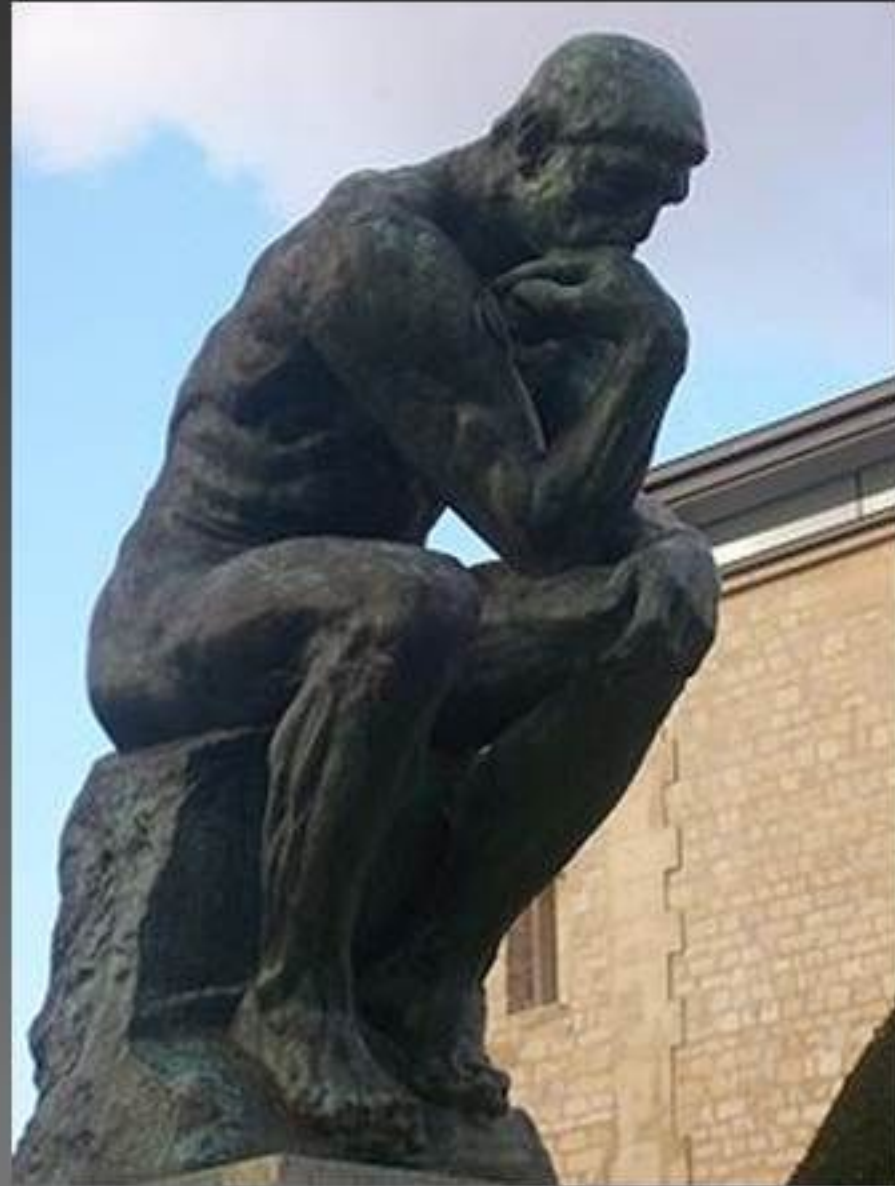


# Filsafat Ilmu untuk Prodi Magister

Oleh:

A. Rudyanto Soesilo



# Filsafat Ilmu :

- Cabang filsafat yang mengkaji: Ciri2 Sains dan cara2 memperolehnya, menggunakan :
  - Epistemologi, u validitas pengetahuan > teori kebenaran
  - Logika, u Context Of Discovery & Justification
  - Metodologi, u langkah2 memperoleh sains.
- Landasan: Validitas Korespondensi dng Kebenaran Ilmiah-Empiris lewat Metoda yg ketat.



# Epistemologi :

- Mengkaji hakekat Pengetahuan:
  - Validitas, struktur, batas & sumber
- Mengkaji Pengetahuan Umum(seluasnya)
- *Validitas : 3 Teori Kebenaran*

# *Validitas : 3 Teori Kebenaran*

- Korespondensi :
  - Keselarasan gagasan - realitas external >Kebenaran Empiris-Induktif: Fisika, Kimia, Biologi
- Koherensi :
  - Keselarasan Proposisi Logis >Kebenaran Formal Deduktif : Matematika, Logika
- Pragmatis :
  - Kriteria Instrumental&Kebermanfaatan >Kebenaran Fungsional: Ilmu Terapan, Kedokteran, Arsitektur dll

# Bidang2 Ilmu Pengetahuan :

ILMU2 FORMAL DEDUK		ILMU2 EMPIRIS INDUKTIF			
Matematika	Ilmu2 Alam	Ilmu2 Sos	Ilmu2 Bu	Kedokteran, Arsitektur dll	
Logika	Anorganik	Organik		<b>Ekonomi</b>	
KOHERENS	KORESPONDENS			PRAGMATISME	
	Ilmu-Ilmu Murni			Ilmu2 Terapan	

# Tujuan Ilmu Pengetahuan

- Deskripsi
  - Interpretasi
  - Eksplanasi
  - Prediksi
- Idiografis (verstehen)
- Nomotetis (erklaren)
- 
- ```
graph LR; A[Idiografis (verstehen)] --> B[Interpretasi]; A --> C[Eksplanasi]; B --> C; C --> D[Nomotetis (erklaren)]; D --> E[Prediksi];
```

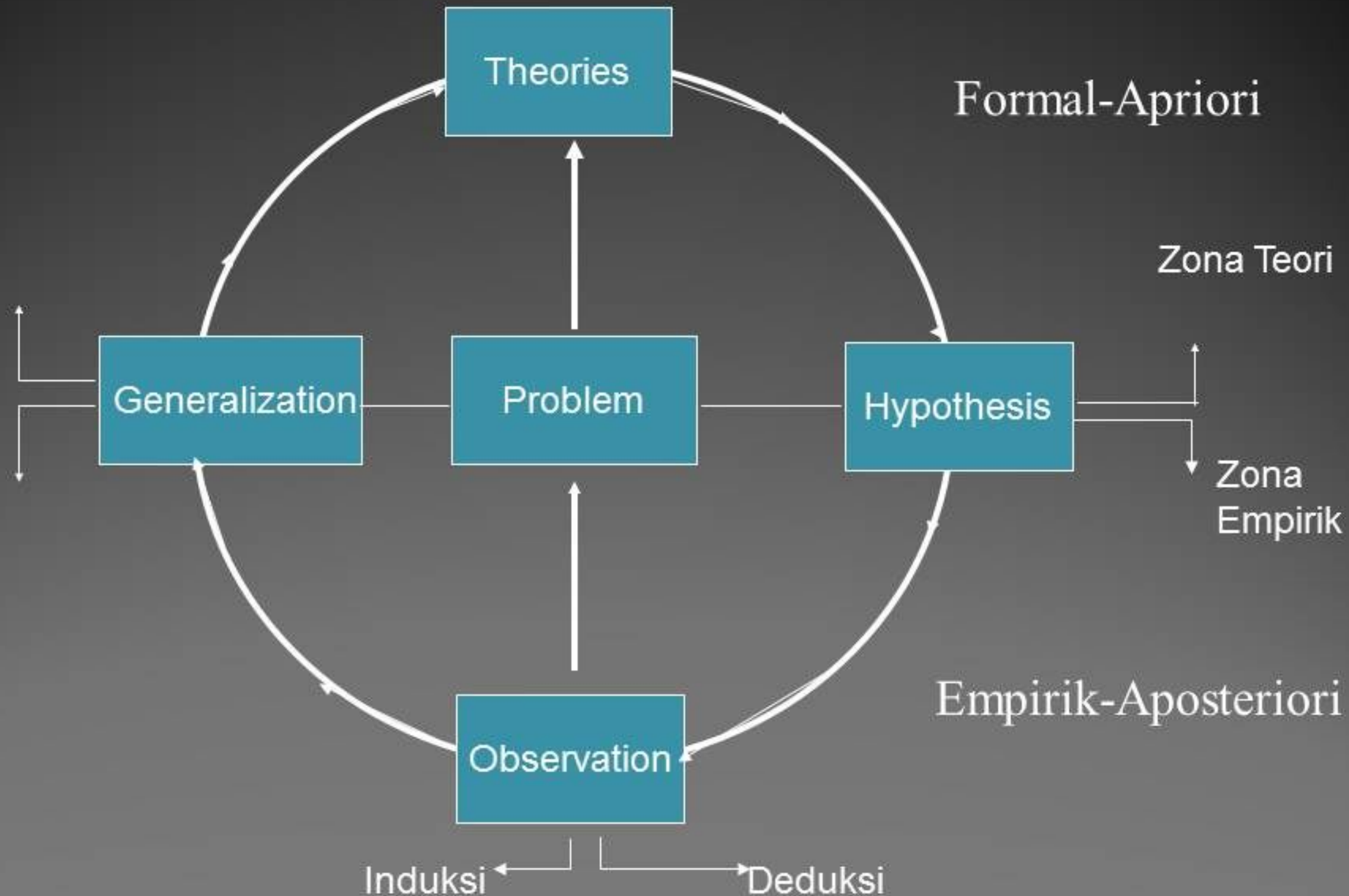
# 3 Dikhotomi

- Ilmu2 Formal Deduktif >< Empiris Induktif
- Terapan >< Murni
- Nomotetis >< Idiografis  
(erklaren) >< (vestehen)



