Against Fantology Again

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Abstract

It is old news that language can make us form different and false opinions about the world. The Sapir-Whorf hypothesis is well known in both linguistics and philosophy, and in the same vein Bertrand Russell has argued that the Aristotelian subject-predicate logic mislead some famous philosophers into ontological monism. Barry Smith has made a similar claim about the language of first-order predicate logic. This logic has, according to him, become a language that seduces analytic metaphysicians to subscribe to false ontological positions. He refers to this fact as 'fantology', because of the symbol 'Fa', in which predication is always predication of a particularas-particular.

The paper "Against Fantology Again" develops Smith's views further. It introduces an ontologically neutral operation called a default ontologization of a language, which makes it possible to put the term 'fantology' in a wider framework, and then it zooms in on Quine and his so-called canonical notation. He is the most outspoken fantologist, even though Smith mentions him only in passing.

It is claimed that Quine is doubly incoherent. First, he is of the opinion that his physicalism-with-classes ontology needs no other logic than first-order predicate logic, but this is shown to be wrong. Second, since first-order predicate logic is extensional, fantology deletes the whole realm of intentional phenomena and the referents of intensional propositions from ontology. Nonetheless, however, Quine takes a distinction between appearance and reality for granted, in which the appearances can contain intentional phenomena.

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Against Fantology Again

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The term 'fantology' has not yet (January 2016) entered *The Stanford Encyclopedia of Philosophy*, the world's most up-to-date philosophical dictionary. This being so, one has to ask: what is fantology? Barry Smith, who coined the term, starts his paper "Against Fantology" by introducing it with this paragraph:

> A dark force haunts much of what is most admirable in the philosophy of the last one hundred years. It consists, briefly put, in the doctrine to the effect that one can arrive at a correct ontology by paying attention to certain superficial (syntactic) features of first-order predicate logic as conceived by Frege and Russell. More specifically, fantology is a doctrine to the effect that the key to the ontological structure of reality is captured syntactically in the 'F*a*' (or, in more sophisticated versions, in the 'R*ab*') of first-order logic, where 'F' stands for what is general in reality and '*a*' for what is individual. Hence "fantology". Because predicate logic

has exactly two syntactically different kinds of referring expressions – (F), (G), (R), etc., and (*a*), (*b*), (*c*), etc. – so reality must consist of exactly two correspondingly different kinds of entity: the general (properties, concepts) and the particular (things, objects), the relation between these two kinds of entity being revealed in the predicate-argument structure of atomic formulas in first-order logic. (Smith 2005, 153)

His view is not meant as a criticism of first-order predicate logic with identity understood as a *logic*; it is only meant as a criticism of directly corresponding *ontologies*. His paper fell dead from both the press and the Web. My paper is a new attempt to put the notion of fantology on the philosophical agenda. It is done in the hope of making clear a danger that is intrinsic to philosophical-ontological work (N.B. not ontologies in the information sciences).

I will not summarize Smith's paper. Instead, I will make two moves that hopefully will cast new light on the importance of its central notion. First, I will present fantology in the light of a more general and in itself ontologically neutral operation that I call *a default ontologization of a language*; also proposed in (Johansson 2013). Then, in the second and third sections, I will discuss Willard van Orman Quine's views, since he is the most outspoken fantologist in the second half of the twentieth century. I think his lasting high philosophical status explains much of today's lingering fantology in analytic metaphysics. Smith only hints at Quine's explicit proposal for a *canonical notation* when in passing he states:

> Fantology sometimes takes the form of a thesis according to which the language of standard predicate logic can serve the formulation of the truths of natural science in a uniquely illuminating way (its syntax mirrors, after all, the very structures in reality which such truths represent). So Quine, with his doctrine according to which the ontological commitments of a theory become evident only when the theory has been regimented in fantological fashion. (Smith 2005, 156)

1   Default Ontologization

The Sapir-Whorf hypothesis says that a certain community's natural language either determines (strong version) or influences (weak version) how the members of that community think and perceive, and thereby also partly how they act. One of Whorf's classic presumed yet contested examples is that the Hopi Indians are anti-realists about time because their language lacks tensed words; instead of the words 'past', 'present', and 'future' events they use 'recalled', 'reported', and 'anticipated' events.

