If we go along with Quine, then such an inference as:

$$Fa \vdash (\exists G)Ga,$$

or such a formula:

$$(\exists F)Fa$$

will say that there is something in the realm of entities corresponding to the expression 'F', or the following diagram holds:

D6 $\widehat{F:F}a$ ----- expression
$|$
0 ----- entity,

leading us to platonism.

Here we have a passage from *MthL1950*[3]:

From time to time we have, however, associated certain abstruct entities, called

1 cf. also *EQ1968*, p. 93.

2 *EQ1968*, p. 94.

3 He viewd properties as the possible values of the variables, too. cf. *RU1953* p. 107–8. Note that we can take the classes as the values of these new variables only when we take the extensional view.

classes, or sets, with general terms··· So classes recommended themselves as objects for the newly quantified variables to range over. We can read '(F)' and '$(\exists F)$' ···as 'each class F is such that' and 'some class F is such that'··· (p. 235)

This situation can be avoided taking the letters 'F', 'G', etc. as schematic letters. On this point, we find an explanation, for example, in *RU1953* in section 2. But I shall not discuss this point further. For we are forced to admit such entities as classes or sets, or properties, with quantification over the predicates, only when we accept Quine's referential quantification. But I see no reason for which we must follow him. Indeed we have another way of copying with this matter, i.e. we can have another kind of quantification, which is based on the so-called substitutional interpretation, but not completely the same. I cited quite a lot of passages from Quine where he persisted on his *object-oriented* referential interpretation. He maintained that this interpretation is the logician's objective when they codified quantification. This might be true. But there are other cases where quantification works well and is of no referential kind. This is perhaps the kind of quantification when they, the logicians, have forgotten to codify.

§ 3 Subjectivistic Interpretation of Quantification

Russell gives an explanation of the notion of existence in his *PLA1918*:
Existence is essentially a property of a propostitional function. It means that that propositional function is true in at least one instance. (p. 232)
In *IMP1919*, he states:
An object ambiguously described[1] will "exist" when at least one such propositition is true, i.e. when there is at least one true proposition of the form "x is a so-and-ao," *where* "x" *is a name*··· Thus a man "exists" follows from Socrates, or Plato, or anyone else. (p. 172, italics, mine)
This explanation makes use of the notion of *instantiation*. Informally, we might give the following definition:

CE1 F exists iff $(\exists x)Fx$, or
iff for a *name* x: Fx.

Now it may be in order if I ask why this explanation works well. In order to explain it, let us recall what kind of function Russell demanded names to have. To say in short, the condition of namehood in the sementic sense is:

PN 'a' cannot be a name without designating just one object[2].

Now let us look on the definiens of 'F exists'. Russell reads '$(\exists x)Fx$' as 'there is an x such that it is F'. Comparing this reading with the second definiens, we

1 I.e. 'a so-and-so'.
2 This is a variation of what I called in the previous chapter the Russellian pressupositional restrictive condition of names. cf. N.B. p. 192.

obtain the following equivalence[1]:

'there is an x such that'='for a name x'.

We may hence conlude that what is intended to be said with the left phrase is 'there is an expression 'x' of the name category', so that the notion of existence will be redefined as follows:

CE2 F exists iff there is an expression 'x' of the name category such that Fx.

But note that the sentence 'Fx' functions after 'such that' semantically, i.e. the expression 'x' here appears, so to speak, transparently, for using a name is the same as denoting an entity. This is the proper function of the genuine names in Russellian sense. Now can we not take this function of names in sentences as a kind of convention regulating their behavior in sentences except in quantifier? That is to say, may we not take it as a convention of names as to their function in sentences that they should appear transparently? The answer is yes. Let us call this convention *the convention as to the function of expressions of the name category*, and signify it with the abbreviation $C(N)$[2]. Russelian explanation of the notion of existence succeeded, because the expressions of names had as its category convention '$C(N)$'.

Now we may restate the definition of existence as follows:

CE3 F exists iff there is an expression 'x' of the category N with the convention $C(N)$ such that Fx.

The definiens consists of two parts;

1 there is an expression 'x' of the category N with convention $C(N)$ such that, and

2 Fx.

The clause 1 corresponds to '$(\exists x)$'.

Every expression plays its logico-linguistic role according to what category of expressions they belong to. The expressions in the category N should play in sentences, except in quantifier, the role of *pure naming*. The expressions of the category of general terms should play their role as to their extensions, and if necessary, their intensions, too.

I shall call such a convention the category convention of the expressions of

1 Notice that this is a well-formed equivalence, for both take as their argument *propositional functions* in order to form a proposition, with the result that they are of the same syntactic category.

