WHAT IS PHILOSOPHY IN THE AGE OF SCIENCE?

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Outline

1. Is philosophy obsolete?
2. Philosophy and science
3. Natural philosophy
4. 3-analysis
5. Explaining mind

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Is Philosophy Obsolete?

1. Philosophy concerns knowledge, reality, and morality.
2. But physics and biology are a better guide to reality, and cognitive science is a better guide to knowledge and morality.
3. So philosophy is dead. (Hawking and Mlodinow, 2010, *The Grand Design*)

Hawking

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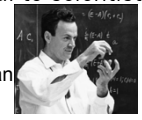
Nasty Quotes

1. Philosophy is to cognitive science what tin cans tied to a car are to a wedding.
2. Philosophy is to science as pornography is to sex.
3. Scientists are explorers, but philosophers are tourists. Philosophy of science is about as useful to scientists as ornithology is to birds

Feynman



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Counter Quotes

Thagard 2009 "Why Cognitive Science Needs Philosophy"

1. Those who ignore philosophy are condemned to repeat it.
2. Those who believe themselves to be exempt from philosophical influence are usually the slaves of some defunct philosopher.

Kant

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Philosophy and Cognitive Science

1. Philosophy is the attempt to answer fundamental questions about knowledge, reality, and morality.
2. Cognitive science is the interdisciplinary investigation of mind and intelligence, embracing psychology, neuroscience, linguistics, philosophy, anthropology, and computer modeling.
3. Possible relations: Philosophy is superior, inferior, continuous, or **interconnected**?

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Approaches to Philosophy

1. Religious: philosophy serves religion (Aquinas).
2. Historical: philosophy discusses the past (Rorty).
3. A priori: philosophy discovers what must be true (Plato, Kant, Frege, Husserl, Kripke).
4. Analytic: philosophy clarifies concepts using logic and language (Moore, Russell < 1919, Wittgenstein, Williamson).
5. Naturalistic: philosophy is interconnected with science (Thales, Epicurus, Aristotle, Hume, Mill, Peirce, Russell > 1920, Quine, ...).

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Philosophy Differs from Science

1. **Generality:** sciences ask specific questions (e.g. What is an atom?) whereas philosophy asks broader questions (e.g. What is matter? How do we know whether atoms exist?).
2. **Normativity:** how the world should be, not just how it is.

These are matters of degree, because excellent scientists bump into general questions, and applied science is normative.

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Science Needs Philosophy

Cutting edge science invariably encounters general epistemological questions (e.g. what justifies a theory) and general metaphysical questions (e.g. what kinds of entities are real).

Human uses of science invariably encounter normative questions (e.g. how should science be used to improve society; how can people think better).

Science and philosophy are more than continuous: they are **interdependent.**

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Natural Philosophy

1. Identify important general and normative questions about knowledge, reality, and morality.
2. Identify a range of answers to these questions.
3. Identify relevant scientific evidence and theory.
4. Select philosophical answers most coherent with science.

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Thought Experiments

1. Use thought experiments to generate hypotheses and show contradictions in opposing views.
2. But thought experiments do not justify *a priori* truths:
   a) Bad source of evidence
   b) Circular
   c) Philosophical intuitions are unreliable

Thagard 2014 "Thought Experiments Considered Harmful"

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Conceptual Analysis

1. Based on empirically false theory of concepts, that they are definable using necessary and sufficient conditions (Murphy 2002, *Big Book of Concepts*).
2. Assumes that everyday concepts are philosophically legitimate.
3. Leads to metaphysical excess (Plato's forms, essences, possible worlds).
4. Leads to epistemological skepticism or obscurantism (Moore's good, Williamson's knowledge as primitive).

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3-Analysis

1. Experimental evidence supports exemplar, typical feature, and explanation-based theories of concepts (Murphy 2002, *Big Book of Concepts*).
2. The semantic pointer theory of concepts provides a unified neural account of concepts (Blouw, Solodkin, Thagard, and Eliasmith (forthcoming).
3. So, to analyze a concept, identify its:
    1. exemplars: standard examples
    2. typical features (prototype, stereotype)
    3. explanatory role: what it explains, and what explains it

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3-Analysis of Philosophy

1. Exemplars: People, e.g. Plato, Aristotle ...
   Questions: what is knowledge, reality, morality? Etc.
2. Typical features: generality, normativity, disagreement ...
3. Explanations:
    1. Philosophy explains why some questions are perennially hard to answer, etc.
    2. The practice of philosophy is explained by the psychological need for people to answer fundamental questions encountered in science and everyday life.