It is only the weak version that can be taken seriously. When Whorf became multilingual he did not become totally immersed in the new languages he learnt, and Hopis can learn English. Even if true, the weak Sapir-Whorf hypothesis only states that the *default* key to a community's lived reality – its experienced ontology – is its primary language.

This hypothesis is about the semantics of natural languages. Smith, however, is concerned with the syntax of logical languages. On the one hand, we have to distinguish between default ontologizations of *natural* and *logical* languages, respectively; and, on the other, between default ontologizations of a *semantics* and a *syntax*, respectively. All default ontologizations look upon the language in question as if it were unchangeable, but, of course, all languages, natural as well as logical, are malleable.

All languages can be given at least one default ontologization, that is, the *central* terms are *hypothetically* taken *pretty straightforwardly* to represent (in a wide sense of the term) something in a reality outside of the linguistic speech-or-writing and listening-or-reading acts;

I do not regard parenthesis symbols as central terms. A default ontologization does not in itself say anything about how the actual language users in question conceive of non-linguistic reality, since they may move from language to language-independent reality in a more roundabout way. But it might deliver a good point of departure when trying to find out. Ontologizations that allow even purely spatial relations between terms to be ontologized, I call *non-default ontologizations*.

A default ontologization of a *logical* language is mainly an ontologization of a syntax, since in a logical language semantic content is by definition abstracted away or never put in. However, a default ontologization of a syntax can only give rise to a pure structure, since a syntax is just a structure, but normally we want more from an ontology. Therefore, some abstract content must also be inserted into some of the non-logical symbols. This means that a logical language may allow for more than one default ontologization; a fact that will be exemplified in due course.

Also, it may be discussed whether a certain logical constant allows for an ontologization or not. Bertrand Russell and David Armstrong have argued that some constants do and some do not. Armstrong, for instance, thinks that the conjunction symbol allows for ontologization, but that the disjunction and the negation symbols do not (Armstrong 1978 II, chs. 14–15). If need be, one may call an ontologization of *all* central terms a *primary* default ontologization, and one where some of the constants are put aside as not being possible to ontologize a *secondary* default ontologization.

Fantology can now be characterized by means of the following statement: only a default ontologization of traditional *first-order predicate logic* can display what the world is like. It can be explicitly put forward, as by Quine, or merely be implicitly taken for granted, as Armstrong seemingly does (Smith 2005, sect. 5). If fantologists cannot express their initial ontological thoughts in first-order logic, they dismiss them. Since, as pointed out above, a logical language can allow for more than one default ontologization, this does not mean that all fantologists agree in ontological matters. But, in their hands, first-order predicate logic nevertheless functions as a norm that prohibits many ontological positions to be stated. (Default ontologizations of logics such as modal logic and Prior's tense logic do not count as fantology.)

Since all logical languages can be given at least one default ontologization, so can Aristotelian subject-predicate logic. Also, of course, each default ontologization can in a second step be claimed either to express the true ontology or to hide it. And Russell has claimed that (in my terms) all default ontologizations of subject-predicate logic seriously hides the true ontology, and I will use his claim to give some more contents to the abstract notions of fantology and default ontologization presented so far.

The fundamental sentence of subject-predicate logic is '*S is P*', and Russell claims that if subject-predicate logic is regarded as the one and only logic, then its ontologization leads to the false position of monism. That is, to some kind of monism. Since nothing in '*S is P*' has semantic content, no conclusions about whether '*S*' refers to something physical, something mental, or something else, can be drawn from the subject-predicate logic alone. Russell, therefore, calls it "*logical* monism."

I think Russell's reasoning can be reconstructed as follows. All entities in the world are either directly or indirectly related to each other. Now, if between two entities in the world, *a* and *b*, there is a relation *R*, then the natural symbolization of it is, as in predicate logic, '*Rab*'. However, in order to turn this logical form into the form '*S is P*', one has to write either '*a is Rb*' or '*b is Ra*'. In what follows, I will reason as if the second alternative always applies. Assume next that there is a relation between *b* and *c* (predicate logic: '*Rbc*'); it must then be given the form '*c is Rb*'. The conjunction '(*c is Rb*) & (*b is Ra*)' shows that *c* certainly is at least indirectly related to *a*, too; and if the copula relation is transitive, then *c* is directly related to *a* just as much as to *b*. The reasoning can be repeated with new entities *d*, *e*, *f*, etc. entering the

scene. This means that if the copula relation is all-embracing, as it is if the subject-predicate logic is taken to be the only proper logic, then there must be something of which all the entities *a*, *b*, *c*, etc. can be regarded as being properties. Russell himself says:

