

On Quine's Ontology

quantification, extensionality, and naturalism

Daniel Durante Pereira Alves

Federal University of Rio Grande do Norte - (Brasil)
LanCog Group - Lisbon University - (Portugal)

durante@ufrnet.br
<http://danieldurante.weebly.com>

III Latin American Analytic Philosophy Conference
III Conference of the Brazilian Society for Analytic Philosophy

Fortaleza – May, 2014

Some Quinean Theses

as influential as controversial

Quine was one of the greatest philosophers of the 20th-Century. His theses and positions are as influential as controversial. Let us briefly remember some of them:

Some Quinean Theses

as influential as controversial

1 Ontological Formalism

Some Quinean Theses

as influential as controversial

1 Ontological Formalism

- The logical existential quantifier captures the sense of existence.

Some Quinean Theses

as influential as controversial

1 Ontological Formalism

- The logical existential quantifier captures the sense of existence.
- *“Existence is what existential quantification expresses. There are things of kind F if and only if $\exists x F(x)$. This is as unhelpful as it is undebatable.”*
(Existence and Quantification)

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 **Naturalism**

Some Quinean Theses

as influential as controversial

1 Ontological Formalism

2 Naturalism

- There is no essential distinction between philosophy, mathematics, and science.

Some Quinean Theses

as influential as controversial

1 Ontological Formalism

2 Naturalism

- There is no essential distinction between philosophy, mathematics, and science.
- Philosophy does not legislate on science or mathematics, but collaborates with them. They share the same conceptual scheme.

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 **Univocity of Existence**

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 Univocity of Existence

There are no different modes of being. Any existing thing exists exactly in the same sense as anything else. No matter if they are numbers, stones or attributes.

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 Univocity of Existence
- 4 **Unrestricted Quantification**

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 Univocity of Existence
- 4 Unrestricted Quantification

- There is a single and unrestricted domain of quantification that covers all there is.

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 Univocity of Existence
- 4 Unrestricted Quantification

- There is a single and unrestricted domain of quantification that covers all there is.
- If numbers, stones and attributes exist, then the same variable 'x' can take values among numbers, stones and attributes.

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 Univocity of Existence
- 4 Unrestricted Quantification

- There is a single and unrestricted domain of quantification that covers all there is.
- If numbers, stones and attributes exist, then the same variable 'x' can take values among numbers, stones and attributes.
- There are no multiple types of variables, but a single one.

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 Univocity of Existence
- 4 Unrestricted Quantification
- 5 **Extensionalism**

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 Univocity of Existence
- 4 Unrestricted Quantification
- 5 Extensionalism

[A]n expression is extensional if replacement of its component expressions by coextensive expressions always yields a coextensive whole. Extensionalism is a predilection for extensional theories. (CCE)

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 Univocity of Existence
- 4 Unrestricted Quantification
- 5 Extensionalism
- 6 **Rejection of Second-Order Logic**

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 Univocity of Existence
- 4 Unrestricted Quantification
- 5 Extensionalism
- 6 Rejection of Second-Order Logic

We can't quantify over predicates: $\exists P P(a)$

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 Univocity of Existence
- 4 Unrestricted Quantification
- 5 Extensionalism
- 6 Rejection of Second-Order Logic
- 7 **Rejection of the analytic/synthetic distinction**

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 Univocity of Existence
- 4 Unrestricted Quantification
- 5 Extensionalism
- 6 Rejection of Second-Order Logic
- 7 Rejection of the analytic/synthetic distinction

There is no way to account a theory of meaning that grounds the definition of analyticity as '*true in virtue of the meaning*'.

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 Univocity of Existence
- 4 Unrestricted Quantification
- 5 Extensionalism
- 6 Rejection of Second-Order Logic
- 7 Rejection of the analytic/synthetic distinction
- 8 **Ontological Relativity (or Ontological Indifference)**

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 Univocity of Existence
- 4 Unrestricted Quantification
- 5 Extensionalism
- 6 Rejection of Second-Order Logic
- 7 Rejection of the analytic/synthetic distinction
- 8 Ontological Relativity (or Ontological Indifference)

In many cases *“there can be no evidence for one ontology over against another”*.

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 Univocity of Existence
- 4 Unrestricted Quantification
- 5 Extensionalism
- 6 Rejection of Second-Order Logic
- 7 Rejection of the analytic/synthetic distinction
- 8 Ontological Relativity (or Ontological Indifference)
- 9 **Rejection of First-Order Modal Logic**

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 Univocity of Existence
- 4 Unrestricted Quantification
- 5 Extensionalism
- 6 Rejection of Second-Order Logic
- 7 Rejection of the analytic/synthetic distinction
- 8 Ontological Relativity (or Ontological Indifference)
- 9 Rejection of First-Order Modal Logic

We can't quantify into the scope of a modal operator: $\exists x \Box P(x)$

Some Quinean Theses

as influential as controversial

- 1 Ontological Formalism
- 2 Naturalism
- 3 Univocity of Existence
- 4 Unrestricted Quantification
- 5 Extensionalism
- 6 Rejection of Second-Order Logic
- 7 Rejection of the analytic/synthetic distinction
- 8 Ontological Relativity (or Ontological Indifference)
- 9 Rejection of First-Order Modal Logic

Some Quinean Theses

two beliefs about them

- 1) Ontological formalism
- 2) Naturalism
- 3) Univocity of existence
- 4) Unrestricted quantification
- 5) Extensionalism
- 6) Rejection of second-order Logic
- 7) Rejection of analyticity
- 8) Ontological indifference
- 9) Rejection of first-order modal logic

I have two beliefs regarding this list that I don't intend argue for, either I expect you agree with me or even with each other on them:

Some Quinean Theses

two beliefs about them

- 1) Ontological formalism
- 2) Naturalism
- 3) Univocity of existence
- 4) Unrestricted quantification
- 5) Extensionalism
- 6) Rejection of second-order Logic
- 7) Rejection of analyticity
- 8) Ontological indifference
- 9) Rejection of first-order modal logic

I have two beliefs regarding this list that I don't intend argue for, either I expect you agree with me or even with each other on them:

The list is in **ascending** order of degree of **controversy**. From the least controversial theses to the most controversial ones.

Some Quinean Theses

two beliefs about them

- 1) Ontological formalism
- 2) Naturalism
- 3) Univocity of existence
- 4) Unrestricted quantification
- 5) Extensionalism
- 6) Rejection of second-order Logic
- 7) Rejection of analyticity
- 8) Ontological indifference
- 9) Rejection of first-order modal logic

I have two beliefs regarding this list that I don't intend argue for, either I expect you agree with me or even with each other on them:

The list is in **ascending** order of degree of **controversy**. From the least controversial theses to the most controversial ones.

The list is in **descending** order of **influence**. From the most influential theses to the least influential ones.

