Critical Thinking: Present, Past & Future

Milo Schield **Augsburg College**

April 5, 2015 St. Paul Critical Thinking Club

www.StatLit.org/pdf/2015-Schield-CTC-Slides1.pdf

Outline

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We were better at critical thinking; We've gotten worse. Recent causes

Root cause: Aristotle's description of Induction Hume (1746): Induction is invalid and unjustified. Philosophy today: the dark ages No truth.

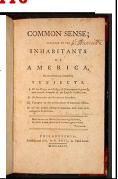
Aristotle resurrected: Induction is conceptual. Why the future will be much better.

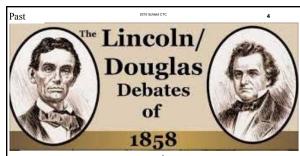
Past We thought critically! January, 1776

In proportion to the population of the colonies (2.5 million), it had the largest sale and circulation of any book published in American history. [500,000 copies 1st year]

As of 2006, it remains the all-time best-selling American title

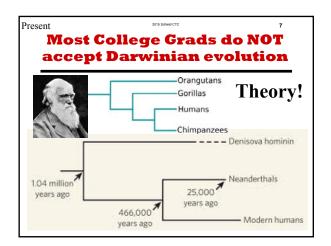
Wikipedia: Common Sense

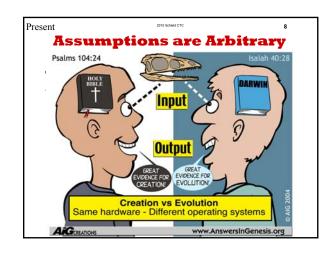


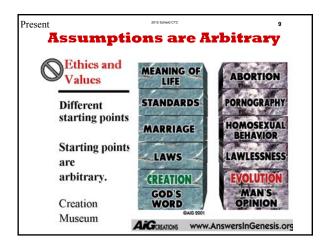


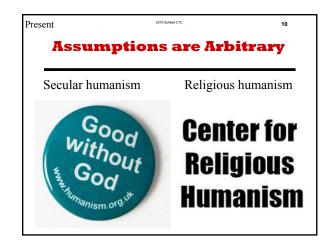
1st speaker had 60 minutes; 2nd had 90; 1st replied for 30 Speakers averaged around 100 words per minute. Families stood, listened, analyzed and evaluated!

Present **Change in Values US Freshman** Be very well off financially 50 Very Develop a meaningful 10 100 1991 Source: UCLA College Freshman Survey www.gseis.ucla.edu/heri/index.php Present **Critical Thinking:** The Fall in Culture Advocacy journalism rejects objectivity and neutrality Rise of pseudo-science: · young-earth creation denial of evolution Confirmation bias in media · MS-NBC & Fox News



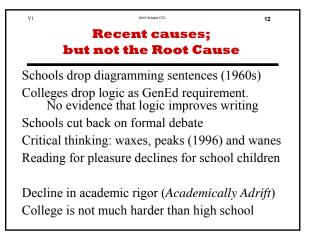






Humanism is a philosophical and ethical stance that emphasizes the value and agency of human beings, individually and collectively, and generally prefers critical thinking and evidence (rationalism, empiricism) over established doctrine or faith (fideism).

... humanism refers to a perspective that affirms some notion of "human nature"...



Present

The Root Cause Aristotle!

Aristotle noted two kinds of reasoning:

- **Deduction**: from general to specific
- **Induction**: from specific to general.



Aristotle was extremely clear on deduction.

Aristotle was ambiguous (incomprehensible?) on induction.

Aristotle: the Father of Logic

Aristotle was clear on **deduction**: valid arguments gave true conclusions given true premises.



All men are mortal. Socrates is a man, Therefore, Socrates is mortal.

Every deductive argument required a universal premise: Either "All X are Y" or "No X are Y".

Where did these universals come from?

Aristotle: the Father of Logic

Inductions generate universals based on particulars. From "Some" to "All".

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Induction: Socrates is mortal; Plato is mortal; Therefore *all men are mortal*.

Aristotle said induction was justified if we knew what was true for all subjects. This made him sound like an idiot. It required omniscience!

All swans I know are white, so all swans are white...

Need for a Induction

All inductions involve universals

"All men are mortal" "All acorns come from oak trees" "All water runs downhill"

All universals about the causes and natures of things are inductions.

Without induction, we have no science, no truth, no virtues, no ethics, no right and wrong.

Without induction, all premises are arbitrary.

The Fall in Philosophy Hume in 1748

1748 Hume: Human Understanding: The problem of causation; The problem of induction

"We cannot rationally justify the claim that nature will continue to be uniform."

"The supposition that the future resembles the past is not based on arguments of any kind, but is derived entirely from habit."