> Spinoza's metaphysic is the best example of what may be called 'logical monism'--the doctrine, namely, that the world as a whole is a single substance, none of whose parts are logically capable of existing alone. The ultimate basis for this view is the belief that every proposition has a single subject and a single predicate, which leads us to the conclusion that relations and plurality must be illusory. (Russell 1974, 559–560)

In this quotation, only Spinoza is mentioned, but Russell is of the same opinion with respect to the monisms of Hegel and Bradley (Russell 1974, 703; 1910). And, in the quotation below, he accuses Leibniz for inconsistency when Leibniz puts forward his pluralist monadology, but nonetheless regards the subject-predicate logic as the only logic. Leibniz claims that each monad is one single completely self-enclosed substance that has no relations to other substances, only a number of properties inhering in itself. This view fits well the sentence '*S is P*'. But how can one express the view that there are many distinct monads?

> Whether any valid inferences are possible from language to non-linguistic facts is a question as to which I do not care to dogmatize; but certainly the inferences found in Leibniz and other *a priori* philosophers are not valid, since all are due to a defective logic. The subject-predicate logic, which all such philosophers in the past assumed, either ignores relations altogether, or produces fallacious arguments to prove that relations are unreal. Leibniz is guilty of a special inconsistency in combining the subject-predicate logic with pluralism, for the proposition 'there are many monads' is not of the subject-predicate form. To be consistent, a philosopher who believes all propositions to be of this form should be a monist like Spinoza. (Russell 1974, 575)

The Russell quotations above are from his *History of Western Philosophy*, which was written during World War II. But in *The Philosophy of Logical Atomism*, written during World War I, he thought it possible to create a logical language that would depict the ontology of the world much better than either a natural language or the subject-predicate logic can. He sometimes called it a *logically perfect language*, but I think that the expression '*ontologically* perfect language' is more appropriate as soon as a vocabulary is added. He says:

> In a logically perfect language the words in a proposition would correspond one by one with the components of the corresponding fact, with the exceptions of such words as "or", "not", "if", "then", which have a different function. In a logically perfect language, there will be one word and no more for every simple object, and everything that is not simple will be expressed by a combination of words. … A language of that sort … is set forth in *Principia Mathematica*. … It is a language which has only syntax and no vocabulary whatsoever. … It aims at being that sort of language that, if you add a vocabulary, would be a logically perfect language. Actual languages are not logically perfect in this sense, and they cannot possibly be, if they are to serve the purposes of daily life. (Russell 1986, 176.)

Needless to say, Russell could not possibly start by believing (to quote Smith) "in the doctrine to the effect that one can arrive at a correct ontology by paying attention to certain superficial

(syntactic) features of first-order predicate logic," since he was among the creators of this logic. He came to his ontological positions independently of first-order predicate logic, but when it had been created, he meant that others could arrive at parts of the true ontological structure of the world by looking at its syntax.

Smith is partly turning Russell upside-down, but without denying relations. He claims that the syntax of Russell's predicate logic does not display the ontological structure of the world, but that the Aristotelian '*S is P*' comes closer to doing so. However, he does not ontologize '*S is P*' without further ado. He claims that Aristotle's famous *ontological square* – consisting of: *substantial* (natural kinds) universals and particulars, and *accidental* (qualities/properties) universals and particulars – should be complemented by the pair *process* universals and particulars (processes in his sense include actions, events, and occurrences) and turned into an *ontological sextet* (Smith 2005, sect. 19).

Both subject-predicate logic and first-order predicate logic can be given a default ontologization. If one thinks that default ontologizations of first-order predicate logic are seriously misleading, one may use Smith's term and call them fantologies. And if one thinks that default ontologizations of subject-predicate logic are so, then one may (to coin a term) call them SisP-ontologies or sispontologies. Russell can then be said to accuse Spinoza, Hegel, and Bradley for being sispontologists, just as Smith accuses Armstrong for being a fantologist (Smith 2005, sect. 4).

