

July 24, 2010 Summer Seminar 1

Resolving the Problem of Induction

Milo Schield
Conceptual Literacy Project

Summer Seminar

Chicago Illinois RIF July 24, 2010
www.StatLit.org/pdf/2010Schield3Seminar6up.pdf

July 24, 2010 Summer Seminar 2

Problem of Induction

*If this problem cannot be solved or resolved,
then objectivity is impossible*

If truth is non-objective, then

- science is non-objective

If values are non-objective, then

- Ideology is non-objective
- Religion is non-objective

This is the biggest problem since Hume (1748)

July 24, 2010 Summer Seminar 3

Problem of Induction Wikipedia

the philosophical question of whether inductive reasoning leads to knowledge. That is, **what is the justification for either:**

- **generalizing** about the properties of a class of objects based on some number of observations of particular instances of that class? [All swans are white]
- presupposing that a sequence of events in **the future will occur as it always has in the past?** For example, for presupposing that the laws of physics will hold as they have always been observed to hold. Hume called this the Principle of Uniformity of Nature.

July 24, 2010 Summer Seminar 4

Hume: The Problem of Induction

*In general, it is not necessary that causal relation in the future resemble causal relations in the past, as it is always **conceivable otherwise**.*

The uniformity principle cannot be demonstrated, as it is "consistent and **conceivable**" that nature might stop being regular. "even after the observation of the frequent or constant conjunction of objects, we have **no reason** to draw any inference concerning any object beyond those of which we have had experience"

Note the presence of "may", "possible," "conceivable" and "no reason" in describing the problem of induction.

July 24, 2010 Summer Seminar 5

Hume: The Problem of Causation

We have no other notion of cause and effect, but that of certain objects, which have been always conjoined together, and which in all past instances have been found inseparable. We cannot penetrate into the reason of the conjunction. We only observe the thing itself, and always find that from the constant conjunction the objects acquire a union in the imagination.

Source: New World Encyclopedia on David Hume
www.newworldencyclopedia.org/entry/David_Hume

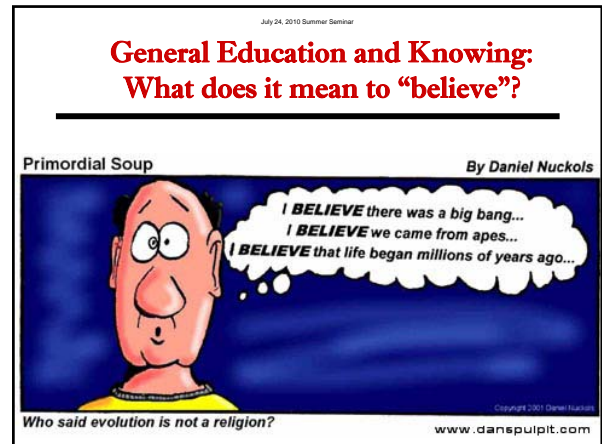
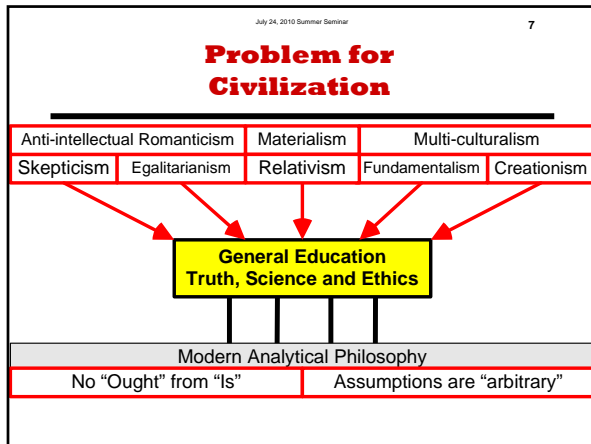
July 24, 2010 Summer Seminar 6

Philosophy of Science: 20th Century Conclusion

Hume's pragmatic skepticism is triumphant. Modern philosophy of science gives very weak evidence in support of induction. Definitions are man-made (socially constructed). Definitions are arbitrary. Science is seen as positing "laws" that fit the data. (curve fitting)

Scientists no longer speak of "laws"

- Einstein's theory of relativity is not a law
- Darwin's theory of evolution is not a law.