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Experimental Philosophy: Strengths

1. Undermines assumptions of analytic philosophy concerning:
    a) Generality of thought experiment results: cultural dependence.
    b) Reliability of intuitions.
2. Collects evidence about philosophically important phenomena, e.g. Knobe effect (harm->intentional). Knobe (forthcoming): Experimental philosophy is cognitive science.

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Experimental Philosophy: Limitations

1. Limited range of experimental techniques:
    a) Surveys rather than manipulations.
    b) Limited measures, e.g. no reaction times.
    c) Lack of neural experiments: brain scans, etc.
2. Overconfidence in judgments of ordinary people, e.g. Nichols and Roskies on free will. X-phi is too conservative!
3. Superficial, qualitative theories, e.g. Knobe effect explained by deep self, blame validation, counterfactuals.

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Mechanistic Theories in Cognitive Science

1. Processes are explained by identifying mechanisms, i.e. systems of parts whose interactions produce regular changes (Bechtel, Craver, Darden).
2. Computational mechanisms: representations and procedures applied to them generate thinking.
3. Neural mechanisms: neurons and their interactions (excitation, inhibition) across multiple brain areas produce inferences.

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Mechanistic Explanation

How does a bicycle move?

Parts: frame, wheels, gears, chain, pedals,

Structure: e.g. pedal connected to gear.

Interactions: e.g. pedal moves chain.

Changes: e.g. wheels turn.

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Computational Explanation

How does a computer work?

Parts: data structures, e.g. strings, numbers, lists

Structure: data have parts, relations

Interactions: algorithms operate on data

Changes: calculations, inferences

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Psychological Explanation

How does a mind work?

Parts: representations, e.g. concepts, image, rules, analogies, emotions

Structure: representations have parts, relations

Interactions: procedures operate on representations

Changes: inferences

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Neural Explanation

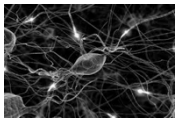
How does a brain work?

Parts: neurons, neural groups, brain areas

Structure: neurons are connected by synapses between axons and dendrites

Interactions: neurons excite and inhibit each other

Changes: inferences are changes in patterns of firing



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Neural Explanations and Philosophy

1. Develop new, evidence-based theories relevant to representation: concepts, images, beliefs, desires, rules, analogy, emotion, intention, will....
2. Develop new theories of inference as transformations of neural representations that perform parallel constraint satisfaction.
3. Consequence: new theory of knowledge as declarative (that), procedural (how) and perceptual (of).

Thagard, *Brain-Mind: From Neurons to Consciousness and Creativity*.

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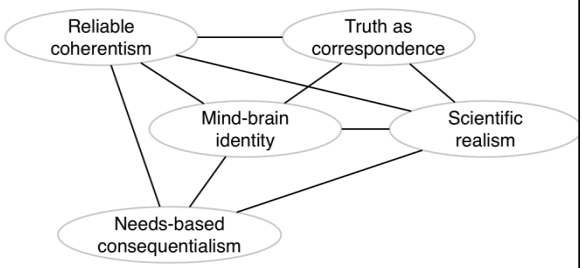
The Coherence of Philosophy



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Conclusions

1. Philosophy can thrive through interaction with cognitive science.
2. Generality and normativity continue to make philosophy crucial.
3. Philosophical views need to change to reflect understanding of the brain-mind.

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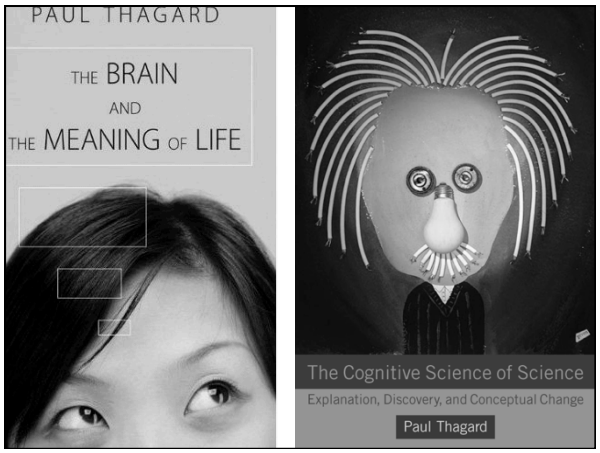
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