## Philosophy of Science

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- \* Or Any books related to Philosophy of Science.

## What is philosophy?

(Bertrand Russell)

"Philosophy, as I shall understand the word, is something intermediate between theology and science. Like theology, it consists of speculations on matters as to which definite knowledge has, so far, been unascertainable; but like science, it appeals to human reason rather than to authority, whether that of tradition or that of revelation. All definite knowledge — so I should contend — belongs to science; all dogma as to what surpasses definite knowledge belongs to theology. But between theology and science there is a No Man's Land exposed to attack for both sides; this No Man Land's is philosophy."

(A History of Western Philosophy, p. xiii)

## What is philosophy?

- \* Have you ever heard the term 'philosophy'?
- \* What does 'philosophy' mean?
  - \* Connotation

"world view"

\* Etymology

philia (love) + sophia (wisdom) = "love of wisdom"

#### **Definition**

**phi·los·o·phy** (f"- $l \square s \leftarrow f \square$ ) noun plural phi-los-o-phies Abbr. phil., philos.

- 1. a. Love and pursuit of wisdom by intellectual means and moral selfdiscipline. b. The investigation of causes and laws underlying reality. c. A system of philosophical inquiry or demonstration.
- ▶2. Inquiry into the nature of things based on logical reasoning rather than empirical methods.
  - 3. The critique and analysis of fundamental beliefs as they come to be conceptualized and formulated.
- **4.** The synthesis of all learning.
- 5. All learning except technical precepts and practical arts.
  6. All the disciplines presented in university curriculums of science and the liberal arts, except medicine, law, and theology.
- ▶7. The science comprising logic, ethics, aesthetics, metaphysics, and epistemology.
  - **8.** A system of motivating concepts or principles: the philosophy of a culture.
  - **9.** A basic theory; a viewpoint: an original philosophy of advertising.
  - **10.** The system of values by which one lives: has an unu sual philosophy of life.

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## Definisi Filsafat (KBBI, 1995)

- \* 1. Pengetahuan dan penyelidikan dan akal budi mengenai hakikat segala yang ada, sebab, asal, dan hukumnya.
- \* 2. Teori yang mendasari alam fikiran atau suatu kegiatan.
- \* 3. Ilmu yang berintikan logika, estetika, metafisika, dan epistemologi.
- \* 4. Falsafah

## Definisi Filsafat (Titus, Smith, & Nolan dalam Alwasilah, 2010)

- 1. Sekumpulan sikap dan kepercayaan terhadap kehidupan dan alam yang diterima secara kritis.
- \* 2. Proses kritik atau pemikiran terhadap kepercayaan dan sikap yang dijunjung ditinggi.
- \* 3. Usaha untuk memperoleh gambaran keseluruhan.
- \* 4. Sebagai analisa logis dari bahasa serta penjelasan tentang arti kata dan konsep.
- \* 5. Sekumpulan problema-problema yang mendapat perhatian dari manusia dan dicarikan jawabannya oleh para ahli filsafat.
- (Lebih lanjut baca buku Filsafat Bahasa dan pendidikan oleh Prof. Dr. A. Chaedar Alwasilah)

## An analogy

#### Sciences

#### Psychology

the scientific field that studies mental processes and behavior (someone who "does" psychology is a psychologist )

#### Subfields

behavioral psychology behavioral psychophysics clinical psychology cognitive psychology developmental psychology Freudian psychology Gestalt psychology neuropsychology etc.

#### Humanities

#### Philosophy

the humanistic field that attempts to resolve fundamental questions through reason (someone who "does" philosophy is a philosopher)

#### Subfields

aesthetics
epistemology
ethics
history of philosophy
logic
metaphysics
philosophy of language
philosophy of mind
philosophy of religion
philosophy of science
social-political philosophy

# Difference between **Science** and **Philosophy**





## 3 Modes of Knowing

Science: The study of the proximate causes of things. Resolved via sensation.

**Philosophy:** The study of the ultimate causes of things. Resolved via reason.

**Theology**: Faith seeking understanding. Resolved through scriptures, revealed truths.

- Biology: the study of living things and their properties.
- \* What is the cause of cancer?
- \* What is the cause of the leaf's green color?

- Philosophy of Biology:
- \* What does it mean to live?
- \* What makes matter living?
- \* What are the properties of living things?

