Ontological realism: A philosophical overview

Adrien Barton
Institut de recherche en informatique de Toulouse (IRIT), CNRS, France

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Outline

• Universal realism
• Scientific realism
• Moderate positions in the debate on scientific realism
• Methodological realism in applied ontology
Outline

• Universal realism
  • Plato’s form theory
  • Aristotle’s category theory
  • The medieval problem of universals

• Scientific realism

• Moderate positions in the debate on scientific realism

• Methodological realism in applied ontology
Plato (424 – 348 BC): Form theory

Forms:
- Mind-independent, real, eternal entities
- Can exist even if uninstantiated
Aristotle (384 – 322 av. JC):
Category theory

• 10 categories: substance, quantity, quality...

• Do those categories describe reality or language?

• Large influence on medieval scholastics (13th-14th century)
The problem of universals

Are there entities that explain similarity between individuals?

<table>
<thead>
<tr>
<th>Position</th>
<th>(Universal) Realism</th>
<th>Nominalism</th>
<th>Conceptualism</th>
</tr>
</thead>
<tbody>
<tr>
<td>How to account for similarity?</td>
<td>Universals</td>
<td>Words</td>
<td>Concepts</td>
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Outline

• Universal realism

• **Scientific realism**
  • Common core
  • Three dimensions of scientific realism
  • Connections between universal realism and scientific realism

• Moderate positions in the debate on scientific realism

• Methodological realism in applied ontology
Scientific realism

• Large variety of definitions

• Common core: Our best scientific theories give true or approximately true descriptions of observable and unobservable aspects of a mind-independent world.

• Scientific anti-realism rejects one (or several) aspect(s) of scientific realism

• Terms to specify:
  • “best”: must include criteria of maturity, being non-ad hoc
  • “observable”: how can it be contrasted with non-observable?
Three dimensions of scientific realism

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<th>Semantic</th>
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Connections between universal realism and scientific realism: The example of David Armstrong (1926 – 2014)

• Endorses universals (but not Plato’s uninstantiated universals)
• Universals are given by physics
• Laws of nature as relations between universals (rather than particulars, to explain counterfactuals)
• Influenced BFO’s ontological realism (with reservations)

Outline

• Universal realism
• Scientific realism
• Moderate positions in the debate on scientific realism
  • Entity realism
  • Structural realism
• Methodological realism in applied ontology
Entity realism


- Does not commit to the truth or approximate truth of theories.

- Commits to the reality of scientific entities in case of “manipulative success”: entities involved in phenomena that can be routinely used to create effects.

- Ian Hacking: “if you can spray them, then they are real.”

- Entity realism might be compatible with some realist positions in applied ontology.
Structural realism


• Origins in Poincaré, Duhem...

• Way to have “the best of both worlds” in the debate about scientific realism:
  • no-miracles argument: the success of science would be miraculous if scientific theories were not at least approximately true
  • pessimistic meta-induction: history of science suggests that our best current scientific theories will be abandoned

• Structural realism: We should epistemically commit ourselves only to the mathematical or structural content of our theories.

• E.g.: Newtonian physics vs. Einsteinian relativity

• Structural realism might be less easily compatible with realist positions in applied ontology.
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Ontological realism as a methodology


- View ontologies as “representations of the reality that is described by science”, to promote:
  - mutual consistency of ontologies over time.
  - that ontologies are aligned with science.
- “Types or universals [...] are to be understood as counterparts in reality of (some of) the general terms used in the formulation of scientific theories”
- “even the metaphysical anti-realist can, we believe, view all putative references to types or universals [...] as mere *façons de parler* about other, more commonplace entities – such as scientists’ beliefs or linguistic usage – and still gain full practical advantage from our methodology”

Endorsement of:
- scientific realism
- universal realism
Non-realist approaches of the ontological realist methodology

• Smith & Ceusters are realist, but one may have a non-realist approach of their realist methodology in the spirit of:

  • **Fictionalism**: Things in the world are and behave *as if* our best scientific theories are true.

  • **The Natural Ontological Attitude**:
    • acceptance of a common core of realist and antirealist attitudes of acceptance of our best scientific theories
    • rejects further metaphysical and epistemological diagnoses to this shared position
Conclusion and open questions

• Overview of:
  • universal realism
  • scientific realism
  • moderate positions in the debate on scientific realism
  • methodological realism.

• Which precise dimensions of realism/anti-realism are endorsed by DOLCE, UFO, GFO, YAMATO and other upper ontologies?

• Practical consequences of such dimensions?
Thank you for your attention!

Adrien Barton
Institut de recherche en informatique de Toulouse (IRIT), CNRS, France

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