

# **History of Psychology**

## Session 2: Pre-Psychology

Rui Mata, Center for Cognitive and Decision Sciences  
September 30, 2024

# Session information

Sessions take place Mondays, 8.15-9.45, Chemie, Organische, Grosser Hörsaal OC.

#	Date	Topic	Instructor	Slides	Key reading
1	23.09.2024	Session 1: Introduction	Tisdall	<a href="#">pdf</a>	<a href="#">Ball (2012)</a>
2	30.09.2024	Session 2: Pre-psychology	Mata		
3	7.10.2024	Session 3: The birth of psychology	Mata		
4	14.10.2024	Session 4: Psychoanalysis	Mata		
5	21.10.2024	Session 5: Behaviorism	Mata		
6	28.10.2024	Session 6: Gestalt psychology	Mata		
7	4.11.2024	Session 7: Cognitive psychology	Mata		
8	11.11.2024	Session 8: Psychology today	Tisdall		
9	18.11.2024	Session 9: Psychotherapy research	Tisdall		
10	25.11.2024	Session 10: Psychological testing	Tisdall		
11	2.12.2024	Session 11: Decision science	Tisdall		
12	9.12.2024	Session 12: What kind of science is psychology?	Mata		
13	16.12.2024	Exam (Bernoullianum, Grosser Hörsaal 148)			

# Learning Objectives for Today

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- Recognise that main questions in psychological science today have long traditions dating back (at least) to classical antiquity
- Identify key issues already raised by thinkers from classic antiquity (Plato, Aristotle) and discuss their relation to more recent ideas in psychology
- Identify the origins of the scientific revolution in the Renaissance and Enlightenment, and discuss main points of contention between the rationalist and empiricist views that arose from this era as well as their relation to more recent ideas in psychology
- Identify the origins of “psychology” as part of philosophical inquiry



GREEK

psukhē  
*breath, life, soul*

LATIN

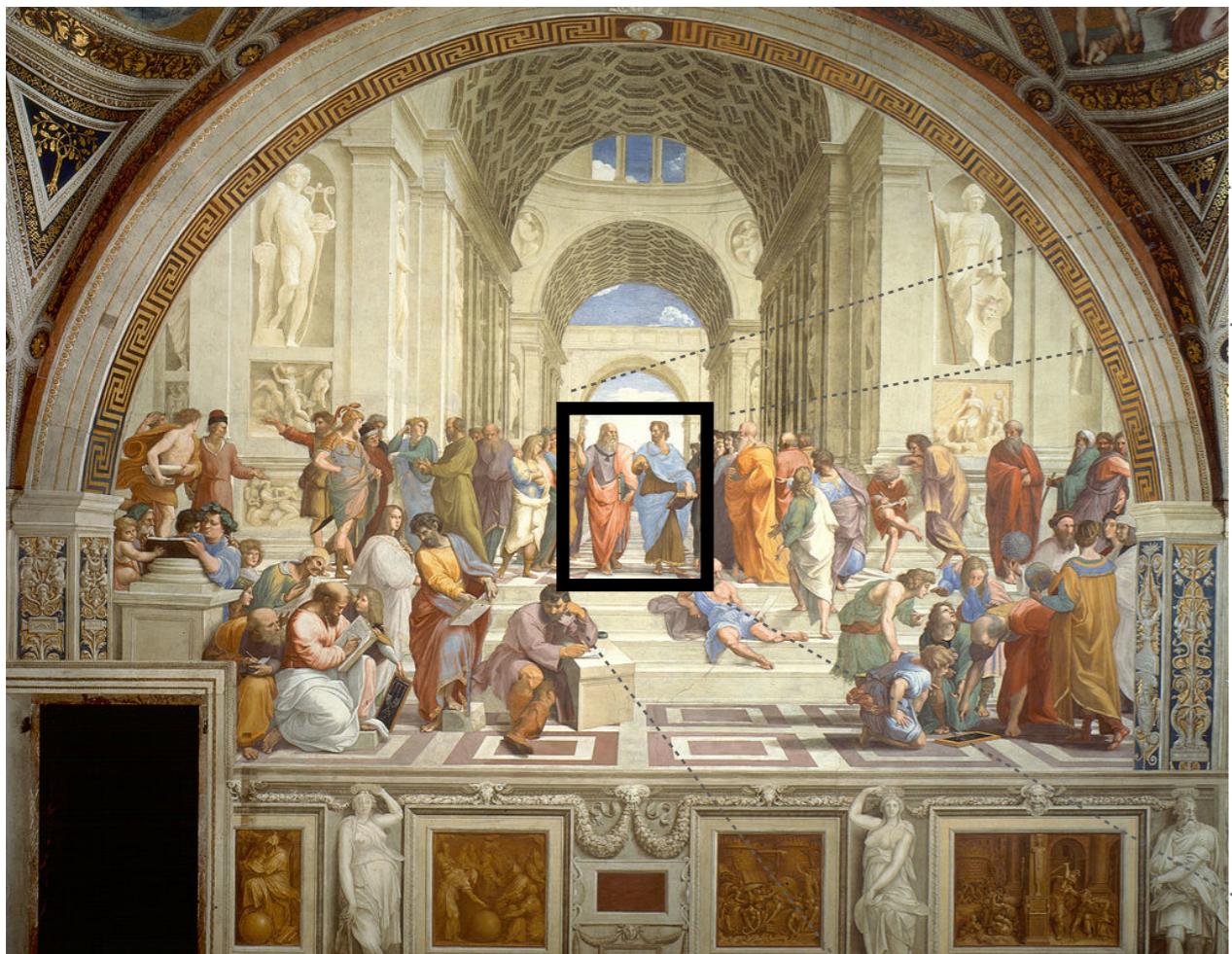
psyche  
*mid 17th century*

# **PSYCH BEFORE PSYCH!**

**What past (pre 19th century) concepts or discussions, could be relevant to our understanding and thinking about psychology today?**







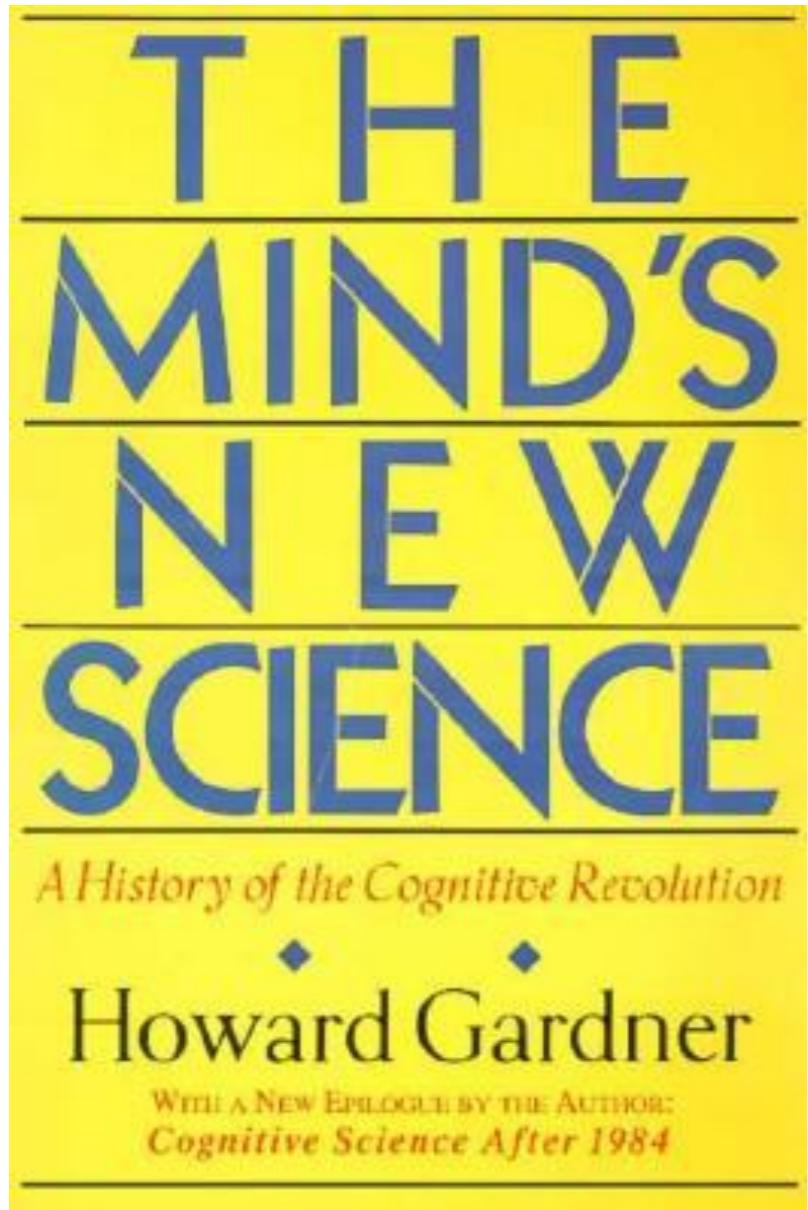
The School of Athens (1509-1511),  
Raphael, Apostolic Palace, Vatican.