2 Let 'N' be the category index of names in the semantic sense. The convention '$C(N)$' can be expressed more explicitely, as follows: if $a \in N$, then 'a' refers to, and introduces just one entity as its desingantum when it appears in a sentence, and does nothing more. 'a' has the function of *pure naming* in sentences.

a category 'c' that regulates the role which should be played by the expressions of the category 'c' in sentences.

I think that we reached the uniform reading of the quantified sentences. Take a sentence '$(\exists\alpha)\phi(\alpha)$', '$\alpha$' being in the category c_1. Then parallel to the case of '$(\exists x)Fx$', I propose the following reading:

$(\exists\alpha)\phi(\alpha)$ iff 1 there is an expression 'α' of the category c_1 of which the categorial convention is $C(c_1)$ such that
2 $\phi(\alpha)$.

This is a version of the so-called substitution interpretation of quantifiers. But a difference is in that my proposal takes the functions of expressions into consideration according to what category they belong to.

It is harmless to quantify expressions, if the quantification itself is free from ontological commitment. According to this interpretation, *existence is not what existential quantification expresses*[1]. *But existence is what the expressions of a special category expresses.*

Quine has argued against substitutional interpretation as follows in *RPM1961*:

When we reconstrue it[2] in terms of substituted expressions rather than real values[3], we waive reference. We preserve distinctions between true and false, as in truth-function logic itself, but *we cease to depict the referential dimention.* (p. 183, italics mine)

But this does not hold if we take the categorial conventions into consideration.

Now Quine has another argument against this interpretation. In *RPM1961*, we read:

For one thing, there is a question of unspecifiable numbers. Thus take the real numbers. On the classical theory, at any rate, they are indenumerable, whereas the expressions, simple and complex, available to us in any given language are denumerable. There are therefore, among the real numbers, infinitely many none of which can be separately specified by any expression, simple or complex. Consequently an existential quantification can come out true when construed in the ordinary sense, thanks to the existence of appropriate real numbers, and yet be false when construed in Professor Marcus's sense, if by chance those appopriate real numbers all happen to be severally unspecifiable. (p. 183)

But this difficulty is an apparent one. We may enrich the language with parameters, which are neither constants in the original language nor variables in it. Or we may consider that the language in question has always the list of parameters.

1 cf. Quine, *EQ1968*, p. 97.
2 quantification.
3 entities.

They function as follows; if we have no name for some object, naturally in the original language which is not yet enriched, then take a parameter of the category N. And then we may set up a symbolic relation between them, and we can formulate the sentence in question, understanding the function of quantification as I have proposed.

I see no point ontologically wrong in the substitutional interpretation, naturally supposing that 1) the language is supplied with category conventions, and 2) it is enriched with parameters.

Now the problem about the predicate-quantification disappears, for the category convention of predicates is not that which the category of names has. They are related to the realm of entities regarding their meanings, or thier extensions. Having an extention is not the same as naming a set[1]. We must introduce some special category, if we want to speak about sets[2]. For some philosophical reason, I shall name the interpretation which I proposed the *subjectivistic interpretation of quantification.* My philosophical intuition for it is more or less the following. Our world consists of subjects, which I understand in the sense of traditional ontology; they have their own inner structures within the framework of which they can appear in the world, related to each other again within this framework. Their classification according as *what they are* gives us the *categories*, or *predicates*[3]. If we replace a word designating some so-called *substantia prima*, e.g. Socrates, in a sentence containing this word, say 'Socrates is wise', with 'something' (*aliquid*, or better *aliqua res*), then we may be said to be committed to some entity by the use of the sentence 'something is wise', but as to 'wise', the resulting sentence which we get by replacing this word with 'something' does not make us commit ourselves to any kind of entity. The sentence 'Socrates is something' does not force us to accept any new kind of entity like idea. It only says that Socrates is in some mode of being. Only quantification of the word for the substantial prima forces us to commit ourselves to entities. Hence I call my interpretation *subjectivistic.*

§4 A Step toward Leśniewski's Ontology

In the usual systems of logic, it is presupposed that the sentences of the form '*Fa*' consists of two parts; a predicate-part '*F*' and a part of a singular term '*a*'. In other words, logic begins with the presupposition that the preparatory procedure of division of terms has been already carried out. But this presupposition gives birth to some cumbersome problem. If we want to carry out a logical calculus, then we must ask at the beginning whether or not a term is really a name. And

1 Küng has stressed this point in his *PF1974*, *MQLS1977*, and *NLH1977*.
2 cf. Lejewski *OL1976*. cf. also Küng and Canty *SQLeśQ1970*.
3 As to the relation between *categories* and *predicates* cf. Waragai *FCAL1979*.

this is a matter of experience. Quine was aware of this problem:
···we presuppose that a noun designates something whenever we deduce a singular statement from a universal quantification by substituting the nouns for the variable. The quantification makes an affirmation regarding all entities, and we assume that the substituted noun designates one of those entities. *So long as there are primitive expressions whose possession of designata is undecided, the logic of quantification remains indeterminate.* (*ML1940*, p. 151, italics mine)[1]

If it is desirable that logic be independent of such problems of experience, then it may be worth while trying to construct a logical system without such a presupposition which forces logic to submit to experience.