Subject-predicate logic contains a copula, be it '*is*', as in '*S is P*', or '*are*', as in '*Some S are P*' and '*All S are P*'; but first-order predicate logic contains no copula at all. Look at '*Fa*', '$\exists x Fx$', and '$\forall x Fx$'. This makes Smith talk about "the vanishing [of the] copula" in fantology (Smith 2005, sect. 13). Traditionally, the copula of true subject-predicate sentences has been taken to represent an *inherence relation* in the world. If '*S is P*' is true, then what is represented by '*P*' (normally a property) is taken to inhere in what is represented by '*S*' (normally a kind, natural or artificial). No such explicit relation symbol can be found when formulas in first-order predicate logic are to be ontologized. The early Armstrong answers the question of what the relationship (in *Fa*) between the referent of '*F*', which Armstrong takes to be a universal, and a referent of '*a*', which he takes to be a ("thin") particular, by saying:

> It is concluded, therefore, that although particularity and universality are inseparable aspects of all existence, they are neither reducible to each other nor are they related. Though distinct, their union is closer than relation. (Armstrong 1978 II, 3)

Since first-order logic contains no symbol for a relation that connects universality and particularity, there is nothing that can be ontologized into such a relation. One might use Armstrong's last sentence to characterize, conversely, the very symbol '*Fa*' itself, and say that though '*F*' and '*a*' are distinct, the union between them is in predicate logic closer than that of a relation.

But there is more to be noted in relation to the copula. It is not only a matter of something that represents an inherence relation; it is also a matter of what kinds of entities the relation can relate. In '*S is P*', be *S* and *P* either universals or instances of universals, a property can be predicated both about another property (e.g., 'scarlet is red') and about a kind of substance (e.g., 'tomatoes are red'). But in '*Fa*' and '$\exists x Fx$' it is taken for granted that '*F*' is a general term, '*a*' the name of a particular, and '*x*' a variable for particulars. That is, the predications in question are never of a *kind*-of-particular, but always of particulars-as-particulars.

Of course, one can in first-order predicate logic introduce a distinction between two sorts of monadic predicates, *kind* predicates ('*S*') and *property* predicates ('*P*'). The counterpart of the subject-predicate logic's sentence '*S is P*' would then be '*Sa & Pa*', which contains both a kind

ascription and a property ascription. But this move does not introduce anything like an inherence relation into predicate logic. A conjunction of *two predications* of the same particular-as-particular does not, in contradistinction to the subject-predicate logic, contain the possibility of speaking about an inherence relation between a property and a kind-of-entity. It does not make it possible to *predicate P of S*. In order to do that, a second-order predicate logic would be needed. One in which '$P(S)$' is regarded as a well-formed formula.

Armstrong does not make any attempt to amend predicate logic by a distinction between kind-predicates and property-predicates. And since he believes in universals, he therefore is of the opinion that there are no "irreducibly substantival [substantial] universals" (Armstrong 1978 II, 62), only monadic property universals. Russell also wanted to get rid of the whole notion of substance and its concomitant kind-of-substance: "'Substance' when taken seriously, is a concept impossible to free from difficulties" (Russell 1974, 211). Quine substitutes classes for both property universals and kind universals.

Within the philosophy of science, the anti-substantial view defended by Russell and Armstrong has a clear repercussion. It means that it is not only everyday languages that should not be allowed to be ontologized, the same also goes for all known scientific languages. As Smith points out, many typical sentences of science conform to the '*S is P*' form (Smith 2005, sect. 8). Not even physics contain only mathematical formulas.

I would like to stress that today's fundamental particle physics does not make claims only about property bearing particles-as-particulars, but also about *kinds* of particles. And these are placed within a minor taxonomical framework. The so-called standard model divides particles into quarks, leptons, gauge bosons, and the Higgs boson; and the first three taxa are divided further into more fine-grained ones. For instance, "the genus" gauge boson subsumes "the species" gluon, photon, Z boson, and W boson; and W bosons have non-zero values of all the three fundamental properties mass, electric charge, and spin. It is even from a physicalist stance quite a radical move to claim, that these purported natural kinds should not be allowed to be ontologized, and not be allowed to be regarded as having properties *inhering* in them.