[https://en.wikipedia.org/wiki/The\\_School\\_of\\_Athens](https://en.wikipedia.org/wiki/The_School_of_Athens)



Plato  
(holding Timaeus)

Aristotle  
(holding Ethics)



“The safest general characterization of the European philosophical tradition is that it consists of a series of footnotes to Plato.”

Alfred North Whitehead  
(1861-1947)

Gardner, H. (1985). *The mind's new science: A history of the cognitive revolution*. New York: Basic Books.

# Plato

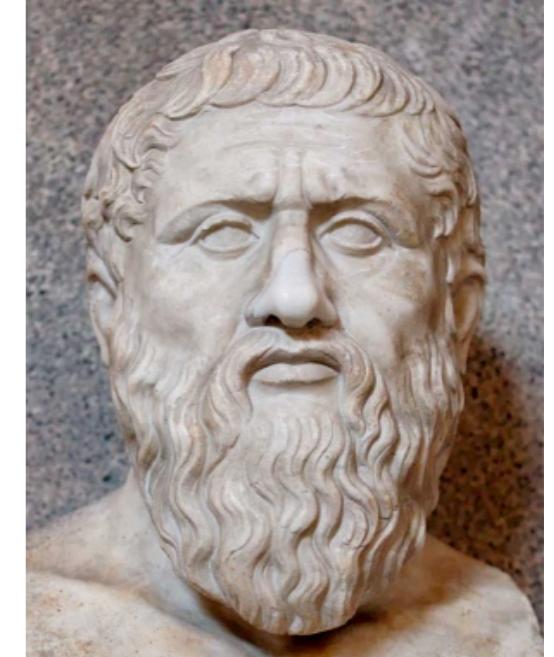
Socrates's disciple, founded the Academy for Philosophy in 385 BC in Athens (at Academus, an olive and plane grove near Athens)

- Idealism and Theory of Forms

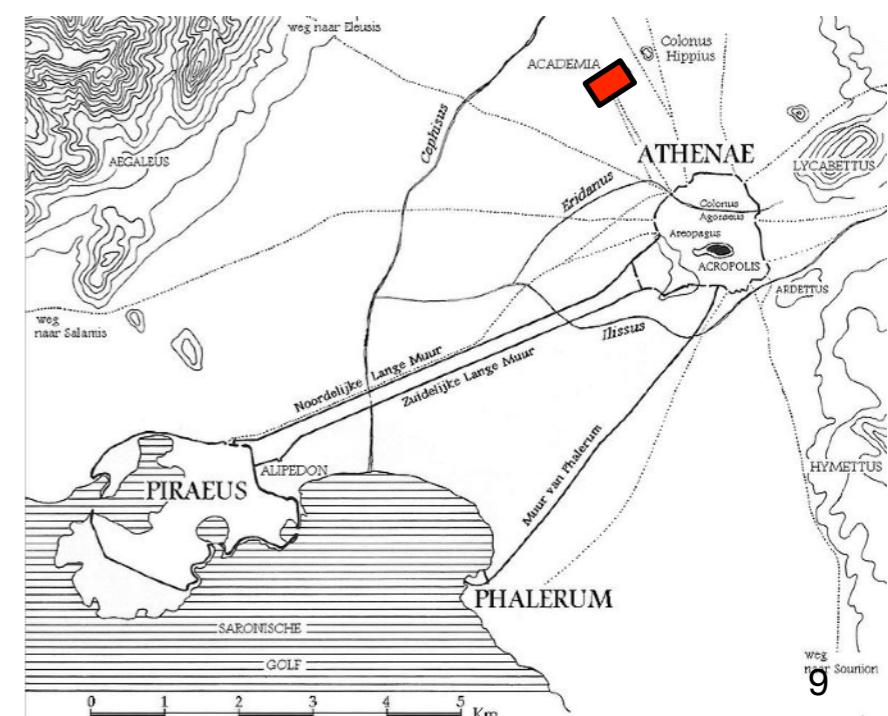
the idea that reality, or reality as we can know it, is fundamentally mental or mentally constructed; senses do not necessarily deliver a true picture of the physical world (cf. analogy of the cave)

- Dualist Views (separation of body and soul)
- Nativist Views (the soul possesses a priori knowledge that can be recalled)

<https://plato.stanford.edu/entries/plato/>



Plato  
(427-347 BC)



# Meno: Plato's view on innate knowledge

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"Meno: Can you tell me, Socrates, whether virtue is acquired by teaching or by practice; or if neither by teaching nor practice, then whether it comes to man by nature, or in what other way?

Meno

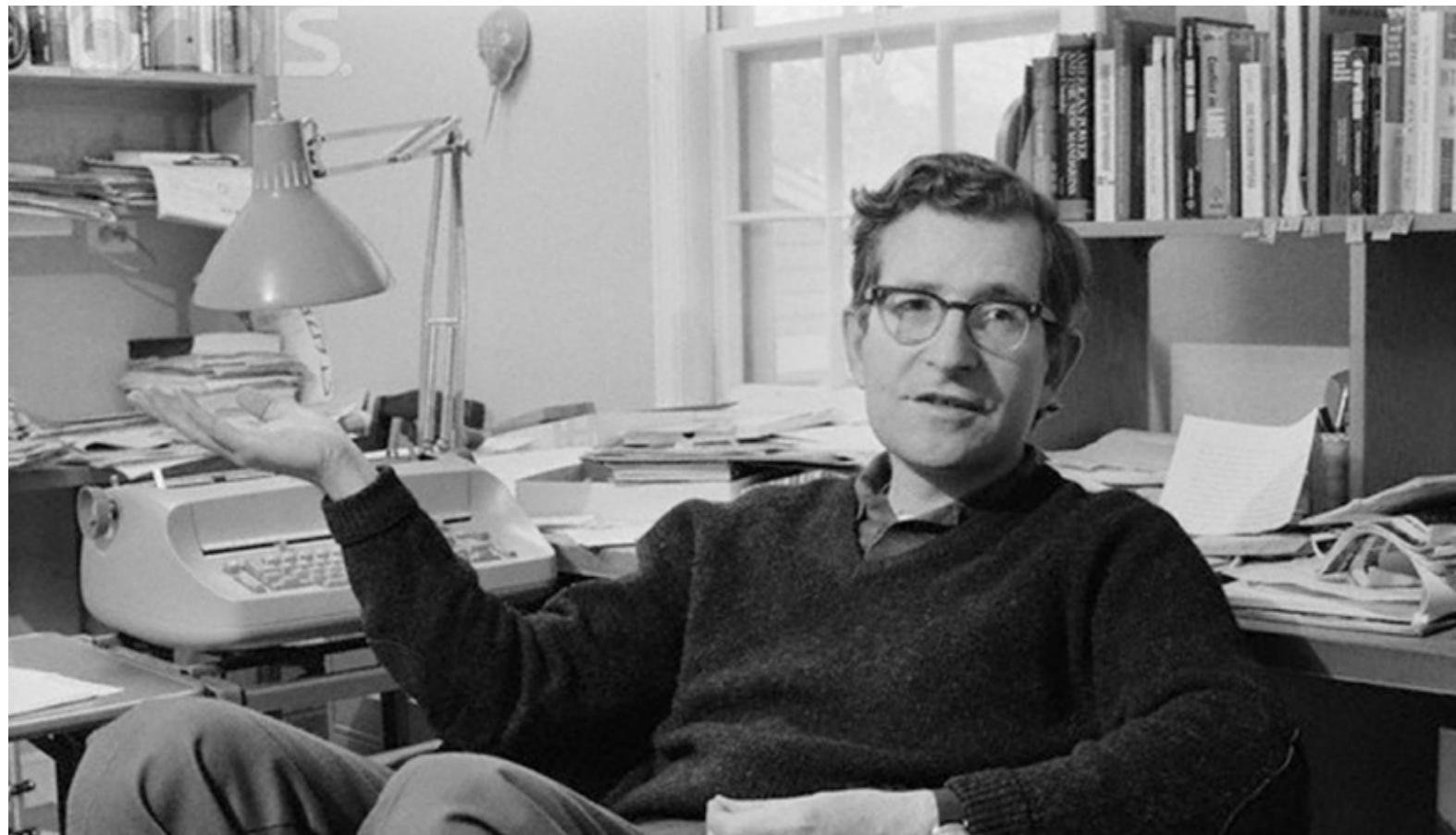
By drawing geometric figures Socrates tries to demonstrate that a slave, apparently unknowledgeable, appears to understand basic geometric principles, specifically, answer the question: How long must a square's side be to double the area of a 2 feet-sided square?