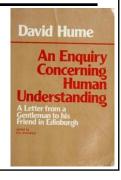
The Fall in Philosophy No Certainty

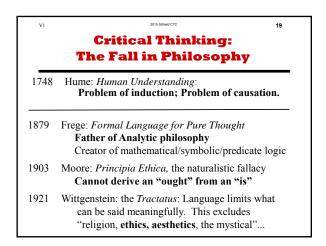
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Cannot generalize with certainty

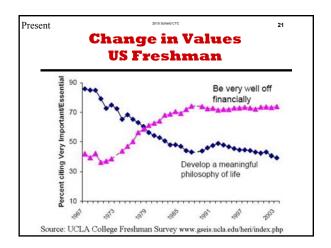
"induction is the glory of science and the scandal of philosophy" Broad

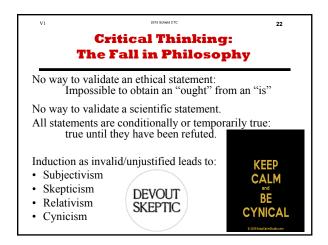
Hume has posed "a most fundamental challenge to all human knowledge claims." Kant and Popper



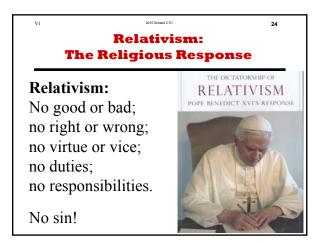


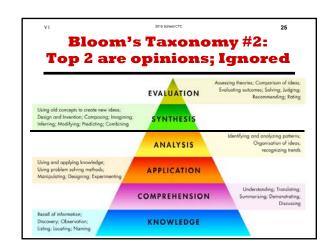


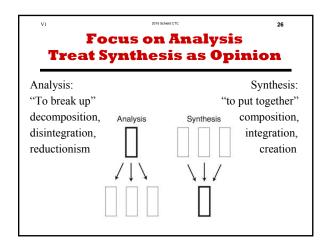










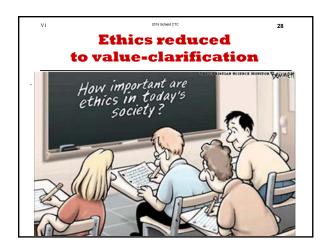


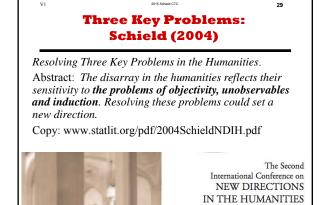
Critical Thinking: Problems Teaching

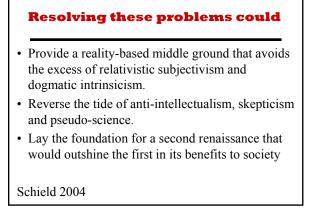
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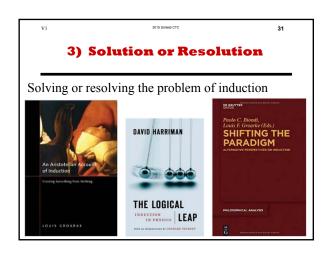
- reductionist (explaining complex phenomena in terms of more elemental events),
- **positivistic** (limiting the "real" to what is physically observable or which can be proved),
- quantitative (understanding qualities in terms of quantities).

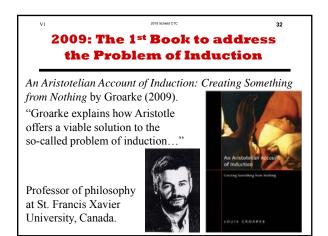
Source: John Bardi: www.personal.psu.edu/jfb9/essay2ThinkingCritically.html











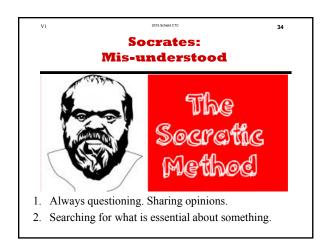


In presenting induction, Aristotle spoke of knowing what was true for all members of the group.



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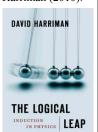
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"Refuting the skepticism that is endemic in contemporary philosophy of science, Harriman offers demonstrable evidence of the power of reason."

"He argues that philosophy itself is an inductive science." [Most accessible]





2014: The 3rd Book to address the Problem of Induction

Shifting the Paradigm: Alternate Perspectives on Induction
Editors Biondi and Groarke (2014).

"essays by experts who argue against the prevailing Humean view of inductive reasoning as an unreliable, enumerative argument."

Paolo C. Biondi, Professor Philosophy.
U. Sudbury, Canada
[Most academic]

Two Kinds of Induction

Induction is "proceeding from particulars to a universal" Aristotle's statement is ambiguous – two interpretations:

Scholastic induction (propositions) [Hume, Analytics]

> From particular propositions to universal propositions All swans I've seen are white, so all swans are white.

Socratic induction (Definitions) [Aristotle, Bacon]

> From particular things to universal ideas or concepts. What is man? What is truth? What is good?

Critical Thinking The Future will be Better

Truth, goodness and beauty will be explored and recast. Philosophy will once again be the queen of the sciences. The humanities will be ascendant.

- Truth: Concept formation, the nature of knowledge and the field of education will be transformed.
- Goodness: Ethics will be secularized. The social sciences will merge back under the Humanities.
- **Beauty**: Art and literature will be redefined. Organized religion will no longer have a "monopoly" on goodness, values and virtues.



Will a different Philosophy make that much difference?

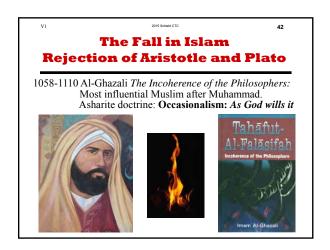
Scientists manage to ignore the problem of induction. Problem solvers don't worry about this problem. People in the professions don't worry about it.

