

**PSY 3360 / CGS 3325
Historical Perspectives
on Psychology
Minds and Machines since 1600**

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Spring 2012**

René Descartes (1596-1650)



French mathematician, philosopher, and physiologist

Descartes

- **Rationalism**
- **Nativism**
- **Dualism**
- **Doctrine of innate ideas**
- **Mind-body interaction**

Descartes

- **Nativism**: Some ideas are not invented or discovered, but inherent or innate. Their truth is self-evident, not derived from experience.
- **Rationalism**: True knowledge is ultimately derived from a process of rational thought.
- **Dualism**: Mind and body are distinct and different; simple physical principles explain the workings of the physical world, but the human mind lies outside the physical realm.

The problem for dualism

- If mind and body are fundamentally different entities, how do they interact?
- How do external objects and events leave their impressions on our awareness?
- How are thoughts, desires, and intentions translated into actions?

Interactionist dualism

- Rational decisions can lead to physical actions
- Events in the physical world are perceived by the mind
- Mind and body interact through a single pathway
- Special role of the pineal gland in the human nervous system

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BBC NEWS | Science/Nature | Monkey's brain controls robot arm
<http://news.bbc.co.uk/2/hi/science/nature/7423184.stm>



Hydromechanical theory of nerve transmission

- William Harvey - circulatory system
- The primary sense receptors of animals and humans were like pressure plates that started the flow of **animal spirits** through a series of pipes



Theory of depth perception

- Doctrine of innate ideas
- Binocular vision
- Role of geometry



Problem of other minds

- If the only thing we can be absolutely certain of is the existence of our own minds doing the thinking and doubting, how can we ever possibly know whether other people exist, have minds and thoughts like we do?
- Self-awareness is a **private** state

Discussion Questions

- 1) Although most of Descartes' *specific* formulations about the ways the human body and brain work have been discarded, why are his ideas relevant for understanding the history of scientific psychology?
- 2) Descartes believed that there are some concepts or ideas that can never be directly apprehended in experience, such as perfection or unity. Do you agree? How do we come to an understanding or knowledge of these concepts that we all share?
- 3) What are some of the implications of Descartes' mind-body problem for neuroscientists in the twenty-first century?

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Two Rationalist Alternatives:

Spinoza	Leibniz
Monist	Dualist

Events and dates

- 1478 **Spanish Inquisition**
- 1497 Portuguese Jews (including **Spinoza's** ancestors) forced to convert or be expelled.
- 1616 Death of **Shakespeare**
- 1618 Beginning of the **Thirty Years War**
- 1628 **William Harvey** discovers the mechanisms of the human circulatory system
- 1629 **Descartes** moves to Holland
- 1632 **Spinoza** was born

Events and dates

- 1632 **Anton van Leeuwenhoek** (inventor of the microscope) born in Amsterdam
- 1632 **Galileo** was denounced by the Inquisition.
- 1637 **Descartes** publishes *Discourse on Method*
- 1642 **Isaac Newton** was born
- 1646 **Gottfried Wilhelm von Leibniz** was born
- 1648 End of the **Thirty Years War**
- 1651 **Spinoza** first became aware of **Descartes'** work, one year after his death
- 1655 **Spinoza** accused of heresy; is expelled from the Amsterdam Synagogue.

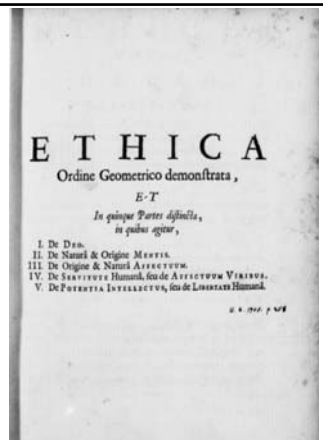
Baruch Spinoza (1632-1677)



Baruch Spinoza (1632-1677)

- Jewish philosopher and mathematician
- Expelled from the Amsterdam synagogue for his unorthodox views in 1656
- Declined the Chair of Philosophy at Heidelberg University in 1673 to maintain his independence
- Lived modestly; earned his living as a lens grinder
- Died of consumption, aggravated by the dust from lens grinding

B. Spinoza *Ethics*



Spinoza's rejection of dualism

- **Dual aspect (neutral) monism:** equivalence of mind and matter
- **Pantheism:** inseparability of nature and God
- **Deductive method:** start with a small number of principles or axioms regarded as "self-evident" and use them to arrive at other true statements
- Moral and ethical principles

Spinoza's moral / ethical philosophy

- **Determinism:** if humans are part of nature, and subject to its laws, then all aspects of human experience are determined.
- **Freedom:** consists in knowing that all events have causes, and living one's life in pursuit of the knowledge of the causes of things.
- **Hedonism:** "good" and "evil" are nothing more than the experiences of pleasure and pain.

Psychic determinism

- Spinoza's monist solution to the mind-body problem implies that mental experiences are subject to natural laws and can be studied in the same way as the physical world.
- Foreshadows the possibility of a scientific psychology.

Gottfried Wilhelm von Leibniz (1646-1716)



Psychophysical parallelism

- Dualist solution to the mind-body problem
- There is a close *correlation* between mental events and physical events
- But physical events do not interact with or influence mental events (or vice versa). They are fundamentally different.
- Metaphor of two clocks in perfect synchrony
- Pre-established harmony

Monadology

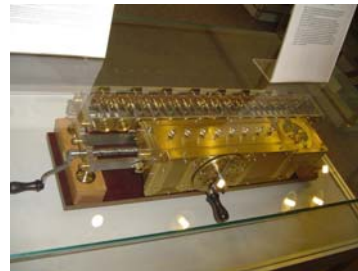
- **Anton van Leeuwenhoek** (1632-1723)
- The universe is populated by living things
- **monads** - indivisible units that make up the universe.
 - **rational monads**
 - **sentient monads**
 - **simple monads**

Leibniz

- **Nativism**: the mind is like a block of veined marble
- **Apperception**
- **Minute perceptions**

The Stepped Reckoner

Leibniz
1671



...it is beneath the dignity of excellent men to waste their time in calculation when any peasant could do the work just as accurately with the aid of a machine. Gottfried Leibniz¹⁴