The slave initially guesses (incorrectly) that the original side must be doubled in length. Socrates then draws a second square using the diagonal of the original square. Each diagonal cuts each two foot square in half, yielding an area of two square feet. The square composed of four of the eight interior triangular areas is eight square feet, double that of the original area. He gets the slave to agree that this is twice the size of the original square and says that the slave has "spontaneously recovered" knowledge.

Plato's **Meno** represents an example of his idea of *anamnesis*, that certain knowledge is innate and "recalled" by the soul through proper inquiry.

# A modern form of Plato's problem



In the 1950s, Noam Chomsky introduced the “poverty of the stimulus” argument as a critique of B. F. Skinner’s idea that language is learned solely through experience. According to Chomsky, this is a version of “Plato’s problem”: children are not exposed to rich enough data (i.e., feedback) in their linguistic environments to acquire every feature of their language - therefore, some knowledge of linguistics must be innate.

[https://en.wikipedia.org/wiki/Poverty\\_of\\_the\\_stimulus](https://en.wikipedia.org/wiki/Poverty_of_the_stimulus)

Chomsky, N. (1959). A review of B. F. Skinner's Verbal Behavior. *Language*, 35, 1, 26-58.

# Phaedrus: Plato's view on the soul (psyche)

## The Chariot Allegory

"Of the nature of the soul (...) let me speak briefly, and in a figure. And let the figure be composite-a pair of winged horses and a charioteer. (...) the human charioteer drives his in a pair; and one of them is noble and of noble breed, and the other is ignoble and of ignoble breed; and the driving of them of necessity gives a great deal of trouble to him." *Phaedrus*



- the Charioteer represents the intellect or reason that steers rational or moral impulse as well as irrational passions and appetites.
- Only the intellect, not the body, is immortal and allows entrance to the world of ideas.

# Plato's view on the soul (psyche)

"The same thing clearly cannot act or be acted upon in the same part or in relation to the same thing at the same time, in contrary ways; and therefore whenever this contradiction occurs in things apparently the same, we know that they are really not the same, but different."

*The Republic*

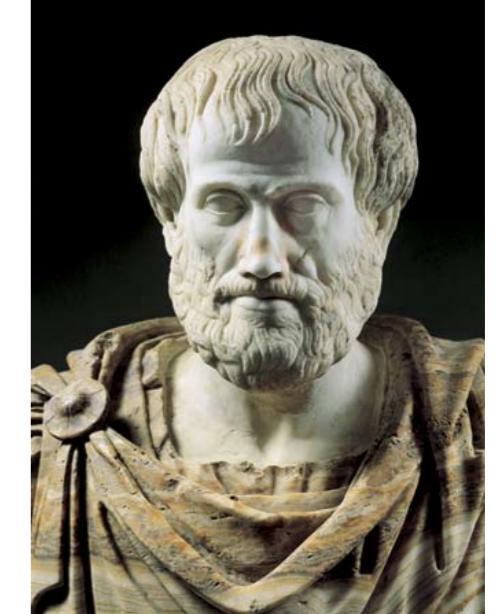
Soul Component	Greek Term (Domain)	Seat in the body	Position in Society
Desire/Appetitive Soul	epithymetikon (Emotion)	Abdomen	Worker
Spirit/Spirited soul	thymoeides (Motivation)	Breast	Warrior
Reason/Logical soul	logistikon (Cognition)	Head	Ruler

# Aristotle

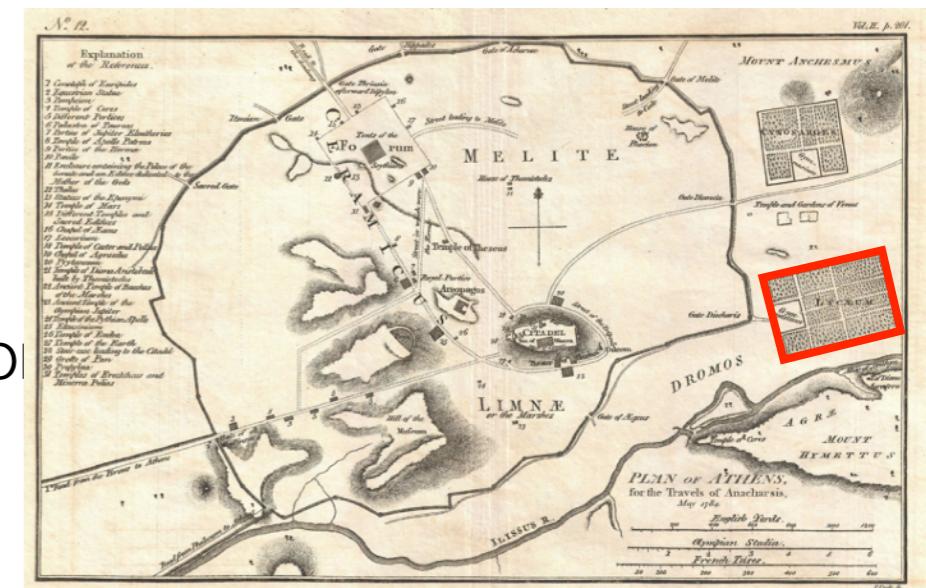
Plato's disciple, founded a philosophy school in 335 BC, the „Lyceum“ at Lykeion, a grove in Athen, behind todays' Hellenic Parliament)

- Contributions to many different areas of knowledge (theoretical, practical, productive sciences)
  - biology
  - logic and causality
  - psychology: memory, dreams, health
  - emphasis on practical goals of philosophy (rhetoric, ethics, the good life)
- Monist

body and soul are two interdependent parts that support each other; they rely on each other; the body as a tool of the soul