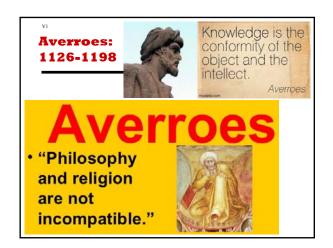
Most individuals ignore the problem of induction. They believe there is a right and wrong, a good and bad.

Q. Is there any evidence that resolving the problem of induction will make much difference?

A. Yes, Ocassionalism in Islamic civilization today!











Critical Thinking Generalizations Scientific generalizations: · Water runs downhill • What a thing is (nature) determines what it does (causation) • All swans are white (No) **Human/Ethical Generalizations**: · Humans are mortal

· Reason is man's basic means of survival • The right to life is the source of all rights

Critical Thinking: The Fall in Philosophy

Analytic Philosophy (1879 to today): "emphasis on clarity and argument (often achieved via modern formal logic and analysis of language)..."

In a narrower sense:

- The logical-positivist principle that there are *no* specifically philosophical truths and that the object of philosophy is the logical clarification of thoughts
- the logical clarification of thoughts can only be achieved by analysis of their logical form
- favour of attention to detail, or ordinary language

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Outline 2015 Schield CTC 2

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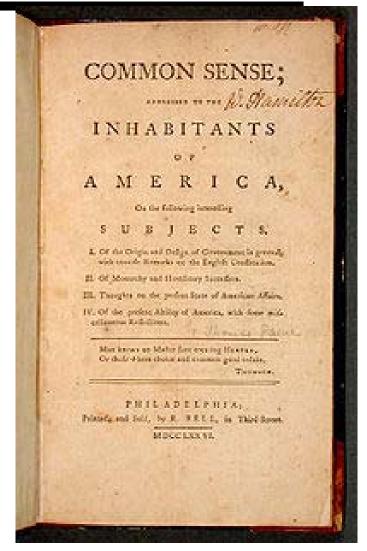
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We thought critically! January, 1776

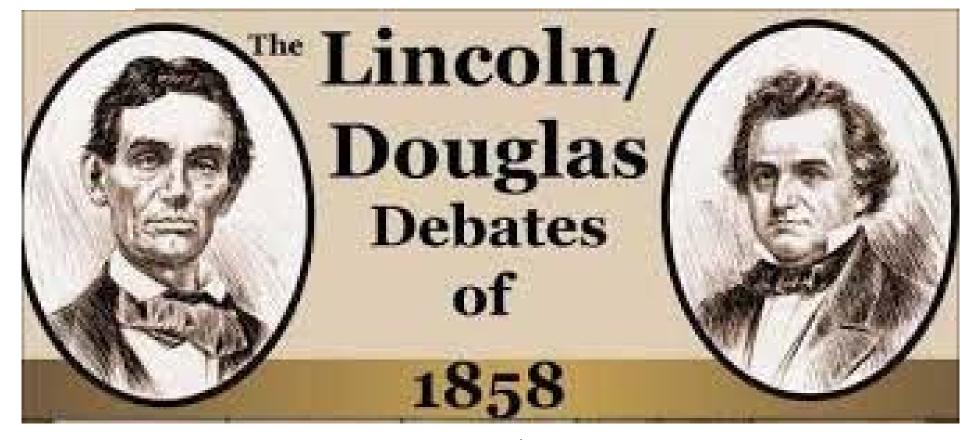
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Wikipedia: Common Sense



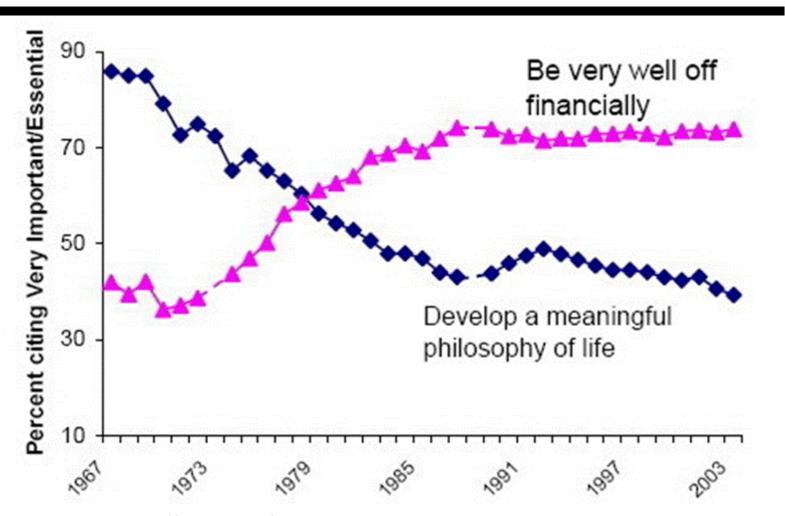
Past 2015 Schield CTC



1st speaker had 60 minutes; 2nd had 90; 1st replied for 30 Speakers averaged around 100 words per minute.

Families stood, listened, analyzed and evaluated!

