Manchester Metropolitan University

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!

Manchester Metropolitan University

- 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

Manchester Metropolitan University

- 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?

3 Layers of the World?

Manchester Metropolitan University

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

Manchester Metropolitan University

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

Manchester Metropolitan University

- *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

Manchester Metropolitan University

- 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

Manchester Metropolitan University

- 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

Manchester Metropolitan University

- 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

Manchester Metropolitan University

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

Manchester Metropolitan University

- 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)

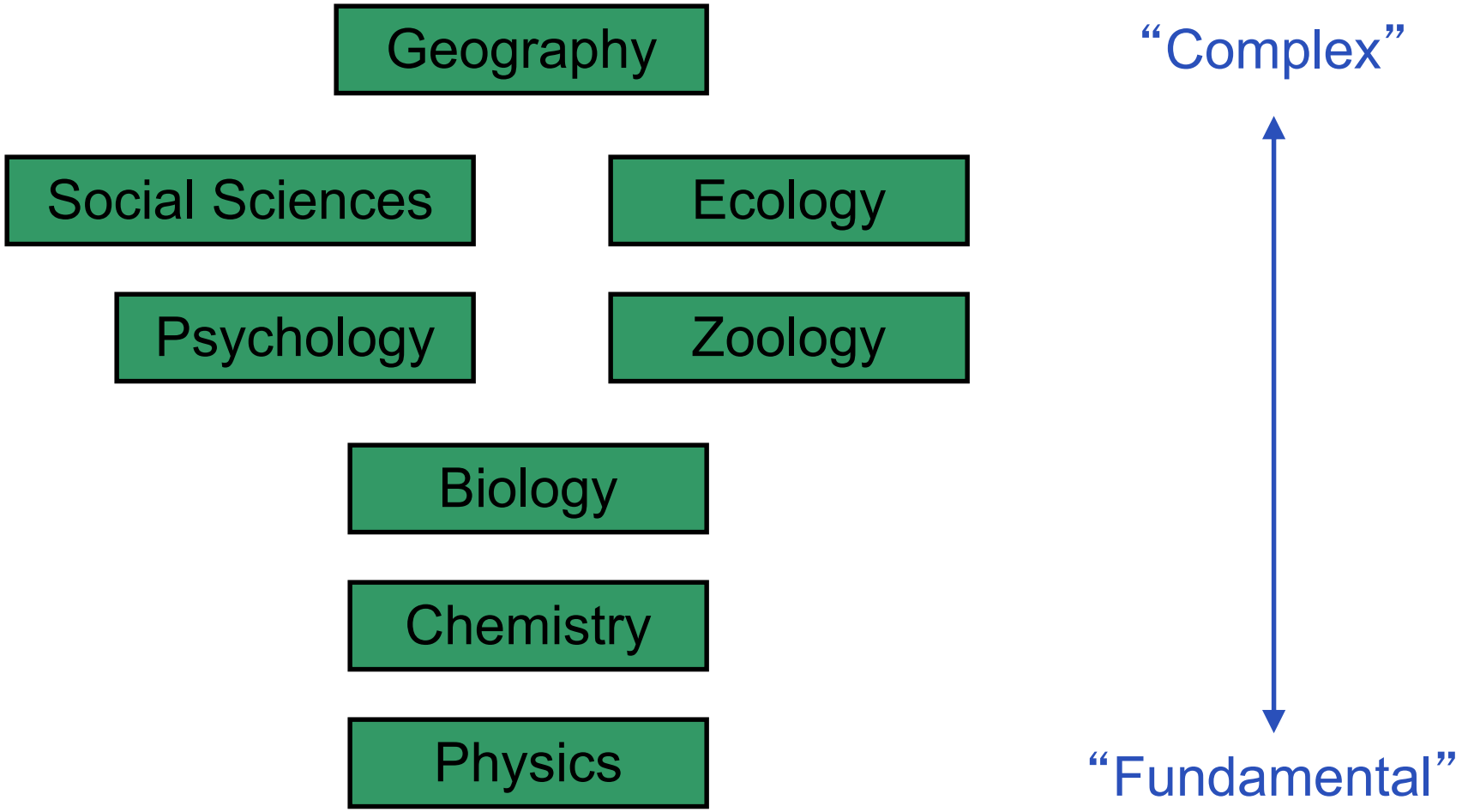
Holism

Manchester Metropolitan University

- That (some) phenomena are not reducible to the behaviour/properties of its parts
- "*The whole is more than the sum of its parts*"
- For example: that *culture* is not reducible to the psychology of individuals or evolution
- Results in different *kinds* of phenomena
- Difference between *in principle* holism and *in practice* holism

A Hierarchy of the Sciences?