# Metoda Ilmu Pengetahuan :

## Siklus Empiris, Hipotetiko Dedukto Verifikatif



# Wilayah Filsafat



- 9. (Filsafat) Manusia

1. Metafisika
2. Ontologi
3. Epistemologi
4. Logika
5. Metodologi
6. Filsafat Ilmu
7. E.t.i.k.a.
8. Estetika

# Wilayah Filsafat



9. (Filsafat) Manusia

1. Metafisika
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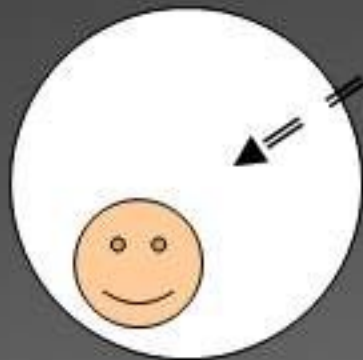
| Abad   | Mesir                      | India             | Cina               | Arab        | Yahudi      | Barat                                                        |
|--------|----------------------------|-------------------|--------------------|-------------|-------------|--------------------------------------------------------------|
| VIII   | A K<br>N O<br>I S          | P H<br>O I<br>L N | K T<br>O A<br>S O  | M<br>o<br>n | M<br>o<br>n | Yunani :<br>Mitologi - Kosmogoni                             |
| VII    | M M<br>I O                 | I D<br>T U        | M<br>O Con         | o<br>t      | o<br>t      |                                                              |
| VI     | S Sen<br>M tris            | E<br>I B          | Sen fu<br>tris sia | e<br>I      | e D<br>I I  | LOGOS : Socrates-P lato-Aristoteles<br>Agnostis is -Ateistis |
| V      | E                          | S U<br>M D        | nis                | s<br>m      | s<br>m      |                                                              |
| Masehi | .....                      | E A               |                    | e           | e           | Masehi                                                       |
| I      | .....                      |                   |                    |             |             |                                                              |
| II     | .....                      |                   |                    |             |             |                                                              |
| III    | .....                      |                   |                    |             |             |                                                              |
| IV     | .....                      |                   |                    | I           | K R I S     |                                                              |
| V      | .....                      |                   |                    | S           | T           | Dark-ages 1000thn                                            |
| XV     | .....                      |                   |                    | L           | E           | Renaissance Rediscovery of man                               |
| XVI    | .....                      |                   |                    | A           | N           | Filsafat Ilmu                                                |
| XVII   | .....                      |                   |                    | M           |             | Aufklarung                                                   |
| XVIII  | .....                      |                   |                    |             |             | Revolusi Industri                                            |
| XX     | .....                      |                   |                    |             |             | Modernisme                                                   |
| XXI    | .....                      |                   |                    |             |             | PostModernisme                                               |
|        | N.O.W the time being ..... |                   |                    |             |             |                                                              |

# ALUR HISTORIS

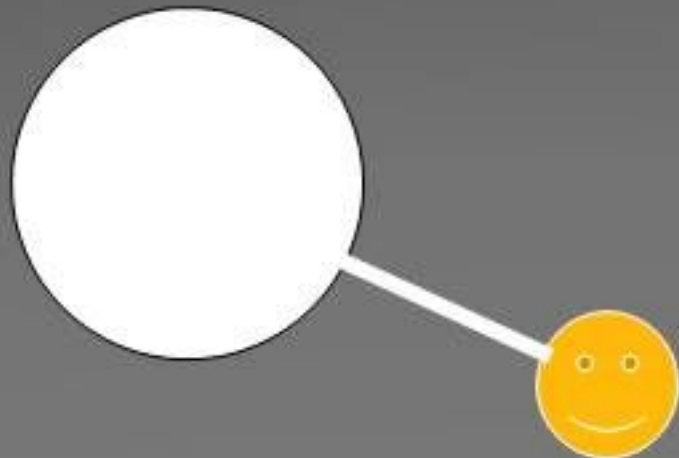
# Pergolakaan pemikiran manusia



Kosmosentris

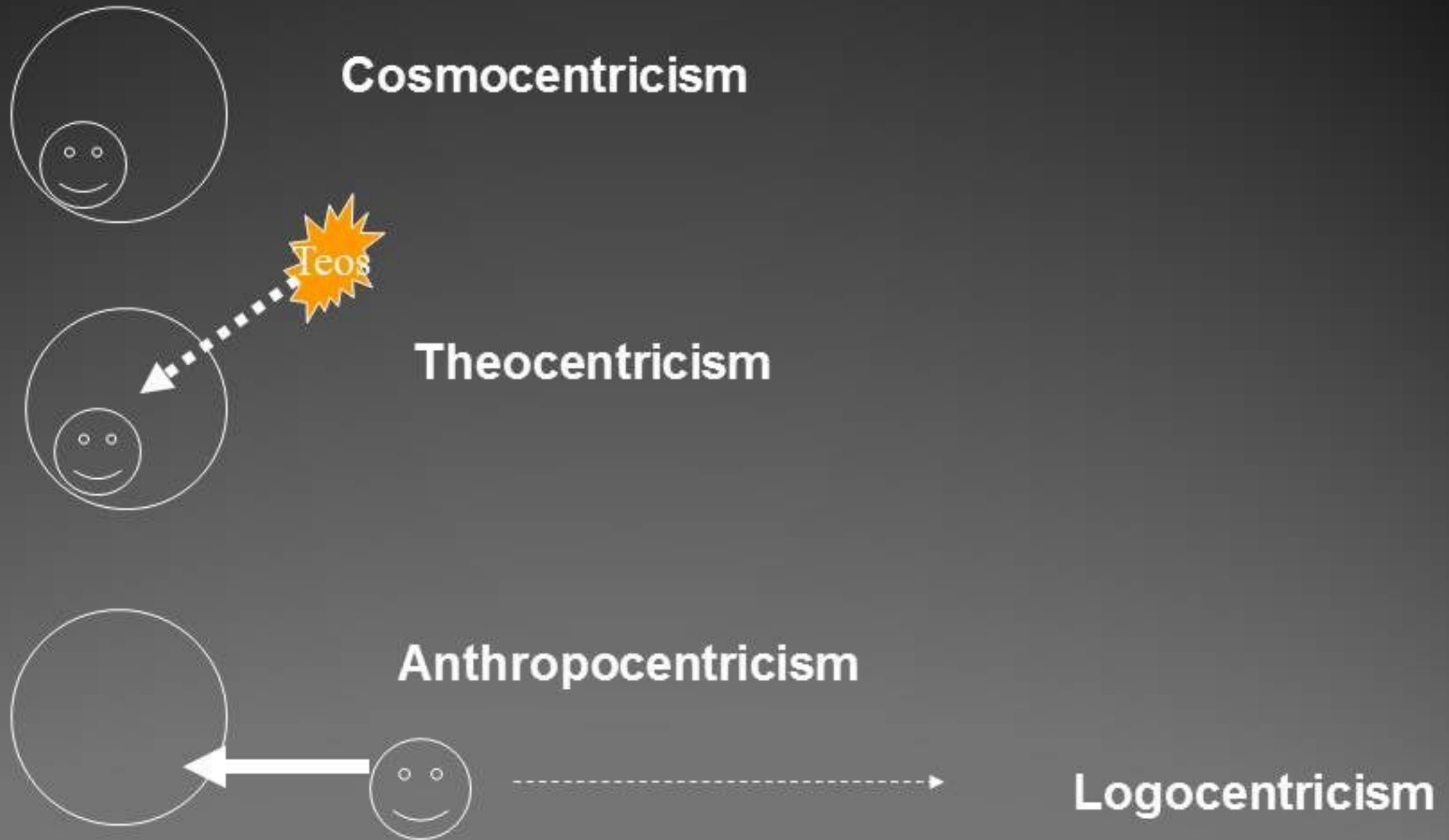


Teosentris



Anthroposentris

# Pergolakan pemikiran manusia





# O.N.T.O.L.O.G.I.A.

| INDIA                     | CINA                 | YUNANI                                                  | TIMUR TENGAH                         |
|---------------------------|----------------------|---------------------------------------------------------|--------------------------------------|
| BRAHMAN<br>ATMAN          | TAO<br>YIN-YANG      | Jalan lurus untuk<br>berfikir ttg hidup<br>(LOGIKA)     |                                      |
| BUDISME<br>Tidak ekplisit | CONFUCIUS<br>(Etika) | Jalan lurus hidup<br>sesuai ajaran ttg<br>hidup (ETIKA) |                                      |
|                           |                      | LOGOS (Budi)<br>ADA / Kebaikan                          | ALLAH<br>(Transenden)<br>IBRAHIMISME |
|                           |                      |                                                         | ALLAH<br>(Transenden)<br>IBRAHIMISME |



**B.R.A.H.M.A.N.**

Prinsip semua Dewa

Mengejar Persatuan

ASKESE, TERHADAP DUNIA LUAR  
Melepaskan diri dari yang Fana

A.t.m.a.n

Pemikiran Hindu Awal

# T.h.e.o.s.

- Omnipresent
- Omnipotent
- Anthropomorphic

# Animism1:

- For thousands of years they deified animals, stars, idols of any kind... and practiced Spiritism, witchcraft, divination, astrology... and they used magic, spells, enchantments, superstitions, prayers, amulets, talismans, charms... often with the worship of an Absolute, or the Great One...

# Animism:

- The "Primitive Religions" were born in the five Continents, more than 3,000 years ago, mostly in the form of "Animism", because they believed that everything has a "soul", an "anima" in Latin, a "spirit" ... including animals, plants, rocks, mountains, rivers, stars... each "anima" is powerful, spiritual, that can help or hurt them, including the souls of the dead, the "ancestors".

# Pantheism

- Pantheism is the next obvious consequence: There are thousands of gods... the concept of 333 million deities is believed to emphasize the fundamental doctrine of Animism,...

# Cosmogony and cosmology

- "Myths of origin" or "creation myths" represent an attempt to render the universe comprehensible in human terms and explain the origin of the world. The most widely accepted account of beginning of things as reported by Theogony, starts with Chaos, a yawning nothingness.

