Week 14

Scientific objectivity

Kuhn, Railton

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Outline

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1 Kuhn on theory choice

Kuhn: Criteria of choice

- Kuhn begins by naming five criteria of choice.
- They are: *accuracy*, *consistency*, *scope*, *simplicity*, and *fruitfulness*.

Question
Explain each of these notions.

- Accuracy is understood not only quantitatively, but also qualitatively.
- Note that accuracy has no logical relation to truth.
- A false theory (assuming the use of 'true' and 'false' is legitimate) may also be accurate. (Explain!)

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Criteria of choice II

- Kuhn observes that the application of these criteria in concrete cases is marred with ambiguities.
- Also, the relative importance of each of them is different on different occasions.
- Illustrations follow from the Ptolemaic/Copernican astronomy.
- But there are, it turns out, also criteria lying outside the sciences (425).
- Notice here the influence of philosophical/theological background of particular scientists (Kepler).

Question
How can theology play any role in theory choice?

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Discovery or justification?

- Kuhn addresses the objection from context of discovery/context of justification.
- The traditional view: an algorithm governs theory choice.
- Kuhn: this view is misled by science textbooks. (*How?*)
- Another issue is the role of so-called 'crucial experiments'.
- These experiments took place mostly after the theory they were supposed to test has already been accepted.

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Convergence of algorithms?

- The critic: as evidence accumulates, individual algorithms of choice converge.
- The algorithm to which they converge is objective.
- Kuhn: such convergence is possible.
- But, the 'subjective' factors will still be present in the ultimate algorithm.
- This response seems too quick and unclear.

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2 Values

Values and rules

- Values can influence choice, but they cannot *dictate* choice.
- Since at the time of the crisis there is more than one theory to choose, the choice cannot be characterised as determined by rules.
- Pragmatic factors feature as values able to influence, but not determine, the actual choice.

Question
What is the difference in saying 'Choice is determined by rules' and 'Choice is determined by values'?

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Sensory experience

- Kuhn: no explanation offered as to why a discipline governed by values would be so successful in prediction and control.
- This is the 'problem of induction'.
- In other words, Kuhn has nothing to say about the argument for *realism*, according to which anti-realism makes scientific success a matter of miracle.

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3 Objectivity

Objective and subjective

- Kuhn contrasts two senses of 'subjective'.
- In one sense it is contrasted with 'objective', in another sense it is contrasted with 'judge-able'.
- I find Kuhn's discussion muddled, if interesting.
- Let me articulate a few relevant (hopefully) points (later we'll discuss another approach by Railton).

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Objectivity: mental states

- My reports about my own mental states, such as 'I am hot', 'I am in pain', may be regarded as objective.
- That is, so far as they accurately describe the facts.
- Well, what is the fact they describe?
- Presumably nothing other than my own mental state.

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Objectivity: concepts

- Somewhat surprisingly, more apparent subjectivity is found in a statement (judgement) such as 'The coin is round.'
- This is not a report about my mental state.
- But it is done with the aid of *my* concept 'roundness'.
- Now the question will be whether I, so to speak, borrowed this concept from the world, or perhaps it is 100% mine, not being in the world at all.
- In the latter case we envisage a possibility that the coin *in reality* is not round.

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Objectivity: judgements

Woody Allen is funny.

- This looks like a judgement about WA.
- But often what I mean to say is: 'I find WA funny.'
- Often I take this report about my preferences to be the only justification for the judgement about WA.
- That is why, on these occasions, you would not be able to argue with me.
- So we would conclude that the original judgement about WA is 'subjective'.
- But, on the other hand, we could try to find general reasons for saying that WA is, or is not, funny.

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Objectivity or subjectivity?

- If there develops any meaningful discussion, then the judgement is objective.
- Objective, as Kuhn says, in essence means discussable.
- However: even if the discussion is fruitful, there is no reason to believe that it will be conducted in total separation from *our own* concepts, preferences, opinions.
- Then how *subjective* is it?

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Partial communication

- In the final page of the article Kuhn addresses the issue of communication between adherents of different paradigms.
- Their communication is imperfect, and there is no choice, but a 'conversion'.
- But the conversion is not arbitrary.
- Adherents of rival paradigms are able to exemplify to each other and compare the technical achievements—i.e. accuracy—provided by their respective theories.

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4 Marxism and objectivity

Marxism and science

- Railton's question is whether a Marxist (or 'Marxish') political theory should be considered a piece of bourgeois ideology (!!).
- Marx writes as a scientist (scientific historian or scientific economist).
- His enquiry is modelled after natural science.
- So he adopts the view that science alone is objective.
- But is this really so?
- Or is this very belief a part of ideology?
- (Here we are not interested in Marxism, even less so than Railton is. We focus on scientific objectivity.)

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Ideology

- Say that ideology is a set of beliefs with special features.
- Beliefs adopted and acted upon reflect concrete interests of a social group.
- Beliefs are legitimated by showing (presumably illicitly) that they are based on normative principles, rather than on the group's interests.
- One purpose of these beliefs is to misrepresent institutions or other social structures as universal.

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Railton on objectivity

- Objectivity is an obscure concept, but a preliminary characterisation could be this.
- Value-free: an enquiry is objective if it does not essentially rest on (ultimately) arbitrary preferences.
- Bias-free: an enquiry is objective if it is examined in the light of evidence alone.
- Intersubjectivity: an enquiry is objective if it can be justified without reference to the particular circumstances of the individuals that pursue it.

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Challenges for scientific objectivity

- What we have learned from Kuhn and Feyerabend undermines the idea that science is objective.
- However, is the belief that science is objective *ideological*?
- The greatest difficulty is to show that this belief serves the interests of a particular social group.
- We can draw a distinction between *intention* and *enabling condition*.
- But at the end, Railton suggests that we simply assume that.

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Self-correction

- A major concern about the objectivity of a given enquiry is the concern that it is conducted based on our contingent condition—not the conditions supplied by the world.
- Our point of view interferes with the way we see the world.
- But the lesson we have learned from philosophy and history of science is that this demand—seeing the world from no particular point of view—is not even coherent.
- Still, this should not entail a denial of objectivity.
- If presented with a choice, we can still adjust our methodological assumptions (our point of view), rather than the data we get in the course of experiments.
- We 'insert ourselves into the causal nexus, operating on the basis of our beliefs and norms.'

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Symptoms of objectivity

- Prediction and control are among the chief values of science.
- But the parameters of their implementation are not dependent on the whims of the scientists.
- They normally generate technological innovation.
- Failure of such innovation will be a sign of theoretical failure.
- Appropriate responses to this kind of failure (that is, some form of theoretical revision) constitutes the objectivity of science.

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