Some Quinean Theses

objective and motivation

Besides these beliefs, there is a fact about this list I do intend to argue for.

- 1) Ontological formalism
- 2) Naturalism
- 3) Univocity of existence
- 4) Unrestricted quantification
- 5) Extensionalism
- 6) Rejection of second-order Logic
- 7) Rejection of analyticity
- 8) Ontological indifference
- 9) Rejection of first-order modal logic

Some Quinean Theses

objective and motivation

Besides these beliefs, there is a fact about this list I do intend to argue for.

- 1) Ontological formalism
- 2) Naturalism
- 3) ~~Univocity of existence~~
- 4) ~~Unrestricted quantification~~
- 5) Extensionalism
- 6) ~~Rejection of second-order Logic~~
- 7) ~~Rejection of analyticity~~
- 8) ~~Ontological indifference~~
- 9) ~~Rejection of first-order modal logic~~

Main Objective

Among these theses, only (1) and (2) Quine takes as **first principles**. All others are either directly or transitively derived from (1) and (2).

Some Quinean Theses

objective and motivation

Besides these beliefs, there is a fact about this list I do intend to argue for.

- 1) Ontological formalism
- 2) Naturalism
- 3) ~~Univocity of existence~~
- 4) ~~Unrestricted quantification~~
- 5) Extensionalism
- 6) ~~Rejection of second-order Logic~~
- 7) ~~Rejection of analyticity~~
- 8) ~~Ontological indifference~~
- 9) ~~Rejection of first-order modal logic~~

Main Objective

Among these theses, only (1) and (2) Quine takes as **first principles**. All others are either directly or transitively derived from (1) and (2).

Main Motivation

If I'm right whoever holds naturalism (2) and the binding between existence and quantification (1) should agree with Quine on all these other (to me) more controversial claims. Is this a tenable position?

Quine's Philosophy

footnotes of naturalism and ontological formalism

- 1) Ontological formalism
- 2) Naturalism
- 3) ~~Univocity of existence~~
- 4) ~~Unrestricted quantification~~
- 5) ~~Extensionalism~~
- 6) ~~Rejection of second-order Logic~~
- 7) ~~Rejection of analyticity~~
- 8) ~~Ontological indifference~~
- 9) ~~Rejection of first-order modal logic~~

So, I intend to argue that the methodological thesis (1) and the metaphilosophical thesis (2) are the main responsible for all the good and all the bad we find in Quine's philosophy.

Quine's Philosophy

footnotes of naturalism and ontological formalism

- 1) Ontological formalism
- 2) Naturalism
- 3) ~~Univocity of existence~~
- 4) ~~Unrestricted quantification~~
- 5) ~~Extensionalism~~
- 6) ~~Rejection of second-order Logic~~
- 7) ~~Rejection of analyticity~~
- 8) ~~Ontological indifference~~
- 9) ~~Rejection of first-order modal logic~~

So, I intend to argue that the methodological thesis (1) and the metaphilosophical thesis (2) are the main responsible for all the good and all the bad we find in Quine's philosophy.

- This claim is neither original nor new. Quine himself has said it in interviews. Many commentators have also said similar things. Putnam has argued for it. But these allegations are, most of the time, made in a speculative and broad mood.

Quine's Philosophy

footnotes of naturalism and ontological formalism

- 1) Ontological formalism
- 2) Naturalism
- 3) ~~Univocity of existence~~
- 4) ~~Unrestricted quantification~~
- 5) ~~Extensionalism~~
- 6) ~~Rejection of second-order Logic~~
- 7) ~~Rejection of analyticity~~
- 8) ~~Ontological indifference~~
- 9) ~~Rejection of first-order modal logic~~

So, I intend to argue that the methodological thesis (1) and the metaphilosophical thesis (2) are the main responsible for all the good and all the bad we find in Quine's philosophy.

- This claim is neither original nor new. Quine himself has said it in interviews. Many commentators have also said similar things. Putnam has argued for it. But these allegations are, most of the time, made in a speculative and broad mood.
- My proposal is just to argue for this claim in a more detailed way through these specific cases. I'll just use this arbitrary list of quinean theses to exemplify this claim.

A Five-steps Argument

- 1) Ontological formalism
- 2) Naturalism
- 3) Univocity of existence
- 4) Unrestricted quantification
- 5) Extensionalism
- 6) Rejection of second-order Logic
- 7) Rejection of analyticity
- 8) Ontological indifference
- 9) Rejection of first-order modal logic

A Five-steps Argument

- 1) **Ontological formalism**
- 2) Naturalism
- 3) **Univocity of existence**
- 4) ~~Unrestricted quantification~~
- 5) Extensionalism
- 6) Rejection of second-order Logic
- 7) Rejection of analyticity
- 8) Ontological indifference
- 9) Rejection of first-order modal logic

- **Step 1:** (4) is consequence of (1) and (3)

A Five-steps Argument

- 1) Ontological formalism
- 2) Naturalism
- 3) Univocity of existence
- 4) ~~Unrestricted quantification~~
- 5) Extensionalism
- 6) ~~Rejection of second-order Logic~~
- 7) Rejection of analyticity
- 8) Ontological indifference
- 9) Rejection of first-order modal logic

- **Step 1:** (4) is consequence of (1) and (3)
- **Step 2:** (6) is consequence of (4) and (5)

A Five-steps Argument

- 1) **Ontological formalism**
- 2) Naturalism
- 3) Univocity of existence
- 4) ~~Unrestricted quantification~~
- 5) **Extensionalism**
- 6) ~~Rejection of second-order Logic~~
- 7) ~~Rejection of analyticity~~
- 8) ~~Ontological indifference~~
- 9) ~~Rejection of first-order modal logic~~

- **Step 1:** (4) is consequence of (1) and (3)
- **Step 2:** (6) is consequence of (4) and (5)
- **Step 3:** (7), (8) and (9) are consequences of (1) and (5)

A Five-steps Argument

- 1) **Ontological formalism**
- 2) Naturalism
- 3) **Univocity of existence**
- 4) ~~Unrestricted quantification~~
- 5) **Extensionalism**
- 6) ~~Rejection of second-order Logic~~
- 7) ~~Rejection of analyticity~~
- 8) ~~Ontological indifference~~
- 9) ~~Rejection of first-order modal logic~~

- **Step 1:** (4) is consequence of (1) and (3)
- **Step 2:** (6) is consequence of (4) and (5)
- **Step 3:** (7), (8) and (9) are consequences of (1) and (5)
- **Step 4:** (5) is consequence of (1) and (3)

A Five-steps Argument

- 1) **Ontological formalism**
- 2) **Naturalism**
- 3) ~~Univocity of existence~~
- 4) ~~Unrestricted quantification~~
- 5) **Extensionalism**
- 6) ~~Rejection of second-order Logic~~
- 7) ~~Rejection of analyticity~~
- 8) ~~Ontological indifference~~
- 9) ~~Rejection of first-order modal logic~~

- **Step 1:** (4) is consequence of (1) and (3)
- **Step 2:** (6) is consequence of (4) and (5)
- **Step 3:** (7), (8) and (9) are consequences of (1) and (5)
- **Step 4:** (5) is consequence of (1) and (3)
- **Step 5:** (3) is consequence of (1) and (2)

A Five-steps Argument

- 1) **Ontological formalism**
- 2) **Naturalism**
- 3) ~~Univocity of existence~~
- 4) ~~Unrestricted quantification~~
- 5) **Extensionalism**
- 6) ~~Rejection of second-order Logic~~
- 7) ~~Rejection of analyticity~~
- 8) ~~Ontological indifference~~
- 9) ~~Rejection of first-order modal logic~~

The argument is not circular because in all steps, if (m) is one of the theses from which (n) is a consequence, then $m < n$.