According to Smith, fantology also brings with it "a peculiar insensitivity to time" (Smith 2005, sect. 15). I agree. As I said earlier, one reason why Russell wanted to replace subject-predicate logic with predicate logic was, that predicate logic already on the surface displays the possibility of irreducible relations. But he had a second ontological reason to favor first-order predicate logic, too. In some papers 1905–07 (e.g., "On Denoting" (Russell 1905)), he criticized Alexius Meinong's view that there are not only existing entities but also subsisting ones; that is, that there are different *ways of existence*. Consequently, already in its syntax, first-order predicate logic rules out the possibility of talking of tense as modes of being as, for instance, Roman Ingarden does. Everything that belongs to a domain of discourse to which predicate logic is applied, has to exist in the same way.

In predicate logic, 'existence' is a quantifier. This is in line with G. E. Moore's view that 'existence' is not a predicate; and so, when ontologized, with Kant's view that existence is not a property. But for Russell there is more to say than this. The view that 'existence'/existence is neither a predicate nor a property, does not preclude the view that there are different ways or modes of existence. It merely means that no such way is a property representable by a predicate.

For Russell, it is important, from the ontological point of view, that predicate logic contains *exactly one* existential quantifier. From a purely logical point of view, however, the existential quantifier '$\exists x$' may well be allowed to take subscripts that represent different ways of existence; for example, '$_1\exists x$' (in mode 1 there is at least one x), '$_2\exists x$' (in mode 2 there is at least one x), and so on. However, everything that is claimed to exist by means of sentences expressed in traditional first-order predicate logic is claimed to exist in the same way.

Subject-predicate logic, in contrast, allows that '*S is P*' is replaced by '*S was P*' or by '*S will be P*'. Since predicate logic contains no copula, it cannot do exactly this. Of course, its

symbolism allows time indexing of both the '*F*' and the '*a*' of '*Fa*', but that is quite another thing. It does not introduce ways of existence; it merely specifies where in uniform time the referents of '*F*' and the '*a*' are to be situated.

Let it be noted that there are a number of language-independent reasons for adopting a four-dimensionalist (or eternalist) view of time, in which all times exist in parity. But it follows from what I have said, that any naturalist default ontologization of first-order predicate logic is bound to embrace four-dimensionalism. Presentists cannot be fantologists.

2 Quine's Canonical Notation

First-order predicate logic does not in itself entail a distinction between synthetic and analytic sentences or a denial that there is such a distinction. Therefore, both Russell and Quine can be fantologists; both of them subscribe to a distinction between language and reality. Two quotations from Quine's central work *Word and Object* will be my point of departure in this section. When reading them, it should be kept in mind that Quine regards (i) the existential quantifier as being definable by the universal quantifier together with the negation symbol, and (ii) names as being replaceable by definite descriptions. Therefore, neither the existential quantifier nor names are mentioned as immediately belonging to his canonical notation:

> Taking the canonical notation [first-order predicate logic with identity] thus austerely, … we have just these basic constructions: predication, universal quantification … , and the truth functions. … The ultimate components are the variables and general terms, and these combine in predication to form the atomic open sentences. What thus confronts us as a scheme for systems of the world is that structure so well understood by present-day logicians, the logic of quantification or calculus of predicates.
>
> Not that the idioms thus renounced are supposed to be unneeded in the marketplace or in the laboratory. … The doctrine is only that such a canonical idiom can be abstracted and then adhered to in the statement of one's scientific theory. The doctrine is that all traits of reality worthy of the name can be set down in an idiom of this austere form if in any idiom.
>
> It is in spirit a philosophical doctrine of categories, except that it is peculiarly relative in its import. Of itself it sets no limits to the vocabulary of unanalyzed general terms admissible to science. (Quine 1960, 228)

And here comes what has been made famous under the motto 'to be is to be the value of a bound variable':

> In our canonical notation of quantification, then, we find the restoration of law and order. Insofar as we adhere to this notation, the objects we are to be understood to admit are precisely the objects which we reckon to the universe of values over which the bound variables of quantification are to be considered to range. … To paraphrase a sentence into the canonical notation of quantification is, first and foremost, to make its ontic content explicit, quantification being a device for talking in general of objects. (Quine 1960, 242)

