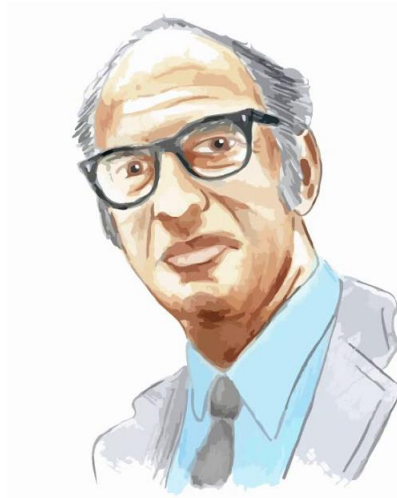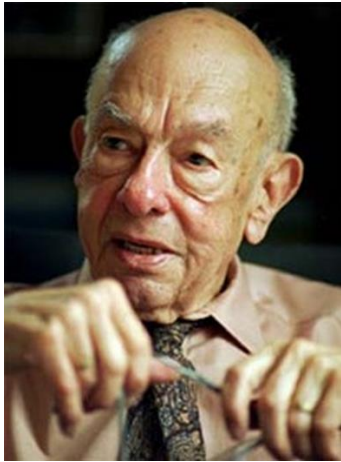# New approaches to epistemology

# W. V. O. Quine (1908 – 2000)

- Quine is well known for:
  - His criticism of logical empiricism
  - His rejection of the analytic/synthetic distinction
  - His "indeterminacy of translation" thesis
  - The "Duhem-Quine thesis", holism, web of belief
  - **Advocate of "naturalised epistemology"**

  (Quine, "Epistemology Naturalized". Originally published in *Ontological Relativity and Other Essays*.)

# No 'first philosophy'

"… Quine denies that there is a distinctively philosophical standpoint, which might, for example, allow philosophical reflection to prescribe standards to science as a whole. He holds that all of our attempts at knowledge are subject to those standards of evidence and justification which are most explicitly displayed, and most successfully implemented, in the natural sciences.

This applies to philosophy as well as to other branches of knowledge. The epistemologist, therefore, reflects on science from within science; there is no theory of knowledge distinct from science."

(*SEP,* entry on Quine)

# Der Wiener Kreis

- The Vienna Circle was a group of philosophers and physicists who developed "logical positivism" (logical empiricism).  The met in Vienna between 1920 and 1933.  The most famous philosophical members were:
  - Moritz Schlick
  - Rudolf Carnap
  - Richard von Mises
  - Otto Neurath
- Other philosophers were not technically members, but followed the same ideas.  E.g. Hans Reichenbach, A. J. Ayer.

# Logical empiricism

- Logical empiricism = empiricism + symbolic logic
- Hume's empiricism depended on a distinction between 'relations of ideas' and 'matters of fact'.
  - The logical empiricists used Frege's symbolic logic to define this analytic/synthetic distinction more rigorously.
  - They regarded analytic sentences as lacking content, being true merely in virtue of the conventions of language.
- Verificationist theory of meaning:
  - Some sentences *look* meaningful, but aren't.
  - The meaningful ones are those that can (in principle) be empirically verified.

# Carnap's *Aufbau*

- *Der Logische Aufbau der Welt* (*The logical construction of the world*) was influenced by Kant's idea that the so-called 'external world' is actually constructed from human concepts.

- In the *Aufbau,* Carnap idea tried to use Frege's symbolic logic to show that the external world can be logically constructed out of "elementary experiences".

- The *Aufbau* is generally judged to be a heroic failure.

- Quine dissects the failure of the *Aufbau*, saying that it failed both in its conceptual and doctrinal projects:

  i.   "Conceptual". The *meaning* of each scientific sentence must be logically constructed from statements about experience.

  ii.  "Doctrinal". After the meaning of a scientific statement has been defined, it must then be *proved* as well, using the resources of logic.

# No room for *a priori* concepts or knowledge!

- Despite the failure of Carnap's logical empiricist program in the *Aufbau,*

- "Two cardinal tenets of **empiricism remained unassailable**, however, and so remain to this day. One is that **whatever evidence there *is* for science *is* sensory evidence**. The other, to which I shall recur, is that all inculcation of meanings of words must rest ultimately on sensory evidence. Hence the continuing attractiveness of the idea of a *logischer Aufbau* in which the sensory content of discourse would stand forth explicitly."

# "Why not settle for psychology?"

- Then comes a key move in Quine's paper. Carnap was aiming at a 'rational reconstruction' of the external (natural) world, based purely on observation statements.

- But, according to empiricism, *the brain is doing this very thing all the time*. The brain's visual processing system, for example, is constantly turning nerve signals into a visual field of 3D coloured objects.

- So rather than trying to figure out, logically, how this is possible, why not just see how the brain actually does it?

- In other words, traditional epistemology is a failure, so *stop doing it*!

