QUINE'S PLATONISM AND ANTIPLATONISM[1]

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Abstract Quine rejects intensional Platonism and, with it, also rejects attributes (properties) as designations of predicates. He pragmatically accepts extensional Platonism, but conceives of classes as merely auxiliary entities needed to express some laws of set theory. At the elementary logical level, Quine develops an õontologically innocentö logic of predicates. What in standard quantification theory is the work of variables is in the logic of predicates the work of a few functors that operate on predicates themselves: variables are eliminated. This õpredicate-functor logicö may be conceived as a peculiar sort of Platonism - ontologically neutral, reduced to schematized linguistic forms.

Quineøs explicit and elaborate attitude toward Platonism is 1) that he rejects *intensional* Platonism and 2) that he pragmatically accepts *extensional* Platonism. On that ground I want to show 3) that Quine himself implicitly proposes a kind of formal Platonism, in that he reduces Platonism to the *linguistic* level. Aspect 3) has also its negative side. Namely, if linguistic Platonism is all that remains of Platonism (if only in the domain of elementary logic), then Platonism in a full, ontological, sense is certainly abandoned.

Platonism in the usual sense

What is probably most often associated with the word ‑Platonismø is a sort of idealism whereby ideas are conceived as self-sufficiently existing abstract entities, fundamental for all being.

Let us take, for example, the term ‑manø. What does it mean? According to Quine, the *ontologically "innocent"* answer would be that ‑manø denotes (or is true of) each individual man.[2] Referring to each man, ‑manøis a *general term*, a predicate.[3]

However, according to Quine, there are at least two more answers, which we might call *Platonistic*.

1) One would be that ‑manø means a *property*, an *attribute* of being a man, õ*manhood*ö. õManhoodö itself is something *abstract* (what is concrete is, in turn, individual men). Therefore, õmanhoodö would be a single abstract object, more precisely, an õideaö designated (named) by a *singular term* ‑manø. Let us call such a standpoint *intensional* Platonism.

2) Another Platonistic answer would be that the term ‑manømeans the *class* of all men, õmankindö. A class (set) is also an abstract object (õideaö), designated by the singular term ‑manø. Let us call such a type of answer *extensional* Platonism.

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[2]   I use Quineøs distinction (from his recent work) between õdenotingö and õdesignatingö. According to this distinction, a general term (predicate) has the role to õdenoteö each object of which it is true separately, while a singular term has the role to õdesignateö (to name) one and only one object. See Quine (1995a), p. 60. This applies only to õmonadicö (one-place) general terms, whereas polyadic (many-place) general terms denote many objects at a time in some order (Quine 1982, pp. 167-168).

[3]   For Quine, a predicate is not the rest of a sentence from which we take away singular terms (as is otherwise usual in logic, e.g. ÷__ is greater than __ø), but õan integral word, phrase, or clauseö (Quine 1995a, p. 61, see also p. 32). For the distinction between a predicate in the usual sense and as a general term, see Quine (1981), pp. 164-165.

Quine's attitude toward intensional and extensional Platonism is well known. Let us outline it briefly.

Ad 1) Quine rejects *intensional* Platonism because of *the absence of any clear criterion of identity* of such things as *attributes* (concepts, properties). Attributes are not always identical when they hold for the same objects; it is not clear what the further conditions of their identity are (Quine 1974, p. 102).

Quine gives an example (Quine 1981, p. 101) where he assumes that all beings with a heart are also beings with kidneys and vice versa, in other words, that the attributes "to have a heart" and "to have kidneys" are coextensive. Not even in that case do we take the attributes "to have a heart" and "to have kidneys" to be identical. In the absence of coextensivity, Quine does not find any clear criterion of identity (i.e., of individuation) of attributes. Without that criterion, however, we cannot take attributes to be specific entities ("no entity without identity").

Some propose, for example, criteria of analyticity or of necessity - i.e., that the biconditional of open sentences "Fx" and "Gx", if they express identical attributes, holds analytically, or necessarily (in the sense of quantified modal logic). Thereby, we take it that a sentence is analytically true if and only if it is true only in virtue of the meanings of words. However, this concept of analyticity leads to the dubious presupposition of meanings that transcend language. Again, the concept of necessity leads to "essentialism", according to which we could distinguish, independently of the way of the specification of an object in language, between what belongs to the object essentially and what belongs to it accidentally. Both are untenable on the

presuppositions of Quine's theory of the indeterminacy of translation and of the indeterminacy of reference, which we cannot follow further here.[4]

Quine concludes that attributes are, indeed, appropriate for ordinary language, but are not so for scientific use. In science, instead, it is sufficient to speak of classes.