A logical language may allow for more than one default ontologization, and first-order predicate logic does. The predicate symbols always represent something general or abstract, but opinions may differ about what should be regarded as general. For Russell and Armstrong, the predicate

symbols represent property universals, whereas for Quine they represent classes or sets (he uses the terms interchangeably). This difference, however, is mitigated by the fact that the late Quine regards classes as universals (somewhere in the 1950s, he stops being a nominalist). In a response to Armstrong he writes: "What Armstrong has not perceived is that I, like him, espouse rather a realism of universals" (Quine 1981, 182). Armstrong and Quine have also in common the views that (i) they leave it for future empirical science to decide what universals there are, (ii) they regard four-dimensionalism as the correct philosophy of time, and (iii) they deny that there are any mental entities.

The late Quine is a reductionist in two ways, and a non-reductionist in one way. He regards all physical objects to be reducible to the objects postulated by basic physics, and he regards all universals and abstract objects to be reducible to classes. He claims, however, that it is impossible to reduce classes to physical objects. He defends a physicalism-with-classes ontology. I quote:

> Let us not leave the latter topic quite yet: ontology, or the values available to variables. As seen, we can go far with physical objects [he allows even spatiotemporal points to be called physical objects]. They are not, however, known to suffice. Certainly, as just now argued, we do not need to add mental objects. But we do need to add *abstract* objects, if we are to accommodate science as currently constituted. Certain things we want to say in science may compel us to admit into the range of values of the variables of quantification not only physical objects but also classes and relations of them. (Quine 1966, 244)

The early Armstrong, as I said, claims that the union between property universals and particulars-as-particulars is closer than that of a relation; and that therefore there is no need to discuss any relation between them. Quine behaves analogously. At first sight, since the symbol '*Fa*' can be read '*a* is member of the class of *F*s' or '$a \in F$', it may seem as if he posits a kind of ontological membership-relation to explain the connection between physical objects and classes. But things are more complicated:

> The further part of logic is set theory, which requires there to be classes among the values of its variables of quantification. The one sign needed in set theory, beyond those appropriate to elementary logic, is the connective '$\in$' of membership. (Quine 1966, 110)

Quine here divides logic into set theory and elementary logic (the canonical language), which means that (a) he places the epsilon symbol *outside* of his canonical language. Also, (b) he regards it as being a *connective*. Both these things are important in relation to a pertinent question that I will soon raise.

On the surface, it looks as if a second-order logic is needed in order to make quantifications over classes possible; that is, abstract classes must be representable by a variable in order to be able to be bound by a quantifier. But, if this first impression were true, the first-order logic of the canonical language would not allow classes to exist. Therefore, in order to have a consistent ontological position, Quine has to explain how classes can become represented by variables in first-order predicate logic. I will now put forward the foreshadowed question: *where and how does Quine try to accomplish this feat?* As far as I can see, he never makes any explicit attempt. Moreover, I will now argue, if he had made one, he could not possibly have succeeded.

As is clear from the philosophy of science, reductions of one kind of physical objects to other kinds of physical objects (e.g., molecules to subatomic particles) are confronted with problems; and as is clear from the philosophy of mathematics, reductions of one kind of abstract objects

to other kinds of abstract objects (e.g., numbers to classes) are confronted with problems. Both these kinds of reduction problems, let it be noted, Quine regards as being soluble (whereas I consider them insoluble). However, his problem with how to make classes representable by variables in first-order logic is of quite another kind – and magnitude.

He must be able to define a relationship between the *physical* objects represented by the variables in the canonical language and the *abstract* class objects. The problem is analogous to Plato's problem of how to explain the relationship between the sensible things in the spatiotemporal world and the entities in his transcendent atemporal realm of ideas. Plato introduced a relation of participation, but Quine can only appeal to the epsilon symbol and what it might represent. As I will point out next, this is not enough.

Quine regards classes as extensionally defined by their members; classes that have exactly the same members are identical. Therefore, classes that have physical objects as members cannot ultimately be defined without the epsilon symbol being used; they cannot be regarded as non-definable particulars and then quantified over. Nonetheless, as noticed, he explicitly regards '$\in$' both (a) as being outside of predicate logic, and (b) as being a logical connective, not a relation predicate. Position (a) means that the membership relation needed in order to define classes cannot be stated in the canonical notation. Position (b) means that even if, in some way or other, the epsilon symbol could be made a natural part of the canonical language, it is not allowed to be ontologized, since it is on a par with the logical constants that, for Quine, are non-ontologizable.