- "Philosophers have rightly despaired of translating everything into observational and logico-mathematical terms. They have despaired of this even when they have not recognized, as the reason for this irreducibility, that the statements largely do not have their private bundles of empirical consequences. And some philosophers have seen in this irreducibility the bankruptcy of epistemology."

**Question**:

What if *science tells us* that the brain uses hard-wired concepts and knowledge?

"This partial congruence between the truth about the world and what the human science-forming capacity produces at a given moment yields science. Notice that it is just blind luck if the human science-forming capacity, **a particular component of the human biological endowment**, happens to yield a result that conforms more or less to the truth about the world."

- Noam Chomsky, *Language and the Problems of Knowledge* (Cambridge: The MIT Press, 2001), pp. 157–58.

- Should the unwelcomeness of the conclusion persuade us to abandon the verification theory of meaning? Certainly not. The sort of meaning that is basic to translation, and to the learning of one's own language, is necessarily empirical meaning and nothing more. A child learns his first words and sentences by hearing and using them in the presence of appropriate stimuli. These must be external stimuli, for they must act both on the child and on the speaker from whom he is learning.

- Language is socially inculcated and controlled; the inculcation and control turn strictly on the keying of sentences to shared stimulation. Internal factors may vary *ad libitum* without prejudice to communication as long as the keying of language to external stimuli is undisturbed. Surely one has no choice but to be an empiricist so far as one's theory of linguistic meaning is concerned. (Quine, p. 7)

# Jaegwon Kim on epistemology being normative

"If justification drops out of epistemology, knowledge itself drops out of epistemology. For our concept of knowledge is inseparably tied to that of justification. As earlier noted, knowledge itself is a normative notion. Quine's nonnormative, naturalized epistemology has no room for our concept of knowledge."

What Is "Naturalized Epistemology"?, 1988

# Kitcher's "psychologism"

Kim mentions Philip Kitcher as one of a new breed of epistemologists who decry the old 'apsychologistic' approach to knowledge.  This old way looks at the various propositions that the subject accepts, and defines justification in terms of *logical* relations between them.

The (new and improved) psychologistic approach pays attention to the "processes which produce belief, processes which will always contain, at their latter end, psychological events"

# E.g. Reliabilism is 'psychologistic'

"it is clear enough, for example, that Goldman's proposal to explicate justified belief as belief generated by a reliable belief-forming process nicely fits Kitcher's characterization of the psychologistic approach."

"justification is to be characterized in terms of *causal* or *nomological* connections involving beliefs as *psychological states* or *processes,* and not in terms of the *logical* properties or relations pertaining to the *contents* of these beliefs."

# Does such 'psychologism' repudiate normativity?

"If we understand current epistemological naturalism in this way, how closely is it related to Quine's conception of naturalized epistemology? The answer, I think, is obvious: not very closely at all. In fact, it seems a good deal closer to the Cartesian tradition than to Quine."

- Is this right? Does reliabilism, for example, maintain the *normative* element of 'justified belief'?

# Descriptive vs. Normative

Dr Gzorpe is a native of the Doonga tribe, and he's also a Quinean epistemologist. Accordingly, he believes that part of his job is to discover the norms for legitimate belief formation that in fact operate. Now, in the Doonga tribe, information obtained from stimulation of the senses is deemed useful only for a small number of extremely practical day-to-day matters. For more important, more general matters, the Doonga rely on their dreams: a very vivid dream that p is taken to justify the belief that p. 'That's how general beliefs are justified', reports Gzorpe, 'by vivid dreams.'

- Kim's argument here is that process reliabilism is a theory of what counts as a *justified* belief.

- Process reliabilism differs from traditional epistemology only in analysing the (normative) concept of justification without using any epistemic (or otherwise normative) terms.
  - I.e. Goldman used only the causal/scientific concept of a reliable cognitive process

- Can normative concepts (e.g. justification) be analysed entirely using non-normative ones (e.g. reliability)?

- Kim says "Yes, no problem at all".

- Kim makes this argument using the notion of supervenience.
  - (Kim is, after all, "Mr. Supervenience"!)

# Supervenience

- … we believe in the supervenience of epistemic properties on naturalistic ones, and more generally, in the supervenience of all valuational and normative properties on naturalistic conditions. … if two persons or acts coincide in all descriptive or naturalistic details, they cannot differ in respect of being good or right, or any other valuational aspects. …

- Being a good car, say, cannot be a brute and ultimate fact: a car is good *because* it has a certain contextually indicated set of properties having to do with performance, reliability, comfort, styling, economy, etc.

- Similarly, the (possibly non-natural) property of a justified belief is governed by naturalistic criteria:

  "That it is a justified belief cannot be a brute fundamental fact unrelated to the kind of belief it is. There must be a *reason* for it, and this reason must be grounded in the factual descriptive properties of that particular belief."