What holds for attributes, also holds (in the case of polyadicity) for relations in the intensional sense - they have to be abandoned in favor of relations in the extensional sense.

Ad. 2. Quine finds *extensional* Platonism very useful, and even indispensable in science. It can be avoided in elementary logic, but in set theory there are laws of classes, to express which we need to assume the existence of classes. If we put the laws into the prenex form and if the quantifiers are not mixed (i.e., if $\forall$ and $\exists$ do not both occur), we can speak of the validity of a matrix (if all quantifiers are universal) or of the consistency of a matrix (if all quantifiers are existential). However, we cannot do that when we deal with laws with mixed prefixed quantifiers, e.g.,

$$\forall z \exists w \forall x \, (x \in z \leftrightarrow x \in w)$$

(see Quine 1982, pp. 291-292), for then we have bound variables that range over the domain that also includes classes.

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[4]   See, for example, Quine (1976) pp. 175-176, 184; Quine (1992) p. 52-56.

It is interesting, for example, that we also assume classes when we speak of the ancestor relationship.

x is an ancestor of y

can be expressed, Quine reminds us (following Frege), in this way:

x is a member of each class u such that y is a member of that class and all the parents of the members of that class are members of that class.

Symbolically, we obtain:

$$\forall u \ [(y \in u \land \forall w \forall z \ [(w \in u \land Fzw) \to z \in u]) \to x \in u],$$

where y itself belongs to the class of its ancestors and where ÷Fxyø means ÷x is a parent of yø (Quine 1982, p. 292-293). Putting this formula into the prenex form, we obtain mixed quantifiers in the prefix.

It is in accordance with Quineøs rejection of intensional Platonism that for him extensional Platonism is a õlesser evilö than the õmodalismö of H. Putnam and Ch. Parsons (Putnam 1994, pp. 507-508). Quine is more willing to endorse abstract objects than to avoid them by means of introducing modal operators. However, it should be stressed that extensional Platonism is not an end in itself for Quine, but merely an auxiliary means in the building of a theory as a whole. Quineøs standpoint is better described as õstructuralismö - ontology is generally an auxiliary means and objects are only õnodes of [a] structureö (Quine 1992b, pp. 30-31; Quine 1992a, pp.

6, 8-9).[5] In that respect, Quine's standpoint is essentially different from, for example, Gödel's Platonism (Gödel 1987).[6]

Boolean logic

Let us return to our initial statement of Quine's linguistic Platonism. The simplest example of that Platonism is Quine's transformation of Boolean algebra of classes into Boolean logic of general terms (predicates).[7]

It is customary to conceive of Boolean algebra as algebra of classes (or, alternatively, as algebra of propositions). It is, in that case, a simple form of extensional Platonism. For example, $F \cap \bar{F} = \Lambda$ standardly means that the intersection of the class F and of its complement $\bar{F}$ is identical to the empty class, Λ. The expression $F \cup \bar{F} = V$ means that the union of classes F and $\bar{F}$ is identical to the universal class V. The letters F, G, H are thereby variables for classes.

Quine wants to show the way in which Boolean algebra can be released from the Platonic burden and made ontologically "innocent" (Quine 1981, p. 166). What is interesting is that, therein, the linguistic level of algebra remains essentially unchanged. Hence, Platonism has not completely disappeared, but has been conserved at the formal, linguistic level. Now, F, G, H are not variables for classes, but *schematic* letters for one-place predicates; $\bar{F}$ is the schema for the complement of a

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[5]   For Quine's ontology, see Gibson (1997).
[6]   Compare also Putnam's remark in Putnam (1994), p. 504. More extensively about modalism, cf. in Putnam's article "Mathematics Without Foundations" (Putnam 1979, pp. 43-59, particularly pp. 45-49) and in Parsons' article "What is the Iterative Conception of Set" (Parsons 1983, pp. 268-297, especially p. 280; see also Parsons, pp. 43-49).
[7]   Cf. Quine (1982), pp.114-120 and Quine (1995), p. 34.

predicate; FG is the schema for the intersection of predicates; $\exists$ means existence (e.g., $\exists F$ instead of $F \neq \Lambda$, õthere are Fsö); $\neg$ before a sentence means negation (e.g., $\neg\exists F$), and the juxtaposition of sentences means conjunction (e.g., $\exists FG \ . \ \exists F{-}G$). The symbols $\vee$, $\forall$, $\subseteq$, $\subset$, $\equiv$ are defined in the familiar way. Because predicates and sentences are represented by schemata, here we can speak of a sort of a *schematic* Platonism.