# P.o.l.y.t.h.e.i.s.m..

- Polytheism is the belief in or worship of multiple deities, such as gods and goddesses. These are usually assembled into a pantheon, along with their own mythologies and rituals. Many religions, both historical and contemporary, have a belief in polytheism, such as Hinduism, Shinto, Chinese folk religion, Neopagan faiths, Anglo-Saxon paganism and Greek paganism.

# anthropomorphic

- The deities of polytheistic religions are agents in mythology, where they are portrayed as complex personages of greater or lesser status, with individual skills, needs, desires and histories. These gods are often seen as similar to humans (**anthropomorphic**) in their personality traits, but with additional individual powers, abilities, knowledge or perceptions.



## God, the highest order

- Polytheism cannot be cleanly separated from the animist beliefs prevalent in most ethnic religions. The gods of polytheism are in many cases of a continuum of supernatural beings or spirits, which may include **ancestors**, demons, wights and others.

# Yin – Yang



# Monotheistic, Ibrahimism



# The Abrahamic Faith



- Abrahamism is belief in the one God, creator of the universe. He is the same God of Abraham, Jesus and Muhammad.
- The Jews descended from Isaac, son of Abraham by Sarah; the Muslims descended from Ishmael, son of Abraham by Hagar; the Christians spiritually descended from Jesus who came from the lineage of David who came all the way from the descendants of Abraham.
- The three great monotheistic religions may differ in their rituals, ceremonies and observances, but they worship the same God, creator of the universe. He is Yahweh, Allah, God.

# Three "ages":

- the Classical civilization of Antiquity,
- the Middle Ages, and
- the Middle Ages, the Dark Ages, dated from the fall of the Western Roman Empire in the 5th century to the beginning of the Early Modern Period in the 16th century,
- the Modern period.

the Middle Ages , the Dark Ages

# Galileo Galilei

15 February 1564 – 8 January 1642



- Galileo's championing of Copernicanism was controversial within his lifetime.
- The geocentric view had been dominant since the time of Aristotle, and the controversy engendered by Galileo's presentation of heliocentrism, because it was not empirically proven at the time and was contrary to the literal meaning of Scripture.
- Galileo was eventually forced to recant his heliocentrism and spent the last years of his life under house arrest on orders of the Roman Inquisition.

# The Reformation

- The Protestant Reformation was a reform movement in Europe that began in 1517, It began with Martin Luther and may be considered to have ended in 1648.



# Calvinism

- Hard working
- Plain living
- Big saving
- God blessing

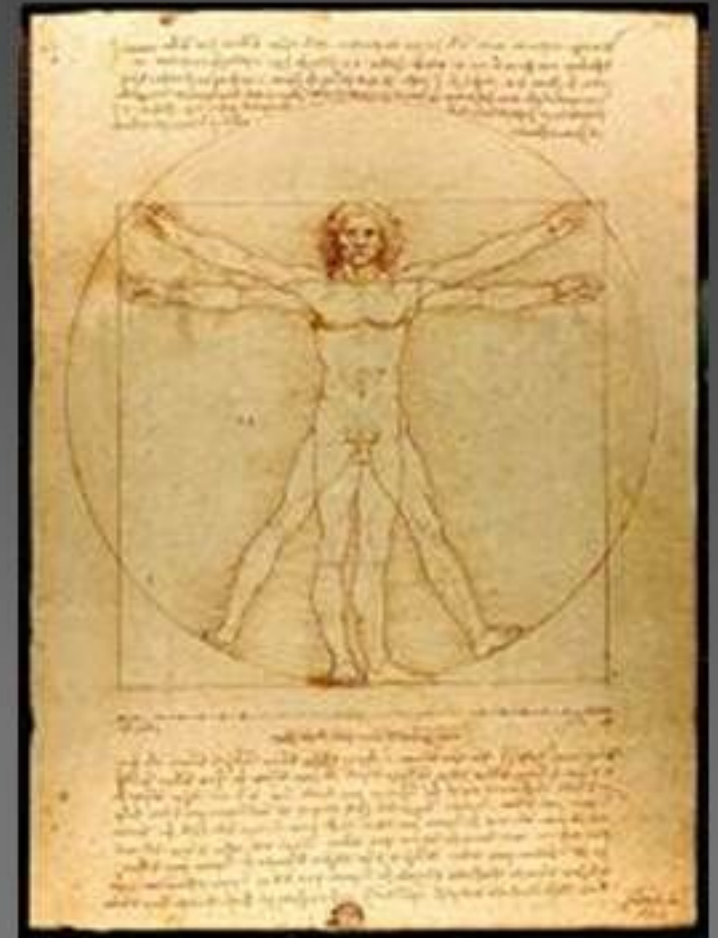


# *The Renaissance,*

- After thousand years in Medieval Dark Ages, lived in Theocentric Era, Europe entered the Renaissance in the 15th century. The Rebirth, rediscovery of man, back to ancient Greek's manuscript of Socrates, Plato and Aristotle. The Renaissance lead Europe to enter the Reformation era, the Rise of Protestantism, led by Martin Luther and John Calvin, as the embryo of Capitalism (Weber).

# *Renaissance*

- The Renaissance (from French *Renaissance*, meaning "rebirth")
- Rediscovery of man
- Humanism
- Individualism
- Liberalism



Leonardo da Vinci's Vitruvian Man

# *Renaissance*

- the Renaissance could be viewed as an attempt by intellectuals to study and improve the secular and worldly, both through the revival of ideas from antiquity, and through novel approaches to thought.

# *Renaissance- Muslims scientist*

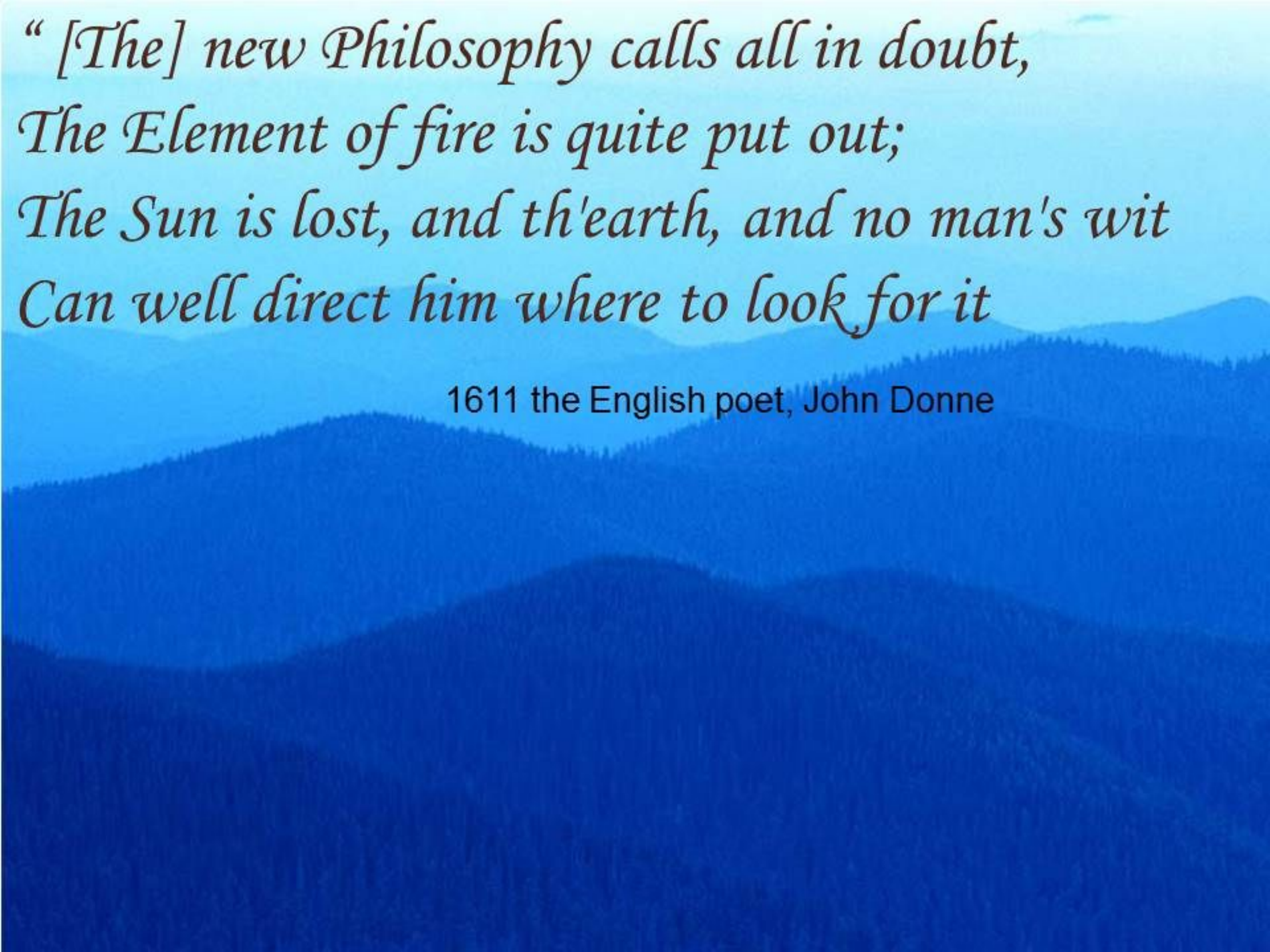
- The works of ancient Greek and Hellenistic writers (such as Plato, Aristotle, Euclid, Ptolemy, and Plotinus) and
- Muslim scientists and philosophers (such as Geber, Abulcasis, Alhacen, Avicenna/Ibnu Sinna , Avempace, and Averroes/Ibn Rusyd), were reintroduced into the Western world, providing new intellectual material for European scholars.
- Particularly in the case of mathematical knowledge, most of the work of Muslim mathematicians assimilated into the world and can be attributed to many different fields.

# *Renaissance*

- These scholars brought with them texts and knowledge of the classical Greek civilization which had been lost for centuries in the West and they transmitted the art of exegesis.
- the word Renaissance, implying an unambiguously positive rebirth from the supposedly more primitive "Dark Ages" (Middle Ages).