  (N.B. "Supervening" on natural properties is the same as being 'grounded' in natural properties, being determined by natural properties, or being governed by naturalistic criteria.)

- If a property (e.g. justification) *supervenes* on natural properties in this sense, then does that make it a natural property?

- Well, maybe.  Consider first a building that is 'conforming' (to the building bylaws).  This property *conforming* does not supervene on its physical properties, since in another possible world the political winds may be different, so the building bylaws are different as well.  Thus, in another possible world, a building with the exact same physical properties is non-conforming.

  – Hence *conforming* is a political property, not a purely physical one.
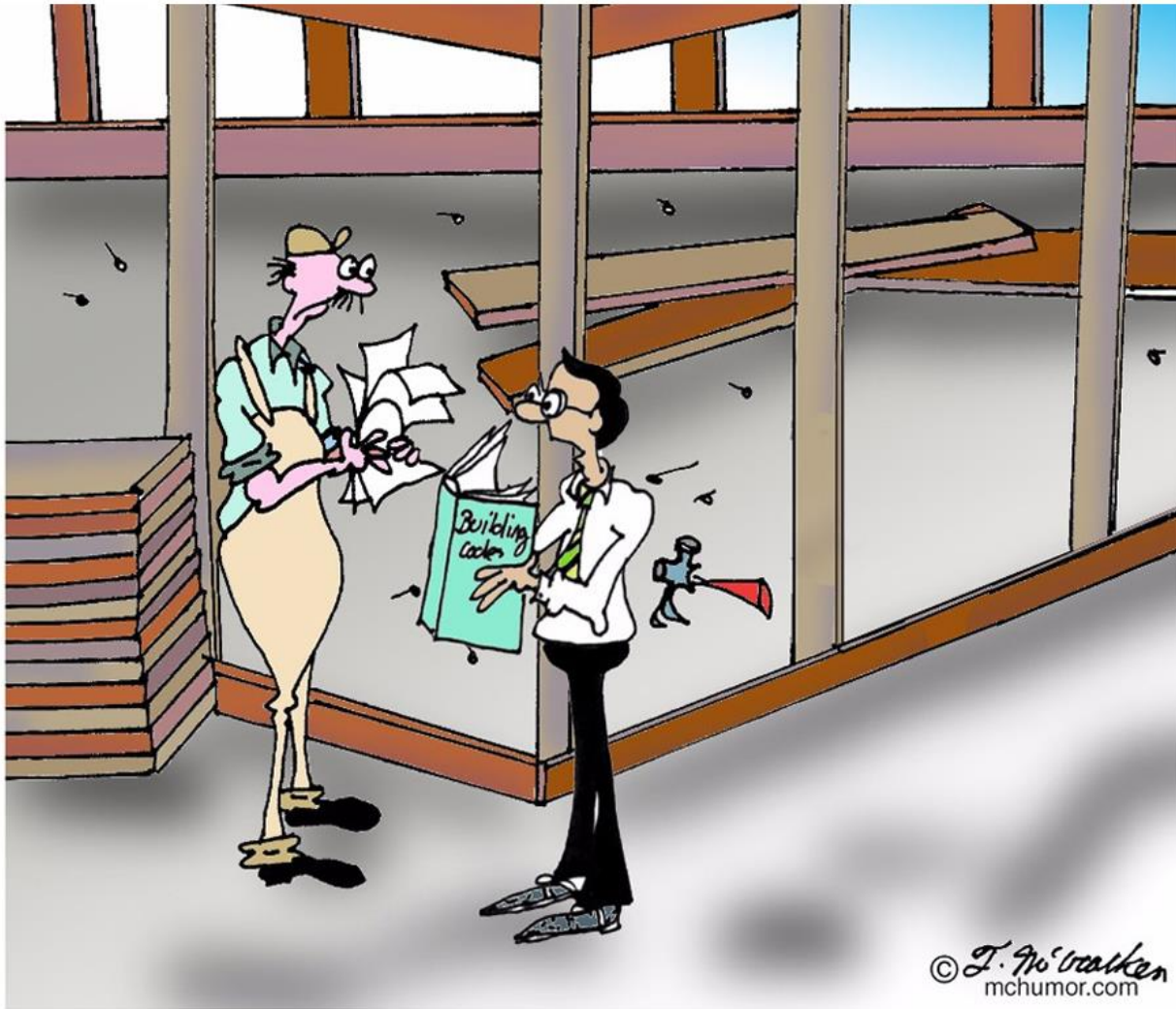
"I DO NOT CHANGE THE BUILDING CODES EVERY WEEK.
I DO IT EVERY OTHER WEEK."

- But now consider a theistic account of moral goodness, as something like 'conforming to God's nature'.

- Since God's nature is (on this view) **logically necessary** (the same in all possible worlds) then the moral goodness of a human being supervenes on their natural properties.
  - Yet moral goodness is clearly *not* a natural property on this account, any more than "conforming" is natural.

