Constructivism -v- Realism

Is knowledge a reflection of an outside reality or constructed by us?

MRes Philosophy of Knowledge:
(slides available at http://cfpm.org/mres)
Some Questions!

• Does a jury find out the truth of someone’s guilt or is it only a social process that determines a socially acceptable outcome?
• Can it be determined objectively whether a certain person is a fashion leader?
• Will everyone within a given society agree 100% on what general human rights hold?
  – If not, does this make human rights an entirely subjective matter?
  – If so, does this make human rights an objective fact?
• Can I be mistaken about what group memberships I have?
• Is my self-identity real?
The Central Issues in this Debate

• To what extent do we make/construct our knowledge?
• To what extent does our knowledge reflect an exterior reality?
• If knowledge is constructed who does it and how?
• How much do we rely on social processes of consensus to determine truth?
• Are different kinds of knowledge different with respect to these questions?

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3 Layers of the World?

1. The Real
   - The mechanisms, powers, tendencies etc. which science seeks to discover

2. The Actual
   - Flows or sequences of events which *may* be produced in experiments or elsewhere (presumably as a result of the real)

3. The Observable
   - That part of the actual which happens to be observed
Themes in realism

There are many varieties of “realism”, but all tend to share the following themes:

• There is some sort of fairly straight-forward correspondence between knowledge and truth – e.g. when I state that the red box is on top of the blue box this reflects an objective relation between observed entities

• Reliable, objective truth is obtainable and is, in fact, the only truly valuable truth

• Truth is independent of how we discover it
3 Strengths of Realism

• **A strong form**: there is an objective reality independent of the observer and theories directly reflect this

• **An intermediate form**: there is an objective reality independent of the observer and theories approximate this and are improved over time

• **A weak form**: there is an objective reality in which the observer participates and theories capture some of what is observable of this in approximate ways
Some reasons to be a realist

- Some theories make novel and surprising predictions that turn out to be correct
- Some knowledge does seem to have the same structure as what is observed.
- Realist scientists have produced a lot of knowledge that is undoubtedly useful
- It is often sensible to assume things are objectively and independently real
- Some abstract and seemingly theoretical entities can be systematically manipulated to get intended results (e.g. particles in the LHC)
Constructivism

• Theories/knowledge about the world are *constructed* by us in a creative process (either collectively or individually)

• Thus there is (at least some degree of) choice or contingency about our knowledge

• Reasons for this might include:
  – Observations are insufficient to uniquely determine theory
  – We can only deal with knowledge through a framework which gives it form (language)
  – There is no separate objective reality
Some reasons to be a constructivist

- Many theoretical entities have turned out to be incorrect (even though the models are approximately correct in many aspects)
- In retrospect we can see the biasing effect of culture, assumptions, language etc.
- Theories are rarely constrained down to uniqueness by the evidence
- Doing science involves being creative
- Reformulating is often a useful thing to do
Constructivist/Realist Examples

For each of the examples to the right:

• To what extent is it constructed (compared to being a reflection of some external reality)?
• If constructed how was it constructed?
• Is it knowledge about it that is constructed or the terms we use about it?
• How reliable is it?
• How objective is it?
• Is it falsifiable?
• Can you reformulate it to make it more realist?

• This item is art
• This is a table
• It’s a fashionable to dress as a goth
• I am in debt
• This is a log
• This is money
• This is a £5 note
• I have -£345.45 in my bank account today
• An entrepreneur is creative
Reductionism

• That knowledge in the more complex sciences (e.g. social sciences) can (or will) be shown to be consequences of knowledge in the more “basic” sciences (e.g. biology).
• For example: some of the properties of a cell (and hence an organism) have been successfully explained by the action of biochemical processes (e.g. DNA)
Holism

• That \textit{(some)} phenomena are not reducible to the behaviour/properties of its \textit{parts}

• \textit{“The whole is more than the sum of its parts”}

• For example: that \textit{culture} is not reducible to the psychology of individuals or evolution

• Results in different \textit{kinds} of phenomena

• Difference between \textit{in principle} holism and \textit{in practice} holism
A Hierarchy of the Sciences?

