

VI 2015 Schield CTC 1

Induction vs. Deduction Synthesis vs. Analysis

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Augsburg College

May 23, 2015
West Minneapolis Critical Thinking Club
www.StatLit.org/pdf/2015-Schild-CTC2-Slides.pdf

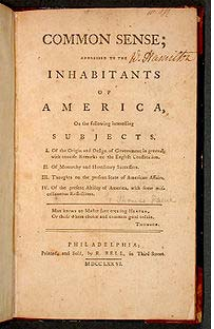
Past 2015 Schield CTC 2

We thought critically! January, 1776

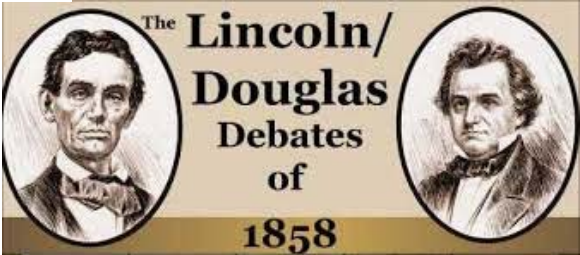
In proportion to the population of the colonies (2.5 million), it had the largest sale and circulation of any book published in American history. [500,000 copies 1st year]

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

Wikipedia: Common Sense



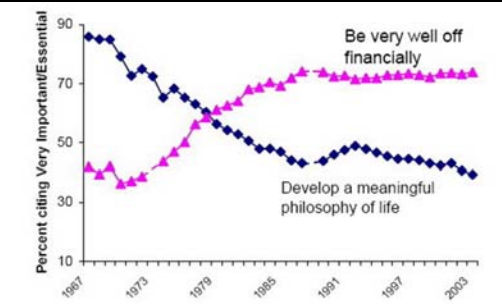
Past 2015 Schield CTC 3



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 2015 Schield CTC 4

Change in Values US Freshman



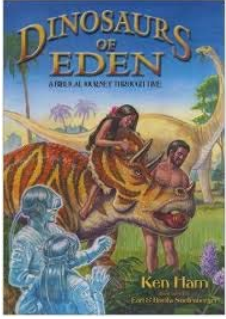
Year	Be very well off financially (%)	Develop a meaningful philosophy of life (%)
1967	85	40
1973	75	35
1979	65	55
1985	55	65
1991	45	70
1997	45	70
2003	40	70

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

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Critical Thinking: The Fall in Culture

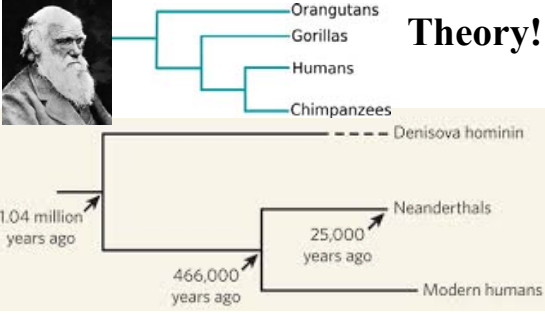
- Advocacy journalism rejects objectivity and neutrality
- Rise of pseudo-science:
 - young-earth creation
 - denial of evolution
- Confirmation bias in media
 - MS-NBC & Fox News



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Most college grads do NOT accept Darwinian evolution

Theory!



1.04 million years ago

466,000 years ago

25,000 years ago

Orangutans
Gorillas
Humans
Chimpanzees
Denisova hominin
Neanderthals
Modern humans

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Assumptions are Arbitrary

Psalms 104:24 Isaiah 40:28

Input → **Output**

Creation vs Evolution
Same hardware - Different operating systems

AiG CREATIONS www.AnswersInGenesis.org

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Assumptions are Arbitrary

Ethics and Values

Different starting points

Starting points are arbitrary.

Creation Museum

AiG CREATIONS www.AnswersInGenesis.org

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Assumptions are Arbitrary

Secular humanism Religious humanism

Center for Religious Humanism

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Stance & Perspective: Optional / Elective

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”...

