Logique & Analyse **167–168** (1999), 373–379

QUINE ON NAMES

LIEVEN DECOCK

In the margin of an animated debate on the origins of the so-called 'New theory of reference'[1], in which Quine's objections to modal logic play a crucial role, I want to make a comment on Quine's radical views on names. Quine holds that in principle names can always be eliminated as descriptions. This is a very radical position, and Quine has convinced few people. I will argue that this position leads to an unnatural interpretation of Quine's main proof procedure in predicate logic.

Quine thinks that names can always be eliminated when the part of discourse in which they occur is regimented in a logical notation. All names are considered as definite descriptions and these definite descriptions can be eliminated by means of Russell's analysis. Each name determines a monadic predicate that is satisfied by exactly one object. The analysis requires that all the names can be eliminated, and thus that no atomic formulas contain names. At all places where an atomic sentence 'Fa' is used we can equally well use the sentence '$\exists x : (Ax \wedge (\forall y : Ay \equiv x = y) \wedge Fx)$'. The predicate A is the monadic predicate derived from the name a. The procedure can be applied almost everywhere in Quine's writings. Quine's analysis may be somewhat counterintuitive, but at first glance seems unassailable from a logical point of view. Quine has always stuck to this view on the in principle eliminability of names, and repeats it in his most recent book (Quine 1995, p. 60).

Quine's views are based on Russell's theory of descriptions, and go beyond it in two ways. First, the predicate A for the name a is not derived from an equivalent description, as Russell suggested. In "On denoting" Apollo and Hamlet are described by means of an equivalent description, and as such their names can be eliminated. A sentence with Apollo in the subject position is construed as a sentence about "the sun-god", if this is the expression that is meant by "Apollo" according to a classical dictionary (Russell 1994, p. 425). As a contingent matter of fact, it may be impossible to eliminate a name if

[1] The discussion began with a paper of Quentin Smith at the APA conference in 1994. The paper, the reactions and the replies are collected in Humphreys and Fetzer 1998. Burgess 1998 is more explicit about Quine's role.

there is no such description. Quine simply transforms names into predicates. This yields strange predicates such as "eur", for the name "Europe", and "peg" or "is-Pegasus" or "pegasizes" for the name "Pegasus" (Quine 1940, p. 150; 1957, p. 8). He eliminates all names, while Russell can only eliminate names for which an equivalent definite description is available. Second, Russell was not eager to parse away all proper names. He considers the question whether it is possible to have a language without proper names, and concludes that he is "totally incapable of imagining such a language" (Russell 1992, p. 94). Quine is less scrupulous and eliminates names altogether. He explicitly states that this is an extension of Russell's treatment of definite descriptions and deplores that he has been unable to convince Russell of this extension of the analysis of definite descriptions to all names (Quine 1951, p. 153).

Although Quine is convinced that in principle all names can be eliminated, he readily avows that the use of singular terms or names is indispensable in science:

> This elimination of singular terms is not all good, however, even for logic and mathematics. Inference moves faster when we can instantiate quantification directly by names and complex singular terms, rather than working through the variables and paraphrases. And complex singular terms are in practice vital for algebraic technique. An algebraist who was not free to substitute complex expressions directly for variables, or to substitute one side of a complex expression directly for the other, would soon give up. (Quine 1970, p. 396)[2]

The use of Peano's inverse iota notation in equations, and the use of numerals are examples of this flexible method of instantiation. These notations are introduced by means of contextual definition. The introduction of these complex singular terms provides us with a shorthand notation for longer formulas and allows immediate substitutions that otherwise would be laborious. The use of these singular expressions that are directly instantiated does not jeopardise the possibility of eliminating all names. The contextual definitions that define the use of the singular terms can at any moment be used to eliminate them.

It is interesting to investigate whether Quine has really shown that it is in principle possible to eliminate all names from discourse. Karel Lambert (1984) has addressed this question. He offers three reasons for answering the question in the negative. A first objection (1984, pp. 386–387) is that

[2] For similar passages see Quine 1960, p. 188; Quine 1981a, p. 241; Quine 1982, p. 282; Quine 1990, p. 195.

Quine cannot refer to mathematical entities by means of the complex singular terms mentioned in the previous paragraph, while holding that the latter can be eliminated. I think there is no real difficulty here, because these complex singular terms are not meant to refer to mathematical objects, but are envisaged as syntactic devices in order to facilitate mathematical derivations. They are no genuine singular terms. The second objection is that the virtual classes in *Set Theory and its Logic* cannot be eliminated in the same way as definite descriptions. These virtual classes are introduced by means of a different contextual definition. They are surrogate classes, introduced in order to designate the extension of a predicate, even in case the predicate does not determine a genuine set, for example in the case of the Russell class. The result is that a sentence as "Pegasus is Pegasus" is false, while the sentence "$\{x : x \notin x\} = \{x : x \notin x\}$" is true. Lambert complains (1984, p. 389):

> 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 some stubborn, recalcitrant species?