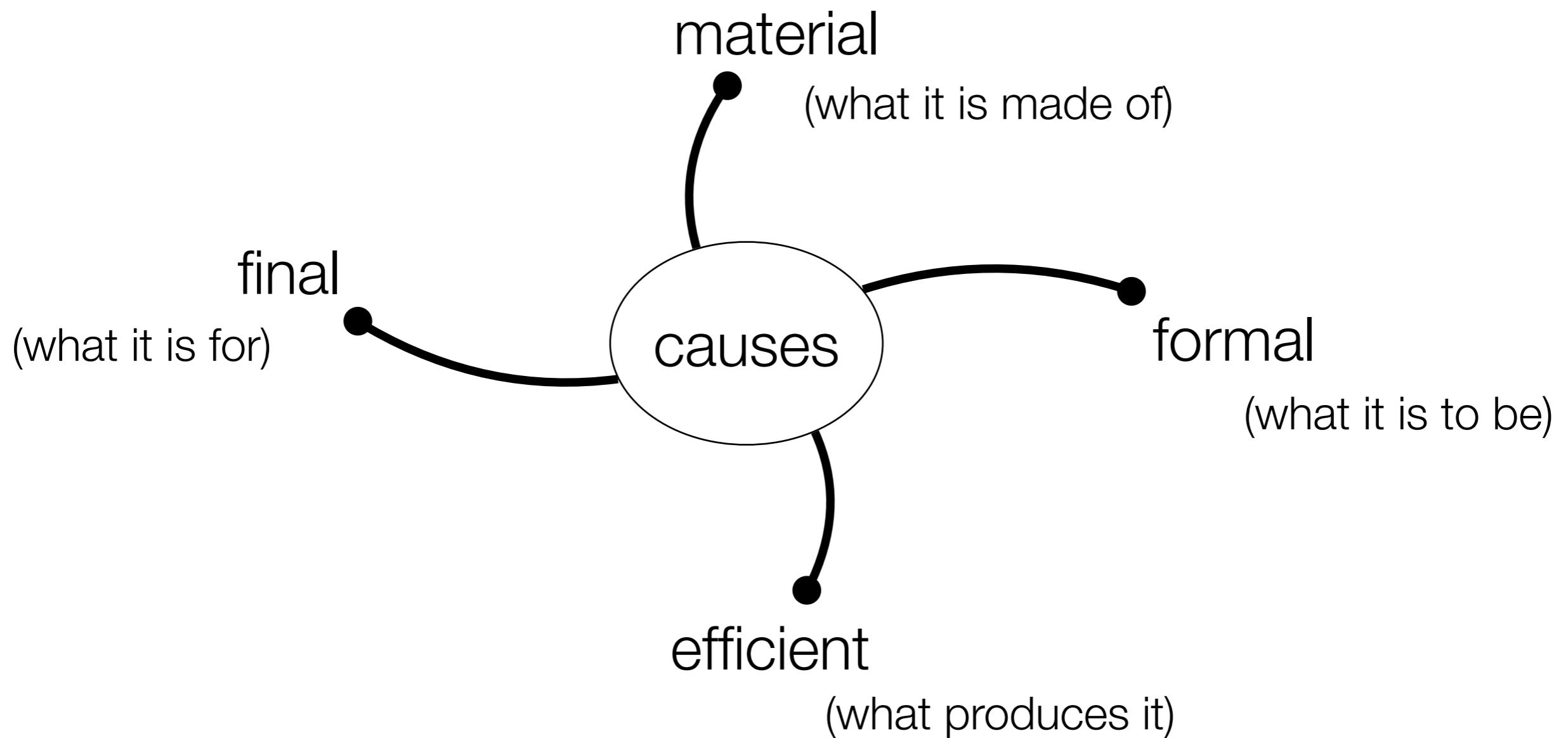


Aristotele  
(384-322 BC)

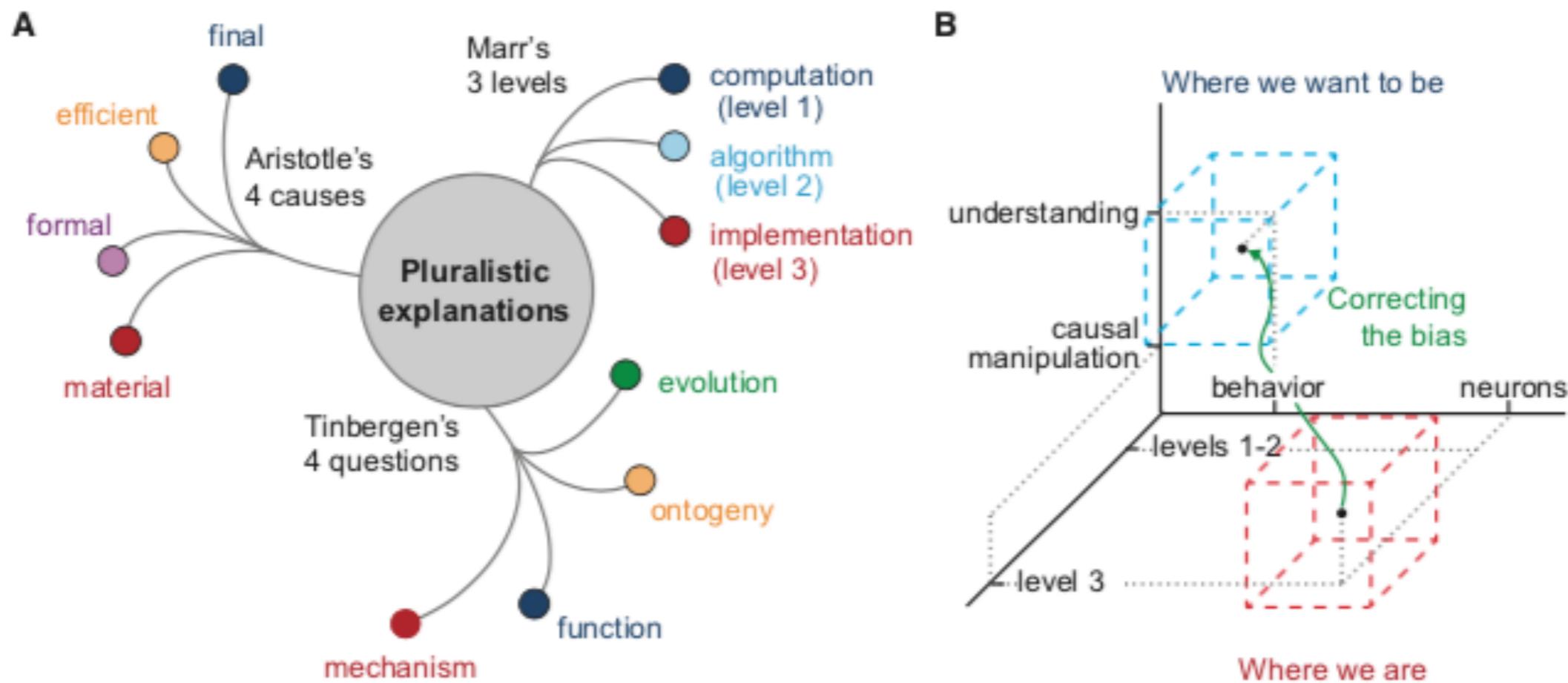


# Aristotle: Causes

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# Aristotle: Causes



**Figure 4. The Future History of Pluralistic Explanation**

(A) That understanding of a phenomenon is multidimensional has long been appreciated. Aristotle posited four kinds of explanation: to explain "why" something changes, a polyhedral notion of causality is necessary; one that includes not only the material cause (what it is made out of), but also the other three "whys": formal (what it is to be), efficient (what produces it), and final (what it is for). Tinbergen also devised four questions about behavior: to go beyond its proximate causation (mechanism) to also considering its evolution, development, and real-world function. Marr's three levels are also shown.

(B) Three-dimensional space with axes of understanding-manipulation, behavior-neurons, and Marr's levels. The red box is where we are and the blue is where we should be.

