ON THE ELIMINATION OF SINGULAR TERMS*

by Karel LAMBERT

1. *Introduction*

The discovery that a category of *objects* is dispensable is philosophically important. For example, intentions are not part of the ontology of Skinnerian theory; in W.V. Quine's words, they are not "in the range of the variables" of Skinnerian psychological theory. Now suppose that at some future date this theory is judged to provide the best account of psychological behavior. The ensuing discovery that intentions are not needed in the psychological explanation of behavior would be as profound and dramatic as the discovery that souls are not needed to explain the behavior of the planets.

Many philosophers also believe the discovery that a category of *expressions* is dispensable is philosophically important. And indeed one of them believes that such a discovery, though perhaps different in appearance, is not different in substance from the aim of traditional metaphysics – the isolation of the ultimate categories. The philosopher in question is W.V. Quine. In his graceful and limpid way, he writes:

> The quest of a simplest overall pattern of canonical notation is not to be distinguished from a quest of ultimate categories, a limning of the most general traits of reality.(1)

So the discovery that one can do without the linguistic category of singular terms (excluding perhaps variables) would be a discovery every bit as important as, and not different in principle from, the discovery that intentions are *dispensable* as an *ultimate* ontological category.

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(1) W.V. QUINE, *Word and Object*, Wiley: New York (1960), p. 161.

2. *Explanation of Quine's Procedures for Eliminating Singular Terms*

What are singular terms? More precisely what are *definite* singular terms? (Indefinite singular terms – for instance, expressions such as 'a (certain) political leader' – are not at issue here.) For Quine, definite singular terms are expressions that purport to specify exactly one object. Examples are 'the mother of Napoleon', 'the proposition that $2+2=4$', 'serenity', '$2+3$', '0/0' and 'Heimdal'.

What does the expression 'Quine's elimination method for singular terms' cover? A glance at his book *Word and Object* shows that there are two variations of the method, the *direct* procedure and the *indirect* procedure. It is the only method, I think, that pretends to be exhaustive of *all* singular terms except variables. The direct procedure paraphrases sentences containing constant singular terms other than definite descriptions *directly* into sentences in applied standard quantification theory with identity, and paraphrases those sentences containing definite descriptions in the manner of Russell. The indirect procedure paraphrases sentences containing constant singular terms *first* into sentences containing definite descriptions and *then* those into sentences in applied standard quantification theory with identity in the manner of Russell. The difference between the two procedures is not insignificant as will be clear shortly.

Both the direct and indirect procedures rely on a common sub-procedure, the procedure of *singular term conversion*. The essentials of singular term conversion are these. Consider the principle in classical identity theory

(1) $Ft \equiv (\mathrm{E}x)(x = t \,\&\, Fx)$, where t is a constant singular term,

or the principle of cancellation contained in most versions of the theory of definite descriptions,

(2) $t = (\mathrm{I}x)(x = t)$, where t is a constant singular term.

These principles exhibit a common feature, the regimentation of a constant singular term t into a position flanking the identity sign '=' in a variable bound expression. Thus it occurs in the expressions

$$(\mathrm{E}x)(x = t \,\&\, Fx)$$

and

$$(\text{I}x)(x = t)$$

as part of a general term '$= t$'. The two principles, (1) and (2) suggest, then, a means for transforming a singular term – the name 'Quine', for example – into an expression in which it occurs always as part of a general term – for example, as part of the general term 'is the same as Quine'. Now think of the singular term 'Quine' as if it were an unanalyzable part of the general term 'is the same as Quine' – like, say, the word 'sake' in the expression 'for the sake of'. That is, think of the expression 'Quine' as fused to the two place general term 'is the same as'. The result is a one place general term true of exactly the same thing to which the singular term refers... *before Nirvana*. For example, the fused one placed general term 'is-the-same-as Quine' is true of the same thing referred to by the name 'Quine', namely, the author of *Word and Object*, prior to the assimilation of that name into one place general termhood; again the fused one place general term 'is-the-same-as-Heimdal' is true of the same thing referred to by the name 'Heimdal', namely nothing. Any hint of analyzability vanishes when the transitional expressions are replaced by the technical neologisms quineizes,
and
heimdalizes,
both one place general terms but of less misleading form, if by name only. The procedure of singular term conversion, then, is simply the stylized construction of a general term out of a singular term such that the fabricated general term is true of exactly what the formerly isolable singular term refers to, *if* anything at all.