# Section 7: "WHY NORMATIVE EPISTEMOLOGY IS POSSIBLE"

- Kim aims to tell us why normative epistemology is consistent with naturalism.

- His answer is that "there *must* be naturalistic criteria of justified belief and other terms of epistemic appraisal", since these epistemic properties supervene on natural ones.

- Yet (I would say) such supervenience doesn't mean that epistemic properties are natural.

# 1. Evolutionary arguments

- From a scientific perspective, human reasoning is a biological process, and a product of evolutionary history.

  – The evolutionary process is driven by genetic mutation, drift, selection, symbiogenesis, LGT, etc.

- Let's say that, given such a process, efficient hunters and gatherers are likely to appear.

- But could one predict the existence of *scientists*?

# E.g. Darwin

- Darwin (like all scientists I believe) relied on an intuitive sense of what is likely to be real.

- "Undoubtedly there are many cases of extreme difficulty in understanding how the same species could possibly have migrated from some one point to the several distant and isolated points, where now found. **Nevertheless the simplicity of the view that each species was first produced within a single region captivates the mind.** He who rejects it, rejects the vera causa ["true cause"] of ordinary generation with subsequent migration, and calls in the agency of a miracle." (*Origin*, Chapter XI, p. 352)

# But does evolutionary theory predict such a capacity?

- [you say that] the existence of so-called natural laws implies purpose. I cannot see this. Not to mention that many expect that the several great laws will some day be found to follow inevitably from some one single law, yet taking the laws as we now know them, and look at the moon, where the law of gravitation – and no doubt of the conservation of energy – of the atomic theory, &c. &c. hold good, and I cannot see that there is then necessarily any purpose. Would there be purpose if the lowest organisms alone destitute of consciousness existed in the moon? But I have had no practice in abstract reasoning and I may be all astray.

- Nevertheless you have expressed my inward conviction, though far more vividly and clearly than I could have done, that the Universe is not the result of chance.  But then with me the horrid doubt always arises whether the convictions of man's mind, which has been developed from the mind of the lower animals, are of any value or at all trustworthy. Would any one trust in the convictions of a monkey's mind, if there are any convictions in such a mind?

(Darwin, letter to William Graham, July 3 1881.)

"… the mental requirements of the lowest savages, such as the Australians or the Andaman Islanders, are very little above those of many animals. How then was an organ developed far beyond the needs of its possessor? Natural Selection could only have endowed the savage with a brain a little superior to that of an ape, whereas he actually possesses one but very little inferior to that of the average members of our learned societies."

Alfred R. Wallace, *The Quarterly Review,* April 1869.

# Evolution of *a priori* knowledge?

"How can we possibly discover substantial facts about our world without experience of that world?

The traditional answer would have been that God made this possible, by constructing our minds so as to make certain substantial truths accessible to us without the help of experience. Contemporary methodological naturalists are likely to reject any such God-given route to the synthetic *a priori*. Indeed, few philosophers since Hume have been prepared to appeal to God-given powers in accounting for the epistemological powers of the human mind. …

(David Papineau, "Naturalism", *Stanford Encyclopedia of Philosophy*)

…Contemporary thought offers a biological alternative to God as a source of synthetic *a priori* knowledge. **Perhaps natural selection has structured our minds to make certain substantial truths accessible without experience, even if God hasn't**.

For example, the last section suggested that we may have such innate knowledge of certain aspects of human psychology, and there are other plausible examples of biologically innate knowledge. Of course, 'innate ideas' of these kinds do not have the same truth-guaranteeing imprimatur as God-given ones, given that natural selection is rather more likely to be a deceiver than a benevolent god, instilling in us beliefs that are biologically advantageous though false. …

(N.B.  Alvin Plantinga takes the last point to extremes!)

"But this possibility of error need not disqualify all biologically innate beliefs as knowledge—the truth of some such beliefs may be sufficiently non-accidental for them to count as knowledge."

- Yet can the innate knowledge needed for *induction* (e.g. science) be a product of natural selection?

- **Problem**: if natural selection has shaped our minds, over long ages, then this just increases the amount of past "experience" we have.

- In effect, we carry in our brains faint echoes of the experiences of innumerable remote ancestors.

- But if past experience cannot logically justify beliefs about the future (or the distant past, or other non-experienced matters) then adding more of it won't help.

- Can evolutionary theory explain the existence of human scientists?

# What are the laws of logic?

- Feldman suggests that they're like the laws of arithmetic, "set independently of all human activity".

- Humans reason in accordance with logical principles, since this is the best way to get true beliefs, and true beliefs are adaptive?

- But then what determines the right way to think?  How are the laws of logic "set"?
  - E.g. an eagle's wings are adapted to the properties of air, and the laws of aerodynamics.
  - If our minds are adapted to the laws of logic, then what *are* these laws?  Where do they exist?