Change in Values US Freshman



Source: UCLA College Freshman Survey www.gseis.ucla.edu/heri/index.php

Critical Thinking: The Fall in Culture

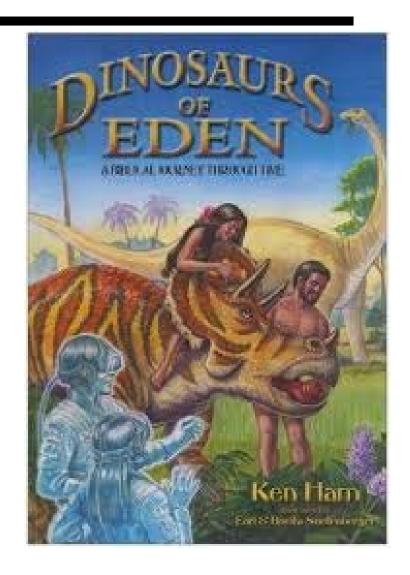
Advocacy journalism rejects objectivity and neutrality

Rise of pseudo-science:

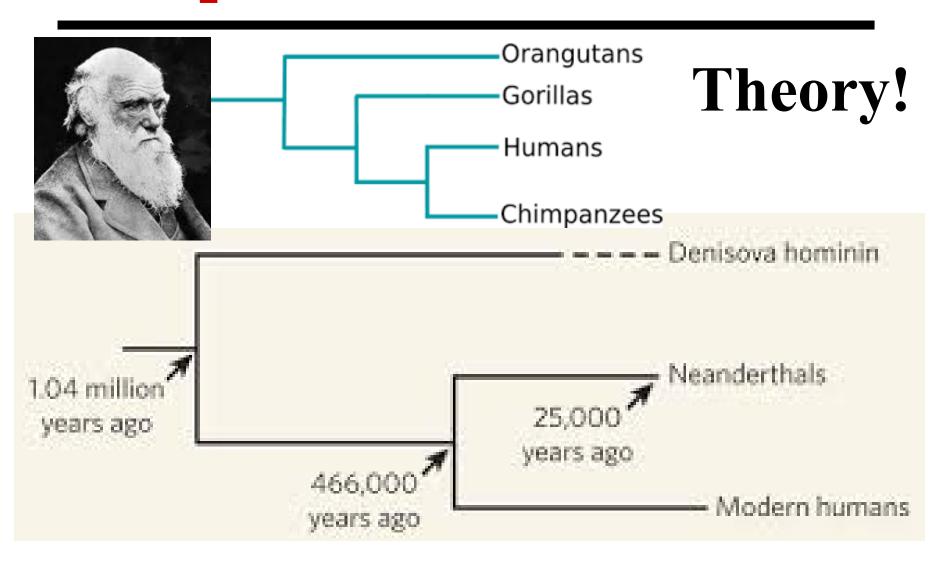
- young-earth creation
- denial of evolution

Confirmation bias in media

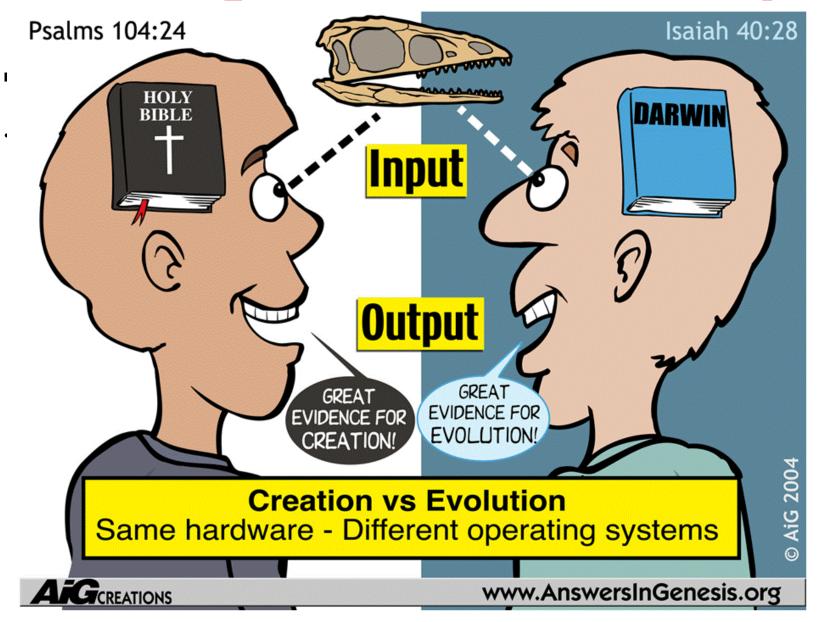
MS-NBC & Fox News



Most College Grads do NOT accept Darwinian evolution



Assumptions are Arbitrary



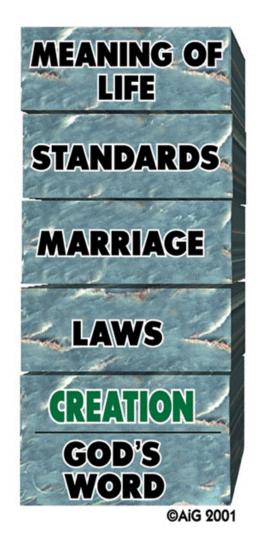
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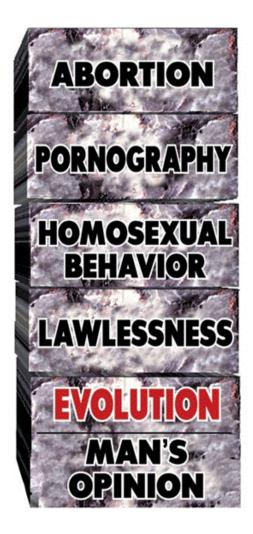
Ethics and Values

Different starting points

Starting points are arbitrary.