Why is singular term conversion needed? The answer is: to have on hand a stock of the right kind of general term sufficient to the goal of paraphrasing *every* natural language statement containing a singular term into what Quine calls 'the canonical language', a thoroughly extensional language consisting of the truthfunctional connectives, quantifiers, variables, and general terms. This is the language that Quine, recalling a similar aim of Frege, thinks adequate to the needs of science.

How does Quine's elimination method work in practice? To answer this question, a grammatically proper name referring to no actual thing is needed. My choice is the expression 'Heimdal'. Heimdal is the man

born simultaneously of nine jotun maidens who were also sisters.

Consider the simple statements

(3) Heimdal broods

and

(4) Schmidt broods,

expressing, it is safe to assume, states of mind in which the two men find themselves for quite different reasons, Schmidt perhaps because of the insecure state of his political being, and Heimdal because of too much mothering.

The *direct* method of paraphrasing (4), consists of simultaneously replacing the singular term Schmidt by the general term 'schmidtizes' and replacing the statement in (4), by the canonical statement

(4′) $(\mathrm{E}x)$(schmidtizes x & broods x).

The same routine yields

(3′) $(\mathrm{E}x)$(heimdalizes x & broods x)

from (3). (4′), there is good reason to believe, is true, but (3′) is false, because there exists no person that gets simultaneously born of nine virgin women. Not even in Denmark.

The *indirect* paraphrase procedure is this. First, replace the singular term 'Schmidt' in (4) by the definite description '$(\mathrm{I}x)$(schmidtizes x)' and, second, transform the resulting statement into canonical form à la Russell's theory of definite descriptions as

(4″) $(\mathrm{E}x)$(schmidtizes x & (y)(schmidtizes $y \supset y = x$) & broods x).

The same routine yields

(3″) $(\mathrm{E}x)$(heimdalizes x & (y)(heimdalizes $y \supset y =$ x) & broods x).

The truthvalues of (4″) and (3″) presumably match those of (4′) and (3′) *even though there is an extra item in the indirectly paraphrased* (4″) and (3″) – namely, a uniqueness condition, that is, an expression of the form '$(y)(\mathrm{F}y \supset y = x)$'. This is not an idle curiosity when one considers, say, the two paraphrases of (4); that is, (4′) and (4″). In the case of the former deciding the truthvalue requires only deciding on the existence of a schmidtizer and thence whether it broods; in the latter

case one must also decide whether there is more than one schmidtizer. And one can imagine a case where the two procedures might yield different truthvalues for a given statement. Suppose, for example, a person uses the name 'Benelux' to assert:

(5) Benelux opposes nuclear weapons

(5) directly yields the true

(5′) (Ex)(beneluxes x & and opposes nuclear weapons x)

but indirectly yields the false

(5″) (Ex)(beneluxes x & (y)(beneluxes $x \supset x = y$) & opposes nuclear weapons x)

because the uniqueness condition is false. (One might not think much of the example because (a) one may not think that the expression 'Benelux' really is a name, and (b) even if it were, one might insist that it follows by meaning alone that there is at most one beneluxer. Still the discussion should make one sensitive to a difference between the direct and indirect procedure; the latter in order to secure sameness of truthvalue, requires that a statement of the form '$(y)(Fy \supset y = x)$', where 'F' is a general term gotten by singular term conversion, is "analytic" or trivially true or what have you. The disparity between the two paraphrase procedures at the very least introduces an informality that one would think Quine *especially* would find distasteful.)