- **Step 1:** (4) is consequence of (1) and (3)
- **Step 2:** (6) is consequence of (4) and (5)
- **Step 3:** (7), (8) and (9) are consequences of (1) and (5)
- **Step 4:** (5) is consequence of (1) and (3)
- **Step 5:** (3) is consequence of (1) and (2)

Step One

Unrestricted quantification (4) is a consequence of ontological formalism (1) and univocity of existence (3)

- 1) Ontological formalism
- 2) Naturalism
- 3) Univocity of existence
- 4) ~~Unrestricted quantification~~
- 5) Extensionalism
- 6) Rejection of second-order Logic
- 7) Rejection of analyticity
- 8) Ontological indifference
- 9) Rejection of first-order modal logic

Step One

Unrestricted quantification (4) is a consequence of ontological formalism (1) and univocity of existence (3)

- If existence is univocal (3), then there are no different modes of being. Any existing thing exists exactly in the same sense as anything else.

Step One

Unrestricted quantification (4) is a consequence of ontological formalism (1) and univocity of existence (3)

- If existence is univocal (3), then there are no different modes of being. Any existing thing exists exactly in the same sense as anything else.
- If, in addition, this unique sense of existence is captured by the logical quantifiers (1), then there is only one unrestricted range of quantification covering everything that there is.

Step One

Unrestricted quantification (4) is a consequence of ontological formalism (1) and univocity of existence (3)

- If existence is univocal (3), then there are no different modes of being. Any existing thing exists exactly in the same sense as anything else.
- If, in addition, this unique sense of existence is captured by the logical quantifiers (1), then there is only one unrestricted range of quantification covering everything that there is.
- If numbers, stones and attributes exist, then the same variable 'x' can take values among numbers, stones and attributes. There are no multiple types of variables, but a single one.

Step One

Unrestricted quantification (4) is a consequence of ontological formalism (1) and univocity of existence (3)

- If existence is univocal (3), then there are no different modes of being. Any existing thing exists exactly in the same sense as anything else.
- If, in addition, this unique sense of existence is captured by the logical quantifiers (1), then there is only one unrestricted range of quantification covering everything that there is.
- If numbers, stones and attributes exist, then the same variable 'x' can take values among numbers, stones and attributes. There are no multiple types of variables, but a single one.
- In order to know if ' $\forall x (\dots)$ ' is true, we have to look to everything at all. Any restriction in the range of the quantification would, by (1), represent the admission of a distinct sense of existence corresponding to entities untouched by this quantification: (1), (3) \longrightarrow (4)

Step Two

Rejection of second-order logic (6) is a consequence of unrestricted quantification (4) and extensionalism (5)

- 1) Ontological formalism
- 2) Naturalism
- 3) Univocity of existence
- 4) ~~Unrestricted quantification~~
- 5) ~~Extensionalism~~
- 6) ~~Rejection of second-order Logic~~
- 7) Rejection of analyticity
- 8) Ontological indifference
- 9) Rejection of first-order modal logic

Step Two

Rejection of second-order logic (6) is a consequence of unrestricted quantification (4) and extensionalism (5)

- It is well known, because it was the main cause of the contradiction Russell has found on Frege's system, that the conjunction of these three following assumptions is contradictory. (Potter, 2004, 300):

Step Two

Rejection of second-order logic (6) is a consequence of unrestricted quantification (4) and extensionalism (5)

- It is well known, because it was the main cause of the contradiction Russell has found on Frege's system, that the conjunction of these three following assumptions is contradictory. (Potter, 2004, 300):
 - (a) second-order logic;
 - (b) Frege's Basic Law V;
 - (c) the assumption of a single and unrestricted domain of quantification.

Step Two

Rejection of second-order logic (6) is a consequence of unrestricted quantification (4) and extensionalism (5)

- It is well known, because it was the main cause of the contradiction Russell has found on Frege's system, that the conjunction of these three following assumptions is contradictory. (Potter, 2004, 300):
 - (a) second-order logic;
 - (b) Frege's Basic Law V;
 - (c) the assumption of a single and unrestricted domain of quantification.
- Frege's Basic Law V is just a formalized version of extensionalism (5) suitable to his notation, and (c) is exactly our thesis (4).

Step Two

Rejection of second-order logic (6) is a consequence of unrestricted quantification (4) and extensionalism (5)

- It is well known, because it was the main cause of the contradiction Russell has found on Frege's system, that the conjunction of these three following assumptions is contradictory. (Potter, 2004, 300):
 - (a) second-order logic;
 - (b) Frege's Basic Law V;
 - (c) the assumption of a single and unrestricted domain of quantification.
- Frege's Basic Law V is just a formalized version of extensionalism (5) suitable to his notation, and (c) is exactly our thesis (4).
- Then, the acceptance, by Quine, of extensionalism (5) and unrestricted quantification (4) forces him to reject second-order logic (6), under the threat of contradiction. Then: (4), (5) \longrightarrow (6)

Step Three

Rejection of analyticity (7), ontological indifference (8) and rejection of first-order modal logic (9) are consequences of ontological formalism (1) and extensionalism (5)

- 1) **Ontological formalism**
- 2) Naturalism
- 3) Univocity of existence
- 4) ~~Unrestricted quantification~~
- 5) **Extensionalism**
- 6) ~~Rejection of second-order Logic~~
- 7) **Rejection of analyticity**
- 8) **Ontological indifference**
- 9) **Rejection of first-order modal logic**

Here, three steps are together, because there is a single main argument for all them.

Step Three

Rejection of analyticity (7), ontological indifference (8) and rejection of first-order modal logic (9) are consequences of ontological formalism (1) and extensionalism (5)

- This is the main and longer step of our argument. To go through it we have to deal with Quine's famous notion of **ontological commitment**.