Krakauer, J. W., Ghazanfar, A. A., Gomez-Marin, A., MacIver, M. A., & Poeppel, D. (2017). Neuroscience needs behavior: Correcting a reductionist bias. *Neuron*, 93(3), 480–490. <http://doi.org/10.1016/j.neuron.2016.12.041>

# De Anima: Aristotle's view on the soul (psyche)

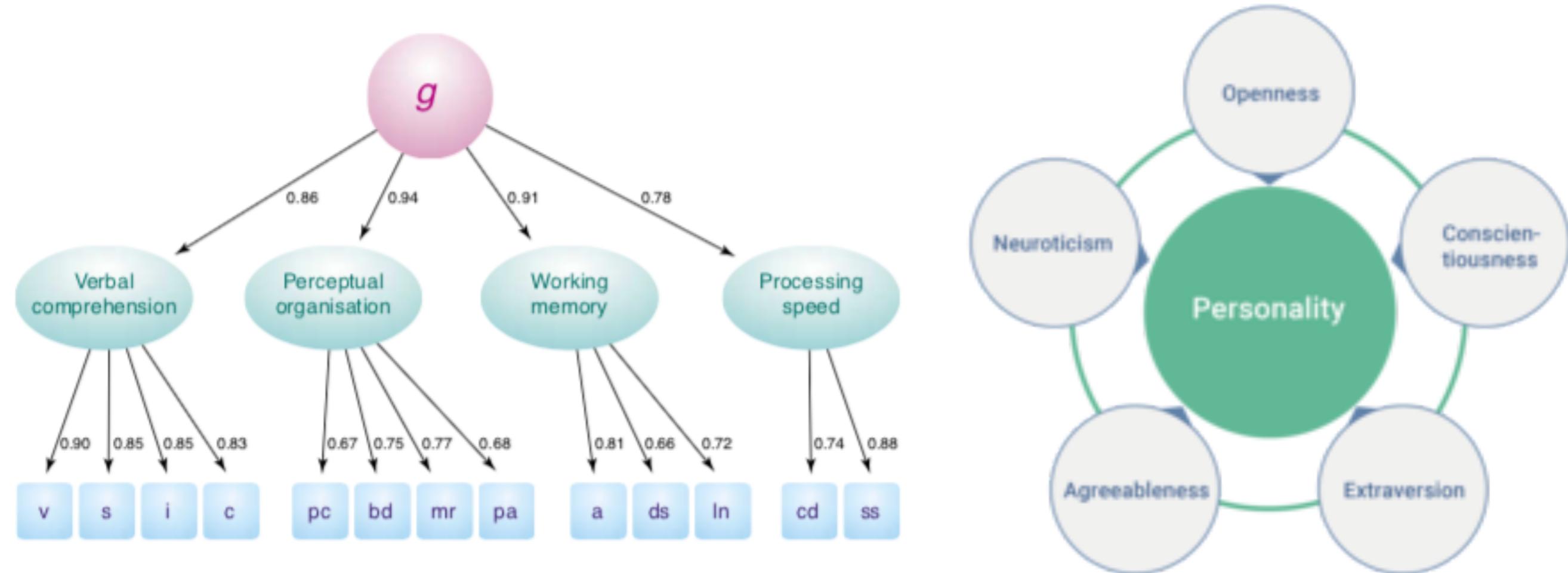
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"It is not necessary to ask whether soul and body are one, just as it is not necessary to ask whether the wax and its shape are one, nor generally whether the matter of each thing and that of which it is the matter are one. For even if one and being are spoken of in several ways, what is properly so spoken of is the actuality.

Tripartite view of the soul in which faculties or powers are distinguished  
(yet the soul is viewed as not being divisible as in Plato's view)

Faculty	Function
Vegetative/Nutritional	threptikon (Nutrition, Growth)
Animal/Appetitive	oretikon (Desires) aisthetikon (Perception) kinetikon (Movement)
Intellectual/Calculative	dianoetikon (Reason)

# Modern psychology's latent factors



Today's modern theories of intellectual and personality functions also hypothesise latent factors that are not directly observable...

Deary, I. J. (2001). Human intelligence differences: A recent history. *Trends in Cognitive Sciences*, 5(3), 127–130.  
[http://doi.org/http://dx.doi.org/10.1016/S1364-6613\(00\)01621-1](http://doi.org/http://dx.doi.org/10.1016/S1364-6613(00)01621-1)

Funder, D. C. (2001). Personality. *Annual Review of Psychology*, 52, 197–221.  
<http://doi.org/10.1146/annurev.psych.52.1.197>

# Nicomachean Ethics: Aristotle's view on well-being

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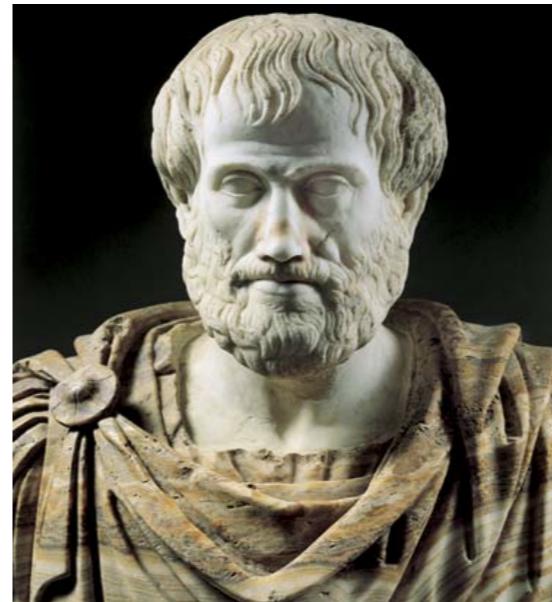
"what is best is not abstaining from pleasures, but instead controlling them without being controlled."



Aristippus

**hedonism**

reflects the view that well-being consists of pleasure or happiness.



Aristotle

**eudaimonism**

reflects the view that well-being consists of fulfilling or realizing one's daimon or true nature.

Both hedonic and eudaemonic views remain well represented in modern theories of human motivation.

# A lecture in 14th Century Bologna

(some things never change...)

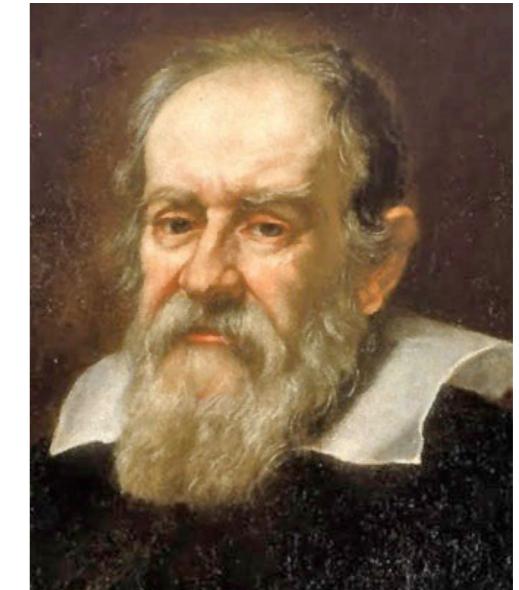


Liber ethicorum des Henricus de Alemannia, Laurentius de Voltolina (1350)

# Galileo Galilei

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- 1564 Birth in Pisa, Italy
- 1609 Develops a new telescope
- 1610 Discovery of Jupiter's Moons
- 1613 Discovery of Venus' phases
  - evidence that Venus revolves around the sun
  - favours Copernican (heliocentric) over Aristotelian/Ptolemaic (geocentric) system
- 1616 Admonishment by the Pope
- 1623 Publishes “The Assayer”, his “scientific manifesto”
- 1632 Publishes “Dialogue Concerning the Two Chief World Systems” and is later arrested
- 1633 Judged for heresy in Rom
  - Consequence: life-long house arrest, publication ban
- 1642 Death
- 1992 (!) rehabilitated by the church



Galileo Galilei  
(1564-1642)

# Galileo Galilei

## Galileo's Telescope



Galileo made his first telescope in 1609, and with it was able to, among other things, verify the phases of Venus, and discover sunspots, that he was later to use as support for a heliocentric view.