Manchester Metropolitan University



Some Uses of Models/Laws/Theories

Manchester Metropolitan University

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

Key Terms Unpacked

Manchester Metropolitan University

- 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

Manchester Metropolitan University

- 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

Manchester Metropolitan University

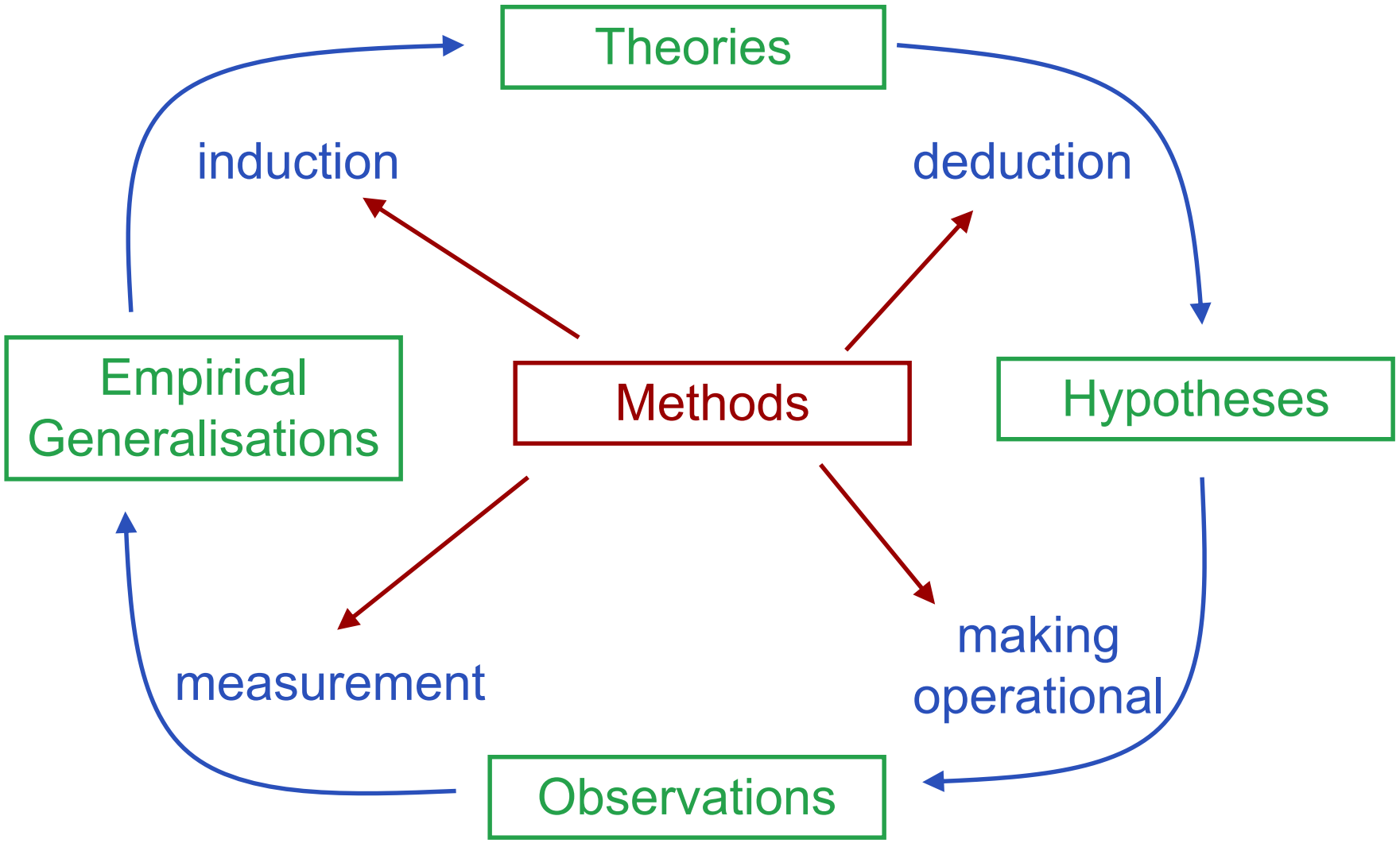
- *Phenomological laws* which capture (or save) the phenomena directly
  - These are literally true but do not explain
- *Explanatory laws* which explain why a phenomena might occur
  - Literally false but explain how things happen
- And "bridging rules" between the two based on culture and practice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

Quick Excercise

Manchester Metropolitan University

- 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?