In our language, however, it is sometimes the case that we make no distinction between general names and singular names. Let us take a predicate '··· is animal'[2] We get now two sentences of different kind, but with the same grammatical structure:

1 man is animal,

2 Socrates is animal.

Representing the predicate with 'F', we have, in our usual discourse, two logically different kind of sentences which are of the same grammatical structure.

1 Fa, where 'a' belongs to S,

2 Fa, where 'a' belongs to U[3].

This holds of every predicate. Moreover, even a proper name can be used as a general term. This was pointed out by I. Dąmbska in the section about improper use of proper names[4].

3 Every Sophia celebrates her name-day on the 15th May. Also for Leśniewski, the so-called proper names are a kind of general names. He states in *ZE1911*:

J. St. Mill maintained that not all names are connotative ones: to nonconnotative ones belong, according to him, ···proper names··· But the names of which I mentioned, and which are for Mill nonconnotative ones, are in my opinion connotative; proper names connote the property of the possession of the name which sounds just as the given proper name ···So the proper name 'Paul' connote the possession of the name 'Paul'···; instead of 'Paul' one may then say 'being which possesses the name 'Paul''··· (p. 333, my translation)

With such considerations of names and examples, I think that we have a good reason to maintain that there is syntactically no difference between the singular

1 cf. also *MthL1950*, p. 212

2 I disregard the article. It is only because I write in English that I need the articles. But there are languages which have no articles, like Latin or Japanese, or though they have the articles, their functions are not so as in English, like Polish.

3 'S' is the category index of singular terms. 'U' is that of general names.

4 Dąmbska *FIW1949*, p. 35.

names and the general ones, or at least that we sometimes make no difference between them. It seems then that we have only one category of names including the singular ones as well as the general ones. And as the example from Dąmbska shows, it may be natural to count the singular ones as general. We have now only one category of names, which I shall designate with the category index 'U'.

Let us go with Leśniewski, at least for the time of being, and admit that every name connotes its properties, i.e. has its intension besides its extensions. We may now state the category convention for 'U'.

$C(U)$: if $\alpha \in U$, then in a sentence containing 'α', 'α' should be related with the realm of entities as to its extension[1].

Let us assume that we have in our list of terms 1) general names 2) predicates, 3) logical connectives and operators[2].

Now what is the condition for a sentence of the form 'Fa' to be purely ontological ? If we succeed in giving the condition, then that might be the first step of a construction of a logical system without the above mentioned presupposition. I shall use the letter 'a', 'b,' 'c', 'x', 'y', etc. for the expressions of the category U, 'F', 'G', etc. for predicates, and I shall take the quantification in the *subjectivistic* sense.

'Fa' is purely ontological if and only if 'a' designates just one entity, and at the same time what is designated by 'a' has F. This condition has two parts:

OC1 'a' designates just one entity.

OC2 whatever is designated by 'a' is F.

OC1 can be analysed in the following way:

OC1.1 'a' designates at least one entity, and

OC1.2 if 'a' designates entities, then they are identical.

OC2 can be analysed as follows:

OC2 if an entity is designated by 'a' then it is F.

The necessity of OC2 will be clear when we consider a sentence like 'man is animal'. This means that every entity which is designated by 'man' is designated by 'animal'. Now note that if we *had* the category of names in the semantic sense, then the sentence 'the entity x is designated by 'a'' would be the same as 'x is (in the extension of the expression) a'. We can then transform the semantic expression into the syntactic ones. Let us write this sentence as '$x \varepsilon a$'. Note that this is so to speak a syntactically disguised semantic expression. But in this language, there appears only the expressions of the category 'U', so we need now a postulate

1 cf. Küng, *MQLL1977*.

2 In Leśniewski's Ontology, there appears no predicate. But let us assume them here, for we start from the usual usage of language.

or a presupposition to assure that the subject of the expression '$x\varepsilon a$' is an entity name.

OP1 '$a\varepsilon b$' cannot be true without 'a' being an entity name.

This presupposition, together with $C(U)$, means that we are related to the reality in two ways, i.e. as to general names and as to entity names, depending upon their place in the sentences of the form '$a\varepsilon b$'.

By virtue of OP1, we have another category convention, which I shall signify with $C(ob)$, i.e.:

$C(ob)$: if $a \in U$, and at the same time '$a\varepsilon b$' holds for some b, then 'a' is realted to the reality as a name for entity.

We shall say '$ob(a)$' if and only if '$(\exists x)(a\varepsilon x)$' holds. OP1 states that an entity is what can be a subject.

