



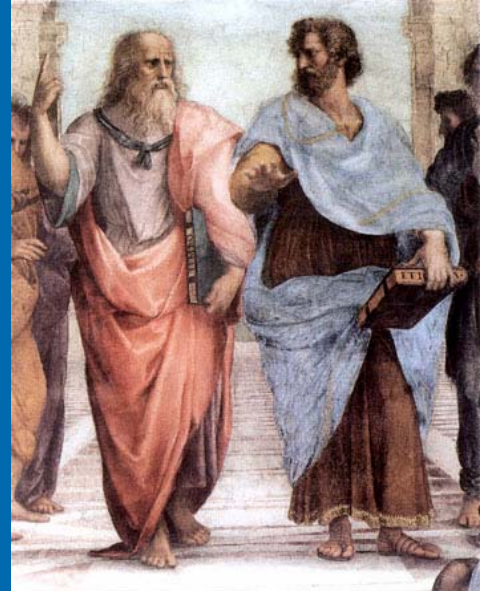
Roots of Psychology

Aristotle and Descartes



Aristotle's Hylomorphism

- Dualism of matter and form
 - A commitment shared with Plato that entities are identified by their form
 - But, unlike Plato, did not accept a separate real of Ideas or Forms
- The form is found in the object
 - Form is the *actuality* of the body
 - Matter is the *potentiality* of the body
- With living things, soul (psyche) is the form which actualizes the body




Dualism?

- Matter and form are conceptually distinct, but not separate *things*:
 - ““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” (*De Anima* ii 1, 412b6-9)
- Form (soul) explains why something is the kind of thing it is

Four Causes

- Four factors that need to be considered in any account of change:
 - The material cause: that from which something is made
 - The formal cause: the form that something takes on
 - The efficient cause: that which initiates the change
 - The final cause: the goal or purpose of the change
- Note the centrality of identifying matter and form in any account of change

Hierarchy of Types of Soul

- In identifying the form of something, one must ask what distinguishes that kind of thing from other kinds of things
 - Plants: what distinguishes them from inanimate things?
 - Nutrition
 - Reproduction
 - Animals: what distinguishes them from plants?
 - Locomotion
 - Perception
 - Humans: what distinguishes them from animals?
 - Reason
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Aristotle on Perception

- In perception, the matter of what is perceived does not affect the perceiver, but only the (perceptible) form
- Perception requires the alteration of the sense organ so as to take on the (perceptible) form of that perceived:
 - “the perceptive faculty is in potentiality such as the object of perception already is in actuality”
 - “it is made like it and is such as that thing is” (*De Anima* ii 5, 418a3-6)

Nous

- “the part of the soul by which it knows and understands”
- It knows things other than itself by taking on their (intelligible) forms
- Immateriality of *nous*—to be able to think all things, the mind must be potentially all of them. But then it cannot be constrained by already realizing some form that limits what it can be.
 - Contrast with perception—the form of the sense organs limits its potentiality to the perceptual
- Aristotle considers the possibility that *nous* survives death

Teleology and Virtue

- What is most distinctive of Aristotle's psychology is its focus on ends or purposes
 - Determined by the form of the entity, which determines both the kind of thing it is and what it is to be excellent as an instance of that kind
 - In the case of living things, ends determined by the kind of soul they have
 - Final causation: changes in the universe are directed towards ends
- Normative principles follow:
 - The goal for humans is eudaimonia (“happiness”)—a life in which one fully realizes the potential of the human soul



The Creation of Mechanistic Science



Copernicus—Kepler: the mechanization of the heavens

Galileo: the mechanization of terrestrial physics

Rejection of Aristotelean substantial forms and formal causation

Behavior of terrestrial object explained in terms of matter in motion

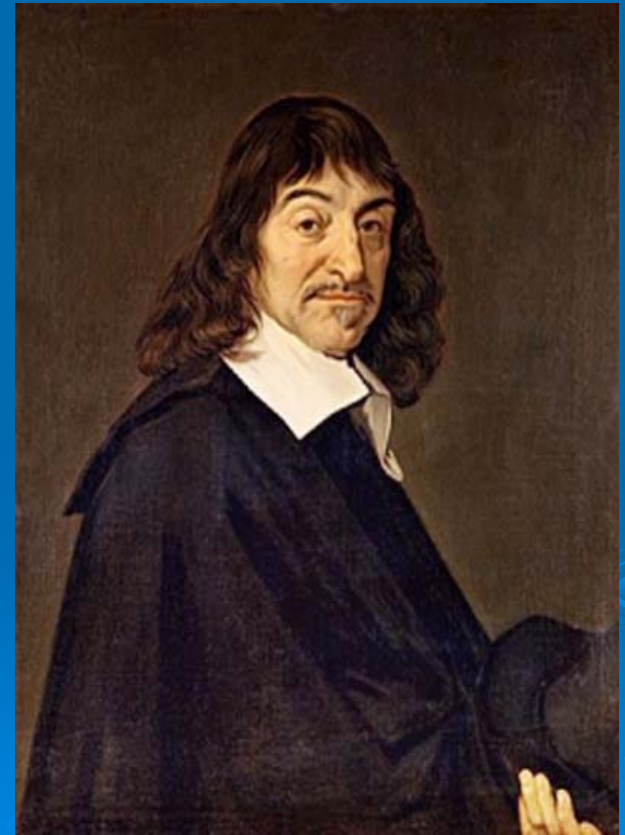
Descartes: The Supreme 17th Century Mechanist

