



Roots of Psychology Aristotle and Descartes

Basic Operation of i>Clicker



- Turn on the clicker by pressing the bottom "On/Off" button.
 - Text will appear in the window at the top of the remote.
- Set frequency to AA
 - While clicker is off, hold power button until flashing text appears
 - then press the two letter code
- When I ask a question in class (and start the timer), select A, B, C, D, or E as your answer.

How do you know your answer was received?



- In the window next to to the answer you submitted a check mark will appear
- You can vote early and often, but only your last answer will be scored
 - As long as the timer is going, you can change your answer by simply voting again

Registering your i>clicker

- In order to earn points for your i>clicker responses, you must register your i>clicker online (but don't worry, you will still get the points from before registration).
 - Go to www.iclicker.com/registration
 - Fill in:
 - your name
 - your PID (student ID) number
 - your clicker ID (located on the back of your clicker, below the scan code)
 - click ENTER



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 an object
 - Matter is the *potentiality* of an object
- What distinguishes a stone tool from ordinary stone?
 - The form imposed on the stone by the tool maker



Clicker Question

Complete the analogy as Aristotle would have in the case of humans and other living things:

_____ is to body as form is to matter

- A. Life force
- B. Brain
- C. Soul
- D. Shape

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

Clicker Question

What is the distinctive feature of the human soul (what distinguishes us from other animals) for Aristotle?

- A. Walking upright
- B. Forming societies
- C. Wearing clothes
- D. 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 but does not fully commit to the possibility that *nous* survives death

Teleology and Virtue

- What is most distinctive of Aristotle's psychology is its focus on ends or purposes
 - The end or purpose is 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, not ends or goals
No final causes

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 fountains and water driving mechanisms in the grottoes of the great garden at Saint-Germain-en-Laye. From engraving in *Science de l'Art*. Les sources du jardin de Saint-Germain-en-Laye. Paris: Imprimerie de la Cour, 1687. This grotto is described by Descartes on page 15 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



Clicker Question

How did Descartes view the mind?

- A. A mechanism that connects the brain to the body
- B. An immaterial substance completely separate from the body
- C. The brain, the mechanism which generates thoughts
- D. The locus of processes such as perception, memory, etc., that generate behaviors in animals

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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

What am I?

- In the *Meditations* Descartes sets out to discover what he really knows by first doubting whatever he can doubt
 - One thing he cannot doubt is that he exists
 - Why
- "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."

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"

What is it to survive death?

For Descartes, the mind is not the kind of thing that could undergo destruction/death, since it has no parts. What can the mind do after death?

- A. Remember what one did while alive
- B. Engage in thinking
- C. Pay for sins committed while alive
- D. Experience regret for its lost body

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Clicker Question

If Aristotle had learned of Descartes's views, how might he have responded?

- A. By treating the body as totally mechanical, you (Descartes) fail to be able to explain its ends or purposes.
- B. Form is the actualization of matter (the body)—without the body, your mind (soul) is unable to have any effects in the world.
- C. You (Descartes) are right that the human mind has distinctive abilities. But it also is responsible for abilities shared by plants and animals. It is a mistake to separate them.

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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