What enabled Quine to make the Platonism of Boolean algebra only a formal, ontologically õinnocentö, Platonism is the distinction between schematic letters (which are not quantified) and variables (which can be quantified). If in Boolean algebra F, G, H are variables, then the existence of classes that are possible values of the variables is assumed; but if F, G, H are merely schematic letters for predicates, there is no ontological burden - there are only predicates and individuals denoted by the predicates. In that way, the confusion of general terms (predicates) and abstract singular terms (names of classes) is also avoided.[8]

The Boolean logic of predicates covers only a small section of elementary logic. It is thereby characteristic that individual variables are not needed for Boolean logic. The ontological burden that, according to Quine, variables otherwise carry (õto be is to be a value of a bound variableö), is thus transmitted to a predicate (õto be is to be denoted by a predicateö).

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[8]   Quine 1981, p. 166.

Predicate-functor logic

Analog formal Platonization can also be accomplished in the whole of elementary logic, thus also for the logic of many-placed predicates. Hence, in the algebraic manner, Quine develops õpredicate-functor logicö, which is equivalent to the whole of elementary logic (õquantification theoryö).[9] In Platoøs work, likewise, we can find not only ideas such as õgoodö, õvirtueö, õmanö etc., but also ideas such as õidenticalö, õequalö, õgreaterö, õsmallerö, etc.

The main problem is to what to transmit the recombinatory work of individual variables. In fact, Quine develops his predicate-functor logic only with the theoretical goal to explain the role of variables, not with the goal to reform customary elementary logic, where we use variables. Let us take the following sentence as an example:

$$\neg \forall x \forall y \ (x \text{ loves } y \rightarrow y \text{ loves } x),$$

õIt is not always so that if a person x loves a person y, then the person y loves the person x.ö Schematized:

$$\neg \forall x \forall y \ (Fxy \rightarrow Fyx).$$

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[9]   See Quine (1995a), pp. 33-35, 101-105; different versions were formerly presented in õVariables explained awayö, from 1960 (Quine 1995b, pp. 227-235), in õAlgebraic Logic and Predicate Functorsö, from 1971 (Quine 1976, pp. 283-307), in õThe Variableö from 1972 (Quine 1976, pp. 272-282), in õPredicates, Terms and Classesö, from 1980 (Quine 1981, pp. 170-172) and in *Methods of Logic* from 1982 (Quine 1982, pp. 283-288).

The idea to analyse the combinatory work of variables by means of combinatory functors is, according to Quine, due to the works of M. Schönfinkel from 1924 and H. Curry from 1930 and 1958 (see Schönfinkel 1967 and Curry 1924).

The whole point of this sentence is expressed by the recombination of variables (order inversion), where it is obvious that variables serve for õpronominal cross-referenceö, i.e., for identifying reference places in a sentence.

For that recombinatory work, Quine uses the following predicate functors:

$\exists$ (*cropping* functor): eliminates the first variable in a string

Pad (*padding* functor): adds a new variable to the initial position of a string

Ref (*reflection* functor): eliminates repetition of variables at the beginning of a string

Perm (*permutation* functor): moves the second variable to the end of a string.

One defined functor is also useful:

Ret$_i$ (*retrojection* functor): moves the ith variable to the initial position in a string

It is defined as follows:

$$\text{Ret}_i F^n =_{\text{def}} \text{Perm}(n\text{-}i \text{ times})\exists\text{Perm}(i\text{-}1 \text{ times})\text{Pad}F^n.$$

$\dot{\exists}\emptyset$ is a sentence prefix in Boolean logic that has now become a predicate functor. Schematic predicate letters have superscripts for arity: F^0, G^0, ..., F^1, G^1, ...