3. *Motives for Quine's Enterprise*

What motives lie behind Quine's elimination procedures, beyond, that is, the simplification of ultimate linguistic categories? Most of these motives fall in the category of reasons of convenience, though an important one is based on principle. Among the reasons of convenience, let us look at two. The first has to do with *predication*, and the second concerns *truthvalues gaps*.

A predication, says Quine, is the joining of "a general term to a singular term to form a sentence that is true or false according as the general term is true or false of the object, if any, to which the singular

term refers."(2) Now predications are supposed to be examples *par excellence* of contexts in which singular terms enjoy purely referential position – for example, the position of the expression 'Schmidt' in the predication 'Schmidt broods'. But predications such as 'Heimdal broods' are anomalous because Quine says, "the intuitive idea behind 'purely referential position' was supposed to be that the term is used purely to specify the object, for the rest of the sentence to say something about."(3) And the expression 'Heimdal', being an irreferential singular term for Quine, fails miserably in its allotted task in the predication 'Heimdal broods'. So it is anomalous though not contradictory to hold that the singular term 'Heimdal' has purely referential position in the predication 'Heimdal broods'.

A second inconvenience concerns truthvalue gaps. It is Quine's view that many statements lacking a referential singular term are neither true nor false. More simply they are truthvalueless, following a path blazed by Frege, paved by Strawson, and illuminated by van Fraassen. So if sentences such as 'Heimdal broods' are admitted into the canonical language, one gets gaps in the grand scheme that every statement has a truthvalue, true or false. Now to be sure, Quine observes, one can plug the gaps by adding further truthvalues. But he believes this option is more complicated than need be, given that the offensive parties, the irreferential singular terms, need not be included in the canonical language in the first place.

It is interesting to notice here the difference between Quine's motives and Russell's reasons for accomplishing to a great extent the same aim, namely, the elimination of virtually all singular nominative expressions (though Quine is indeed more sweeping in this goal than Russell). Concerning the statement 'Heimdal broods' they are equally vigorous about its offensiveness. Russell's reason was that the sort of troubles Quine adduces, and much, much more, is traceable to a mistaken view about the *logical form of the statement* 'Heimdal broods'. Contrary to appearances, the expression 'Heimdal' is not a singular term for Russell, and, hence, the statement 'Heimdal broods' is *not* a predication. But Quine regards the expression 'heimdal' as a genuine singular term and takes the statement 'Heimdal broods' to be

(2) Ibid., p. 96.
(3) Ibid., p. 177.

a predication. His view rather is that the anomaly contingent on admitting the singular term 'Heimdal' to referential position in the predication 'Heimdal broods', and the problem of truthvalue gaps, are to be pinned on the irreferential character of the singular term 'Heimdal' itself. Whereas Russell's view was that in expressions like 'Heimdal' there lurked evil incarnate of a philosophical kind, Quine's view is that they are at least a nuisance and at most an embarrassment to good philosophical taste which favors the simple and austere over the complex and baroque.

There is one matter of principle, not noticed by Quine, that actually necessitates banisment of irreferential singular terms from the canonical language so long as extensionality is considered a requisite feature of that idiom. Since the argument has been detailed elsewhere, a simple outline will suffice here. Briefly, it can be shown that if the statement 'Heimdal broods' is treated as a predication in Quine's sense, then predication is nonextensional in a sense explicitly mentioned by Quine,(4) that is, it is consistent with the principle that coextensive predicates do not substitute for each other *salva veritatae*.(5) Thus consider the three predicates, 'brooder', 'existent brooder' and 'brooder if existent'. These predicates are coextensive given, as Quine assumes, that the universe of discourse contains only existing objects. But notice that if the statement 'Heimdal is a brooder' is false, the statement 'Heimdal is a brooder if existent' is true(6) So coextensive predicates do not substitute *salva veritatae*. But then the exclusion of irreferential singular terms from the canonical language seems to be necessary and not merely convenient. They are *provably* embarrassments to good philosophical taste, as 'taste' is understood by Quineians.