Step Three

Rejection of analiticity (7), ontological indifference (8) and rejection of first-order modal logic (9) are consequences of ontological formalism (1) and extensionalism (5)

- This is the main and longer step of our argument. To go through it we have to deal with Quine's famous notion of **ontological commitment**.
- The ontological commitments of a theory are the entities it assumes as existing and, according to Quine...

Step Three

Rejection of analiticity (7), ontological indifference (8) and rejection of first-order modal logic (9) are consequences of ontological formalism (1) and extensionalism (5)

- This is the main and longer step of our argument. To go through it we have to deal with Quine's famous notion of **ontological commitment**.
- The ontological commitments of a theory are the entities it assumes as existing and, according to Quine...

Quine(1953) - Logic and the reification of universals

...entities of a given sort are assumed by a theory if and only if some of them must be counted among the values of the variables in order that the statements affirmed in the theory be true.

Step Three (1), (5) \longrightarrow (7), (8), (9)

All ontologies are extensional

- But, since there are no variables in natural language, talking about values of variables of a theory presupposes it to be regimented in a formal language.

Step Three (1), (5) \longrightarrow (7), (8), (9)

All ontologies are extensional

- But, since there are no variables in natural language, talking about values of variables of a theory presupposes it to be regimented in a formal language.
- Such a language is, for Quine, the language of first-order classical logic enriched with the membership relation ' \in ' of his set theory NF.

Step Three (1), (5) \longrightarrow (7), (8), (9)

All ontologies are extensional

- But, since there are no variables in natural language, talking about values of variables of a theory presupposes it to be regimented in a formal language.
- Such a language is, for Quine, the language of first-order classical logic enriched with the membership relation ' \in ' of his set theory NF.
- Because of Quine's extensionalism (5), all regimented theories are extensional.

Step Three (1), (5) \rightarrow (7), (8), (9)

All ontologies are extensional

- But, since there are no variables in natural language, talking about values of variables of a theory presupposes it to be regimented in a formal language.
- Such a language is, for Quine, the language of first-order classical logic enriched with the membership relation ‘ \in ’ of his set theory NF.
- Because of Quine’s extensionalism (5), all regimented theories are extensional.
- Then, all entities among the values of the variables of all theories on Quine’s approach respect extensionality. We can call them **extensional entities**.

Step Three (1), (5) \rightarrow (7), (8), (9)

All ontologies are extensional

- But, since there are no variables in natural language, talking about values of variables of a theory presupposes it to be regimented in a formal language.
- Such a language is, for Quine, the language of first-order classical logic enriched with the membership relation ‘ \in ’ of his set theory NF.
- Because of Quine’s extensionalism (5), all regimented theories are extensional.
- Then, all entities among the values of the variables of all theories on Quine’s approach respect extensionality. We can call them **extensional entities**.
- Then, by (1), all ontologies of all theories that are accepted on Quine’s approach are composed by extensional entities. We can also call them **extensional ontologies**.

Step Three (1), (5) \longrightarrow (7), (8), (9)

Even when all ontologies are extensional, ontological commitments aren't

- Probably Quine thought that if all ontologies are extensional, then ontological commitments should also be extensional, afterwards, according to his definition, they are just those values of variables who are required for the truth of the theory's statements.

Step Three (1), (5) \rightarrow (7), (8), (9)

Even when all ontologies are extensional, ontological commitments aren't

- Probably Quine thought that if all ontologies are extensional, then ontological commitments should also be extensional, afterwards, according to his definition, they are just those values of variables who are required for the truth of the theory's statements.
- However, values of variables are concerned only the theory and need not be relativized. Their intelligibility requires no metatheory. To this extent, Quine's precaution ensures their extensionality.

Step Three (1), (5) \rightarrow (7), (8), (9)

Even when all ontologies are extensional, ontological commitments aren't

- Probably Quine thought that if all ontologies are extensional, then ontological commitments should also be extensional, afterwards, according to his definition, they are just those values of variables who are required for the truth of the theory's statements.
- However, values of variables are concerned only the theory and need not be relativized. Their intelligibility requires no metatheory. To this extent, Quine's precaution ensures their extensionality.
- On the other hand, discourses on ontological commitments occur in ontological debates whose reasoning demands a metatheory with more sophisticated formal tools than Quine allows for theories themselves.

Step Three (1), (5) \rightarrow (7), (8), (9)

Even when all ontologies are extensional, ontological commitments aren't

- Probably Quine thought that if all ontologies are extensional, then ontological commitments should also be extensional, afterwards, according to his definition, they are just those values of variables who are required for the truth of the theory's statements.
- However, values of variables are concerned only the theory and need not be relativized. Their intelligibility requires no metatheory. To this extent, Quine's precaution ensures their extensionality.
- On the other hand, discourses on ontological commitments occur in ontological debates whose reasoning demands a metatheory with more sophisticated formal tools than Quine allows for theories themselves.
- In ontological debates we have to be able to talk of supposed entities assumed by a theory, that may not exist. And there is no way to give an appropriate extensional account on these supposed entities.

Step Three (1), (5) \longrightarrow (7), (8), (9)

Ontological commitments aren't values of variables either classes of them

- When I say that a theory T is ontologically committed with angels, I'm not talking about angels themselves, after all they may not exist.

Step Three (1), (5) \rightarrow (7), (8), (9)

Ontological commitments aren't values of variables either classes of them

- When I say that a theory T is ontologically committed with angels, I'm not talking about angels themselves, after all they may not exist.
- Instead, I'm talking about **concepts, intensions, meanings** of angels.

Step Three (1), (5) \rightarrow (7), (8), (9)

Ontological commitments aren't values of variables either classes of them

- When I say that a theory T is ontologically committed with angels, I'm not talking about angels themselves, after all they may not exist.
- Instead, I'm talking about **concepts, intensions, meanings** of angels.
- And, as Cartwright (1954), Scheffler and Chomsky (1958), Parsons (1967), Jubien (1972), Chateaubriand (2003) and others have shown, there is no extensional way to account this difference.

Step Three (1), (5) \rightarrow (7), (8), (9)

Ontological commitments aren't values of variables either classes of them

- When I say that a theory T is ontologically committed with angels, I'm not talking about angels themselves, after all they may not exist.
- Instead, I'm talking about **concepts, intensions, meanings** of angels.
- And, as Cartwright (1954), Scheffler and Chomsky (1958), Parsons (1967), Jubien (1972), Chateaubriand (2003) and others have shown, there is no extensional way to account this difference.
- Extensional entities are related to the things themselves, while intensional entities, those not manageable by extensional theories, are related to concepts, meanings, intensions.