By means of predicate functors we can make any two strings of variables *homogeneous* and *free of repetitions*. Eventually, a closed *sentence schema* becomes a zero-place *predicate schema*. As an example, here is the predicate-functor transformation of the above sentence schema:

$$\neg\forall x\forall y\ (Fxy \to Fyx) \ \leftrightarrow\ \exists x\exists y\ (Fxy \wedge \neg Fyx)$$

$$\leftrightarrow\ \exists x\exists y\ (F^2xy \wedge \neg F^2yx)$$

$$\leftrightarrow\ \exists x\exists y\ (\mathrm{Ret}_2F^2yx \wedge óF^2yx)$$

$$\leftrightarrow\ \exists x\exists y\ (\mathrm{Ret}_2F^2\ óF^2)\ yx$$

$$\leftrightarrow\ \exists x\ \exists(\mathrm{Ret}_2F^2\ óF^2)\ x$$

$$\leftrightarrow\ \exists\exists(\mathrm{Ret}_2F^2\ óF^2).$$

We could even say that Quine's linguistic Platonism arrives here at an *extreme* point. We see that in predicate-functor logic, *sentences are reduced to predicates*, or, as we may traditionally say, õlogosö is reduced to õideaö. Moreover, predicate-functor logic can include the logic of identity, where all singular terms (names and descriptions) can be eliminated along the lines of Russell's theory of definite description. Therefore, in predicate-functor logic, there are no names, no pronouns (variables), and no sentences anymore - only predicates and predicate functors. õIdeificationö is complete.

Semantically, there is no designation and no valuation of variables - only denotation by predicates. Again, to be denoted is a particular version of the Platonistic õparticipationö of objects in ideas. Furthermore, even *truth is reduced to denotation*. Truth is õthe zero case of denotation by predicatesö (Quine 1995a, p.65), since a closed sentence can always be conceived as a zero-place predicate. Namely, as ÷greater thanø is a two-place predicate (*x* is greater than *y*), and ÷manø is a one-place predicate (*x* is a man), so ÷Snow is whiteø is a zero-place form. Thus, in a Quinean paraphrase of the Tarskian definition of satisfaction, we could say: as

'Between' denotes <*x*, *y*, *z*> if and only if *x* is between *y* and *z*

'Father' denotes <*x*, *y*> if and only if *x* is father of *y*

'Rabbit' denotes *x* if and only if *x* is a rabbit,

so similarly

'Snow is white' is true if and only if snow is white.

'To be true' is, so to say, nothing but the intransitive 'to denote'.

Let us sum up. Extensional Platonism is what is unavoidable for Quine in set theory, whereas what is in a sense unavoidable at the elementary logical level (first-order logic) is only ontologically neutral, formal linguistic Platonism. The latter is unavoidable in the sense that elementary logic *can* always be represented in the predicate-functor (Platonistic) form. However, it does not *have to* be represented in that way, nor is that practical or usual, although it is appropriate, above all, as already mentioned, for the theoretical goal of considerations about logic itself.

Hierarchy

From the standpoint of Quine's predicate-functor logic, we can come somewhat closer to the question 'What is an idea?'. The question is now reduced to the question 'What is a predicate?'. On the one hand, we may answer the question 'What is a predicate?' purely syntactically, describing the predicate schemata possible in predicate-functor logic. On the other hand, we may answer the question semantically, transforming it into the question 'What is denotation?'. Namely, semantically, *to be a predicate* is *to be a predicate of*, or, in other words, *to denote*. The predicate 'denote', however, taken literally, leads to the following antinomy:

'Not denoting self' denotes itself if and only if it does not denote itself.

Therefore, Quine introduces a hierarchy of denotation. The predicate 'denote' can be applied to the predicate 'denote' only if the former is of a higher level than the latter (Quine 1995a, p. 64). Thus we can only say:

'Not denoting$_1$ self' denotes$_2$ itself if and only if it does not denote$_1$ itself

'Not denoting$_2$ self' denotes$_3$ itself if and only if it does not denote$_2$ itself

'Not denoting$_3$ self' denotes$_4$ itself if and only if it does not denote$_3$ itself,

etc.

Therefore, as Quine concludes, we have to define separately the predicate 'denote$_1$' first, then the predicate 'denote$_2$', then the predicate 'denote$_3$', etc.

This hierarchy of denotation and the corresponding hierarchy of predicates could be conceived as an interesting õschemaö of the Platonic õrealm of ideasö and of the õparticipationö in ideas. Whether this schema leads the way to something that would correspond to the Platonic õidea of ideasö, i.e., õthe idea of goodõ, may remain an open question. But what, at least through infinite levels, successively builds a bridge between denoting predicates and objects denoted, viz. between language and the world, is undoubtedly some rather valuable good.[10]

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