Physical objects for Descartes
were defined by extension

The entire universe comprised
of tiny corpuscles

Maintained that a vacuum was
impossible

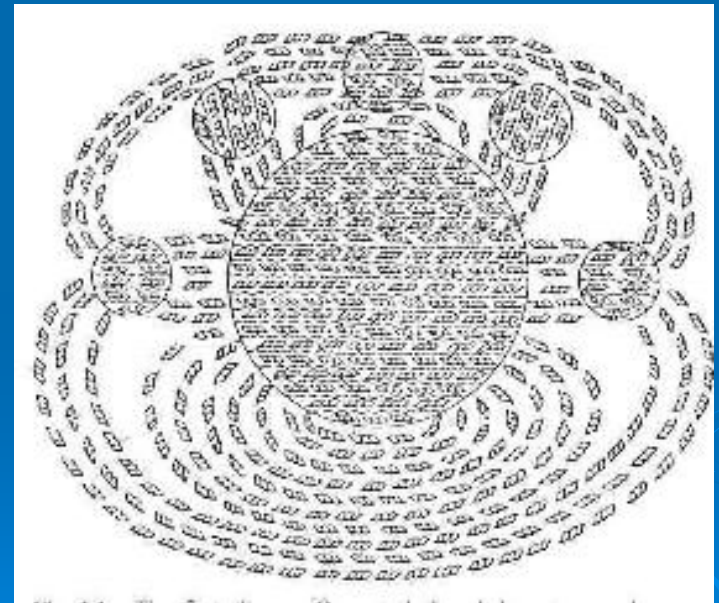
Motion involved corpuscles
moving in to replace those that
moved, creating vortices



Descartes' Account of the Magnet

All properties of matter to be explained in terms shape, size, and motion of the corpuscles that comprised them

Thus, magnetism was explained in terms of screw shaped particles which would be drawn into appropriate receptors



Not just the physical world, but the living world

Descartes was extremely interested in the behavior that was realized by water-statues in the Royal Gardens

Suggested that behavior of animal bodies could be explained in the same manner



Automated garden figures and main driving mechanism in the grottoes of the royal gardens at Saint Germain en-Laye. From engravings in Salomon de Caus, *Les raisons des forces mouvantes avec diverses machines tant utiles que plaisantes auxquelles sont adjointes plusieurs dessins de grottes et fontaines*, Frankfurt, J. Norton, 1615. This grotto is described by Descartes on page 13 of the French text.

Reflexes

Descartes proposed that much animal (including human) behavior was reflex action

He proposed nerves comprised circuits much like those Harvey had discovered for circulating blood but which circulated very fine *animal spirits*

Reflex action resulted from the flow of the animal spirits through the nerves



Descartes's Conception of Mind

The only exception to the mechanical philosophy was the human mind—it was not an extended thing but a *thinking thing* (res cogito, not res extensa)

“But what then am I? A thing which thinks. What is a thing which thinks? It is a thing which doubts, understands, [conceives], affirms, denies, wills, refuses, which also imagines and feels.”

Is *mind* equivalent to *soul*? Pay attention to what the mind doesn't do for Descartes

Why a non-physical mind?

Can reflexes explain all behavior?

For Descartes, they could explain everything a non-human animal could do

So anything we do that a non-human animal can do does not require our mind

This includes remembering and having emotions—these depend totally on the brain

How does our behavior differ from other animals?

Our actions seem (to us) to be free, not caused

But couldn't this be an illusion?

Focus solely on behavior

What kind of behavior do we engage in that other animals do not?



Descartes on Language

How does human language differ from the communication systems of other animals?

Language is a productive system

We can always create new sentences

For Descartes, this seemed to be something machines just couldn't do

A machine could be designed to utter any given sentence, but could not create novel ones

Goal: Epistemic Foundations for the New Mechanistic Science

- A major challenge for the new mechanists was the prevalence of Aristotelian science
 - Galileo, Descartes, and others were trying to replace the established view which they took to be false
 - That is, what they learned in school was FALSE
- If what passed as knowledge in the past was wrong, how could one do better?
 - Clear the decks by calling into question all that could be doubted
 - Starting fresh by building from new foundations—build up from indubitable foundations using only valid arguments

The Meditations and Doubt

- In the *Meditations* Descartes engages in a project to secure knowledge on indubitable foundations
- Method: doubt everything that can be doubted and do not admit believe in anything until it has been demonstrated with certainty.
 - Role of the Evil Demon: Provide a tool for maximal doubt
- What survives:
 - “doubtless, then, I exist, since I am deceived; and, let him deceive me as he may, he can never bring it about that I am nothing, so long as I shall be conscious that I am something. So that it must, in fine, be maintained, all things being maturely and carefully considered, that this proposition *I am, I exist*, is necessarily true each time it is expressed by me, or conceived in my mind.”