# Evolution of logic?

Cambridge University Press, 2001
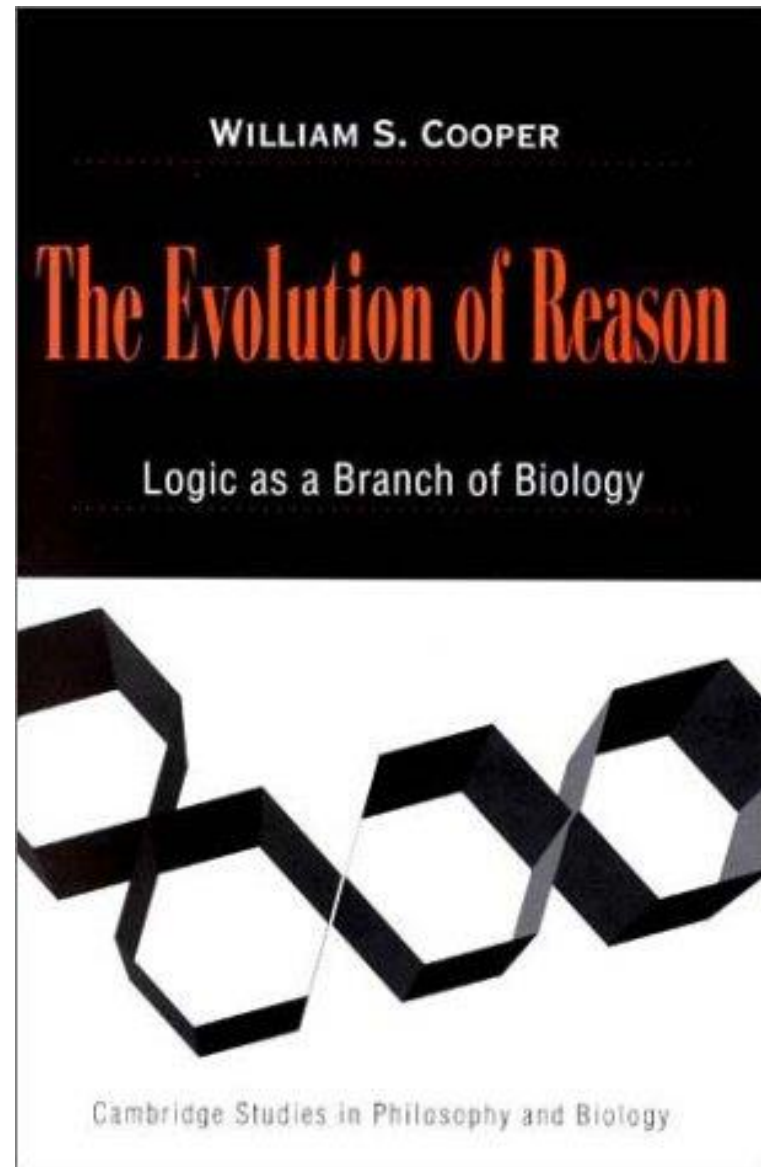
*"There are no separable laws of logic.* It is tempting to think of the power of reasoning as an adaptation to separate principles of logic, just as flying is an adaptation to separate laws of aerodynamics. The temptation should be resisted.

The laws of Reason should not be addressed independently of evolutionary theory, according to the thesis. Reasoning is different from all other adaptations in that the laws of logic are aspects of the laws of adaptation themselves. ...

...The laws of logic are neither preexistent nor independent. They owe their very existence to evolutionary processes, their source and provenance."

- Cooper, p. 5

- Cooper is arguing against the standard view, held for example by Gottlob Frege, that the truths of logic are fixed and eternal. They do not change, and could not have been different. They are independent of the course of human evolution.

Gottlob Frege, 1848-1925

Inventor (discoverer?) of predicate logic in 1879.

"… a proposition just as little ceases to be true when I no longer think of it than the sun would disappear if I closed my eyes. Otherwise, we come down to this, that in order to prove the Pythagorean theorem it is necessary to think about the phosphorous content of our brains; and an astronomer would dread to reach his conclusions about long past times, so that one does not object to him: 'You calculate here that 2 x 2 = 4; but the idea of number has a development, a history! One can doubt whether by that time it was already so advanced. …"

Gottlob Frege, *The Foundations of Arithmetic,* Trans. Dale Jacquette. pp. 13-15.

"The historical approach … has also its limitations. If in the existing flux of all things there is nothing fixed … then the knowability of the world would end and everything would plummet into confusion. One thinks, as it appears, that concepts in the individual mind emerge like the leaves on trees, and believes that their nature could be recognized from this, that one explores and seeks to define their emergence psychologically from the nature of the human mind. But this conception pushes everything into the subjective, and if pursued to the end, annihilates truth."

- Gottlob Frege, *The Foundations of Arithmetic,* Trans. Dale Jacquette. pp. 13-15.