**power of and need for  
instrumentation in science**

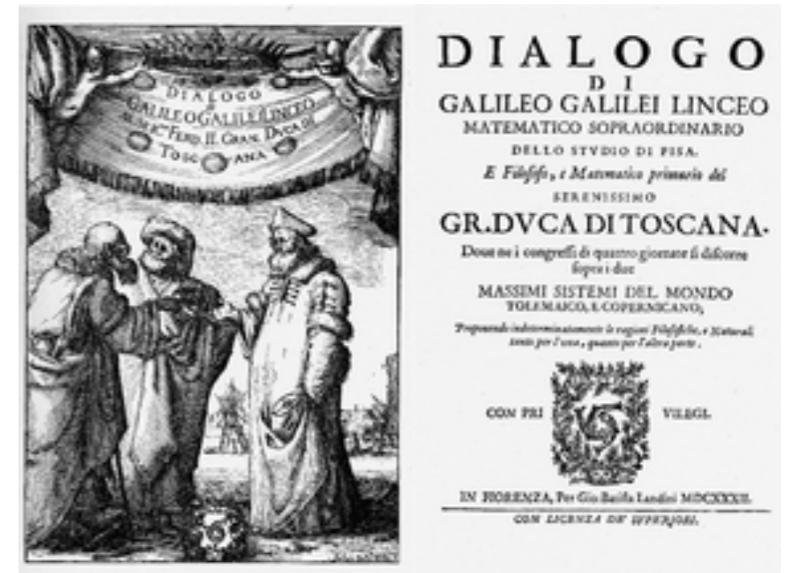
## The Assayer



"Philosophy [i.e. natural philosophy] is written in this grand book — I mean the Universe — which stands continually open to our gaze, but it cannot be understood unless one first learns to comprehend the language and interpret the characters in which it is written. It is written in the language of mathematics, and its characters are triangles, circles, and other geometrical figures, without which it is humanly impossible to understand a single word of it; without these, one is wandering around in a dark labyrinth."

**mathematics as the  
language of science**

## Dialogue [Concerning the Two Chief World Systems]



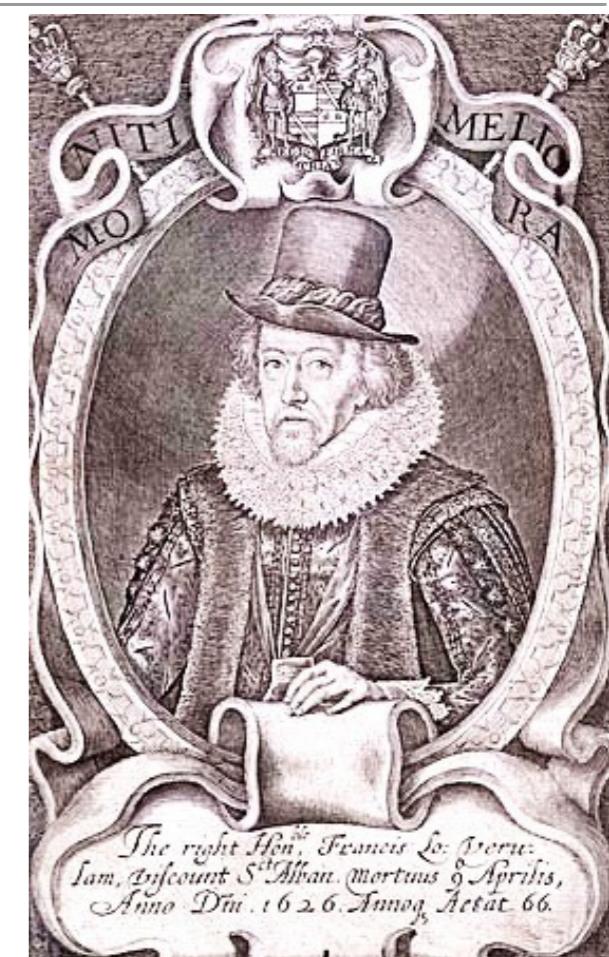
The book presents a series of discussions between three men, Salviati (a stand-in for Galileo), Sagredo (an initial neutral layman), and Simplicio (a follower of geocentric views). The book discusses a number of phenomena, including Venus' phases and sunspots (that are largely correct by today's standards), but also a theory of tides (that we now know to be false). The dialogue did not discuss the geocentric theory of Tycho Brahe that some astronomers preferred at the time (a hybrid system of the Copernican and Ptolemaic models; Mercury and Venus orbit the Sun, but the Sun orbits a stationary Earth; Mars, Jupiter, and Saturn orbit the Sun in much larger circles, which means they also orbit the Earth). At the time, the two systems were not distinguishable from the existing data.

**using data to distinguish theories  
(but also omission of problems!)**

# Francis Bacon

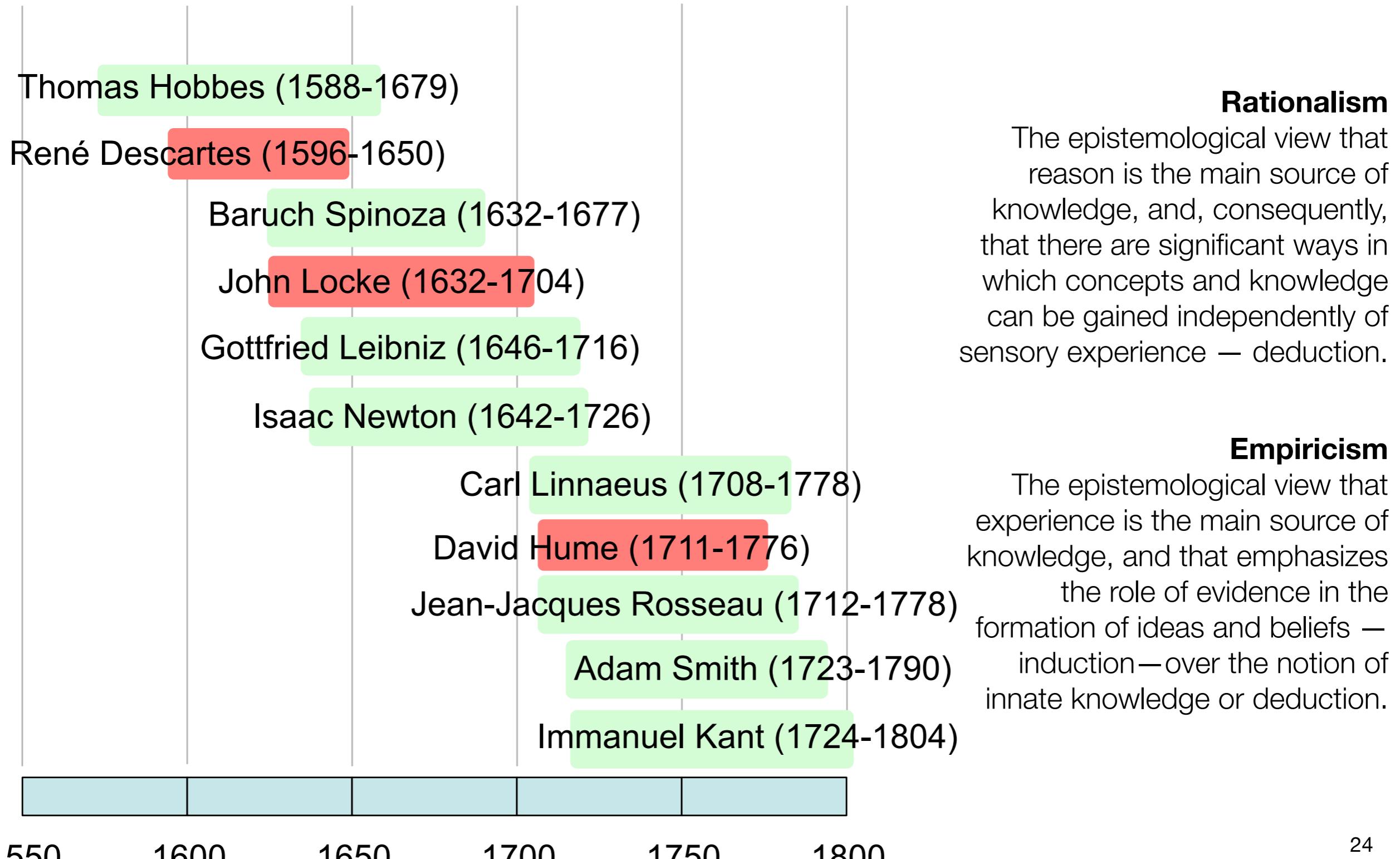
- In 1645, his “Novum Organum Scientiarium” helped establish and popularise the scientific method (i.e., inductive method). By reasoning using “induction”, Bacon meant the ability to generalize a finding stepwise, based on accumulating data. He advised proceeding by this method, or in other words, by building a case from the ground up.
- For example, Bacon suggests that one draws up a list of all things in which the phenomenon to explain occurs, as well as a list of things in which it does not occur. Then one can rank the lists according to the degree in which the phenomenon occurs in each one. Then one should be able to deduce what factors match the occurrence of the phenomenon in one list and don't occur in the other list, and also what factors change in accordance with the way the data had been ranked.
- Broadly, this approach could be seen as a synthesis of experience and reason...