- \* Chemistry: the study of the properties and structures of substances.
- \* How does a metal react with a gas?
- \* What are the properties of iron?

- Philosophy of Chemicals:
- \* What is a substance?
- \* What is the difference between substance and property?
- \* How would we explain the change from one substance to the other?

- \* Physics: the study of matter and energy and their interactions.
- \* What is the speed of light?
- \* If we drop two metal balls of different weight from a building, which one will land first?

- Philosophy of Physics:
- \* What is matter?
- \* What is motion?
- \* What is time?

- Psychology: The study of human behavior.
- \* What is the cause of schizophrenia?
- \* What is the cause of depression?
- \* How do humans behave under stress?

- Philosophy of Human Nature:
- \* What does it mean to be a man? A woman?
- \* What is intelligence?
- \* How are we to act? (Moral Philosophy) Ethics...

## What is Philosophy of Education

- \* All teachers have a personal philosophy that colors the way they teach
- \* Engaging in philosophy helps clarify what they do or intend to do, justify or explain why they do what they do in a logical, systematic manner.

# Understanding two important notions

- \* Who they are or intend to be
- \* Why they do or propose to do what they do
- Eric Berne's three important questions:
- **♣** Who am I?
- ♣ Why am I here?
- ♣ Who are all these other people, and what do they want of me?

# The meaning of Philosophical Inquiry

- \* "Whatever people choose to embrace, if their choices are made in a logical, rational manner, they are engaged in the process of 'doing philosophy."
- \* Three specific areas of philosophical inquiry: metaphysics concerned with questions about the nature of reality; epistemology concerned with the nature of knowledge; axiology concerned with the nature of values

\* Fundamental questions <u>cannot be</u> answered/resolved by appealing to empirical facts (i.e., "truths" about the world that can be confirmed, verified, or falsified by observation).

"What is the definition of the word 'mind'?" (empirical)

"What is the nature of minds?" (nonempirical)

## Doing philosophy (1st requirement)

1. Attempt to resolve a "question of the right sort." fundamental questions, open questions, and/or questions about the meaning, truth, or logical relations among our ideas, concepts, beliefs, assumptions, explanations, and/or theories

## Features of fundamental questions

- \* Fundamental questions arise in every sphere of learning ('Ph.D.')
- \* Fundamental questions generally involve logical questions of principle (i.e., questions regarding claims about what <u>must</u> or what <u>must not</u> be the case among certain ideas, given their logical relations).

\* Fundamental questions arise when there is a conflict between competing ideas, each of which can be supported by evidence.

\* Resolving fundamental questions requires determining what is most reasonable to believe.

This leads us to the 2nd requirement....

## Doing philosophy (2nd requirement)

2. Use of reason (not faith, revelation, force, etc.) to resolve a fundamental question

#### **Common critical thinking questions:**

- What does 'x' mean?
- Is <BLANK> true?
- By asserting <BLANK>, aren't you assuming <THIS>?
- What reasons are there for believing that <BLANK> is true?

## ARGUMENTS!

## argument = claim + evidence

- 1. Let's assume that God exists and that He created the world.
- 2. If God exists, then God is perfect.
- 3. If God is perfect, then whatever He creates should be perfect.
- 4. But the world is imperfect in many ways (e.g., innocent people suffer, natural disasters, etc.)

evidence (premises)

claim

(conclusion)

## Subfields of philosophy

#### \* History of philosophy

study of the emergence, examination, and evolution of philosophical ideas as found in the writings of philosophers

- How does Plato's theory of the self differ from Descartes'?
- How prominent was dualism prior to the 20<sup>th</sup> century?
- Why did Hume deny the existence of the self as only a bundle of experiences?

#### \* Logic

the study of the methods and principles used to distinguish "good" (correct, permissible) reasoning from "bad" (incorrect, impermissible) reasoning

- What is a cogent argument?
- Does this (claim) follow from that (evidence)?
- What makes an assumption dubious?
- In what ways can the evidence-claim relation break down?

## \* Epistemology

the study of the nature, origin, and extent of human knowledge

- What is knowledge?
- How do we acquire knowledge?
- Do we possess any innate knowledge?
- How do you know whether something has a mind?
- How do you know that you are not dreaming?