In the same way that Russell claims that Leibniz is wrong in thinking that his monadology needs no other logic than subject-predicate logic, I claim that Quine is wrong in thinking that his physicalism-with-classes ontology needs no other logic than first-order predicate logic. Just as Leibniz cannot explain how on his own premises he can say 'there are monads', Quine cannot explain how on his own premises he can say 'there are classes'.

I find what has now been said reason enough, when doing ontology, for not letting oneself to be bound by Quine's canonical notation. Nonetheless, another reason will be presented in the next section.

Smith is against fantology primarily because it makes it impossible to claim that there is an inherence relation between properties (qualities) and kinds (substances), and that there is a has-as-participant relation between processes and kinds. Claims that are central to his *ontological sextet*. In outline, I am on Smith's side in this criticism, even though I may differ from him with respect to some details concerning the philosophy of time, but I will not delve into this. Instead, I will now say some words about fantology in relation to an issue that remains untouched by Smith, namely, the existence or non-existence of intentionality.

3   Intentionality in the Canonical Notation

Since first-order predicate logic is extensional, fantology takes the whole realm of intentional phenomena and the referents of intensional propositions away from the ontological picture. Some kind of physicalism is declared to be the fundamental ontological truth:

> One may accept the Brentano thesis [of the irreducibility of intentionality] either as showing the indispensability of intentional idioms and the importance of an autonomous science of intention, or as showing the baselessness of intentional idioms and the emptiness of a science of intention. My attitude, unlike Brentano's, is the second. … Not that I would forswear daily use of intentional idioms, or maintain that they are practically dispensable. But they call, I think, for bifurcation in canonical language. … If we are limning the true and ultimate structure of reality,

the canonical scheme for us is the austere scheme that knows no quotation but direct quotation and no propositional attitudes but only the physical constitution and behavior of organisms. … If we are venturing to formulate the fundamental laws of a branch of science, however tentatively, this austere idiom is again likely to be the one that suits. But if our use of canonical notation is meant only to dissolve verbal perplexities or facilitate logical deductions, we are often well advised to tolerate the idioms of propositional attitude. (Quine 1960, 221)

In traditional post-medieval epistemology – to be contrasted with modern so-called meta-epistemology – something *non-physical* has always played a central role. Descartes ended his quest for certain knowledge in his presumed indubitable utterance '*cogito ergo sum*', which represents something in consciousness. Hume, despite his general skepticism, found the existence of simple impressions indubitable, and they were mental in character. Late nineteenth and early twentieth century empiricism saw attempts to ground epistemology in entities that are supposed to be neither physical nor mental. Most famous are Mach's sensations or elements (Mach 1959 [1886]), Russell's neutral monism (which allows relations) (Russell 1961 [1921]), and Carnap's elementary experiences (1969 [1928]). These observations give rise to the following question: what does the epistemology of the physicalist Quine look like? He cannot on pain of inconsistency introduce something non-physical apart from classes.

It should be noted, that in systematic philosophy there cannot possibly be a gulf between ontology and epistemology. If one claims that an ontology is true, one lays claim to have some knowledge; and if one makes epistemological claims, one presupposes the existence of at least one cognitive faculty. Quine has to say something about epistemology, and he does.

One Quine expert says: "Much of Quine's work in epistemology is thus a more or less speculative discussion of how a child might acquire cognitive language" (Hylton 2014, 4.1). And this means how *from a third-person perspective* cognitive language is acquired. In Quine's physicalist "empiricism," empirical evidence has nothing to do with consciousness or any ontologically neutral entities. Empirical evidence is made equivalent to physical impacts on our physical sensory system. Below comes another quotation (Quine makes no distinction between 'inten*s*ional' and 'inten*t*ional' idioms):

> All three of these idioms--'perceives that', 'thinks that', 'It occurred to him that'--are idioms of so-called *propositional attitude*. … As they stand, the idioms of propositional attitude resist predicate logic. … Their underlying trait, which pervades mentalistic talk pretty generally, is that they are *intensional*, whereas predicate logic is extensional. … Extensionality is much of the glory of predicate logic, and it is much of the glory of any science that can be grammatically embedded in predicate logic. I find extensionality necessary, indeed, though not sufficient, for my full understanding of a theory. (Quine 1995, 90–91)