Lambert overestimates this difference. In *Set Theory and its Logic* Quine gave a very precise and unambiguous definition of the use of the virtual classes. The virtual classes are not regarded as genuine singular terms. They are rightly named *virtual* classes. They are a notational abbreviation that is superposed on a regimented theory, and are not natural language terms that have to be parsed away in the regimentation. Lambert's third objection (1984, pp. 389–392) is the well-known remark that in modal and epistemic contexts it is useful to have terms that directly refer to objects. Lambert is right in stating that Quine's idiom "lacks explanatory power" (p. 392). However, the third objection will not convince staunch Quineans, because they simply reject modal and epistemic contexts altogether. In conclusion, Lambert's remarks exhibit some inconveniences of Quine's elimination of singular names, but real Quineans will not be convinced.

A more convincing objection that is not based on convictions that are unpalatable for Quine, can be found in his *Methods of Logic*. At the end of *Methods of Logic* Quine repeats that names can be eliminated, and that this is necessary in philosophical problems concerning existence and reference (1982, p. 282). However, in his proof procedure, which he coins 'the main method' (pp. 190–195), he uses terms that behave like names. He wants to derive a contradiction from the conjunction of the premises and the negation of the conclusion and to this end he instantiates the bound variables. I will pass over the details of the proof procedure. It is only important to note that the procedure involves universal (UI) and existential (EI) instantiation. The existential and universal quantifiers are dropped and the variables of these quantifiers are replaced by so-called “instantial variables”. From the premises and the negation of the conclusion, which are sentences in which the variables are bound, contradictory instances are derived. For example, one might both derive the instances ‘Fzt’ and ‘$-Fzt$’, where z and t are instantial variables.

The instantial variables are used as names that tag some particular object in the universe in the course of the proof. Universal instantiation is used to pick out any object of the universe. Existential instantiation is used to pick out any object that fulfils the predicate that is said to denote at least one object. This is clear from Quine’s exposition:

> According to (1), there is something that is F to everything. Very well, call it z. ...
> So we have (5): that there is something such that ... Call it t. (1982, p. 193)
> Interpret the variables, say in order of first appearance, as naming 1, 2, etc. (1982, p. 207)

For example, if we take F to stand for the predicate “is greater than” in the schematic account of the theory under consideration, then we can call the thing that is greater than everything z. The instance ‘Fzt’ thus stands for the atomic sentence ‘z is greater than t’. The last quoted sentence occurs in the discussion of the Löwenheim-Skolem theorem, which states that a theory can be interpreted in the domain of the natural numbers. The instantial variables are here names for natural numbers.

These temporary names cannot be parsed away. It is impossible to conceive how these temporary names could determine a predicate. Quine’s instantial variables are not disguised definite descriptions that can be eliminated by means of contextual definition. The reason is that the proof procedure requires the elimination of the quantifiers. If one would use definite descriptions in the instantiation, the eliminated quantifier would return as soon as the new sentence is fully written out. Moreover, for EI one needs new names that differ from all the terms that are already used.

Quine’s instantial variables must be regarded as names and not as variables. Quine’s terminology is misleading. He could better use the term ‘instantial term’ instead of ‘instantial variable’[3]. However, there are passages in *Methods of Logic* where Quine explicitly regards the instantial variables as free variables:

[3] Logicians usually speak of instantial terms instead of instantial variables. These terms are names for objects in the domain of the interpretation, see e.g. Boolos and Jeffrey 1989, pp. 123–125.

> Now let the universe consist of as many of the positive integers as there are *free variables* in the instances —all the positive integers if the variables are unending. (Quine 1982, p. 207; emphasis added)

In *Methods of Logic* two different meanings of the notion of free variable are conflated. One guesses that Quine is forced to this by his demand that names can in principle be eliminated. In a first sense, Quine uses the term "free variable" for variables occurring in open sentences. The variable x in the sentence "x is wise" is a free variable. This variable can be bound by a quantifier to make it a full sentence. The sentence "$\exists x : x$ is wise" is a full sentence that has a truth-value, while the open sentence is simply a meaningful incomplete sentence. The analogue of a free variable in ordinary language is a pronoun, and an open sentence in which it occurs is a sentence with a dangling pronoun (Quine 1982, p. 134). This sentence does not have a truth-value. In Quine's schematism the open sentence is rendered "Fx", and the full sentence "$\exists x : Fx$".

In a second sense, Quine uses free variables as dummies standing for singular terms (1982, p. 262):

> Just as the sentence letters in a schema stand as dummy sentences and the term letters as dummy general terms, so the free variables may be seen as to represent the above syllogisms about Socrates schematically, then we may simply use a free 'y' to represent 'Socrates'.