Is an ultimate category of singular terms so easily dispensed with? Ought one to allow the philosophical status of singular terms, especially those referring to no existent object, to be impugned so

(4) Ibid., p. 151.

(5) Karel LAMBERT, "Predication and Extensionality," *The Journal of Philosophical Logic*, 3 (1974), pp. 255-264.

(6) Even if the statement 'Heimdal is a brooder' is regarded as truthvalueless, substitution of coextensive predicates fails to preserve truth value. For example, note that 'Heimdal is an existent brooder' is false, *not* truthvalueless on any reasonable understanding of the conjunction 'Heimdal exists and Heimdal is a brooder'.

blithely? The answer to both questions, I believe, is no! I now intend to inspect consequences of the Quineian elimination program and thereby to look at some important aspects of singular terms. In the words of the novelist, J.P. Donleavy, "it is surprising the amount of dignity which can be salvaged" if you stare the category of singular terms "straight in the status."(7)

4. *Criticism of the Quineian Program*

The first criticism is that Quine solves a dilemma arising from his procedure only by landing in another equally serious dilemma.

Quine himself has noted that singular terms have definite advantages, for example, in mathematical proof. He writes:

> "It is convenient to be able to bandy names as singular terms, and descriptions likewise, substituting them for variables and predicatively applying general terms to them. When we come to the shift exemplified by that from '+' to 'Σ', indeed, the loss in facility is staggering; we sacrifice precisely the moves that typify mathematics at its fleetest. Not to allow the nesting of singular terms within singular terms within singular terms without limit, in polynomial fashion, and not to allow the facile substitution of complexes for variables and equals, would diminish the power of mathematics catastrophically, even though only practically and not in principle.(8)

"Happily," he says, "the looming dilemma" – in which truthvalue gaps, an anomalous concept of purely referential position, and the nonextensionality of predication is the one horn, and the hamstringing of mathematics is the other horn – "can be solved."(9) Thus, he says, a shorthand use of the previously excluded singular terms can be *defined* relative to the canonical notation which eschews them. For

(7) J.P. DONLEAVY, *The Unexpurgated Code: A Complete Manual of Survival and Manners*, Dell, New York (1975), p. 15.

(8) Op. cit., *Word and Object*, p. 188. Italics mine.

(9) Ibid., p. 188.

example, the rehabilitated expressions 'Schmidt' and 'Heimdal' can be reintroduced as definitional abbreviations, respectively, of 'the thing that schmidtizes' and 'the thing that heimdalizes'. And sentences containing them, for instance, the sentences 'Schmidt broods' and 'Heimdal broods' – can be treated as definitional abbreviations in the style of the *Principia* version of Russell's theory of definite descriptions.

Certainly this procedure for introducing singular terms other than variables into the canonical language abolishes truthvalue gaps; 'Heimdal broods', for example, turns out false. But ask yourself: What about the logical status of the rehabilitated statements 'Heimdal broods' and 'Schmidt broods'? Are these to count as predications, albeit reformed ones? Suppose they are. Then the anomalous concept of pure referentiality, and the nonextensionality of predication emerge again. So, then, suppose the specimen statements are nonpredicational. Then the sense in which the rehabilitated expressions 'Schmidt' and 'Heimdal' are singular terms is a sense which is not the appropriate sense for mathematics *on Quine's own account* because it is a sense in which general terms, by hypothesis, *are not applicable predicatively to them*. This wanting it both ways, that is, wanting to repudiate singular terms while wanting their benefits thrives no doubt on the looseness of the term 'definition'.