# *Renaissance* a new worldliness of life.

- The earth was not seen as a vale of tears anymore, but as a place where it was “a pleasure to live.”
- the physical world is not as merely transitory and insignificant in comparison with life after death, but as a cosmos that deserved their full attention and admiration.
- The naked human body became a prominent subject of Renaissance painting and sculpture. Painters and art patrons did not think of it as sinful and in need of being covered up, but as something to be respected and cherished.



*“ [The] new Philosophy calls all in doubt,  
The Element of fire is quite put out;  
The Sun is lost, and th'earth, and no man's wit  
Can well direct him where to look for it*

1611 the English poet, John Donne



# The Scientific Revolution

- The Scientific Revolution of the late Renaissance was significant in establishing a base for many modern sciences as well as challenging the power of the Ruling Elite.
- Scholars look at the world in a different light. Religion, superstition, and fear were replaced by reason and knowledge”.
- Challenge to dogma,

# Enlightenment

- Renaissance and Reformation brought Europe to the Aufklärung/ Enlightenment era with Scientific Revolution, that than lead to enter the Modern times. The fascinating development of technology so that mankind have the capability to destroy the whole world, their own habitat. While entering the Modern era, there occurs the Secularization process, the process that seperate religion from the daily life of mankind.

# *Aufklärung*, The Enlightenment

- a phase in Western philosophy and cultural life centered upon the eighteenth century, in which Reason was advocated as the primary source and basis of authority.
- The signatories of the American Declaration of Independence, the United States Bill of Rights and the French Declaration of the Rights of Man and of the Citizen were motivated by "Enlightenment" principles

# the Age of Reason or Age of Rationalism

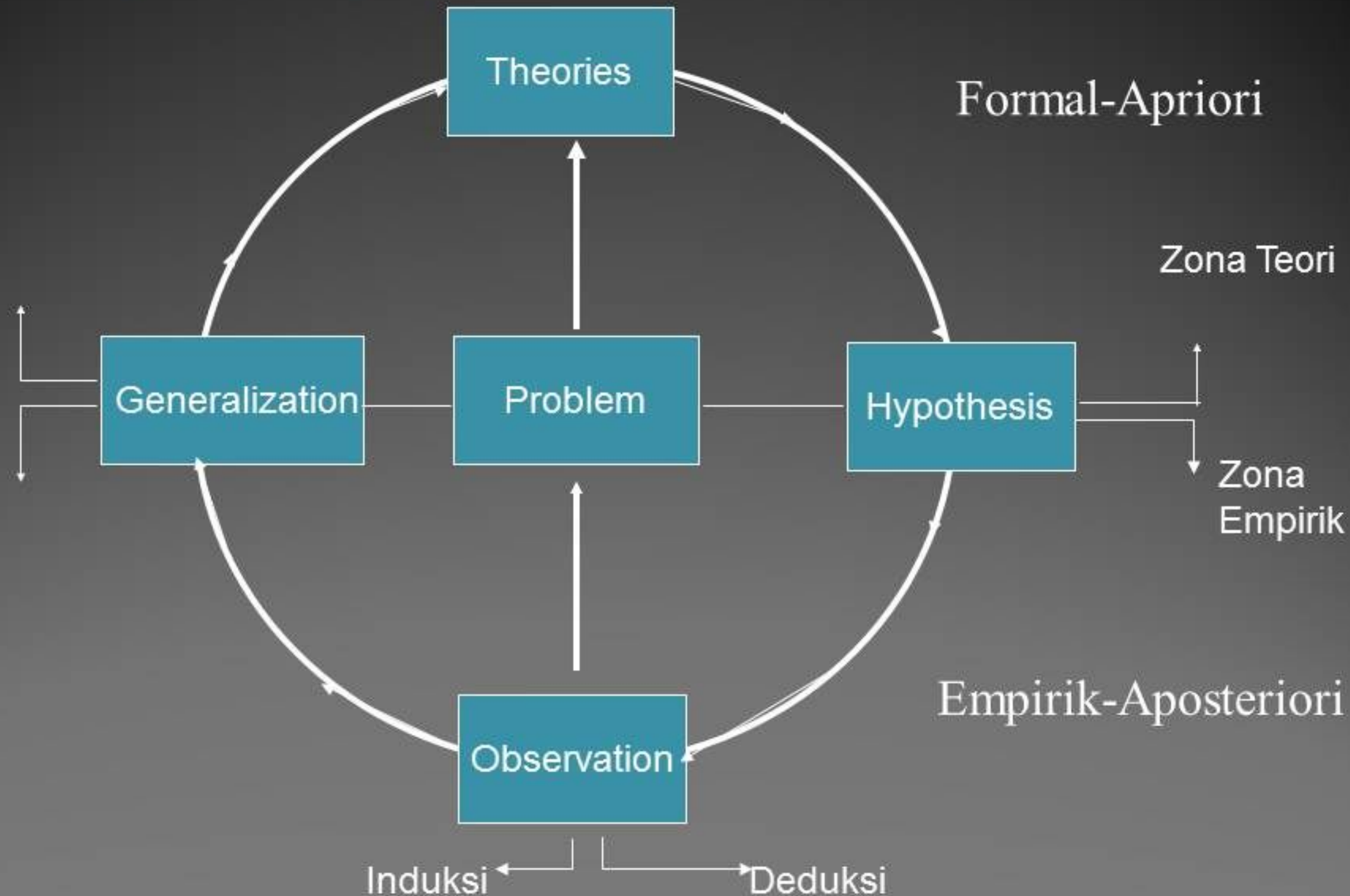
- Descartes' *Discourse on the Method*, published in 1637
- the revolution of knowledge, by René Descartes and Isaac Newton,
- Enlightenment thinkers believed that systematic thinking might be applied to all areas of human activity, and carried into the governmental sphere, in their explorations of the individual, society and the state.
- Its leaders believed they could lead their states to progress after a long period of tradition, irrationality, superstition, and tyranny which they imputed to the Middle Ages.

# Towards Positivism

- Rene Descartes \_\_\_\_\_, \_\_\_\_\_
    - 1596 - 1650
  - David Hume
    - 1711 - 1776
  - John Locke
    - 1632 1704
  - George Berkeley
    - 1685 - 1753
  - August Comte
    - 1685 - 1753
- 
- ```
graph LR; A["Rene Descartes  
1596 - 1650  
David Hume  
1711 - 1776  
John Locke  
1632 1704  
George Berkeley  
1685 - 1753  
August Comte  
1685 - 1753"] --- B[EMPIRISISME]; B --- C[POSITIVISME];
```
- RASIONALISME
  - EMPIRISISME
  - POSITIVISME

# Metoda Ilmu Pengetahuan :

## Siklus Empiris, Hipotetiko Dedukto Verifikatif



## Comte

ILMU :

explanatoris  
prediktif

POSITIVISTIK

- Obyektif
- Fenomenalis (anti Metafisis)
- Reduksionalis : Fakta
- Naturalistis : Mekanistis-Deterministis-alami
  
- UNIFIED SCIENCE : paradigma tunggal
- UNIFIED LANGUAGE : Positivisme Logis
- UNIFIED METHOD : Metode verifikasi empiri

# 3 Tahap perkembangan

## Sejarah :

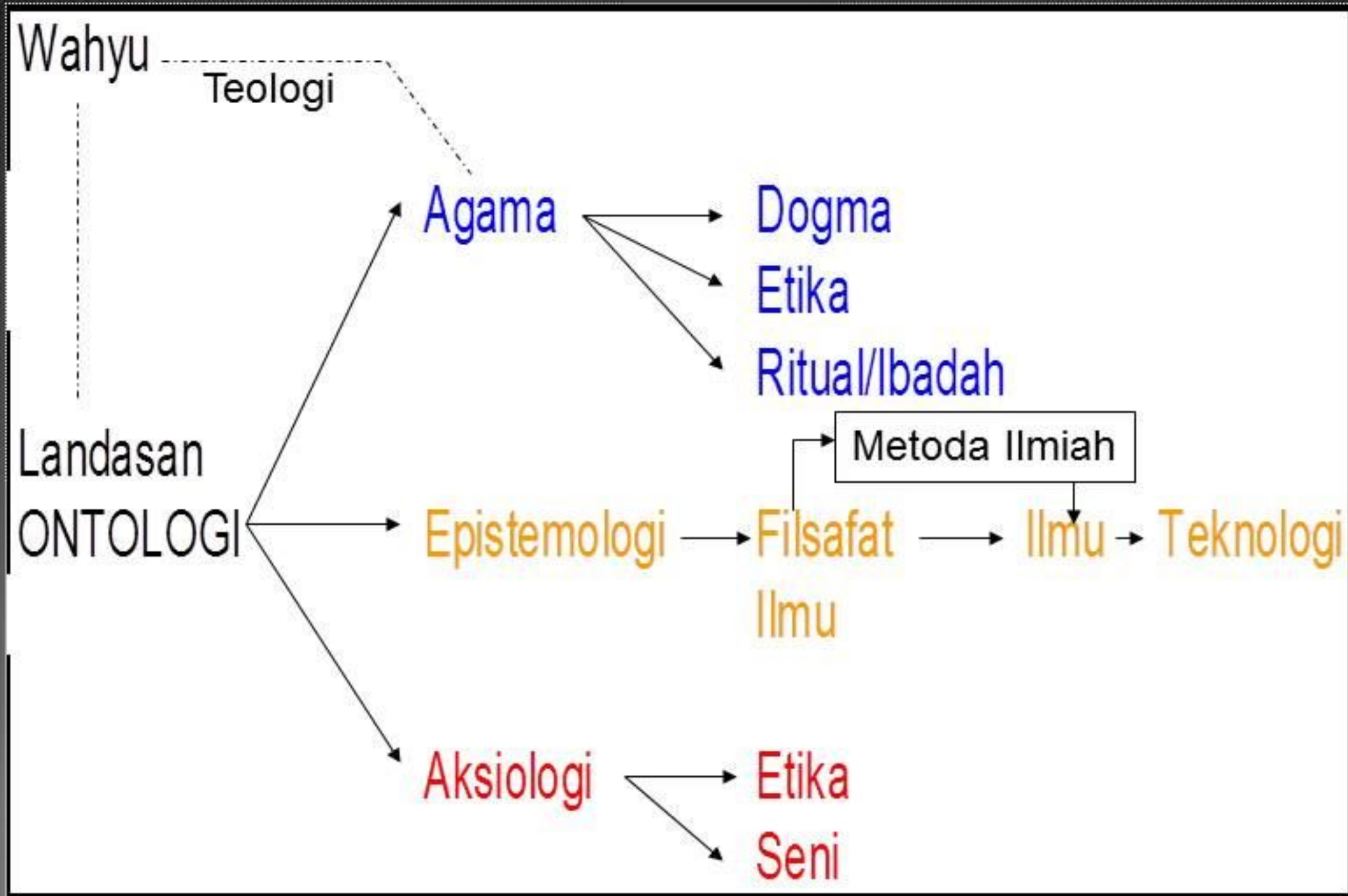
- Teologis
  - Animisme - Politeisme - Monoteisme
- Metafisis
  - Alam - Panteisme
- Positif
  - Sains-Teknologi, Metodologi ilmiah
  - Atheisme-Agnostisme-Deisme-Panteisme
  - MODERNISME-Individualisme-Liberalisme