For example, the schema "Fy" can stand for the sentence "Socrates is wise". It is clear that these free variables differ from the free variables presented in the previous paragraph. Taken in the latter sense the variable bears little resemblance to pronouns, and it is difficult to see how one can bind this free variable.

The ambiguity is especially clear in Quine's use of the schema "Fy". In the former sense it stands for an open sentence without a truth-value, and with a free variable that can be bound by means of a quantifier. In the latter sense it stands for a complete sentence which have a truth-value, and which cannot be bound by a quantifier. The two interpretations are definitely different. One could say that Quine uses free variables in two senses, but one may as well conclude that in the second sense one ought to speak of schemata for names. As a matter of fact, Quine's confusion is even worse than hitherto presented, since at some occasions, he uses the traditional schemata for names, namely "a", "b", ... instead of the just mentioned x, y, ... (e.g. 1982, p. 140; p. 171).

Hence, I conclude that in any sensible interpretation of Quine's proof procedure, the instantial variables are used as names. One might object that Quine's proof procedure is irrelevant to ontology. One could regard the proof procedure as a mere syntactical method for determining whether certain logical formulas are true or false: a mechanical procedure of operations on strings of letters that are used to characterise an initial string of letters. The initial string is then said to be true, valid, satisfiable, or false. There is some evidence that Quine might be prepared to regard proof procedures this way (Quine 1970b, pp. 57–58). However, this radical disinterpretation of proof procedures sharply contrasts with Quine's general conception of logic. Already in 'Truth by convention' (1936) Quine had opposed Carnap's conventionalism in logic. Quine's main objection was that logic is not an arbitrary calculus but is rooted in ordinary language. Ordinary language is responsible for the fact that logic is well interpreted. In various other writings Quine has strongly objected to exaggerated tendencies of disinterpretation and formalisation[4]. There is little reason to suppose that proof procedures could be left entirely uninterpreted.

Radical disinterpretation deprives us of an adequate understanding of the procedure, while the procedure is manifestly based on intuitive ideas about how to prove a sentence. Quine's 'main method' is based on the fact that the conjunction of the premises and the negation of the conclusion always determines an assignment of objects to some variables that leads to inconsistency. To this end some variables are used as names to tag an object. If one wants to ban names altogether, one would have to give up EI and UI. That is a high price to pay.

Centre for Logic, University of Leuven
Kardinaal Mercierplein 2, B-3000 Leuven
E-mail: `Lieven.Decock@hiw.kuleuven.ac.be`

REFERENCES

G. Boolos and R. Jeffrey, *Computability and Logic*, Cambridge University Press: Cambridge, 1989.

J. Burgess, 'Quinus ab omni naevo vindicatus', *Canadian Journal of Philosophy Suppl.* 25 (1998), 25–65.

P. Humpheys and J. Fetzer, eds., *The New Theory of Reference*, Kluwer, Dordrecht, 1998.

[4] Quine 1960, p. 273; Quine 1976, pp. 115–117; Quine 1981b, pp. 148–155; Quine 1990, pp. 63–67; Quine 1995, p. 55.

K. Lambert, 'On the elimination of singular terms', *Logique et Analyse* 108 (1984), 379–392.
W.V.O. Quine, *Mathematical Logic*, Harvard: Cambridge Mass., 1940.
W.V.O. Quine, 'Symposium: On What There Is. III', *Aristotelean Soc. Supp.* Vol. 25 (1951), 149–160.
W.V.O. Quine, *From a Logical Point of View*, Harvard: Cambridge Mass., 1957.
W.V.O. Quine, *Word and Object*, MIT: Cambridge Mass., 1960.
W.V.O. Quine, *Set Theory and its Logic*, Harvard: Cambridge Mass., 1963.
W.V.O. Quine, 'Current Reflections on Current Linguistic Theory', *Synthese* 21 (1970a), 386–398.
W.V.O. Quine, *Philosophy of Logic*, Harvard: Cambridge Mass., 1970b.
W.V.O. Quine, 'Replies to Eleven Essays', *Philosophical Topics* 12 (1981a), 227–241.
W.V.O. Quine, *Theories and Things*, Belknap: Cambridge Mass., 1981b.
W.V.O. Quine, *Methods of Logic*, 4th ed., Harvard: Cambridge Mass., 1982.
W.V.O. Quine, *Quiddities*, Penguin: London, 1990.
W.V.O. Quine, *From Stimulus to Science*, Harvard: Cambridge Mass., 1995.
B. Russell, *An Inquiry into Meaning and Truth*, Routledge: London/New York, 1992.
B. Russell, 'On Denoting', *The Collected Papers of Bertrand Russell 4*, Routledge: London/New York, 1994, 414–427.