- Geography
- Social Sciences
- Psychology
- Ecology
- Zoology
- Biology
- Chemistry
- Physics

“Complex”

“Fundamental”
Some Uses of Models/Laws/Theories

- Prediction
- Explanation
- Description
- Theoretical
- Analogy/Guidance
- Instruction
- Illustration
- Communication
- Generalisation
Key Terms Unpacked

• **Prediction** – anticipating *unknown* aspects from the known when data is produced

• **Explanation** – finding the reasons why something that is known happened in terms of some mechanisms/tendencies/structures

• **Description** – stating what is known about a situation/entity/event by abstracting a little

• **Theoretical** – the exploration of what might happen given a set of assumptions and simplifications of what is observed
Some Examples

• A set of statistics about how much swing there was between the main parties in each consistency
• The general lessons concluded from looking in detail at what happened and why in 20 particular constituencies by talking to people
• The mathematical model that translates the numbers gained from an exit poll into the number of seats gained in an election
• An analysis of this model to see what margin of error is expected of it
Some Kinds of Laws

• *Phenomenological laws* which capture (or save) the phenomena directly
  – These are literally true but do not explain
• *Explanatory laws* which explain why a phenomena might occur
  – Literally false but explain how things happen
• And “bridging rules” between the two based on culture and practice developed within a discipline
Quick Exercise

• In small groups, come up with a model/theory/law from your own fields that are:
  a. Predictive
  b. Explanatory
  c. Descriptive
  d. Theoretical

• Are there any overlaps?

• Is it always clear which kind their proponents intended them to be?
The Process of a Science?

Theories

Empirical Generalisations

Methods

Hypotheses

Observations

induction

deduction

measurement

making operational
Popper and *falsification*

- Theories are *constructed* in the process of science…
- …but some are *eliminated* due to evidence from the real world.
- Thus the (eventual) realism of the theories depends upon:
  1. That enough of the possible theories are generated to cover all important possibilities
  2. And that the evidence is sufficient to “weed out” the unrepresentative theories
Kuhn and *scientific revolutions*

• Observed that science often progresses in terms of fairly sudden *revolutions* rather than via a gradual *build up* of knowledge

• “Revolutionary science” involves a change in paradigm

• In between revolutions: “*normal science*”

• Effect of “*theoretical spectacles*” where data is selected dependent on paradigm

• Different paradigms are *incommensurable*
Bhaskar and critical realism

• Realist but not reductionist or positivist
• Anything that causes an observable effect is real – causes as tendencies
• Thus intentions of individuals etc. are real
• Argues for the possibility of a social science but does not view science in a limited way
• But whether a social science actually develops is a contingent matter
• A naturalistic position
Social Constructivism

- Knowledge results from a social process
- Whereby some phenomena is constructed as the result of social processes
- Thus (such) knowledge is not necessarily objective across cultures (but may be)
- Often linked to relativism
- E.g. Berger and Luckman – *the Social Construction of Reality* arguing that social reality is socially constructed
Epistemological Constructivism

- Sometimes called “radical” constructivism
- What is commonly called reality is constructed by each individual
- Nothing to be gained in explanatory terms by positing an external reality
- Sometimes linked to linguistic turn and hermeneutics
- E.g. Glaserfeld and mathematics education
Example: Realism/constructivism in housing research

• In 3 groups: (the papers are just to supply you with some ideas/issues if you want to use them)
• Decide what you guess are the main issues in this area
• What knowledge is being argued about here do you think?
• Why do you think it’s such a hot issue in housing research?
• Is the knowledge in these examples constructed or a reflection of reality?
An Analogy with Biological Evolution

• Theories ‘evolve’ in the environment of human society and the world
• Variations are being continually produced
• Theories survive and are propagated depending on their attractiveness to humans (including how useful they are)
• There is a mutual ‘lock-in’ effect due to the formation of knowledge ‘ecologies’
• Theories only reflect reality to the extent that organisms reflect their environment
A (far too) neat picture of knowledge and phenomena
Paradigm Hairballs?

- Qualitative
- Constructivist
- Holist
- Interpretative
- Linguistic
- Collective research
- Sociological
- Descriptive & Explanatory

- Quantitative
- Realist
- Reductionist
- Objective
- Mathematical
- Individual research
- Individualistic
- Theoretical & Predictive

Summary of Session

Two different views of knowledge:

1. **Realist**: As (perhaps imperfect) representations of a reality (perhaps partially) independent of us (possibly as the result of a fallible social process)

2. **Constructivist**: As constructions (by us or society) that are useful to us for interaction (possibly for prediction or explanation) (possibly weakly constrained by observations and interaction with a world)
Related Issues

• Reductionism vs. Holism
• Kinds of constructivism: Epistemological/radical, social constructionism
• Kinds of realism: critical realism, strong realism
• Key issue: how, what and when are aspects of theories/models changed with evidence
• How the ‘tribes’ of science behave
• The different levels and kinds of abstraction: theories, models, data, analogies, etc.
Warning!

• You can’t *make* truth/knowledge to have any particular properties just because that is how you would *want* it.
  – e.g. deciding on a positivist position does not *make* your knowledge certain, objective etc.

• Whatever position you decide you still have to consider the opposing arguments seriously – no ‘straw men’ assumptions

• And most especially taking on board the *difficulties* of your own, chosen position.

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The End

(as usual slides etc. at: http://cfpm.org/mres)