Step Three (1), (5) \rightarrow (7), (8), (9)

Ontological commitments aren't values of variables either classes of them

- When I say that a theory T is ontologically committed with angels, I'm not talking about angels themselves, after all they may not exist.
- Instead, I'm talking about **concepts, intensions, meanings** of angels.
- And, as Cartwright (1954), Scheffler and Chomsky (1958), Parsons (1967), Jubien (1972), Chateaubriand (2003) and others have shown, there is no extensional way to account this difference.
- Extensional entities are related to the things themselves, while intensional entities, those not manageable by extensional theories, are related to concepts, meanings, intensions.
- Therefore, although regimentation resources allowed by Quine ensure that ontologies of all regimented theories are extensional, still the notion of ontological commitment will not be.

Step Three (1), (5) \rightarrow (7), (8), (9)

Ontological commitments: “Just a loose way of talking”

- It is exactly for this same reason that Quine rejects first-order modal logic (9). He would reject whatever logic would allow quantification into the scope of non-truth-functional operators, like the modal ones, because there is no extensional way to deal with it.

Step Three (1), (5) \rightarrow (7), (8), (9)

Ontological commitments: “Just a loose way of talking”

- It is exactly for this same reason that Quine rejects first-order modal logic (9). He would reject whatever logic would allow quantification into the scope of non-truth-functional operators, like the modal ones, because there is no extensional way to deal with it.
- Perhaps because he realized that ontological commitments are not extensional, after the end of the sixties Quine simply stopped talking about ontological commitments.

Step Three (1), (5) \rightarrow (7), (8), (9)

Ontological commitments: “Just a loose way of talking”

- It is exactly for this same reason that Quine rejects first-order modal logic (9). He would reject whatever logic would allow quantification into the scope of non-truth-functional operators, like the modal ones, because there is no extensional way to deal with it.
- Perhaps because he realized that ontological commitments are not extensional, after the end of the sixties Quine simply stopped talking about ontological commitments.
- He didn't explicitly reject the notion or change his view on the subject, but, as suggested by Chateaubriand (2003), he regarded the discourse on ontological commitments as **just a way of talking**.

Step Three (1), (5) \rightarrow (7), (8), (9)

Ontological commitments: “Just a loose way of talking”

- It is exactly for this same reason that Quine rejects first-order modal logic (9). He would reject whatever logic would allow quantification into the scope of non-truth-functional operators, like the modal ones, because there is no extensional way to deal with it.
- Perhaps because he realized that ontological commitments are not extensional, after the end of the sixties Quine simply stopped talking about ontological commitments.
- He didn't explicitly reject the notion or change his view on the subject, but, as suggested by Chateaubriand (2003), he regarded the discourse on ontological commitments as **just a way of talking**.
- If discourses about ontological commitments require intensional contexts, then these discourses can't be regimented in his canonical notation and therefore they are not theoretical. They are, at best, just a loose way of talking.

Step Three (1), (5) \rightarrow (7), (8), (9)

Where commitment lacks, indifference stacks

- But, this is serious to Quine. The notion of ontological commitment was the main tool he designed to ensure rationality to ontological debates.

Step Three (1), (5) \rightarrow (7), (8), (9)

Where commitment lacks, indifference stacks

- But, this is serious to Quine. The notion of ontological commitment was the main tool he designed to ensure rationality to ontological debates.
- So, giving up ontological commitment is to abandon the possibility of presenting a rational and conclusive philosophical argument that decides on alternative ontologies.

Step Three (1), (5) \rightarrow (7), (8), (9)

Where commitment lacks, indifference stacks

- But, this is serious to Quine. The notion of ontological commitment was the main tool he designed to ensure rationality to ontological debates.
- So, giving up ontological commitment is to abandon the possibility of presenting a rational and conclusive philosophical argument that decides on alternative ontologies.
- No wonder that the ostracism Quine put the notion of ontological commitment began in the same period in which he proposed his views on the **inscrutability of reference** and **ontological relativity**.

Step Three (1), (5) \rightarrow (7), (8), (9)

Where commitment lacks, indifference stacks

- But, this is serious to Quine. The notion of ontological commitment was the main tool he designed to ensure rationality to ontological debates.
- So, giving up ontological commitment is to abandon the possibility of presenting a rational and conclusive philosophical argument that decides on alternative ontologies.
- No wonder that the ostracism Quine put the notion of ontological commitment began in the same period in which he proposed his views on the **inscrutability of reference** and **ontological relativity**.
- As his famous proxy function argument has settled, in many cases “*there can be no evidence for one ontology over against another*”.

Step Three (1), (5) \rightarrow (7), (8), (9)

Where commitment lacks, indifference stacks

- But, this is serious to Quine. The notion of ontological commitment was the main tool he designed to ensure rationality to ontological debates.
- So, giving up ontological commitment is to abandon the possibility of presenting a rational and conclusive philosophical argument that decides on alternative ontologies.
- No wonder that the ostracism Quine put the notion of ontological commitment began in the same period in which he proposed his views on the **inscrutability of reference** and **ontological relativity**.
- As his famous proxy function argument has settled, in many cases *“there can be no evidence for one ontology over against another”*.
- Without commitment, what remains is indifference.

Step Three (1), (5) \rightarrow (7), (8), (9)

Extensionalist Scruples: what a heavy burden!

- So, Quine's entrenched "extensionalist scruples" (5), together with his ontological formalism (1) are responsible not only for his rejection of first-order modal logic (9).

Step Three (1), (5) \longrightarrow (7), (8), (9)

Extensionalist Scruples: what a heavy burden!

- So, Quine's entrenched "extensionalist scruples" (5), together with his ontological formalism (1) are responsible not only for his rejection of first-order modal logic (9).
- They are also the reason why he lost interest in the notion of ontological commitment and, as a consequence, adopted a thesis of ontological indifference (8).

Step Three (1), (5) \rightarrow (7), (8), (9)

Extensionalist Scruples: what a heavy burden!

- So, Quine's entrenched "extensionalist scruples" (5), together with his ontological formalism (1) are responsible not only for his rejection of first-order modal logic (9).
- They are also the reason why he lost interest in the notion of ontological commitment and, as a consequence, adopted a thesis of ontological indifference (8).
- Not only that, extensionalism is also a major motivation for Quine to reject the distinction between analytic and synthetic judgments (7). According to his famous arguments from "Two Dogmas of Empiricism", such a distinction would depend on the establishment of a theory of meaning founded on a notion of synonymy whose intelligibility would be extensionally unscrupulous by requiring intensional contexts. Then: (1), (5) \rightarrow (7), (8), (9)

Step Four

Extensionalism (5) is a consequence of ontological formalism (1) and univocity of existence (3)

- 1) Ontological formalism
- 2) Naturalism
- 3) Univocity of existence
- 4) ~~Unrestricted quantification~~
- 5) Extensionalism
- 6) ~~Rejection of second-order Logic~~
- 7) ~~Rejection of analyticity~~
- 8) ~~Ontological indifference~~
- 9) ~~Rejection of first-order modal logic~~

Step Four

Extensionalism (5) is a consequence of
ontological formalism (1) and univocity of existence (3)

- Why Quine advocates so fundamentally this demanding thesis of extensionalism, rejecting any notion that contravenes it?