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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

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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.

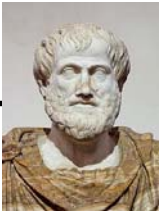
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**Aristotle:
the Father of Logic**

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?




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**Aristotle:
the Father of Logic**

Inductions generate universals based on particulars. From "Some" to "All".
Aristotle seemed incomprehensible on **induction**.

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 are white, so all swans are white...



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Examples of Induction

All inductions involve universals: All men are mortal; All acorns come from oak trees; All water runs downhill; All shocks come from electricity.

Benjamin Franklin investigated various sources of "shocks": eels, cloths, etc. His famous kite-lightning experiment demonstrated "the sameness of electrical matter with that of lightening..."

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


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**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."



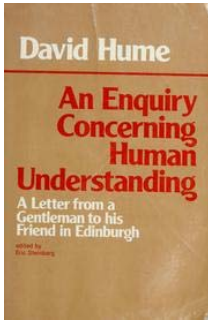
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**The Fall in Philosophy
No Certainty**

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

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 & Popper



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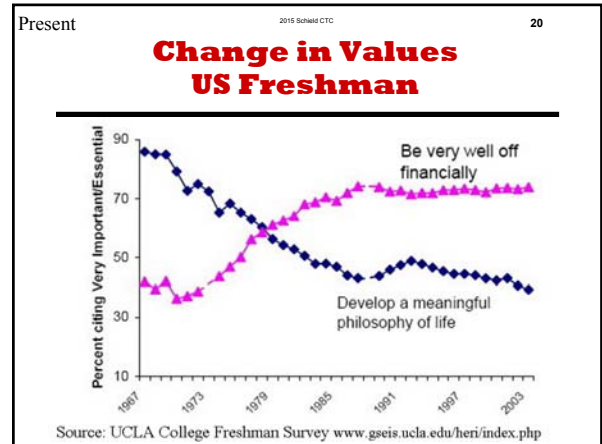
**Critical Thinking:
The Fall in Philosophy**

1748 Hume: *Human Understanding*:
Problem of induction; Problem of causation.

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"

1921 Wittgenstein: the *Tractatus*: Language limits what can be said meaningfully. This excludes "religion, ethics, aesthetics, the mystical"...



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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:

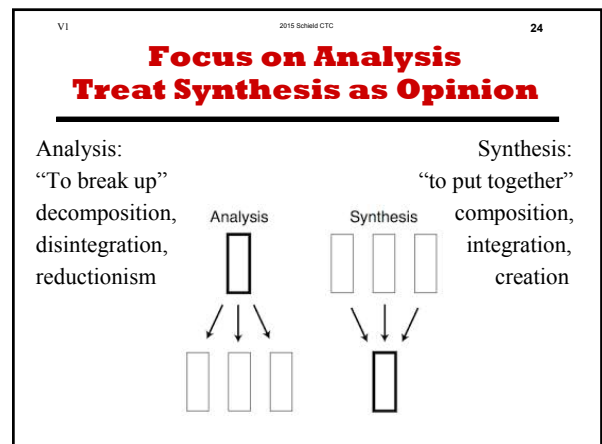
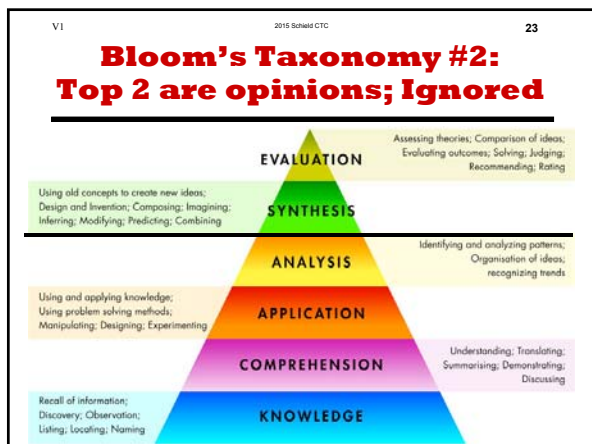
- Skepticism
- Cynicism
- Relativism
- Subjectivism

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Relativism: The Religious Response

Relativism:
No good or bad;
no right or wrong;
no virtue or vice;
no merit or sin;
no earned or unearned

Involves “cognitive promiscuity”



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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

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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

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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.”