Creation Museum







Assumptions are Arbitrary

Secular humanism

Religious humanism



Center for Religious Humanism

Stance & Perspective: Optional / Elective

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... humanism refers to a perspective that affirms some notion of "human nature"...

Recent causes; but not the Root Cause

Schools drop diagramming sentences (1960s)

Colleges drop logic as GenEd requirement.
No evidence that logic improves writing

Schools cut back on formal debate

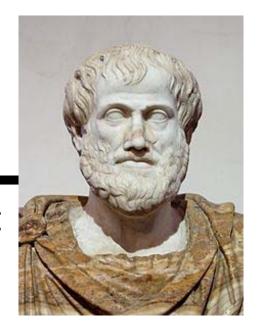
Critical thinking: waxes, peaks (1996) and wanes Reading for pleasure declines for school children

Decline in academic rigor (*Academically Adrift*)
College is not much harder than high school

The Root Cause Aristotle!

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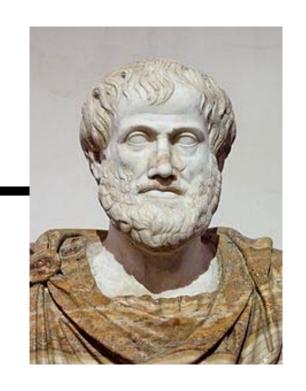


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V1

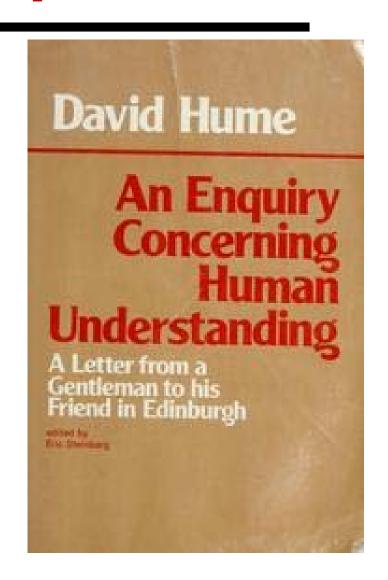
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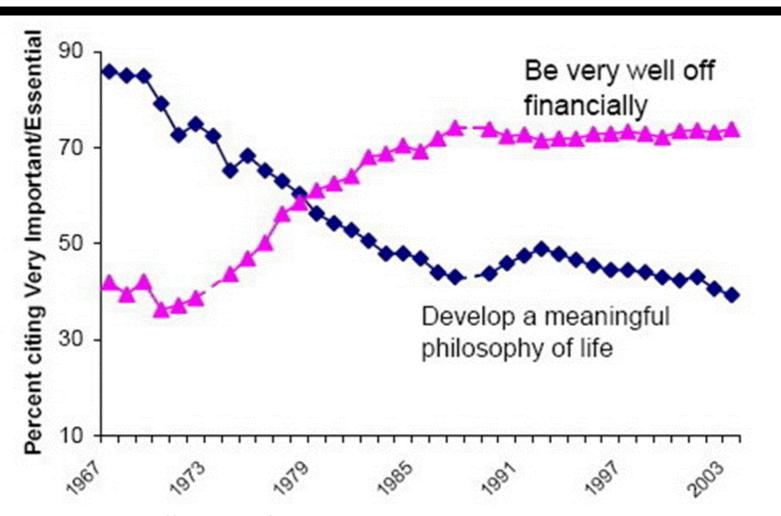
- 1879 Frege: Formal Language for Pure Thought

 Father of Analytic philosophy

 Creator of mathematical/symbolic/predicate logic
- 1903 Moore: *Principia Ethica*, the naturalistic fallacy **Cannot derive an "ought" from an "is"**
- Wittgenstein: the *Tractatus*: Language limits what can be said meaningfully. This excludes "religion, **ethics**, **aesthetics**, the mystical"...



Change in Values US Freshman



Source: UCLA College Freshman Survey www.gseis.ucla.edu/heri/index.php

Critical Thinking: The Fall in Philosophy

No way to validate an ethical statement: Impossible to obtain an "ought" from an "is"

No way to validate a scientific statement.

All statements are conditionally or temporarily true:

true until they have been refuted.

Induction as invalid/unjustified leads to:

- Subjectivism
- Skepticism

V1

- Relativism
- Cynicism





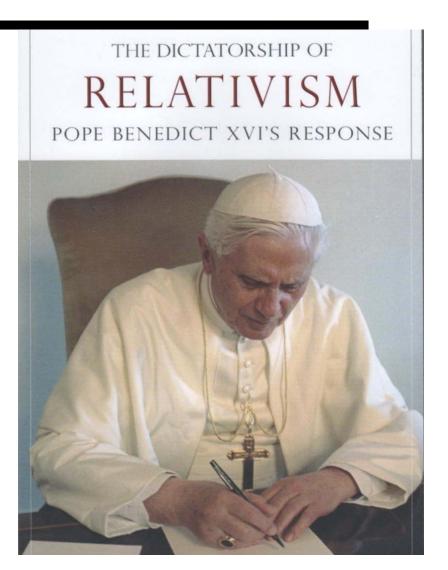


Relativism: The Religious Response

Relativism:

No good or bad; no right or wrong; no virtue or vice; no duties; no responsibilities.