# Jenis2 Positivisme :

- Positivisme Sosial : Comte
  - J. Bentham & J.S. Mill, Masyarakat & sejarah
- Positivisme Evolusioner
  - C.Darwin-H.Spencer, Fisika - Biologi, Evolusi Universal, Progresif
- Positivisme Kritis : Kritisisme Empiris > Positivisme Logis
- Positivisme Logis :
  - 1920 Wienerkreis, R.Carnap > Manifesto
  - 1940an Wittgenstein: Tractatus Logicus Philosophicus > Verifikasi > Teori gambar
  - Bebas dr Teologi & Metafisika > Ilmu2 alam = Univied Science

# Landasan Ontologi



# Landasan Ontologi Filsafat Ilmu



# S.e.k.u.l.a.r.i.s.a.s.i

- Saeculum = dunia
- Protestanisme, Martin Luther dan John Calvin
- Teosentris, semua kegiatan dikontrol agama
- Pemisahan antara wilayah agama > pribadi, disiplin tersendiri, dengan wilayah publik
- Humanisasi, HAM, Demokrasi, Toleransi
- Desakralisasi hidup, Otonomi Manusia
- Menolak Transendensi
- Penolakan atas Teleologi Sejarah perkembangan Umat manusia, Eskatologi

# S.e.k.u.l.a.r.i.s.a.s.i 2

- **Fisika** : Copernicus (1473-1543), Galilei (1564-1642), Geosentrisme
  - Newton, (1642-1747), Alam = Atom, dng Hukum2 tersendiri
- **Biologi**, C. Darwin (1809-1882), Evolusi , Natural selection
- **Historis**, Kitab2 bukan langsung dari atas, ttp sesuai perkembangan manusia pengikutnya
- **Psikologi**: Freud (1856-1939), Eksistensialis, dorongan bawah sadar
- **Sosiologi** : dorongan kebutuhan hidup, Materialisme Historis
- **Negara** : suatu kontrak sosial, agama tanpa tuhan.

# *Secularization*

- The word 'Secular' came from the Latin word *saeculum*, means "*this present age*", Harvey Cox wrote in his book '*The Secular city*':  
*Secularization occurs when man turns his attention away from worlds beyond and toward this world and this time.*

# Taman Jepang



# *Taman Versailles*





- Taman Jepang



**Kosmosentris**

## Taman Versailles



**Anthroposentris**

# Manusia mengenali dirinya

- Existensialisme
- Phenomenology

# Existentialisme

## Sartre, Kierkegard, Gabriel Marcel

- Existentialism generally postulates that the absence of a transcendent force (such as God) means that the individual is entirely free, and, therefore, ultimately responsible. It is up to humans to create an ethos of personal responsibility outside of any branded belief system. That personal articulation of being is the only way to rise above humanity's absurd condition (suffering and death, and the finality of the individual).

# Sartrean existentialism

## Existence precedes essence

- This is a reversal of the Aristotlean premise that essence precedes existence, where man exists to fulfill some purpose. Sartrean existentialism argues that man has no predefined purpose or meaning; rather, humans define themselves in terms of who they become as their individual lives are played out in response to the challenges posed by existence in the world

- Simone de Beauvoir uses this concept in her feminist existentialism to develop the idea that "one is not born a woman, but becomes one"

# Existence precedes essence

- A central proposition of existentialism is that existence precedes essence; that is, that a human being's existence precedes and is more fundamental than any meaning which may be ascribed to human life: humans define their own reality. One is not bound to the generalities and a priori definitions of what "being human" connotes.

- **"Existence precedes essence"**, is a philosophic concept based on the idea of existence without essence. For humanity, it means that humanity may exist, but humanity's existence does not mean anything at least at the beginning. This concept can be applied at the individual level as well. The value and meaning of this existence—or essence—is created only later. It directly and strongly rejects many traditional beliefs including religious beliefs that humankind is given a knowable purpose by its creator or other deity.

- For Sartre, we must come into existence first, and then create our own essence out of interaction with our surroundings and ourselves. With this comes serious implications of self-responsibility over who we become and who we are. There is no longer, for Sartre, some universal "human nature".
  - The individual consciousness is responsible for all the choices it makes, regardless of the consequences. Condemned to be free because man's actions and choices are his and his alone, he is *condemned* to be responsible for his free choices.

Responsibility for choices



# Phenomenology

- For [G.W.F. Hegel](#), phenomenology is an approach to [philosophy](#) that begins with an exploration of [phenomena](#) (what presents itself to us in conscious experience) as a means to finally grasp the absolute, logical, ontological and metaphysical Spirit that is behind phenomena. This has been called a "*dialectical phenomenology*".

# Phenomenology

- For Edmund Husserl, phenomenology is "the reflective study of the essence of consciousness as experienced from the first-person point of view." Phenomenology takes the intuitive experience of phenomena (what presents itself to us in phenomenological reflexion) as its starting point and tries to extract from it the essential features of experiences and the essence of what we experience.

- Martin Heidegger believed that Husserl's approach overlooked basic structural features of both the subject and object of experience (what he called their "being"), and expanded phenomenological enquiry to encompass our understanding and experience of Being itself, thus making phenomenology the method (in the first phase of his career at least) of the study of being: ontology.

# das Ding an sich

- Immanuel Kant (1724–1804), in the Critique of Pure Reason, distinguished between objects as phenomena, which are objects as shaped and grasped by human sensibility and understanding, and objects as *things-in-themselves* or noumena, which do not appear to us in space and time and about which we can make no legitimate judgements.

- G.W.F. Hegel (1770–1831) challenged Kant's doctrine of the unknowable thing-in-itself, and declared that by knowing phenomena more fully we can gradually arrive at a consciousness of the absolute and spiritual truth of Divinity.

# Paradigma Pendidikan

# PAOLO FREIRE

- **MAGICAL CONSCIOUSNESS**
  - Faktor-faktor diluar manusia (Natural & Supra Natural)
  - Dogmatis
  - Ketidakberdayaan
- **NAIVAL CONSCIOUSNESS**
  - Man Power Development
  - Sistem = "GIVEN"
  - ADAPTASI thd Sistem >< Menderita.
- **CRITICAL CONSCIOUSNESS**
  - SISTEM = Sumber masalah
  - Pelatihan identifikasi ketidakadilan
  - Penciptaan ruang & Kesempatan dalam penciptaan struktur & sistem yang lebih baik.



# St. Takdir Alisyahbana





# Towards Positivism

- Rene Descartes ,

- 1596 - 1650

- David Hume

- 1711 - 1776

- John Locke

- 1632 1704

- George Berkeley

- 1685 - 1753

- August Comte

- 1685 - 1753

- RASIONALISME

- EMPIRISISME

- POSITIVISME



## Comte

ILMU : explanatoris  
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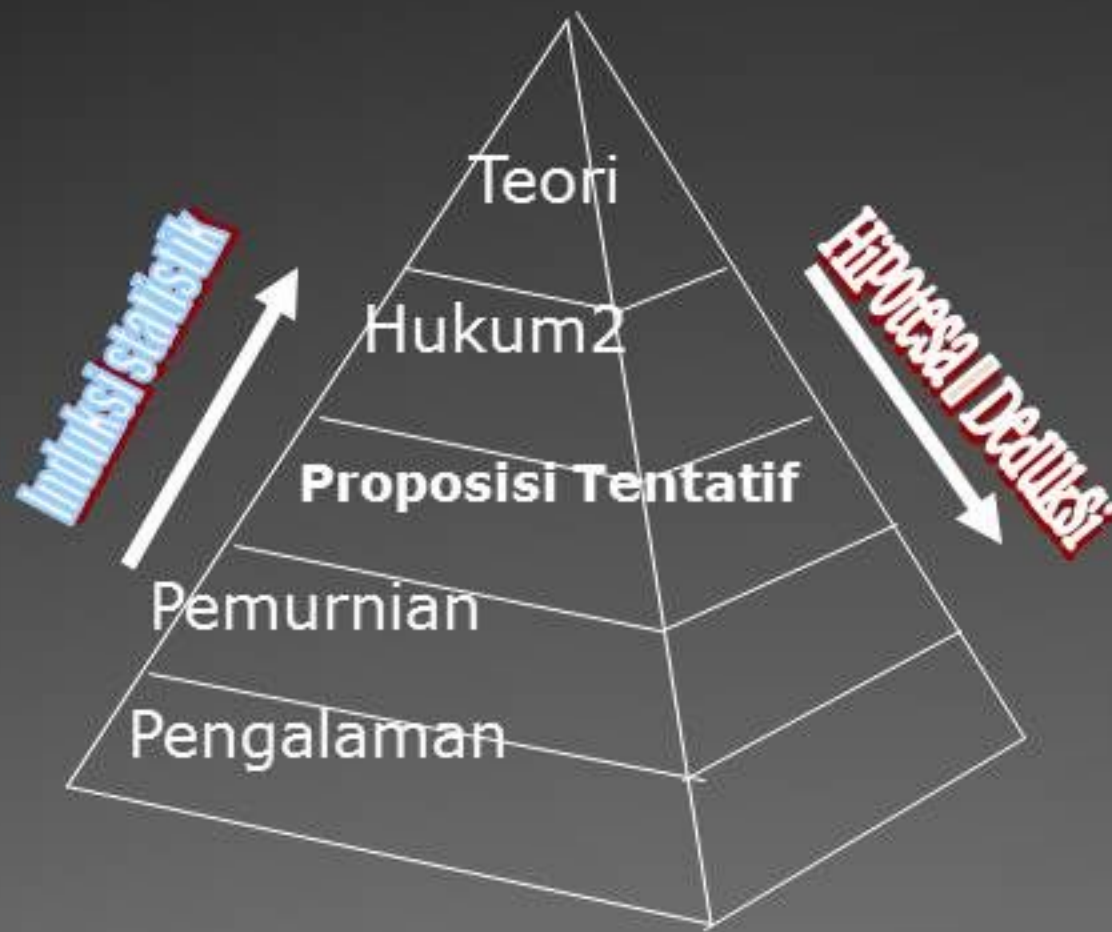
# 3 Tahap perkembangan