- Cooper's idea is to *derive* the laws of logic from the principles of evolutionary game theory.
    - Excuse me – "derive"?  Isn't that a *logical* relation?
- In making this derivation, which laws of reasoning should be followed?  Present ones, or ones that were valid at an earlier epoch?
- Is Frege right that
    - the knowability of the world would end
    - everything would plummet into confusion
    - this conception pushes everything into the subjective
    - if pursued to the end, [it] annihilates truth.

# Naturalism and math and logic

- Naturalism (even apart from evolutionary theory) is uncomfortable with mathematical realism – especially Platonism of course.

- But the notion of logical laws (e.g. the axioms of probability) being fixed and eternal is also problematic.

- It seems rather odd that laws concerning 'rational' belief should exist from the beginning of time, before there are even any thinkers!

# Thomas Kuhn

- Some philosophers were inspired to reject realism by Thomas Kuhn's *The Structure of Scientific Revolutions* (1962).

- Kuhn argued in *Structure* that during a scientific revolution (= 'paradigm shift') the available evidence (+ logic) doesn't unambiguously show the new theory to be better than the old.

# Kuhn's *Structure*

- E.g. in 1770 – 1800 scientists Priestly and Lavoisier had different theories ('paradigms') of combustion (phlogiston theory and oxygen theory). *But they had the same data*!

- Kuhn argues that one's very standards of epistemic justification are part of one's paradigm, so that *competing paradigms are both justified by their own lights*.
  – E.g. Lavoisier paid enormous attention to the *masses* of reactants and products. Priestly focused on heat, colours, and volumes.

"In the first place, the proponents of competing paradigms will often disagree about the list of problems that any candidate for paradigm must resolve. ... **Lavoisier's chemical theory inhibited chemists from asking why the metals were so much alike, a question that phlogistic chemistry had both asked and answered.** The transition to Lavoisier's paradigm had, like the transition to Newton's, meant a loss not only of a permissible question but of an achieved solution."

- (Kuhn, p. 148)

- Kuhn compares paradigm shifts to **gestalt shifts**, **political revolutions**, and **religious conversions**, presenting them as essentially *non-rational*.

- "the fact that a major paradigm revision was needed to see what Lavoisier saw must be the principal reason why Priestley was, to the end of his long life, unable to see it."  (Kuhn, p. 56)

- During a political revolution, the constitution of the old regime no longer applies, so *no rules* govern how the revolution itself is to be carried out.

# Summary of Kuhn's arguments

- Paradigm shifts in the history of science have always involved *losses* in explanatory power as well as gains. So there is no unambiguous improvement.
  - E.g. Lavoisier could not explain why all metals are shiny, ductile, etc.  Copernicans could not explain why bodies fall.
- All standards of epistemic justification are local to a particular paradigm, so they cannot justify one paradigm over another.  (Paradigm shifts are non-rational.)
  - E.g. Copernicus appealed to the standard that scientific theories should be economical, not *ad hoc,* etc.

# Thomas Kuhn on objective truth

"We may, to be more precise, have to relinquish the notion, explicit or implicit, that changes of paradigm carry scientists and those who learn from them closer and closer to the truth"

(p. 170) (Note the weasel word 'may' here!)

"Does it really help to imagine that there is some one full, objective, true account of nature and that the proper measure of scientific achievement is the extent to which it brings us closer to that ultimate goal?"

(Note the rhetorical question, rather than statement, here!)

# Thomas Kuhn on objective truth

- Kuhn claims that he can't even make sense of talk about what is "really there" in the world itself, as opposed to what is there according to some theory or paradigm.