<https://plato.stanford.edu/entries/francis-bacon/>



Francis Bacon  
(1561-1626)

# Rationalism and Empiricism



DISCOURS  
DE LA METHODE

Pour bien conduire sa raison, & chercher  
la vérité dans les sciences.

PLUS

LA DIOPTIQUE.

LES METEORES.

ET

LA GEOMETRIE.

*Qui sont des essais de cette METHODE.*



A LEYDE  
De l'Imprimerie de IAN MAIRE.  
c i o i o c x x x v i l .  
*Avec Privilege.*

“The first was never to accept anything for true which I did not clearly know to be such; that is to say, carefully to avoid precipitancy and prejudice, and to comprise nothing more in my judgment than what was presented to my mind so clearly and distinctly as to exclude all ground of doubt.”

(1637)

# René Descartes

## Nativism

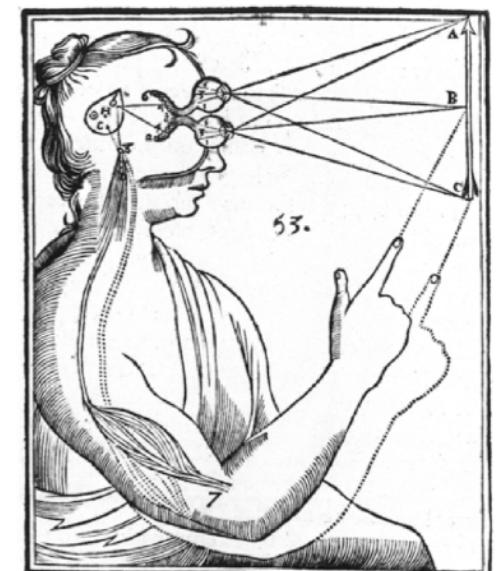
- Descartes believed that the human soul already comes equipped at birth with an innate understanding of certain concepts, such as time or space.

## Dualism

- res extensa (body) vs. res cogitans (mind/soul)
- the body works like a machine and has material properties, the mind or soul is nonmaterial and does not follow the laws of nature
- The mind interacts with the body at the pineal gland, "the seat of the soul". The hypothesis was derived from, first, the idea that the soul is unitary, and unlike many areas of the brain the pineal gland appeared to be unitary (more careful inspection reveals it is formed of two hemispheres). Second, the pineal gland is located near the ventricles and Descartes proposed the cerebrospinal fluid of the ventricles acted through the nerves to control the body (*Spiritus animales*).



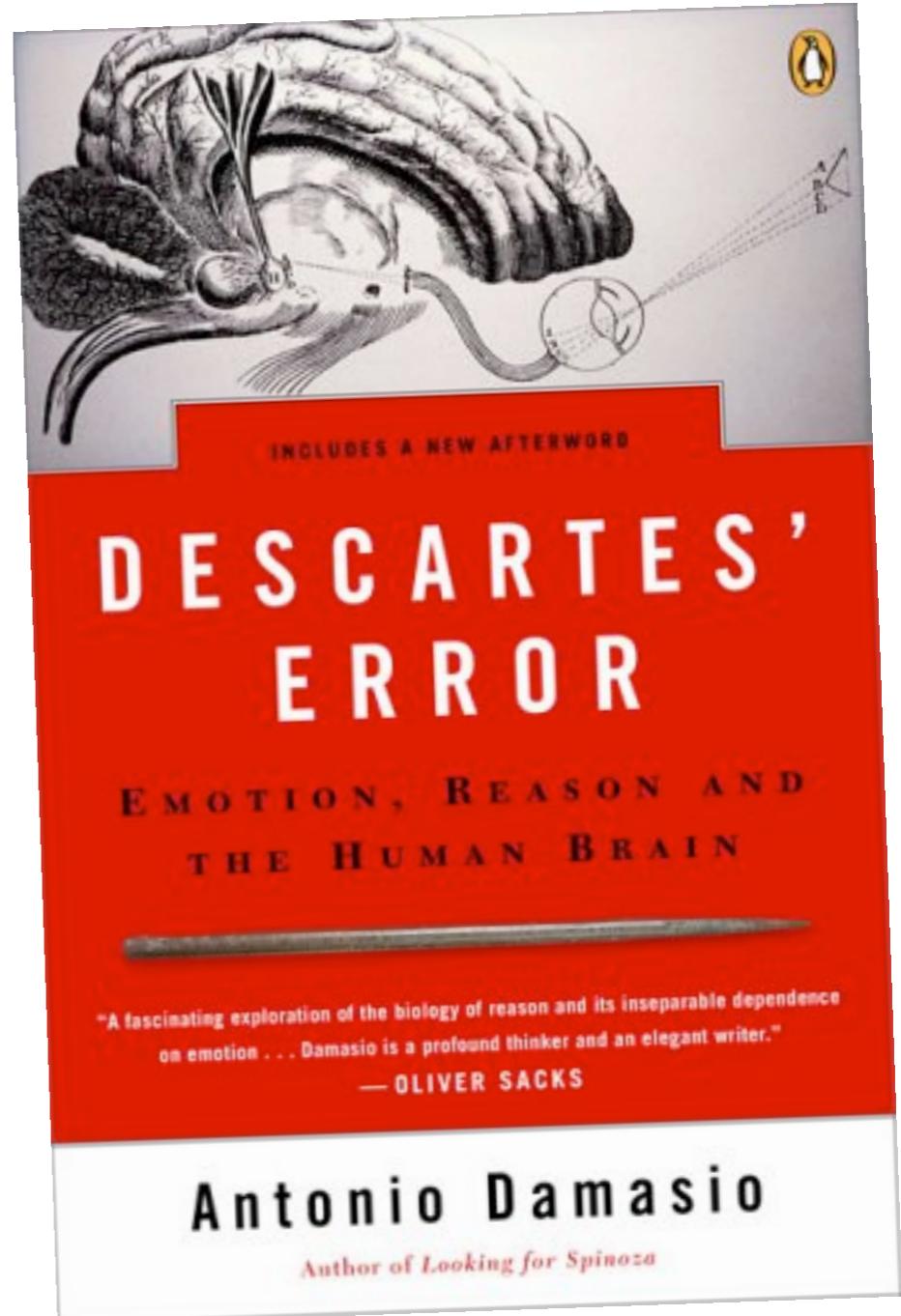
René Descartes  
(1596-1650)



# Descartes' Error?

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More recent theories in psychology and neuroscience, such as Damasio's, engage directly with Descartes' views on dualism by questioning the distinctions between reason and emotion based on recent neuropsychological evidence (lesion studies and associated decision and personality deficits).