No sin!



Bloom's Taxonomy #2: Top 2 are opinions; Ignored

EVALUATION

Assessing theories; Comparison of ideas; Evaluating outcomes; Solving; Judging; Recommending; Rating

Using old concepts to create new ideas; Design and Invention; Composing; Imagining; Inferring; Modifying; Predicting; Combining

SYNTHESIS

ANALYSIS

Identifying and analyzing patterns; Organisation of ideas; recognizing trends

Using and applying knowledge; Using problem solving methods; Manipulating; Designing; Experimenting

APPLICATION

COMPREHENSION

Understanding; Translating; Summarising; Demonstrating; Discussing

Recall of information; Discovery; Observation; Listing; Locating; Naming

KNOWLEDGE

Focus on Analysis Treat Synthesis as Opinion

Analysis:

"To break up" decomposition, disintegration, reductionism

Analysis Synthesis con in the state of the s

Synthesis:

"to put together" composition, integration, creation

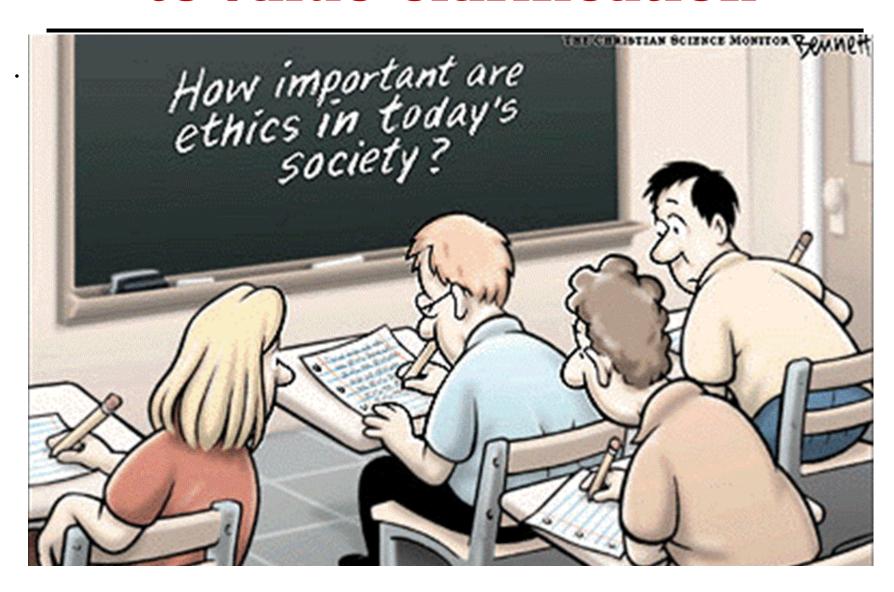
Critical Thinking: Problems Teaching

What is called critical thinking in the classroom tends to be

- reductionist (explaining complex phenomena in terms of more elemental events),
- **positivistic** (limiting the "real" to what is physically observable or which can be proved),
- quantitative (understanding qualities in terms of quantities).

Source: John Bardi: www.personal.psu.edu/jfb9/essay2ThinkingCritically.html

Ethics reduced to value-clarification



Three Key Problems: Schield (2004)

Resolving Three Key Problems in the Humanities.

Abstract: The disarray in the humanities reflects their sensitivity to the problems of objectivity, unobservables and induction. Resolving these problems could set a new direction.

Copy: www.statlit.org/pdf/2004SchieldNDIH.pdf



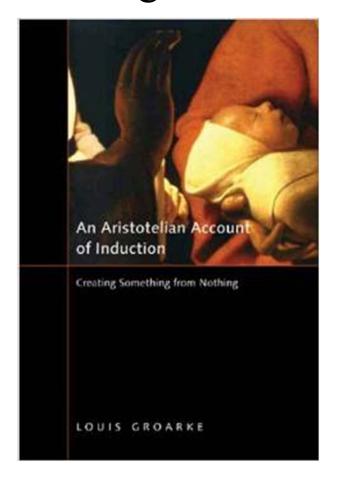
The Second
International Conference on
NEW DIRECTIONS
IN THE HUMANITIES

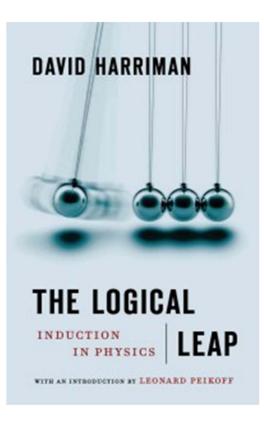
Resolving these problems could

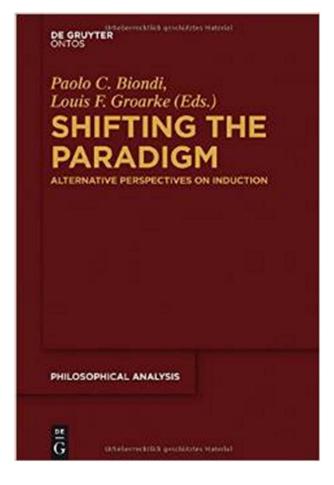
- Provide a reality-based middle ground that avoids the excess of relativistic subjectivism and dogmatic intrinsicism.
- Reverse the tide of anti-intellectualism, skepticism and pseudo-science.
- Lay the foundation for a second renaissance that would outshine the first in its benefits to society