- "There is, I think, no theory independent way to reconstruct phrases like 'really there'; the notion of a match between the ontology of a theory and its 'real' counterpart in nature now seems to be illusive in principle" (p. 206).
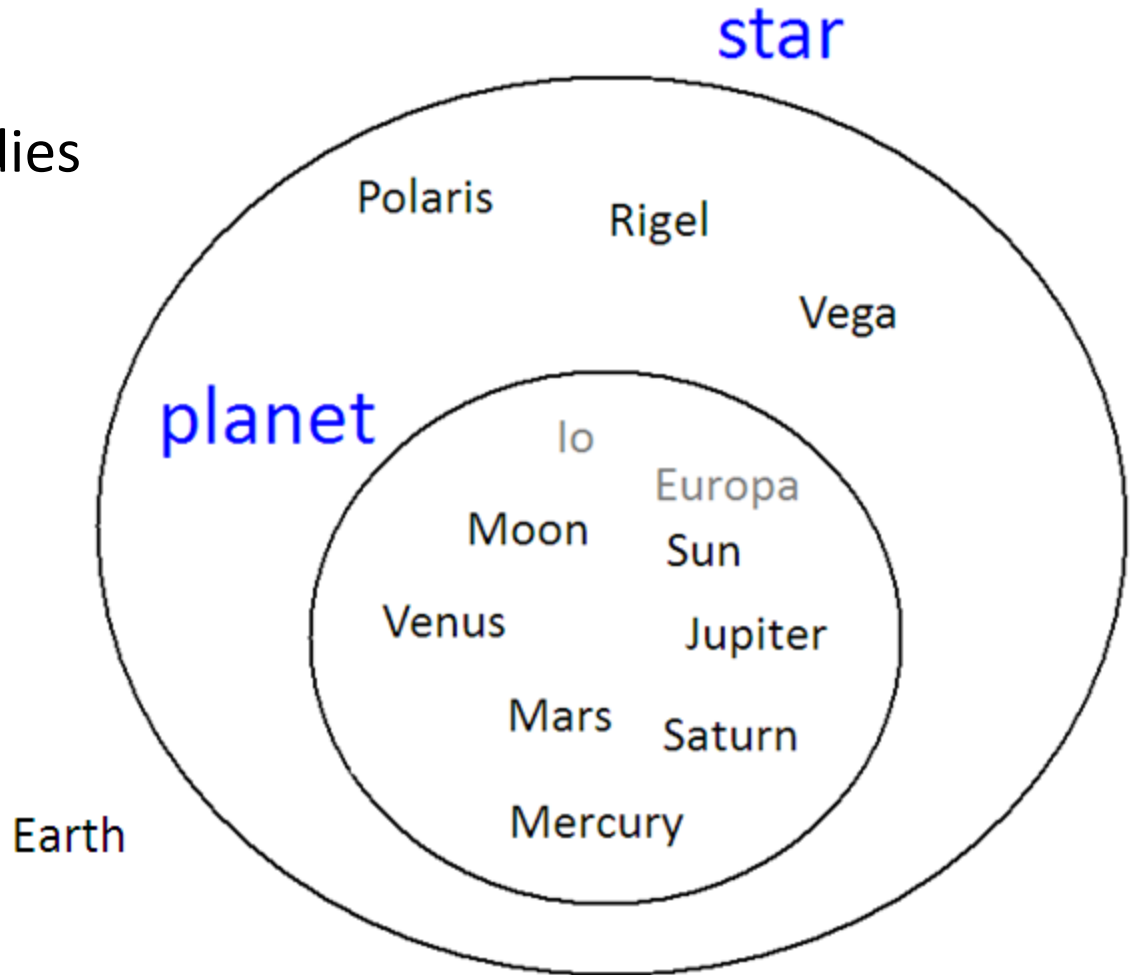
# SSK (Sociology of Scientific Knowledge)

- "Barry Barnes and David Bloor, for instance, have argued that different societies may have incompatible but internally coherent systems of logic because validity and rules of inference are defined by, and hence are relative to, the practices of a given community, rather than *a priori* universal restrictions on all thought."

- Stanford Encyclopedia of Philosophy, "Relativism".

# Kuhn on incommensurability

- In *Structure*, Kuhn also claimed that scientists working in different paradigms often **cannot communicate with each other**, since they use different concepts.

- Often they use the same *words*, but the *meanings* differ between the two conceptual frameworks.

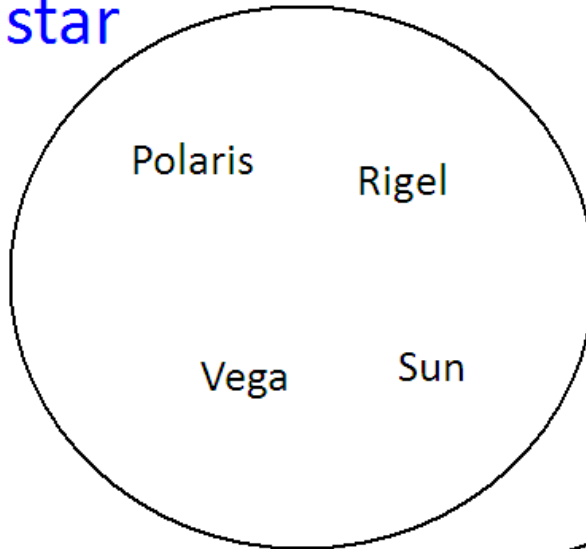"…the proponents of competing paradigms practice their trades in different worlds."