Step Four

Extensionalism (5) is a consequence of ontological formalism (1) and univocity of existence (3)

- Why Quine advocates so fundamentally this demanding thesis of extensionalism, rejecting any notion that contravenes it?
- Abandoning extensionalism demands dealing with intensional contexts, and all formal ways to do that will require at least one of these two resources:

Step Four

Extensionalism (5) is a consequence of ontological formalism (1) and univocity of existence (3)

- Why Quine advocates so fundamentally this demanding thesis of extensionalism, rejecting any notion that contravenes it?
- Abandoning extensionalism demands dealing with intensional contexts, and all formal ways to do that will require at least one of these two resources:
 - (a) **Higher-order quantification** along with the **typing of variables** and the irreconcilable separation of distinct domains of quantification that are necessary to account both extensional and intensional entities, and also avoid Russell's paradox.

Step Four

Extensionalism (5) is a consequence of ontological formalism (1) and univocity of existence (3)

- Why Quine advocates so fundamentally this demanding thesis of extensionalism, rejecting any notion that contravenes it?
- Abandoning extensionalism demands dealing with intensional contexts, and all formal ways to do that will require at least one of these two resources:
 - (a) **Higher-order quantification** along with the **typing of variables** and the irreconcilable separation of distinct domains of quantification that are necessary to account both extensional and intensional entities, and also avoid Russell's paradox.
 - (b) **Non-truth-functional operators** whose occurrence in formulas can introduce contexts of referential opacity through quantification into their scopes, as in ' $\exists x \Box P(x)$ '.

Step Four (1), (3) \longrightarrow (5)

Extensionalism is required by univocity of being

- Alternative (a) is a direct violation of unrestricted quantification (4), therefore, according to step 1 ((1), (3) \rightarrow (4)), it violates at least one of its premises: theses (1) or (3).

Step Four (1), (3) \rightarrow (5)

Extensionalism is required by univocity of being

- Alternative (a) is a direct violation of unrestricted quantification (4), therefore, according to step 1 ((1), (3) \rightarrow (4)), it violates at least one of its premises: theses (1) or (3).
- Alternative (b) also violates (1) or (3) because under hipotesis (1), quantification into the scope of a non-truth-functional operator precludes the possibility of interpreting it as a *de-dicto* operator, applied to propositions or linguistic acts, and forces it to be interpreted as *de-re*.

Step Four (1), (3) \rightarrow (5)

Extensionalism is required by univocity of being

- Alternative (a) is a direct violation of unrestricted quantification (4), therefore, according to step 1 ((1), (3) \rightarrow (4)), it violates at least one of its premises: theses (1) or (3).
- Alternative (b) also violates (1) or (3) because under hipotesis (1), quantification into the scope of a non-truth-functional operator precludes the possibility of interpreting it as a *de-dicto* operator, applied to propositions or linguistic acts, and forces it to be interpreted as *de-re*.
- But a non-truth-functional *de-re* operator is a modalizer that affects not a linguistic act, but the things themselves which are the values of the variables whose quantification crosses its scope.

Step Four (1), (3) \longrightarrow (5)

Extensionalism is required by univocity of being

Mumb = "monster under my bed" 😊

- In ' $\exists x \diamond \text{Mumb}(x)$ ', as the quantification ' $\exists x$ ' stands before the modal operator ' \diamond ', then the value of ' x ' affected by ' \diamond ' in ' $\diamond \text{Mumb}(x)$ ' is already picked among the existing things.

Step Four (1), (3) \longrightarrow (5)

Extensionalism is required by univocity of being

- In ' $\exists x \diamond \text{Mumb}(x)$ ', as the quantification ' $\exists x$ ' stands before the modal operator ' \diamond ', then the value of ' x ' affected by ' \diamond ' in ' $\diamond \text{Mumb}(x)$ ' is already picked among the existing things.
- Under this alternative, beliefs, possibilia, concepts, monsters under my bed become as real things as any other possible value of a variable.

Step Four (1), (3) \rightarrow (5)

Extensionalism is required by univocity of being

- In ' $\exists x \diamond \text{Mumb}(x)$ ', as the quantification ' $\exists x$ ' stands before the modal operator ' \diamond ', then the value of ' x ' affected by ' \diamond ' in ' $\diamond \text{Mumb}(x)$ ' is already picked among the existing things.
- Under this alternative, beliefs, possibilia, concepts, monsters under my bed become as real things as any other possible value of a variable.
- But then we need multiple senses of existence, because a non-actual but possible existent monster under my bed can't share the same sense of existence as you or me or the number seven.

Step Four (1), (3) \longrightarrow (5)

Extensionalism is required by univocity of being

- In ' $\exists x \diamond \text{Mumb}(x)$ ', as the quantification ' $\exists x$ ' stands before the modal operator ' \diamond ', then the value of ' x ' affected by ' \diamond ' in ' $\diamond \text{Mumb}(x)$ ' is already picked among the existing things.
- Under this alternative, beliefs, possibilia, concepts, monsters under my bed become as real things as any other possible value of a variable.
- But then we need multiple senses of existence, because a non-actual but possible existent monster under my bed can't share the same sense of existence as you or me or the number seven.
- Then, whatever formal alternative we choose to deal with non-extensional theories will violate either ontological formalism (1) or the univocity of existence (3). Therefore: (1), (3) \longrightarrow (5)

Step Five

Univocity of Existence (3) is consequence of ontological formalism (1) and naturalism (2)

- 1) Ontological formalism
- 2) Naturalism
- 3) Univocity of existence
- 4) ~~Unrestricted quantification~~
- 5) ~~Extensionalism~~
- 6) ~~Rejection of second-order Logic~~
- 7) ~~Rejection of analyticity~~
- 8) ~~Ontological indifference~~
- 9) ~~Rejection of first-order modal logic~~

Step Five

Univocity of Existence (3) is consequence of ontological formalism (1) and naturalism (2)

- We can interpret that violation of thesis (3) contradicts naturalism.

Step Five

Univocity of Existence (3) is consequence of ontological formalism (1) and naturalism (2)

- We can interpret that violation of thesis (3) contradicts naturalism.
- The admission of distinct ways of being that could be addressed by different sorts of variables confined to distinct types of quantifiers, which therefore would not be absolutely generic, opens space for a fundamental separation between philosophy and the rest of science.

Step Five

Univocity of Existence (3) is consequence of ontological formalism (1) and naturalism (2)

- We can interpret that violation of thesis (3) contradicts naturalism.
- The admission of distinct ways of being that could be addressed by different sorts of variables confined to distinct types of quantifiers, which therefore would not be absolutely generic, opens space for a fundamental separation between philosophy and the rest of science.
- While to science would correspond the sense of being connected to individuals, actual beings and extensional abstractions, to philosophy would fit the sense of being connected to intensional contexts, meanings, and non-actual universes.