## Sejarah :

- Teologis
  - Animisme - Politeisme - Monoteisme
- Metafisis
  - Alam - Panteisme
  - DARK-AGES >< Reformasi-Protestanisme-Kapitalisme
- Positif
  - Sains-Teknologi, Metodologi ilmiah
  - Agnostisme-Atheisme-Deisme-Panteisme
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**Gerak Pencapaian Ilmu Pengetahuan**

## Gerak Pencapaian Ilmu Pengetahuan

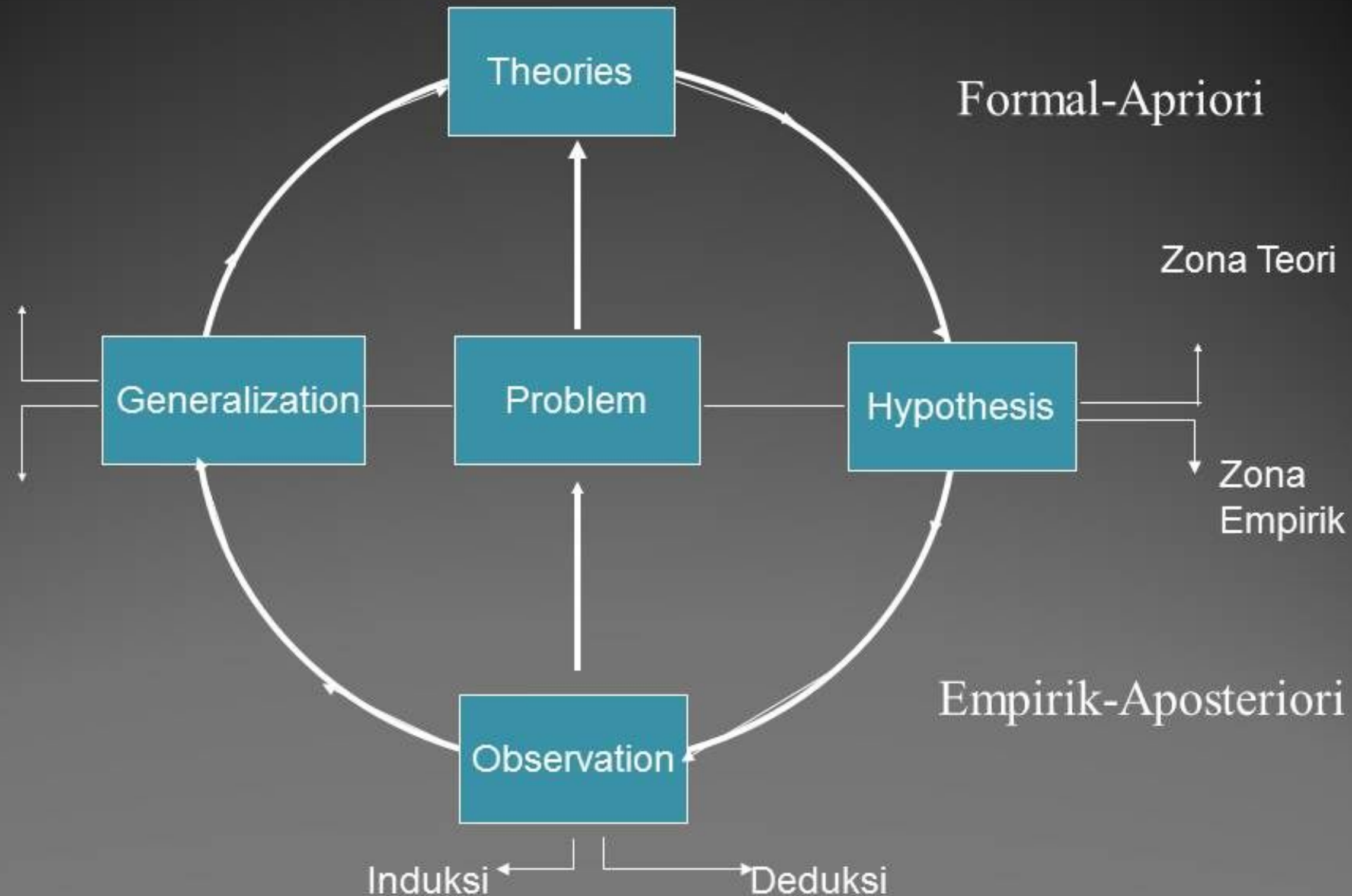
- Pengalaman/empiri diolah dengan penalaran (pemurnian) : bahasa, akal sehat, persepsi > definisi, deskriptif
- Menyusun Proposisi tentatif, pernyataan yg dpt dibuktikan salah/benarnya/dpt diverifikasi >> “Hipotesa” >>
- Dibuktikan lewat penelitian >> dikukuhkan menjadi : “ Hukum-hukum”
- Hukum : hipotesa yg tlh dibuktikan scr Positif
- “Teori” : seperangkat Hukum yg saling menunjang

## Proses terbentuknya I. Pengetahuan

- Induksi
- Bertolak dari kasus2 konkrit menuju kesimpulan yg abstrak
- Dibantu oleh statistik
- Dari hal2 yg partikular/khusus ke yg Umum
- Sampling