My second criticism is that Quine's method is not exhaustive. What I mean is that there are singular terms and sentences containing them that are not acceptably paraphraseable into the canonical language by the methods described. This oppose Quine's strong suggestion to the contrary in the last sentence before the footnote on page 185 of his book, *Word and Object*. What I mean by 'acceptably paraphraseable' is that the paraphrase does not disagree with respect to the truthvalue Quine himself associates with, and thinks important to, the statement being paraphrased.

Consider, for example, expressions such as the expression '$\{x : x \notin x\}$' introduced by Quine in his book *Set Theory and Its Logic*.([10]) This expression, called a virtual class abstract and read 'the (virtual) class of things not members of themselves', is treated as a

([10]) Revised Edition, Balknap Press, Cambridge (1969), p. 16.

genuine singular term by Quine,([11]) a virtual class name. A virtual class name is a class like the usual sort of class except that it doesn't exist. So the expression is an example of an irreferential singular term. Quine's theory of virtual classes is of importance as a means of seeing how much of set theory and mathematics can be developed on an ontically noncommital basis, and for ascertaining just where the ontic commitments enter.

The statement

(6) $\{x : x \notin x\} = \{x : x \notin x\}$

is true for Quine, though not because it is instance of the valid schema 'x = x'; virtual class names cannot replace free variables. Rather it is true because of the definition: '$a = b$' for '$(x)(x \in a \equiv x \in b)$', where '$a$' and '$b$' can be either variables or class abstracts.

Now because '$\{x : x \notin x\}$' is a virtual class name, it is also true that

(7) $\sim(Ey)(y = \{x : x \notin x\})$,

that, in other words, the Russell set does not exist. Further the less trivial looking statement

(8) $\{x : x \notin x\} = \{y : y \in \{x : x \notin x\}\}$

is also true. These statements are crucial truths in Quine's entire theory of sets. A paraphrase which does not coincide in truthvalue with them is surely unacceptable.

Notice how (6) and (8) fare when paraphrased into the canonical language via Quine's elimination procedures. No matter whether the direct procedure or the indirect procedure is used, (6) and (8) turn into falsehoods. The point can be established quickly. If the indirect method is used, then the first step of the paraphrase of a statement such as (6), for example, must have the form

(6′) $(Ix)(\ldots x\ldots) = (Ix)(\ldots x\ldots)$, where 'I' is the definite description operator.

But in Russell's theory this is *false* if

$$\sim(Ey)(y = (Ix)(\ldots x\ldots))$$

([11]) Ibid., pp. 16-18.

is true; and it *is* in virtue of (7). So the indirect method doesn't succeed. On the other hand, if the direct method is used, (6) must have the form

(6″) $(\mathrm{E}x)(\mathrm{E}y)(\mathrm{V}x \,\&\, \mathrm{V}y \,\&\, x = y)$

where 'V' is the general term correlate of the singular term '$\{x : x \notin x\}$'.

But the statement

(9) $(\mathrm{E}y)(\mathrm{V}y)$

which is implied by (6″), is false. (Remember it looks like $(\mathrm{E}y)(y = -\{x : x \notin x\})$, where '–' is the fusion operator.) So (6″) is false. Thus again the paraphrase disagrees in truthvalue with (6). Similar considerations apply to (8). (It is important to note that the general term correlate of '$\{x : x \notin x\}$' might have structure; for example, it might look like 'U nonmembership', where U is an operator on general terms or open sentences producing general terms. But the conclusion is not thereby altered.)

This second criticism, it might be said, is only forceful if there are not other ways of eliminating class abstracts. But, in fact, in his *Set Theory and Its Logic*, Quine does employ another elimination procedure and this procedure does yield acceptable paraphrases of statements with class abstracts. Granted, but then the really important questions arise: Which procedure apply to which kinds of singular terms? Do they ever conflict? And if not, where is the *proof* that there doesn't lie somewhere in the universe of singular terms a stubborn, recalcitrant species? I conclude that Quine's elimination technique is, *in general*, merely a hope, and I suspect a forlorn one at that given that the truthvalue of statements like (6) probably will vary from purpose to purpose for Quine.