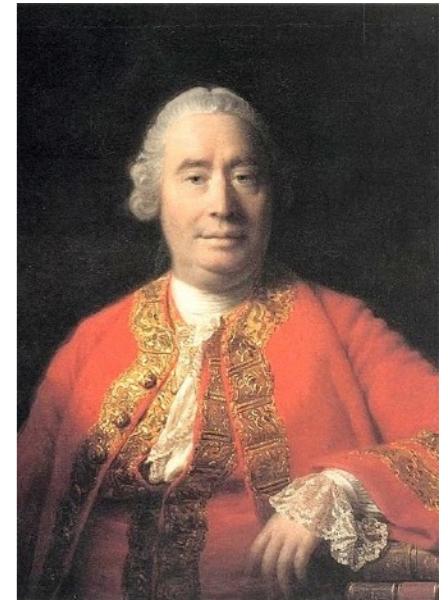
Damasio, A. R. (1994). *Descartes' Error: Emotion, Reason, and the Human Brain*. Putnam Publishing.

# John Locke and David Hume



John Locke  
(1632-1704)

- English physician and philosopher, statesman
- Wrote *Essay concerning human understanding*, 1690, in which he postulated that, at birth, the mind is a blank slate or *tabula rasa*. Contrary to Cartesian philosophy based on pre-existing concepts, he maintained that we are born without innate ideas, and that knowledge is instead determined only by experience derived from sense perception.
- Scottish philosopher, economist, historian
- Wrote *A treatise on human nature*, 1739, in which he argued against the existence of innate ideas, postulating that humans can have knowledge only of the objects of experience, and the relations of ideas. He also argued that inductive reasoning, and therefore causality, cannot, ultimately, be justified rationally, our belief in causality and induction instead results from custom, habit, and experience rather than logic.



David Hume  
(1711-1776)

# Hume's Principles of Association

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## Associationism

The idea that mental processes operate by the association of mental states. The principles of association are still studied today, for example, concerning the principles of semantic knowledge acquisition and representation (see examples below).



## Network or Associationist Representations of Semantic Knowledge

Different proposals have been made concerning how network structures may represent semantic knowledge, including (A) tree-structured hierarchical networks (Collins & Quillian, 1969), (B) random, unstructured networks (Collins & Loftus, 1975), or, more recently, scale-free, small-world networks (Steyvers & Tenenbaum, 2005).

Steyvers, M., & Tenenbaum, J. B. (2005). The large-scale structure of semantic networks: statistical analyses and a model of semantic growth. *Cognitive Science*, 29(1), 41–78. [http://doi.org/10.1207/s15516709cog2901\\_3](http://doi.org/10.1207/s15516709cog2901_3)

# Rationalism and Empiricism: Commonalities and differences

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- Both rationalist and empiricist views represented attempts to go beyond religious dogma (scholasticism), and propose new methodologies to uncover the “truth”, that is, obtain knowledge of the world through systematic methods (i.e., science).
- Rationalism and empiricism have different emphasis on deduction (i.e., the process of reasoning from one or premises to reach a logically certain conclusion) vs. induction (i.e., the accumulation of evidence or premises to provide support for a particular conclusion).
- It was the philosophical work of Immanuel Kant that contributed to a more common acceptance of the integration between rationality and empiricist views.

<https://plato.stanford.edu/archives/fall2017/entries/rationalism-empiricism/>

<https://plato.stanford.edu/entries/kant/>

# **SAME OR DIFFERENT?**

**To what extent are today's perspectives  
and approaches to psychology the same  
or different relative to the past ones  
discussed in this session?**



# “Psychology” throughout the ages

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The first use of the term "psychology" was likely by the Croatian humanist Marko Marulić (1450–1524) in the title of his Latin treatise, *Psichiologia de ratione animae humanae*.

The German scholastic philosopher Rudolf Göckel (1547–1628), also used the term in *Psychologia hoc est de hominis perfectione, anima, ortu* (1590).

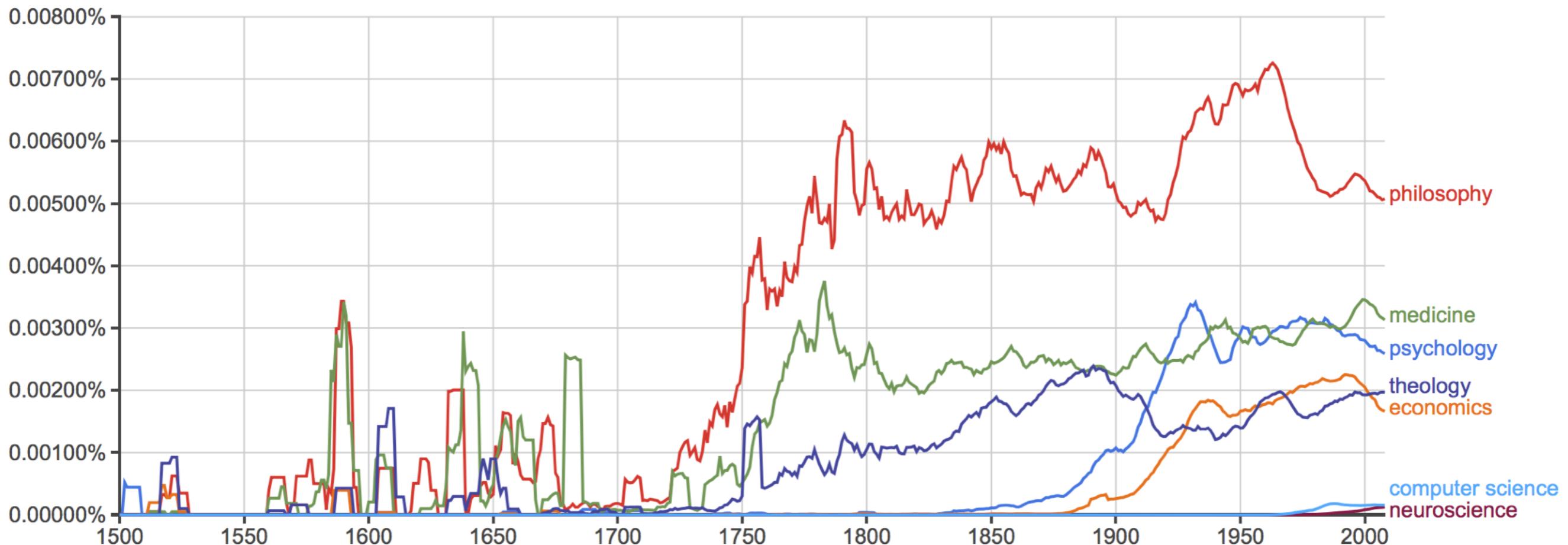
However, the term did not come into popular usage until the German philosopher, Christian Wolff (1679–1754) used it in his *Psychologia empirica* (1732) and *Psychologia rationalis* (1734).

This distinction between empirical and rational psychology was picked up in Denis Diderot's (1713–1780) *Encyclopédie* and popularized in France by Maine de Biran (1766–1824). In England, the term "psychology" overtook "mental philosophy" in the middle of the 19th century, especially in the work of William Hamilton (1788–1856).

# “Psychology” throughout the ages

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Google books Ngram Viewer



# Summary

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- **Classical antiquity:** no well-defined field of psychology, but psychology topics were central parts of the intellectual debate in the emerging field of philosophy (e.g., discussion on the nature of knowledge, the structure and functions of the soul, ethics and morality, as well as implications for education and politics);
- **Renaissance and enlightenment:** pronounced cultural change from scholasticism to humanism, emergence of science and its institutionalisation (e.g., universities!); continued discussion on the nature of knowledge and associated topics (rationalism vs empiricism);
- **Contrast and compare:** Then and now, similar questions and goals, heated debates about nature-nurture views of human psychology, the structure of the soul/mind, ethics/morality, among many others; however, at least until the 19th century psychology not an independent, empirical science...
- **“psychology”:** initially, a term used to describe mental life, increasingly used to describe the branch of philosophy dedicated to mental issues in the 19th century (substituting “mental philosophy”) and one that will become distinct from philosophy and ever more institutionalised (more on this in session 3).