# Metoda Ilmu Pengetahuan :

## Siklus Empiris, Hipotetiko Dedukto Verifikatif





# Siklus Empiris, Hipotetiko Dedukto Verifikatif

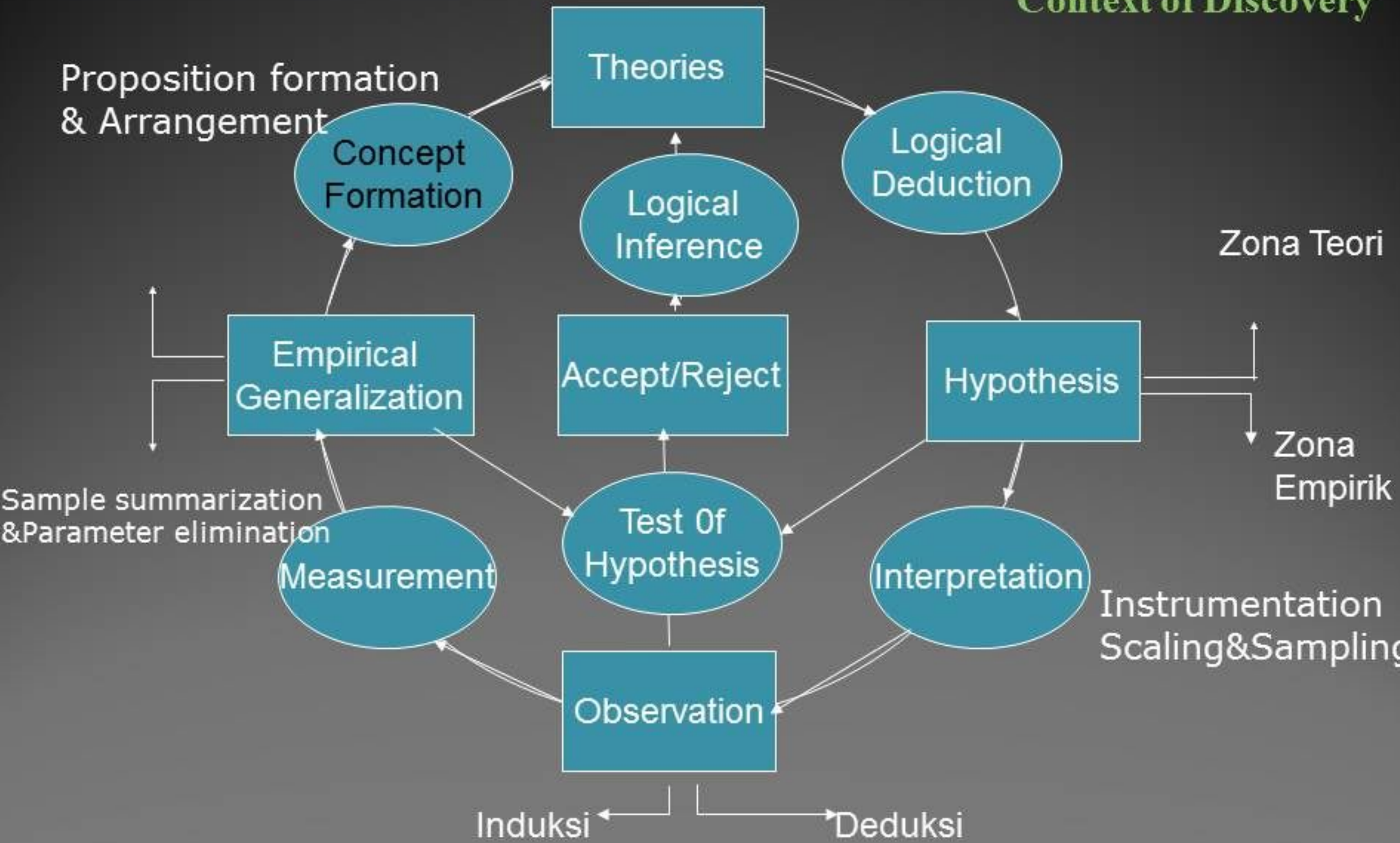
## Context of Justification

## Context of Discovery

Proposition formation  
& Arrangement

Sample summarization  
& Parameter elimination

Instrumentation  
Scaling & Sampling



# Creative Process

Context of Discovery

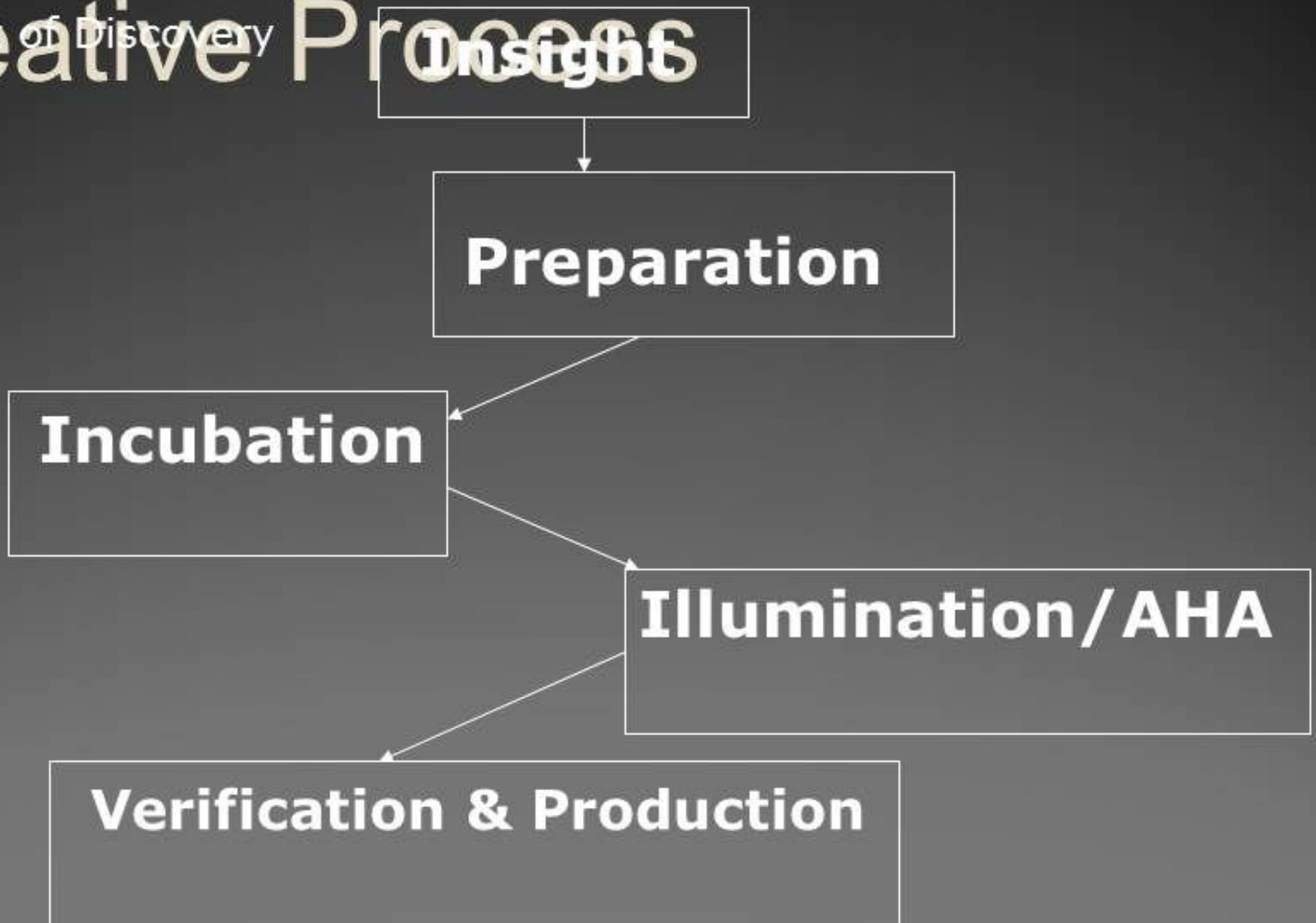
Insights

Preparation

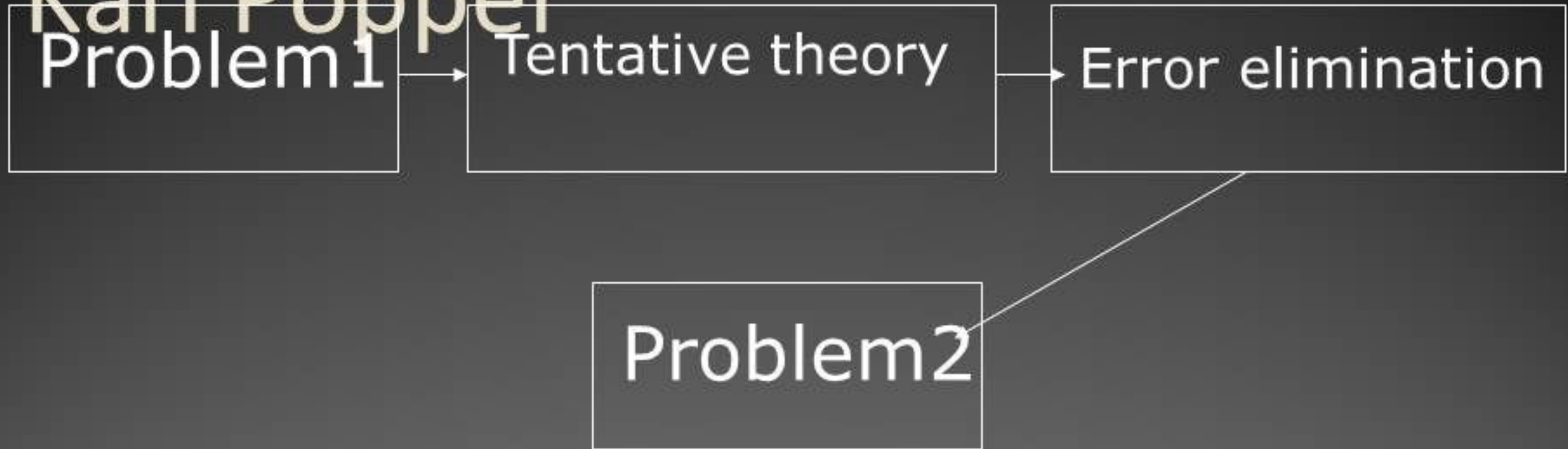
Incubation

Illumination/AHA

Verification & Production



# Karl Popper



- Tentative theory = Hypothesis
- Error elimination through observation
- Objective knowledge :evolutionary approach

# Thomas Kuhn

Paradigma1

→ Normal science

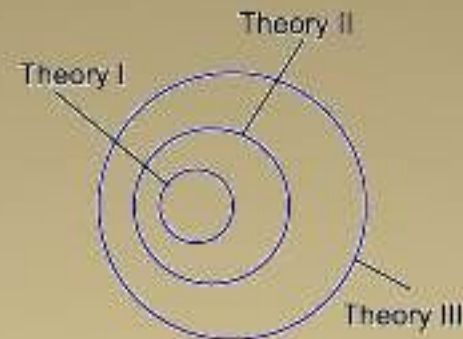
→ Anomali

→ Krisis

↓  
Revolusi

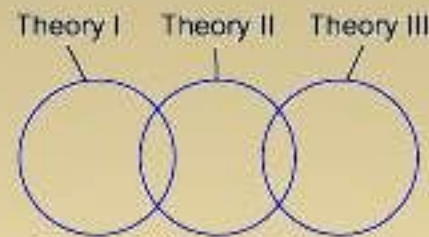
←  
Paradigma1

- Paradigma :
  - Worldview, metoda, teknik, nilai2, asumsi, menopang teori yg dominan



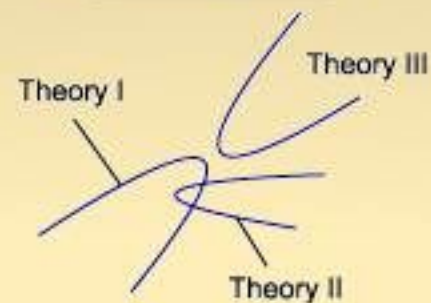
**“Popper”**

Each theory builds progressively on the theories preceding it.



**“Kuhn”**

Paradigms are incommensurate, and encompass some parts of previous paradigms but reject other parts.



**“Feyerabend”**

Theories have little to do with previous theories, and are not coherent or consistent.