Popper and *falsification*

Manchester Metropolitan University

- 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*

Manchester Metropolitan University

- 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*

Manchester Metropolitan University

- 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

Manchester Metropolitan University

- 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

Manchester Metropolitan University

- 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

Manchester Metropolitan University

- 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?

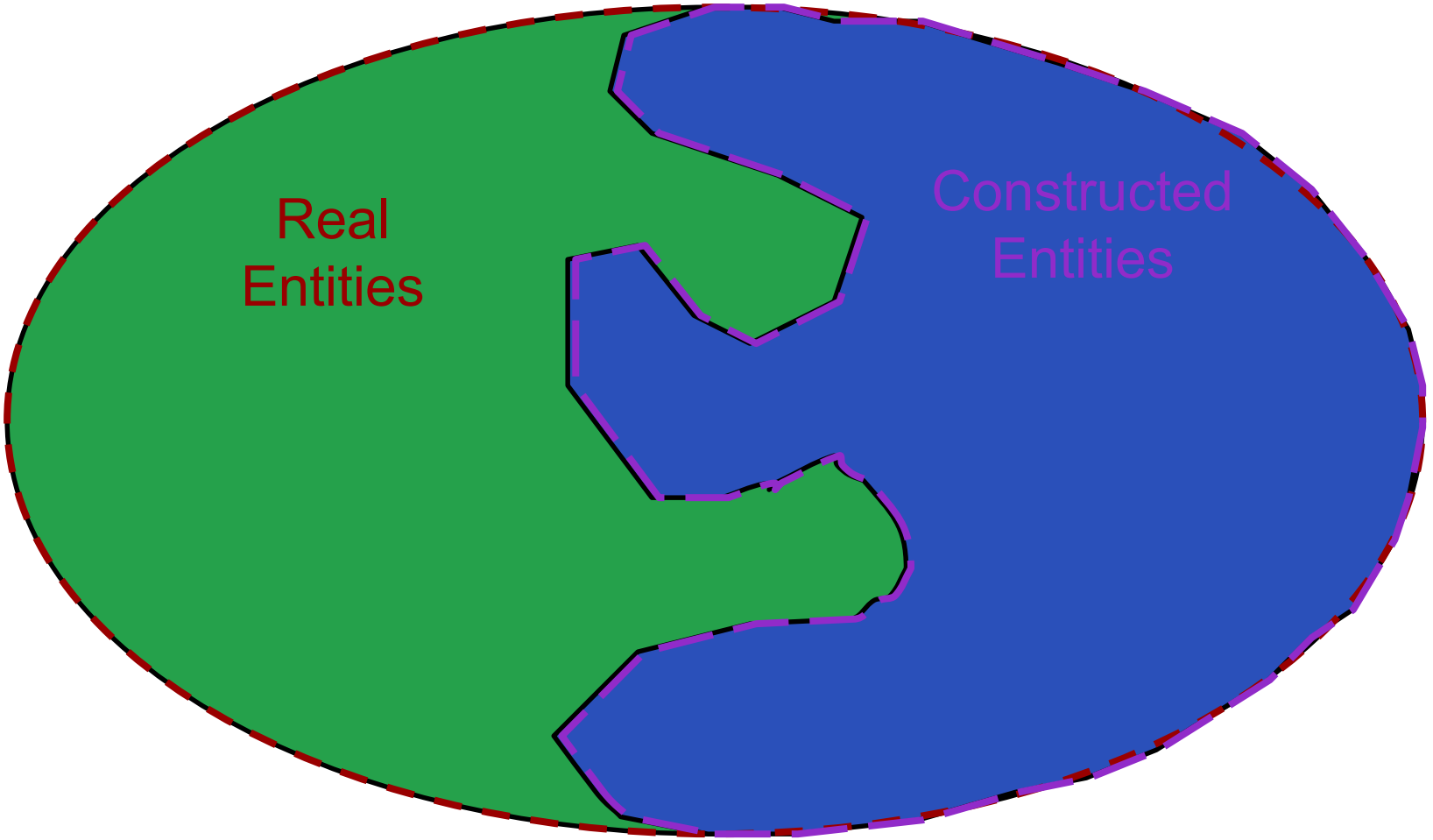
An Analogy with Biological Evolution

Manchester Metropolitan University

- 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

Manchester Metropolitan University



Paradigm Hairballs?

Manchester Metropolitan University

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

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

Summary of Session

Manchester Metropolitan University

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

Manchester Metropolitan University

- 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!

Manchester Metropolitan University

- 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.

The End

Manchester Metropolitan University

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