Step Five

Univocity of Existence (3) is consequence of ontological formalism (1) and naturalism (2)

- We can interpret that violation of thesis (3) contradicts naturalism.
- The admission of distinct ways of being that could be addressed by different sorts of variables confined to distinct types of quantifiers, which therefore would not be absolutely generic, opens space for a fundamental separation between philosophy and the rest of science.
- While to science would correspond the sense of being connected to individuals, actual beings and extensional abstractions, to philosophy would fit the sense of being connected to intensional contexts, meanings, and non-actual universes.
- The incommunicability between the domains of quantification could protect and insulate philosophy in an inadmissible “*cosmic exile*”.

Step Five (1), (2) \rightarrow (3)

Univocity of existence is required by naturalism

- For Quine there is no place for philosophy outside the same conceptual scheme we use to do science.

Step Five (1), (2) \rightarrow (3)

Univocity of existence is required by naturalism

- For Quine there is no place for philosophy outside the same conceptual scheme we use to do science.
- As much as (and for the same reasons that) we can change our scientific theories and paradigms, we can also change our philosophical claims.

Step Five (1), (2) \rightarrow (3)

Univocity of existence is required by naturalism

- For Quine there is no place for philosophy outside the same conceptual scheme we use to do science.
- As much as (and for the same reasons that) we can change our scientific theories and paradigms, we can also change our philosophical claims.
- There is no analyticity nor *a priori-ness* protecting philosophical claims from possible revision.

Step Five (1), (2) \rightarrow (3)

Univocity of existence is required by naturalism

- For Quine there is no place for philosophy outside the same conceptual scheme we use to do science.
- As much as (and for the same reasons that) we can change our scientific theories and paradigms, we can also change our philosophical claims.
- There is no analyticity nor *a priori-ness* protecting philosophical claims from possible revision.
- But if we allow multiple modes of being, if we give up the univocity of existence, then we open room for this kind of separation.

Step Five (1), (2) \rightarrow (3)

Univocity of existence is required by naturalism

- For Quine there is no place for philosophy outside the same conceptual scheme we use to do science.
- As much as (and for the same reasons that) we can change our scientific theories and paradigms, we can also change our philosophical claims.
- There is no analyticity nor *a priori-ness* protecting philosophical claims from possible revision.
- But if we allow multiple modes of being, if we give up the univocity of existence, then we open room for this kind of separation.
- The realm of intensional beings, for instance, would be untouchable by recalcitrant empirical observations. It would demand another way of thinking, another conceptual scheme, which is forbidden by Quine's naturalism. Then: (1), (2) \rightarrow (3)

Conclusion – How tenable is formal naturalism?

- 1) **Ontological formalism**
- 2) **Naturalism**
- 3) ~~Univocity of existence~~
- 4) ~~Unrestricted quantification~~
- 5) ~~Extensionalism~~
- 6) ~~Rejection of second-order Logic~~
- 7) ~~Rejection of analyticity~~
- 8) ~~Ontological indifference~~
- 9) ~~Rejection of first-order modal logic~~

Let's call **formal naturalism** the position which takes (1) and (2) as first principles.

We have just seen that all theses from (3) to (9) are consequences of formal naturalism.

Conclusion – How tenable is formal naturalism?

- 1) **Ontological formalism**
- 2) **Naturalism**
- 3) ~~Univocity of existence~~
- 4) ~~Unrestricted quantification~~
- 5) ~~Extensionalism~~
- 6) ~~Rejection of second-order Logic~~
- 7) ~~Rejection of analyticity~~
- 8) ~~Ontological indifference~~
- 9) ~~Rejection of first-order modal logic~~

Let's call **formal naturalism** the position which takes (1) and (2) as first principles.

We have just seen that all theses from (3) to (9) are consequences of formal naturalism.

I see formal naturalism as an influential position having controversial consequences (like (7), (8), (9)). This uneasy situation raises a question:

Conclusion – How tenable is formal naturalism?

- 1) **Ontological formalism**
- 2) **Naturalism**
- 3) ~~Univocity of existence~~
- 4) ~~Unrestricted quantification~~
- 5) ~~Extensionalism~~
- 6) ~~Rejection of second-order Logic~~
- 7) ~~Rejection of analyticity~~
- 8) ~~Ontological indifference~~
- 9) ~~Rejection of first-order modal logic~~

Let's call **formal naturalism** the position which takes (1) and (2) as first principles.

We have just seen that all theses from (3) to (9) are consequences of formal naturalism.

I see formal naturalism as an influential position having controversial consequences (like (7), (8), (9)). This uneasy situation raises a question:

How tenable is formal naturalism?

Conclusion – How tenable is formal naturalism?

- 1) **Ontological formalism**
- 2) **Naturalism**
- 3) ~~Univocity of existence~~
- 4) ~~Unrestricted quantification~~
- 5) ~~Extensionalism~~
- 6) ~~Rejection of second-order Logic~~
- 7) ~~Rejection of analyticity~~
- 8) ~~Ontological indifference~~
- 9) ~~Rejection of first-order modal logic~~

Let's call **formal naturalism** the position which takes (1) and (2) as first principles.

We have just seen that all theses from (3) to (9) are consequences of formal naturalism.

I see formal naturalism as an influential position having controversial consequences (like (7), (8), (9)). This uneasy situation raises a question:

How tenable is formal naturalism?

It is as tenable as its consequences, theses (3) to (9)! Ok, but those are too diverse and somewhat technical theses. Quine, himself, gives us a better answer.

Conclusion – How tenable is formal naturalism?

the case of ontological commitment...

- As we have seen in the case of ontological commitments, it is not that easy to constrain our philosophical discourses to the same conceptual scheme Quine has devised for science and knowledge in general.

Conclusion – How tenable is formal naturalism?

the case of ontological commitment...

- As we have seen in the case of ontological commitments, it is not that easy to constrain our philosophical discourses to the same conceptual scheme Quine has devised for science and knowledge in general.
- Even under his austere regimentation requirements, intensionality and the need for separation of modes of being shows up in most of the philosophical discourses we engage.

Conclusion – How tenable is formal naturalism?

the case of ontological commitment...

- As we have seen in the case of ontological commitments, it is not that easy to constrain our philosophical discourses to the same conceptual scheme Quine has devised for science and knowledge in general.
- Even under his austere regimentation requirements, intensionality and the need for separation of modes of being shows up in most of the philosophical discourses we engage.
- Quine's reaction to this situation was giving up ontological commitments. Whatever can't be extentensionally regimented can't be subject of serious theoretical reflection.