### \* Metaphysics

the study of the ultimate nature of reality, existence

- Does God exist?
- What is the nature of the mind?
- What makes a person a person?
- What makes a person the same person over time?
- What conditions must be met for sth. to be a <BLANK>?
- Can a computer think?

#### \* Ethics

the study of the concepts and principles that underlie our evaluations of human actions into the categories of the morally permissible, the morally impermissible, and the morally obligatory

- Is adultery every morally permissible?
- Should Jane get an abortion?
- Can a nonhuman animal (or alien) be a person?

#### \* Social-Political philosophy

the study of how society is or ought to be and the fundamental principles of the state, particularly those involving justice, authority, liberty, and order

- What is the nature of the relation between individuals and their society, their state, etc.?
- Why should people tolerate enormous concentrations of power in the hands of a few people?

#### \* Philosophy of mind

the philosophical study of the mind and how minds work

- What is the nature of minds?
- What is the relation between the mind and the body?
- How should we understand such terms as 'intention', 'desire', 'belief', etc.?
- Do we see "representations" of objects or the objects themselves?
- Is the mind a computer?

## \* Philosophy of language

the philosophical study of language (its syntax, semantics, and pragmatics)

- What is the nature of language?
- How are thought and language related?
- What makes a sentence (or word) meaningful?
- What makes a true sentence true?
- What is the nature of reference?
- What is the difference between a sentence and a statement?

#### Philosophy of science

the study of the methods, assumptions, and limits of scientific practice

- What makes a theory a scientific theory?
- What distinguishes "genuine" science from pseudoscience?
- Do nonobservable entities (e.g., quarks) exist?
- Why are the "soft" sciences (e.g., sociology, anthropology, etc.) not as successful as the "hard" sciences (e.g., physics, biology, etc.)?

### \* Philosophy of religion

the study of the nature, kinds, and objects of religious belief

- What does 'God' mean?
- Can God's existence be rationally established?
- Can the conception of God as 'omnibenevolent' be reconciled with the apparent existence of evil?
- How do we reconcile God's omniscience with the concepts of sin and punishment?

#### \* Aesthetics

study of the principles that underlie our evaluations of different art forms

- What is the nature of beauty?
- What makes something a work of art?
- How should we tell what a work of art represents?
- What is the purpose of art?
- Why is art important?

## Generalizations & misconceptions

- \* Ph.D.
- \* Although the aim of philosophical inquiry is wisdom, ideals need not be realized in order for them to benefit both the individual and society. As such, doing philosophy is not limited to "wise old men" or "wise old women."

A philosopher who ceases to think ceases to be a philosopher, but one who does not actively attempt to make the world or oneself better does not cease to be a philosopher.

\* Merely asserting one's belief/opinion does **not** make one a philosopher.

\* It is false that any person's opinion is "good" as any other's.

- \* A philosopher should not criticize someone's arguments merely to push their own pet thesis into prominence.
- \* Truth is the goal. Truth is **not** what can defended against all comers. It tends to be recognized only after a long critical process.

- \* Settling issues and finding truth in philosophy is usually a matter of developing the best reasons for accepting or rejecting a claim.
- \* One has to understand what one's predecessor or opponent is saying before one can criticize it or improve it.

\* Doing philosophy is <u>a skill</u> designed to be both critical and constructive.

\* No other discipline is as devoted to the impartial, rigorous examination of "the other guy's (or gal's)" point of view.

\* Philosophers do <u>not</u> do what they do because they believe that philosophy should compete with or is on par with theology or science.

## Advantages of doing philosophy

- \* Increases your intellectual independence and tolerance.
- \* Makes you aware of problematic, ambiguous, and fallacious reasoning.
- \* Compels you to seek reasons for what others take to be self-evident.
- \* Compels you to think (to reason), not just to recite facts.

# Before **you** can do philosophy, you must . . .

- have the courage to examine your cherished beliefs critically,
- be willing to advance tentative claims,
- \* place "truth" as the end, not winning the argument, and
- \* be able to separate your personality from the content of a discussion.

## **Bertrand Russell**

"If an opinion contrary to your own makes you angry, that is a sign that you are subconsciously aware of having no good reason for thinking as you do.... So whenever you find yourself getting angry about a difference of opinion, be on your guard; you will probably find, on examination, that your belief is going beyond what the evidence warrants."

(An outline of intellectual rubbish, p. 232)