Schild 2004

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Ethics reclaimed from value-clarification



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More on Essentials; Less “cognitive promiscuity”

Protests over police shooting of 2 unarmed men in Washington state for trying to steal beer



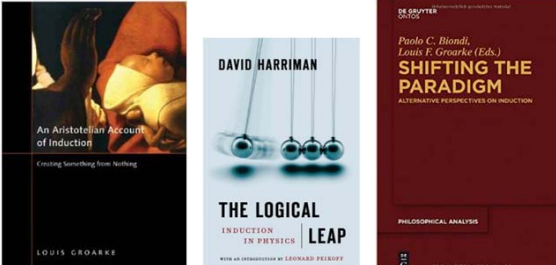
The officer reported he was being assaulted [by the suspects] with a skateboard. May 21, 2015 Yahoo News.



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3) Solution or Resolution

Solving or resolving the problem of induction



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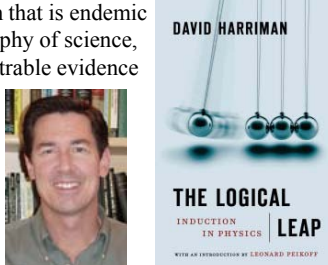
The most-accessible book on the Problem of Induction

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

“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]

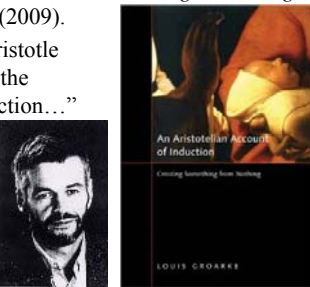


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Untangling Aristotle’s views on the Problem of Induction

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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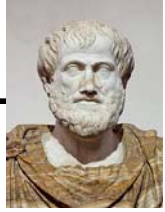
Aristotle misunderstood

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

This made Aristotle sound like the village idiot. It required omniscience of past, present and future!

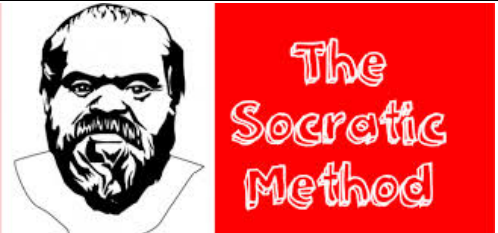
If all swans are white, then all swans are white...

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.



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Socrates: Misunderstood



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

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A philosopher’s discussion of 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]



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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.
Is color essential for being a swan? What is a swan?
What is man? What is truth? What is good?

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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.

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Critical Thinking The Future will be Much Better

Induction is the motor of the mind.



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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!

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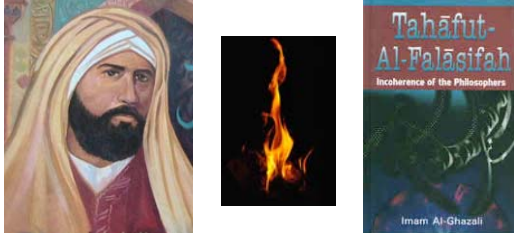
Socrates **Averroes → Aquinas**
Aristotle **Al-Ghazali → Ayatolla**

	Yes		
	No		

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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**



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Averroes: 1126-1198




Knowledge is the conformity of the object and the intellect.

Averroes

Averroes

- “Philosophy and religion are not incompatible.”



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Socrates Aristotle Bacon Hume

????????? GE Moore

		
Yes		
		
No		

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I look forward to a brighter future for all of mankind



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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

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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*
- The *rejection of sweeping philosophical systems* in favour of attention to detail, or ordinary language