Conclusion – How tenable is formal naturalism?

the case of ontological commitment...

- As we have seen in the case of ontological commitments, it is not that easy to constrain our philosophical discourses to the same conceptual scheme Quine has devised for science and knowledge in general.
- Even under his austere regimentation requirements, intensionality and the need for separation of modes of being shows up in most of the philosophical discourses we engage.
- Quine's reaction to this situation was giving up ontological commitments. Whatever can't be extentensionally regimented can't be subject of serious theoretical reflection.
- We could, therefore, to accuse him of trying to remove from the scope of philosophical considerations legitimate questions that not only should be there, as have been there throughout history.

Conclusion – How tenable is formal naturalism?

Quine's radical commitment to naturalism

- After all, we *conceptualize* and we *mean*. Not only that, we also think, consider, believe, forbid, doubt, theorize, allow, conceive, admit, assume, **commit** and so many other things that lead us to intensional contexts, out of extensionality.

Conclusion – How tenable is formal naturalism?

Quine's radical commitment to naturalism

- After all, we *conceptualize* and we *mean*. Not only that, we also think, consider, believe, forbid, doubt, theorize, allow, conceive, admit, assume, **commit** and so many other things that lead us to intensional contexts, out of extensionality.
- When confronted with such charges, Quine's answer is radical, almost impolite.

Conclusion – How tenable is formal naturalism?

Quine's radical commitment to naturalism

- After all, we *conceptualize* and we *mean*. Not only that, we also think, consider, believe, forbid, doubt, theorize, allow, conceive, admit, assume, **commit** and so many other things that lead us to intensional contexts, out of extensionality.
- When confronted with such charges, Quine's answer is radical, almost impolite.
- It is a stark commitment to naturalism, which justifies us to regard it as his most fundamental thesis and reminds us that, despite having exceeded the ideas of logical positivists in many ways, he kept for himself the same project of philosophy that inspired the investigations of his teacher Carnap and other philosophers of the Vienna Circle:

Conclusion – How tenable is formal naturalism?

Is Quine's answer acceptable?

Quine(1953) - Mr. Strawson on Logical Theory

If certain problems of ontology, say, or modality, or causality, or contrary-to-fact-conditionals, which arise in ordinary language, turn out not to arise in science as reconstituted with the help of formal logic, then those problems have in an important sense been solved: they have been shown not to be implicated in any necessary foundation of science. [...] Philosophy of science is philosophy enough.

Conclusion – How tenable is formal naturalism?

Is Quine's answer acceptable?

Quine(1953) - Mr. Strawson on Logical Theory

*If certain problems of ontology, say, or modality, or causality, or contrary-to-fact-conditionals, which arise in ordinary language, turn out not to arise in science as reconstituted with the help of formal logic, then those problems have in an important sense been solved: they have been shown not to be implicated in any necessary foundation of science. [...]
Philosophy of science is philosophy enough.*

So, the better answer to our question on how tenable is formal naturalism Quine gives us is:

Conclusion – How tenable is formal naturalism?

Is Quine's answer acceptable?

Quine(1953) - Mr. Strawson on Logical Theory

If certain problems of ontology, say, or modality, or causality, or contrary-to-fact-conditionals, which arise in ordinary language, turn out not to arise in science as reconstituted with the help of formal logic, then those problems have in an important sense been solved: they have been shown not to be implicated in any necessary foundation of science. [...]
Philosophy of science is philosophy enough.

So, the better answer to our question on how tenable is formal naturalism Quine gives us is:

Formal naturalism is as much tenable as this *formal* philosophy of science is philosophy enough.

Conclusion – How tenable is formal naturalism?

Is Quine's answer acceptable?

Quine(1953) - Mr. Strawson on Logical Theory

If certain problems of ontology, say, or modality, or causality, or contrary-to-fact-conditionals, which arise in ordinary language, turn out not to arise in science as reconstituted with the help of formal logic, then those problems have in an important sense been solved: they have been shown not to be implicated in any necessary foundation of science. [...]
Philosophy of science is philosophy enough.

So, the better answer to our question on how tenable is formal naturalism Quine gives us is:

Formal naturalism is as much tenable as this *formal* philosophy of science is philosophy enough. **Is it?**

Bibliography

- Alves, D. D. P. (2011). Logic is metaphysics. *Principia: an international journal of epistemology* 15(1), 31–42.
- Cartwright, R. L. (1954). Ontology and the theory of meaning. *Philosophy of Science* 21(4), 316–325.
- Chateaubriand, O. (2003). Quine and ontology. *Principia: an international journal of epistemology* 7(1-2), 41–74.
- Church, A. (1958). Ontological commitment. *The Journal of Philosophy* 55(23), 1008– 1014.
- Jubien, M. (1972). The intensionality of ontological commitment. *Nous* 6(4), 378–387. Parsons, T. (1967). Extensional theories of ontological commitment. *The Journal of Philosophy* 64(14), 446–450.
- Parsons, T. (1967). Extensional theories of ontological commitment. *The Journal of Philosophy* 64(14), 446–450.
- Potter, M. (2004). *Set Theory and its Philosophy: A Critical Introduction*. Oxford University Press.
- Quine, W. v. O. (1951). Ontology and ideology. *Philosophical Studies* 2(1), 11–15.
- Quine, W. v. O. (1953). Mr. strawson on logical theory. *Mind* 62(248), 433–451.
- Quine, W. v. O. (1960). *Word and object*. MIT press.
- Quine, W. v. O. (1963a). Logic and the reification of universals. In *From a Logical Point of View*, pp. 102–129.
- Quine, W. v. O. (1963b). New foundations for mathematical logic. In *From a Logical Point of View*, pp. 80–101.
- Quine, W. v. O. (1963c). On what there is. In *From a Logical Point of View*, pp. 1–19. Quine, W. v. O. (1963d). Reference and modality. In *From a Logical Point of View*, pp. 139–159.
- Quine, W. v. O. (1963e). Two dogmas of empiricism. In *From a Logical Point of View*, pp. 20–46.
- Quine, W. v. O. (1981a). On the individuation of attributes. See Quine (1981b), pp. 100–112.
- Quine, W. v. O. (1981b). *Theories and things*. Harvard University Press.
- Quine, W. v. O. (1986). Reply to parsons. pp. 396–403.
- Quine, W. v. O. (1992). Structure and nature. *Journal of Philosophy* 89(1), 5–9.
- Quine, W. v. O. (2008). *Confessions of a Confirmed Extentionalist: And Other Essays*. Harvard University Press.
- Scheffler, I. and N. Chomsky (1958). What is said to be. In *Proceedings of the Aristotelian Society*, Volume 59, pp. 71–82.
- van Inwagen, P. (2009). Being, existence, and ontological commitment. In *Metametaphysics: new essays on the foundations of ontology*, pp. 472–506.

Comments