3) Solution or Resolution

Solving or resolving the problem of induction







2009: The 1st Book to address the Problem of Induction

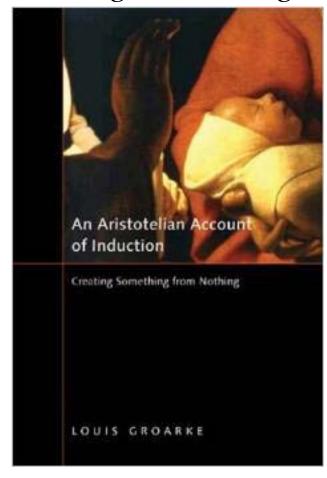
An Aristotelian Account of Induction: Creating Something

from Nothing by Groarke (2009).

"Groarke explains how Aristotle offers a viable solution to the so-called problem of induction..."

Professor of philosophy at St. Francis Xavier University, Canada.



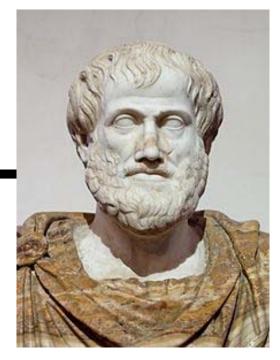


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V1 2015 Schield CTC

Aristotle mis-understood

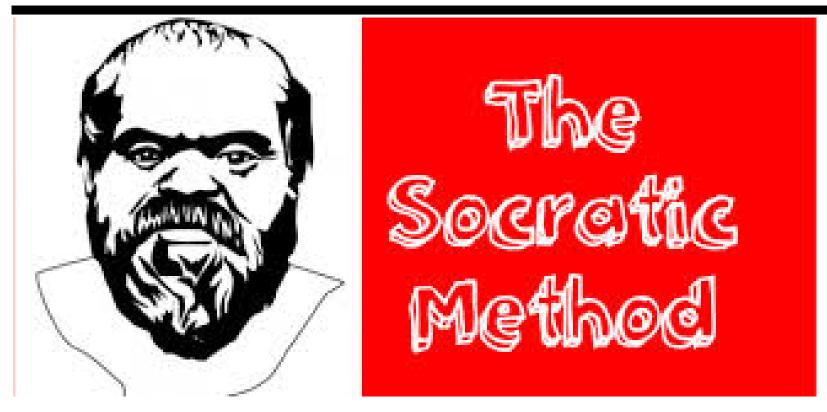
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Groarke says that Aristotle was trying to talk about what was essential to something. If it were essential, it would be true for all members of that group.

Socrates: Mis-understood



- 1. Always questioning. Sharing opinions.
- 2. Searching for what is essential about something.

2010: The 2nd book to address the Problem of Induction

The Logical Leap: Induction in Physics. Harriman (2010).

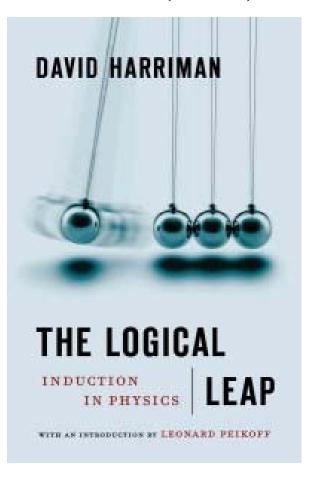
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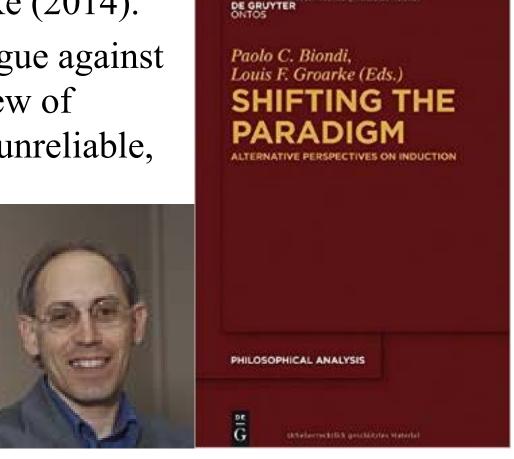
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Two Kinds of Induction

Induction is "proceeding from particulars to a universal" Aristotle's statement is ambiguous – two interpretations:

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Critical Thinking The Future will be Better