Now it is not difficult to state the conditions OC1.1–OC2 with the help of 'ε':

OC1.1 $(\exists x)(x\varepsilon a)$

OC1.2 $(x)(y)(x\varepsilon a \wedge y\varepsilon a. \supset .x = y)$

OC2 $(x)(x\varepsilon a. \supset .Fx)$.

But again by virtue of OP1, we may define '$x{=}y$' in this context as '$x\varepsilon y \wedge y\varepsilon x$', which in turn by virtue of its symmetricity is in this context replaceable with '$x\varepsilon y$', with the result that we arrive now to:

OC1.2 $(x)(y)(x\varepsilon a \wedge y\varepsilon a. \supset .x\varepsilon y)$.

We are now in position to state the full condition under which 'Fa' is purely ontological.

OA $Fa. \equiv. (\exists x)(x\varepsilon a) \wedge (x)(y)(x\varepsilon a \wedge y\varepsilon a. \supset .x\varepsilon y) \wedge (x)(x\varepsilon a. \supset .Fx)$.

OA is quite parallel to the sole axiom of Lesniewski's Ontology[1]. The difference is only in that in the axiom of Ontology, there appears no predicate symbol, but only genreal names connected with the copula 'ε'. In order to obtain the axiom of Ontology, one need only to replace 'F' with 'εb', which is, however, at this stage not yet formally admittable. But if we take into consideration the possibility to convert predicates to general names, and vice versa, and if we may have an adequate rule of definition, then OA will be converted to the axiom of Ontology. Now the problem will center around the possibility of converting predicates to general names, but I shall not discuss it in this paper. But at any rate, also to those logicians who are rather reluctant to admitting the possibility of the convertion in question, I suppose that OA is acceptable.

Now let me summarize what I have discussed until now in this chapter. The language I considered has as to noun expressions only one category, and they are

1 cf. e.g., Lejewski *LeśO1958*, p. 62, or Słupecki *LeśCN1955*, p. 20.

in two ways related to the reality by the category conventions $C(U)$ and $C(ob)$. In general, names are related by $C(U)$ to the reality as to their extensions, but those names which can be the subject of the sentence '$x\varepsilon y$' are related to the reality as entity names. Hence, it is clear that the quantification in this language is not merely substitutional, but rather should be regarded as *subjectivistic*[2]. I may stress this fact by saying that *existence is not what quantification expresses but what the grammar of a regimented language does.*

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1 On this point, I argued in my *FCAL1970*. I there claimed from a metaphysical reason that a predicate, say '*F*', is an elliptical form of 'an *F* entity'. On this point cf. also Cresswell *CL1977*. I maintain for this reason that the syntactic category of the copula 'ε' is 's/n, n' and not 's/n, n/n', as Geach somewhere claimes on Fregean line.

2 It seems to be clear that Leśniewski inteded to construct a logical system with which he wished to speak about reality, though it of course does not imply that he has succeeded in it. As a matter of fact, he gives the truth condition of the sentences in the following way: every sentence (which is true) symbolizes the possession of properties connoted by the predicate of the sentence in question by the object symbolized by the subject of the sentence. (Leśniewski *ZS1912*, p. 216, also *ZW1913*, p. 324, my translation), where he means with a sentence a symbol connex of the form '*a* is *F*'. (cf. *ZS1912*, p. 216, f.n.) More explicitely, in *ZW1913*, he gives the condition: 1) every true sentence has always a subject denoting something, 2) every true sentence has always a connoting predicate. (p. 325, my translation). Later, when he mentioned of Ontology in his *oPM1931*, he enumerated six theses which should hold if his system is acceptable at all. What is interesting is that the (2), (4), (5), (6) are formulated taking the word 'object' as key term. The second, e.g., is: if A is b, then A is an object. (p. 157) Even he claims that he formalized in this theory a kind of *general principles of being.* (p. 163) Kotarbiński, giving a substitutional interpretation for quantifiers, inconsistently reads Leśniewski's axiom with the help of the word 'designatum'. He, e.g., reads '$(\exists x)(x \varepsilon a)$' as 'it is possible to choose such a term for x that its *designatum* falls under A'. (*Gnosiology1966*, p. 190) The so-called ontological table for Ontology gives the truth condition of '$a \varepsilon b$' using the notion that a is an entity, or an *object.* (cf. Lejewski *LeŚO1958*, p. 54) This point was recently argued by G. Küng, e.g. *NLH1977*. If I have right in formalizing the formal conditions for a sentence to be purely ontological, then the language so obtained must be, because of $C(U)$ and $C(ob)$, about the objects in some sense, and the quantification cannot be substitutional. If the system Ontology is really constructed on the intuition I relied upon when considering the language for purely ontological sentences, by converting predicates to general names, then the qantification in Leśniewski's Ontology is not substitutional, and I agree that he has succeeded in his intention.

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