Quine – rightly to my mind – rejects traditional rationalism and empiricism and their quest for certainty, but he also – wrongly to my mind – denies the mere existence of non-physical entities beside the abstract classes. Is such a denial really epistemologically possible? How does Quine manage to take conscious thinking and perceiving completely away from the epistemological picture? The explanation has been delivered by A. W. Moore, and I refer to him for the argumentation. Here is his conclusion:

> [T]he single most important feature of Quine's entire philosophy [is]: *that its real driving force is his naturalism*. Everything else flows from that; everything else

must be understood in terms of that; everything else needs to accommodate that. (Moore 2012, 308)

Beneath both Quine's peculiar form of "empiricism" and his non-nominalist physicalism, there is an *epistemological naturalism* that he thinks grounds both. It says that the natural sciences' way of investigating and making sense of things is the one and only way. No place is given to complementary ways. If the quest for absolute certainty is taken away from Descartes, Hume, and the early Carnap, their views can be reformulated as follows. Descartes: the seemingly most indubitable fact is that there is at least one mental substance. Hume: the seemingly most indubitable fact is that there are simple impressions. Carnap: the seemingly most indubitable fact is that there are elementary experiences. According to Quine, the seemingly most indubitable fact is that the natural sciences have recourse to a method that increases our knowledge of the world.

In my opinion, one can be a fallibilist and dismiss the quest for certainty without, *pace* Quine, denying the mere existence of conscious phenomena, whether they are then later best classified as states, as acts, as events, or as being of all three kinds. Within my fallibilist framework I trust the natural sciences, but I also look upon Descartes's *cogito ergo sum* as containing quite a kernel of truth. It can be laid bare as follows. The term '*cogito*' subsumes both the expressions 'I perceive' and 'I think'. One can just as well say to oneself (a) 'I perceive, therefore I am' as (b) 'I think, therefore I am'. However, in order to make a truly good epistemological point one cannot, like Descartes, speak as if a conscious moment of perceiving/thinking shows that there is a mental *property bearer*, which, moreover, is an *enduring* entity. Both these features can be doubted, but the belief in conscious occurrences nonetheless be retained.

The two Cartesian self-reflective utterances above should be replaced by: (a′) 'now I am perceiving, therefore there *now* exists a conscious *occurrence*', and (b′) 'now I am thinking, therefore there *now* exists a conscious *occurrence*'. Using the term 'propositional attitude', I claim that I know (c′): 'now I am perceiving-something/thinking-about-something, therefore there now exists a conscious occurrence of a propositional attitude'. In fact, I am *more* certain that I have conscious moments of propositional attitudes, than I am that there is a mind-independent world studied by physics. But I am pretty certain of both.

My view does not entail the existence of any momentary free-floating Cartesian substances. The occurrences spoken of may well be – and I think they are – phenomena that are for their existence *dependent on* a brain-and-body without being *identical with* such a substratum. Just as physicists can discuss what subatomic particles there are, believers in conscious occurrences can discuss both what the parts and the structure of such phenomena are like, and what kind of material conditions of existence they have. The fact *that there are* conscious occurrences of perception and thinking does not imply *that their content and structure* are epistemologically transparent; my own conjecture about the structure of consciousness is presented in (Johansson 2014).

The first Quine-quotation in this section contains the statement "If we are limning the true and ultimate structure of reality, the canonical scheme for us is the austere scheme that knows … only the physical constitution and behavior of organisms." The expression "the true and ultimate structure of reality" is of crucial importance. *Implicitly*, Quine here brings in the old distinction between appearances and reality, and says that his canonical language is only meant for the ontology of the latter. But this he cannot say without allowing two different ways of existence, one for appearances and one for reality. Furthermore, if this were allowed, he could no longer claim that *all* ontological claims have to be translatable into the canonical language. Surely, if appearances there are, they must exist in *some way*. Thus, quite independently of the inconsistency noted in the last section, there is in Quine's philosophy another inconsistency, too.

Quine's fantological ontology is doubly incoherent.

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