# Classification changes with "paradigm"
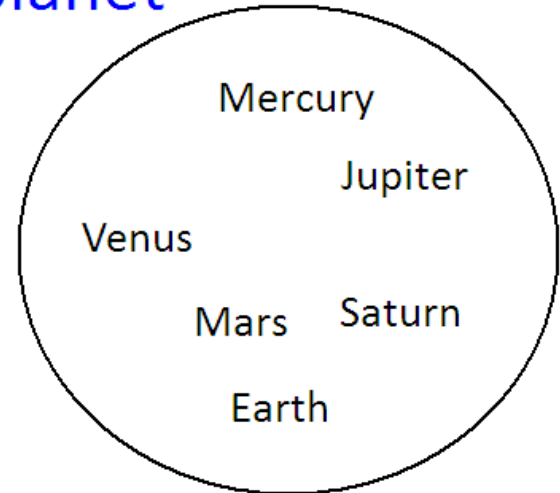
Celestial bodies
for Ptolemy

**star**

Polaris    Rigel

Vega

**planet**

Io

Europa

Moon    Sun

Venus    Jupiter

Mars    Saturn

Mercury

Earth

# Copernican taxonomy
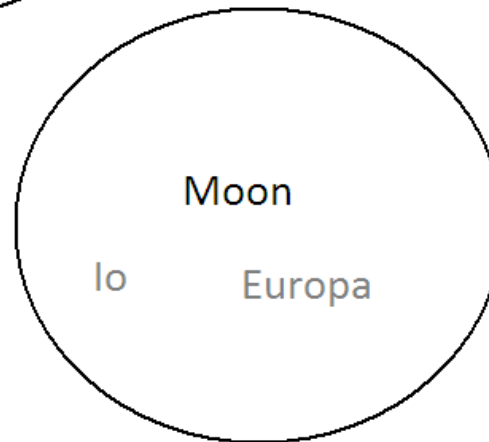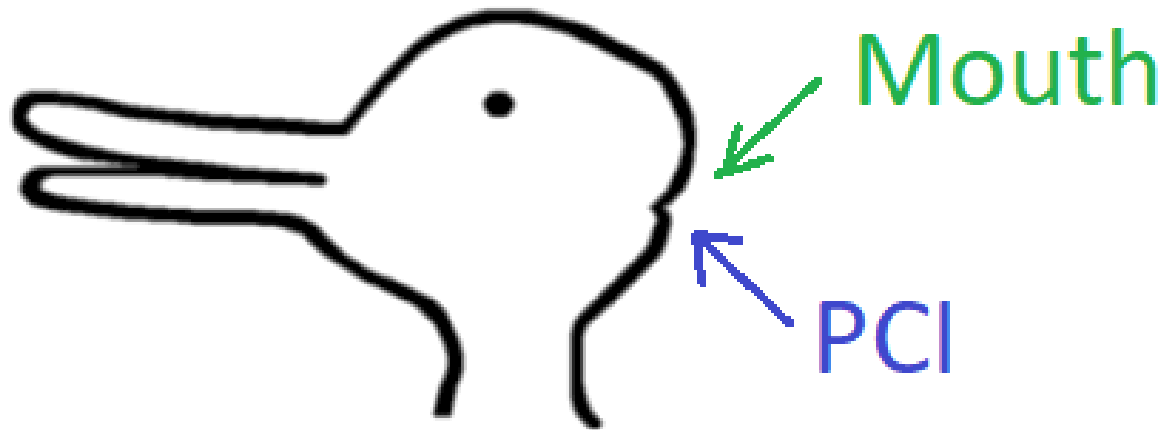
# "Different worlds"



- E.g. Lavoisier saw *oxygen* where Priestley saw *dephlogisticated air*

# Epistemology and Politics

- Linda Alcoff notes that feminist epistemology has been criticized for being "inappropriately political in setting its philosophical goals"

- E.g. Psychologist Steven Pinker accuses feminists of putting politics ahead of objective research.

  – *The Blank Slate: The Modern Denial of Human Nature,* 2002

  – "… many feminists vehemently attack research on sexuality and sex differences. The politics of gender is a major reason that the application of evolution, genetics, and neuroscience to the human mind is bitterly resisted in modern intellectual life."

- But (referring to the work Mary and Jim Tiles) Alcoff replies that reputable philosophers like Locke, Kant, Russell, and members of the Vienna Circle "unashamedly declared and defended the political motivations of their work".

- Locke's attack on innate ideas in the seventeenth century was motivated by the concern to stem a religious development known as Enthusiasm, which actually gave women a voice in public spaces on the basis of their claim to spiritual insight.

# Standpoint epistemology



**Ashraf Roslim**
Cyclist should try driving bus. Then maybe they also understand the limited space to overtake.

2y   **Like**   **Reply**

# Intersectionality

- "intersectionality" was an intuitively plausible concept. It was also somewhat familiar: social scientists had long thought about the ways in which the presence of two causal factors could have effects that went far beyond a mere addition of each individual effect."

- Yascha Mounk, *The Identity Trap*

# Situated knowledge and incommensurability

"It is obviously plausible that members of marginalized groups are more likely to have direct experience with certain forms of injustice, such as police brutality. But in the work of some scholars, the idea of "situated knowledge" went much further. To them, the fact that each person exists at the intersection of different identities came to imply that outsiders could, even if they carefully listened to their stories, never truly come to understand, say, a homosexual Latino or a Black woman.

- In some of its uses, intersectionality thus came to stand for a belief in the profound incommensurability of human experience.