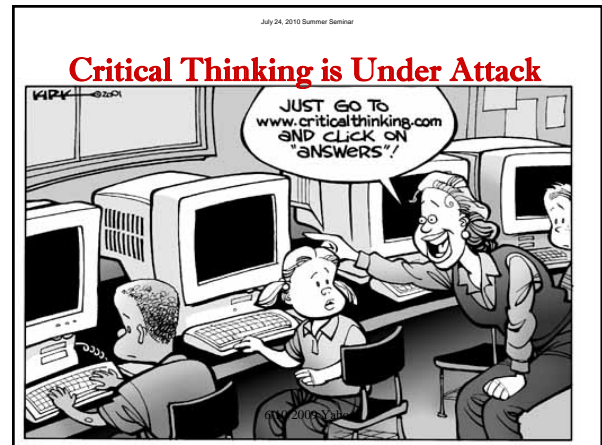
July 24, 2010 Summer Seminar

Big Bang Cosmology: "faith as much as ... truth"

Big Bang Cosmology

'Big bang cosmology is probably as widely believed as has been any theory of the universe in the history of Western civilization. It rests, however, on many untested, and in some cases untestable, assumptions. Indeed, big bang cosmology has become a bandwagon of thought that reflects faith as much as objective truth.'

Burbidge, G., 1992.
Why only one big bang?
Scientific American, 266 (2):96.



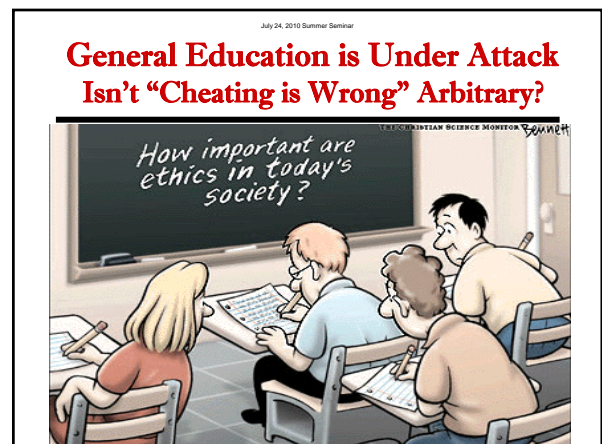
July 24, 2010 Summer Seminar

AACU Can't Justify Personal and Social Responsibility

"Students' ethical, civic, and moral development must be addressed as part of their basic responsibilities as learners.

It is crucial that we return to the core commitments of personal and social responsibility inherent in liberal education."

American Association of Colleges and Universities (AACU)
www.aacu.org/meetings/PSR09/index.cfm



July 24, 2010 Summer Seminar

There are Signs of Hope

David Kelley (1988): *Universals and Induction*
www.StatLit.org/pdf/1988KellyUniversalsAndInduction.pdf


Leonard Peikoff (2003): *Induction in Physics & Philosophy*
www.aynrandbookstore2.com/store/prodinfo.asp?number=LP82M

David Harriman (2010): *The Logical Leap: Induction in Physics*. Available at Amazon.com

See also:
 Louis Groarke (2009): *An Aristotelian Account of Induction: Creating Something from Nothing*.
www.StatLit.org/pdf/2010McCaskeyReviewOfGroarkeText.pdf

July 24, 2010 Summer Seminar

Signs of Hope: New Directions in the Humanities



One organization is aware of this problem and is actively seeking solutions – new directions – for the humanities.

“The humanities are argued to be like the ‘canary in the coal mine’ because they are more sensitive to the problem of unobservables, the lack of objective standards and the failure to solve or resolve the problem of induction.”

Schild (2004): *Resolving Three Key Problems in the Humanities*. Prato, Italy.
www.StatLit.org/pdf/2004SchildNDIH.pdf

July 24, 2010 Summer Seminar

★ **The Key is Objectivity:
This should be the Primary Virtue**

“Objectivity ... pertains to the relationship of consciousness to existence.