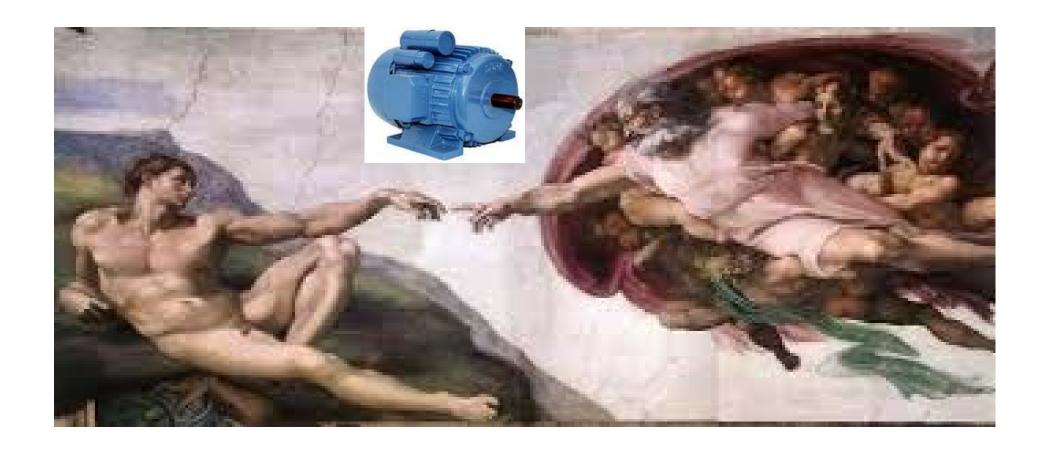
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- **Truth**: Concept formation, the nature of knowledge and the field of education will be transformed.
- Goodness: Ethics will be secularized. The social sciences will merge back under the Humanities.
- **Beauty**: Art and literature will be redefined.

Organized religion will no longer have a "monopoly" on goodness, values and virtues.

Critical Thinking The Future will be Much Better

Induction is the motor of the mind.



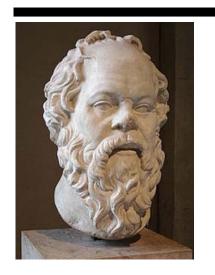
Will a different Philosophy make that much difference?

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Most individuals ignore the problem of induction. They believe there is a right and wrong, a good and bad.

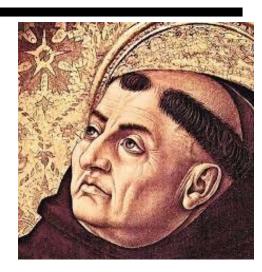
- Q. Is there any evidence that resolving the problem of induction will make much difference?
- A. Yes, *Ocassionalism* in Islamic civilization today!

Socrates Averroes -> Aquinas Aristotle Al-Ghazali \rightarrow Ayatolla

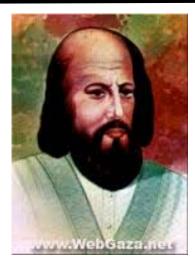


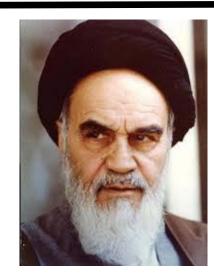


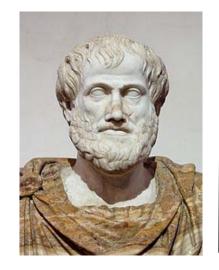








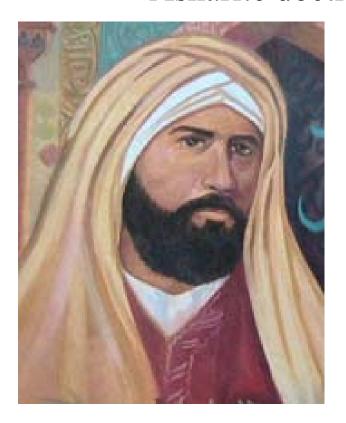




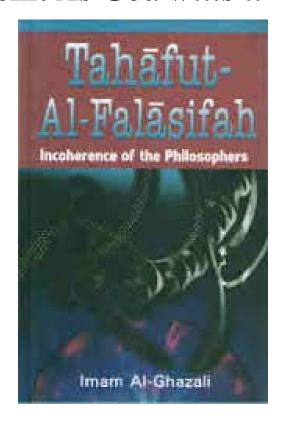
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The Fall in Islam Rejection of Aristotle and Plato

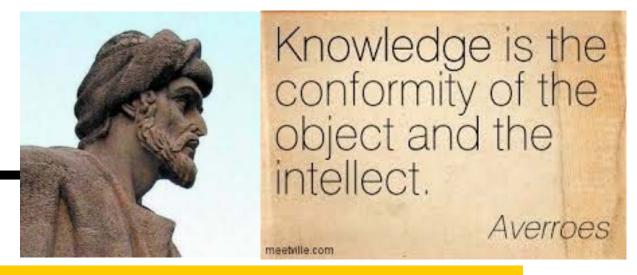
1058-1110 Al-Ghazali *The Incoherence of the Philosophers:*Most influential Muslim after Muhammad.
Asharite doctrine: **Occasionalism:** *As God wills it*







Averroes: 1126-1198



Averroes

 "Philosophy and religion are not incompatible."

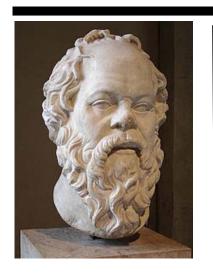


Socrates **Aristotle**

Bacon Hume

GE Moore

44



Yes

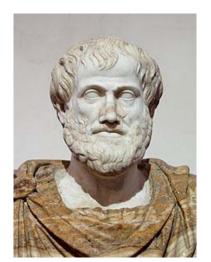




No







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I look forward to a brighter future for all of mankind