What am I?

- Descartes's next challenge is to determine what he can be certain he is
 - Dismisses the various characteristics Aristotle attributed to plant and animal souls
- “But what, then, am I? A thinking thing, it has been said. But what is a thinking thing? It is a thing that doubts, understands, [conceives], affirms, denies, wills, refuses; that imagines also, and perceives.”
- Does perception not let back in the physical world? No:
 - “it is certain that I seem to see light, hear a noise, and feel heat; this cannot be false, and this is what in me is properly called perceiving, which is nothing else than thinking.”

First argument for separation of mind and body

(Part IV of *Discourse on Method*)

1. I cannot possibly doubt that I exist as a thinking thing.
2. I can, doubt, however, that I have a body, and thus that I exist as a physical thing.

Therefore, thinking is essential to what I am. My body is not.

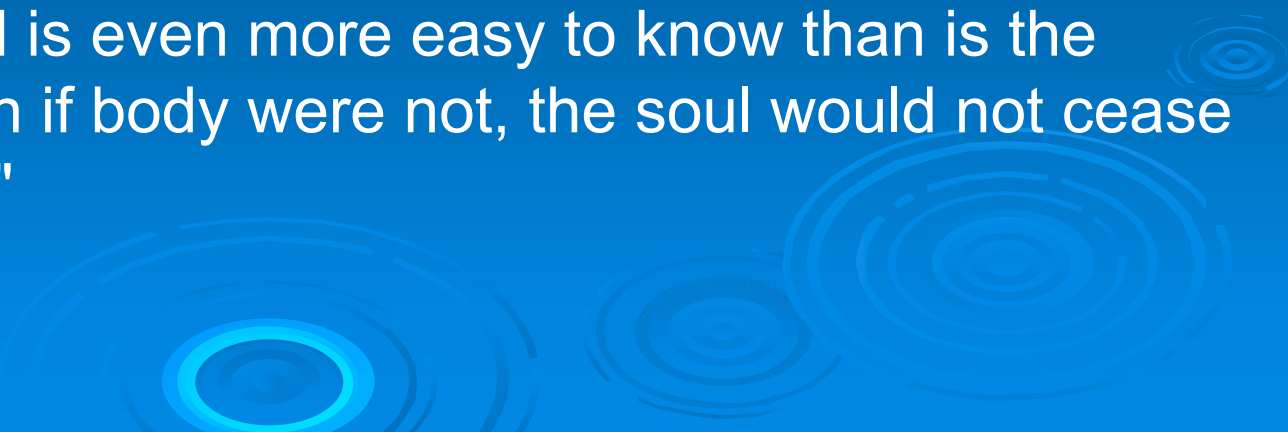
What premise is assumed in this argument? Is it plausible?



Knowledge of One's Self

I know my mind more easily than I know my body:

"From this I knew that I was a substance the whole essence or nature of which is to think, and that for its existence there is no need of any place, nor does it depend on any material thing; so that this 'me,' that is to say, the soul by which I am what I am, is entirely distinct from body, and is even more easy to know than is the latter; and even if body were not, the soul would not cease to be what it is"



Argument Not Valid!

Need additional principle. Try:

Alpha: when an entity is known for certain to have property x, but not known for certain to have property y, then x is essential to the entity, and y is not.

Beta: when an agent knows for certain that it has property x, but does not know for certain that it has property y, then x is essential to the agent, and y is not.

Second argument for separation of mind and body (*Sixth Meditation*)

1. If I conceive of two things and perceive with certainty that they are separate, different kinds of things, then they are separate, different kinds of things. If, for example, I see that one thing has property *A* and another has property *not A*, then I know that they are different kinds of things, because one and the same thing cannot have a property and its opposite.
2. I perceive with certainty that I exist as a *thinking and unextended* thing.
3. I perceive with (virtual) certainty that my body, or any body for that matter, is *unthinking and extended*.

Therefore, mind and body are separate, different kinds of things.

"This I (that is to say, my soul by which I am what I am), is entirely and absolutely distinct from my body, and can exist without it."

Third argument for separation of mind and body (*Sixth Meditation*)

1. An entity cannot have a property and its opposite.
2. My body is divisible, it has parts. Divisibility is part of what it means to be a body.
3. My mind is indivisible. It has no parts. "For . . . when I consider the mind, that is to say, myself inasmuch as I am only a thinking thing. I cannot distinguish in myself any parts, but apprehend myself to be clearly one and entire; and although the whole mind seems to be united to the whole body, yet if a foot or an arm, or some other part, is separated from my body, I am aware that nothing has been taken away from my mind.

Therefore, my mind and my body are different kinds of things.

General thrust: personhood not identical to bodily identity

- There is something true of humans that cannot be true of any physical thing
 - Challenges:
 - Identify that thing
 - Show that no physical (extended thing) could have it



Once the mind is separated from body, what then?

How does it work?

How does it control the body?

- How does something non-physical produce a change in the physical world

The difficulty of accounting for this is one factor pushing many thinkers to reject dualism