- Metaphysically, it is the recognition of the fact that reality exists independent of any perceiver’s consciousness.
- Epistemologically, it is the recognition of the fact that a perceiver’s (man’s) consciousness must acquire knowledge of reality by certain means (reason) in accordance with certain rules (logic).”

Source: “Objectivity” in the Ayn Rand Lexicon

July 24, 2010 Summer Seminar

★ **Objectivity is Not
Quoting a Book**

“A human source of your philosophy is a bad thing, unless that’s just a timesaver that you drop out at a certain point.” “It should never be essential to you when you think of philosophy that I wrote a book or gave a lecture, or that Ayn Rand wrote a book. Those things are fine as maps to point out where to look or to give you an advance report on what she found. **But you have to make the trip, be focused on the road and not on her report.**”

Leonard Peikoff, *Objectivism Through Induction*

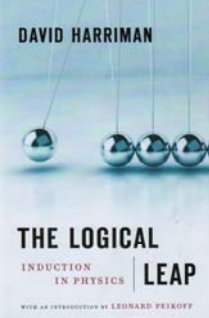
July 24, 2010 Summer Seminar 17

The Logical Leap: Induction in Physics

The most important book in the last decade.

Attacks the notions that:

- an arbitrary assumption has any merit
- Prior knowledge is not a proper basis for deciding what factors are relevant or plausible.



July 24, 2010 Summer Seminar 18

The Arbitrary

“Today, many intellectuals manufacture arbitrary possibilities just as a counterfeiter manufactures money.

They [these intellectuals] are actually worse than counterfeiters, who at least acknowledge the existence of and try to imitate real money; the intellectuals who traffic in the arbitrary deny the existence of real knowledge.” P. 72

July 24, 2010 Summer Seminar 19

**Absolute Skepticism:
A One-Two Punch**

“The skeptic leads with the claim that there are countless possibilities that cannot be eliminated, and therefore we cannot know any general truths (except this generalization itself, which is treated as an unquestionable absolute).”

When a rational man answers that the possibilities are delimited by his framework of prior conceptual knowledge, the skeptic asserts that such use of one’s conceptual framework is [necessarily subjective and thus] outside the realm of logic.” P. 74

July 24, 2010 Summer Seminar 20

**Absolute Skepticism:
The Antidote**

“A rational man must counter the skeptic’s first punch with the principled rejection of the arbitrary; he must counter the second with an objective theory of concepts and generalizations.” P. 74

“The truth of our generalizations is dependent upon the validity of our concepts. *An invalid concept is a red light to induction*; it stops the discovery process or actively leads to false generalizations.” P. 78

July 24, 2010 Summer Seminar 21

Newton vs. the Arbitrary

Galileo had fought the church to expel religious faith from the realm of science; Newton fought his fellow scientists in an effort to expel the arbitrary as such, including secular claims. P. 68

Newton once said that he ‘framed no hypotheses’ ... He wrote: “the word ‘hypothesis’ is here used by me to signify only such a proposition as is not a phenomenon nor deduced from any phenomena, but assumed or supposed – without any experimental proof.” P. 64

July 24, 2010 Summer Seminar 22

Newton vs. the Arbitrary

Newton recognized that the attempt to refute an arbitrary assertion is a fundamental error.

An arbitrary idea is detached from such [sensory] data; to consider it is to leave the realm of reality and enter a fantasy world. No knowledge can be gained by taking such an excursion. P. 64

July 24, 2010 Summer Seminar 23

**Benefits of Resolving the
Problem of Induction**

“Solving or resolving these fundamental problems [the problems of objectivity, unobservables and induction] in a way that provides reality-based principles without dogma could provide a basis for increased scientific literacy, could provide a basis for a new direction in the humanities and might even lay the foundation for a second renaissance that would outshine the first in its benefits to society.” Schield (2004). www.StatLit.org/pdf/2004SchieldNDIH.pdf