The third criticism is that when the canonical language is deprived of singular terms there may be a loss of explanatory power.

The criticism relies on a discovery by David Kaplan reported in his Presidential Address to the Pacific Division of the American Philosophical Association in 1980.([12]) Kaplan's address had to do with

([12]) Forthcoming.

indexical expressions such as the personal pronouns "I", "me", etc., and the contribution the semantical analysis of such expressions can make to the explanation of quantifying into epistemic contexts.

The course of Kaplan's argument begins with an examination of modal and temporal discourse, of what he calls the metaphysical operators 'it is necessary that' and 'it will be the case that'. He notes, for instance, that a "substitutional analysis" of modal contexts has recommended itself to many in the tradition. The idea is that necessary truth can be explained in terms of analyticity, a notion that appeals to linguistic entities alone (e.g., names). Thus, something of, say, the form

(9) Necessarily Fx

will be true for a given value of x just in case a sentence of the form

(10) Fx

is analytically true for every name n of each value of x. This course, Kaplan notes, has well known problems; it conflicts with the deeply ingrained logical principles of the *substitutivity of identity* and *particularization*. These conflicts are in turn resolvable by appeal to the naming functions of Kalish and Montague, but at the cost of foisting on modal discourse a certain ambiguity inherent in the substitutional explanation and enormous complexity. Enter Kripke. What Kripke showed us, says Kaplan, is that the problems attendant on the substitutional analysis of modality in particular – and the metaphysical operators in general – can be avoided if we are willing to "bite the metaphysical bullet." What is the metaphysical bullet? Haeccietism! This is the doctrine that there are propositions whose immediate constituents are *individuals*, that is, the doctrine that there are *singular propositions*. This doctrine permits an interpretation of the metaphysical operators, and of quantification thereinto, appealing not to names but to nonlinguistic entities (individuals), an explanation which is both more natural and simpler than that afforded by the substitutional approach.

Turning to the epistemic operators – in particular the "said that" operator – Kaplan notes that the dominant contemporary approach

has been the substitutional analysis, an approach which he himself helped to promote. But, again, there are certain encumbrances, similar to those arising in the substitutional analysis of modal and temporal discourse. The question arises: Is there some liberating principle, like the principle that there are singular propositions, which will permit a "better" explanation of epistemic discourse and of quantification thereinto? "Yes," says Kaplan: "it is the thesis of direct reference." This is his discovery, a discovery emerging from reflection on the analysis of indexicals. The thesis of direct reference is the doctrine that there are sentences, e.g., those containing indexicals, having individuals in their *contents* (= in the propositions expressed by those sentences). The indexicals, of course, directly refer to the individuals. Now an adequate account of epistemic discourse must be able to explain the truth of statements such as

(11) Someone said that he was tired of listening to me.

It turns out, then, that concentration on the fragment of epistemic discourse having to do with indexicals, yields an alternative explanation of epistemic discourse in general which avoids the pitfalls of the substitutional analysis.

Since Kaplan's new explanation of epistemic discourse, and of quantification thereinto, arises in a language containing singular terms – indexicals, definite descriptions, etc. – the question arises whether such an explanation is possible in an idiom eschewing singular terms. It is hard to see how it would be in a language such as Quine's official idiom. As noted earlier, the door to such an explanation is opened by the assumption that there are *sentences* having individuals in the propositions expressed by those sentences. Since there are no singular terms (except variables) in Quine's preferred language, the assumption apparently is not realizable. It should be observed especially that Quine's elimination procedure for singular terms produces *general* sentences as counterparts to the original singular sentences. Presumably the propositions associated with these counterparts will not have individuals as constituents of the associated propositions – that is, they are not singular propositions – part of the thesis of direct reference. So in the Quineian idiom apparently the

door cannot be opened to an interesting explanation of epistemic discourse and quantification thereinto, and hence that idiom lacks explanatory power.

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