# Syarat 1. Pengetahuan Ilmiah

## Positivisme

- Observable
- Repeatable
- Measurable
- Testable
- Predictable

Object of Science

```
graph LR; O[Observable] --- OS[Object of Science]; R[Repeatable] --- OS; M[Measurable] --- OS; T[Testable] --- SP[Scientific Proposition]; P[Predictable] --- SP;
```

Scientific Proposition

# Filsafat Ilmu

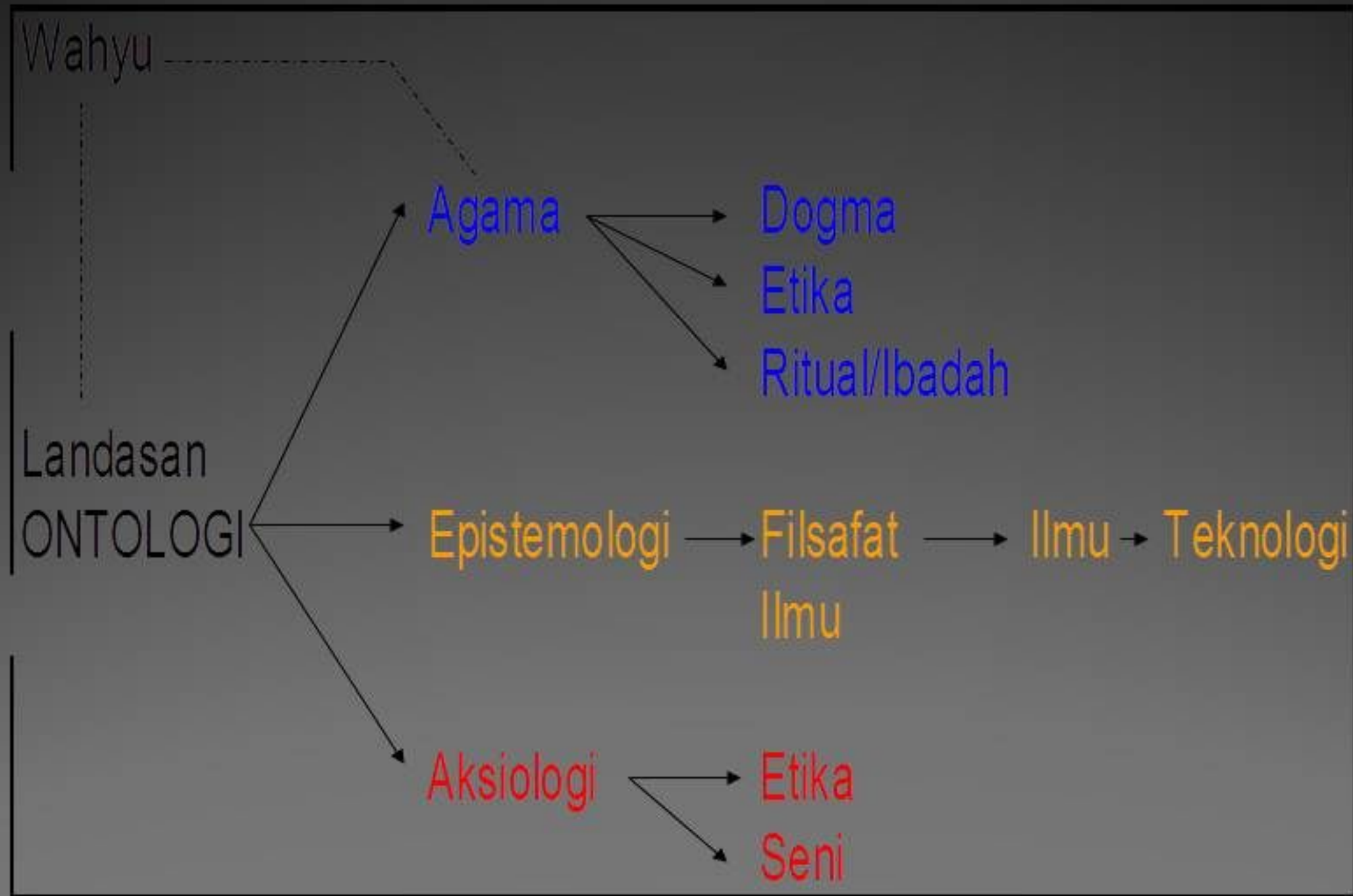
## Metodologi riset

untuk Prodi  
Magister Hukum

Oleh :

A. Rudyanto Soesilo

# Landasan Ontologi Filsafat Ilmu





# Konsep Teoritik

## & landasan Filsafat Ilmu suatu Metodologi riset

- Metodologi riset :
  - Ilmu yang mempelajari tentang metoda-metoda riset, ilmu tentang alat-alat riset. Konsep teoritis & landasan filosofinya.
  - Metoda riset adalah penjelasan teknis tentang aspek-aspek pelaksanaan riset yg dimaksud: perumusan masalah, populasi & teknik sampling, t. instrumentasi, t. analisis

# Metodologi Penelitian & Logika

- Metodologi riset merupakan bagian dari logika, sebagai alat untuk mencari kebenaran.
- Sillogisme, premis mayor, minor & konklusi (deduktif)

# Tujuan Ilmu Pengetahuan

- Deskripsi Idiografis (verstehen)
- Interpretasi
- Eksplanasi Nomotetis (erklaren)
- Prediksi

# 3 Dikhotomi

- Ilmu2 Formal Deduktif >< Empiris Induktif
  - Terapan >< Murni
  - Nomotetis >< Idiografis
  - (erklaren) >< (vestehen)

# Validitas : 3 Teori Kebenaran

- Korespondensi :
  - Keselarasan gagasan - realitas external >Kebenaran Empiris-Induktif:Fisika,Kimia,Biologi
- Koherensi :
  - Keselarasan Proposisi Logis >Kebenaran Formal Deduktif : Matematika, Logika
- Pragmatis :
  - Kriteria Instrumental&Kebermanfaatan >Kebenaran Fungsional: Ilmu Terapan, Hukum,Kedokteran, Arsitektur dll

# Bidang2 Ilmu Pengetahuan :

ILMU2 FORMAL DEDUKTIF	ILMU2 EMPIRIS INDUKTIF		
Matematika Logika	Ilmu2 Alam Anorganik    Organik	Ilmu2 Sos Ilmu2 Bu	Kedokteran, Arsitektur dll Hukum
KOHERENS	KORESPONDENS		PRAGMATISME
	Ilmu-Ilmu Murni		Ilmu2 Terapan

- 

# Berbagai Metodologi Riset

# Metoda riset Kwantitatif Positivistik

- Positivisme August Comte
- Materialisme mekanistik, anti metafisik & teologik.
- Hukum<sup>2</sup> Mekanik inherent dalam benda.
- Ilmu menggambarkan dunia lewat riset empirik, bukan spekulasi filosofis

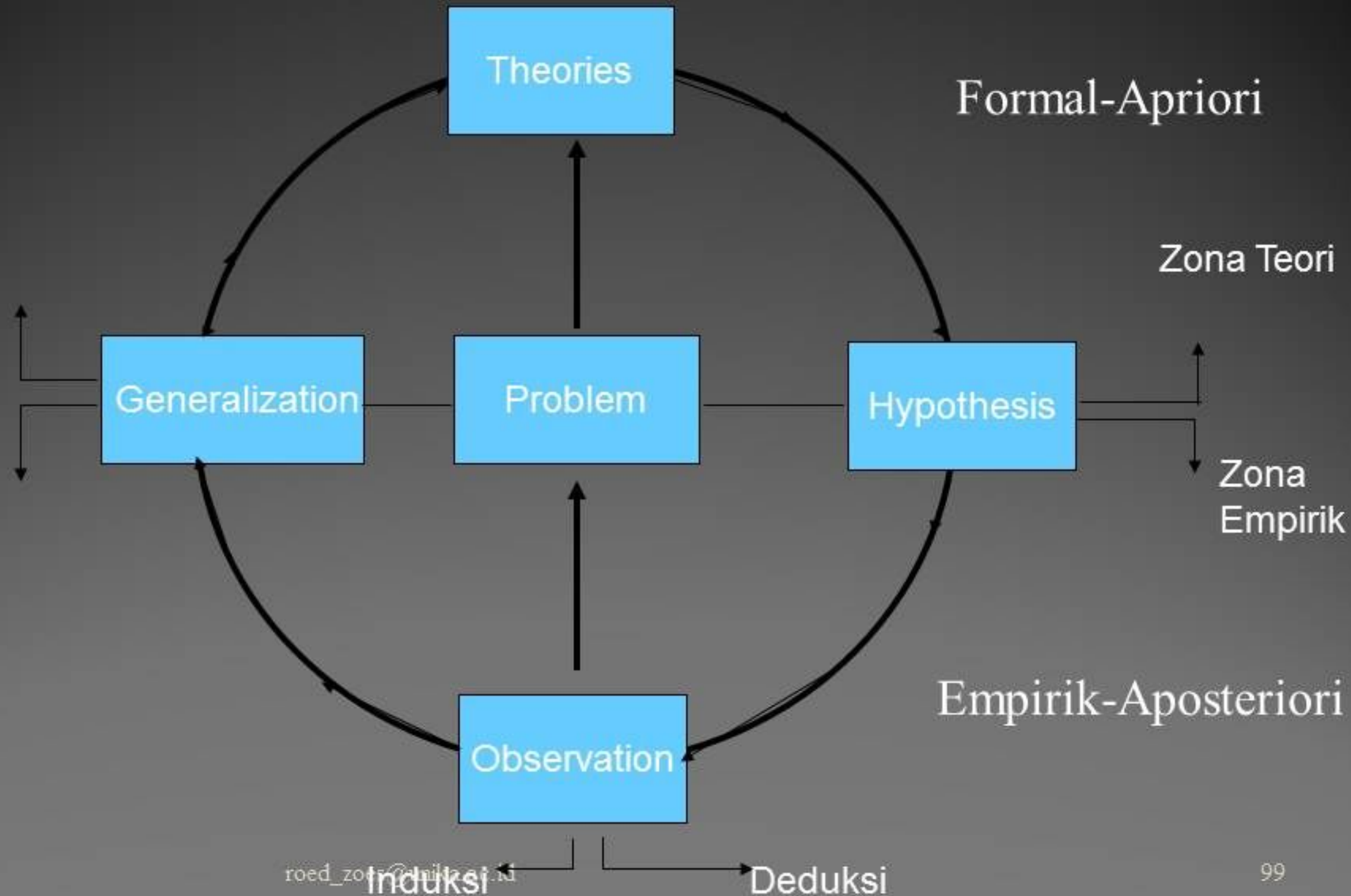


# Metoda riset Kualitatif Positivistik

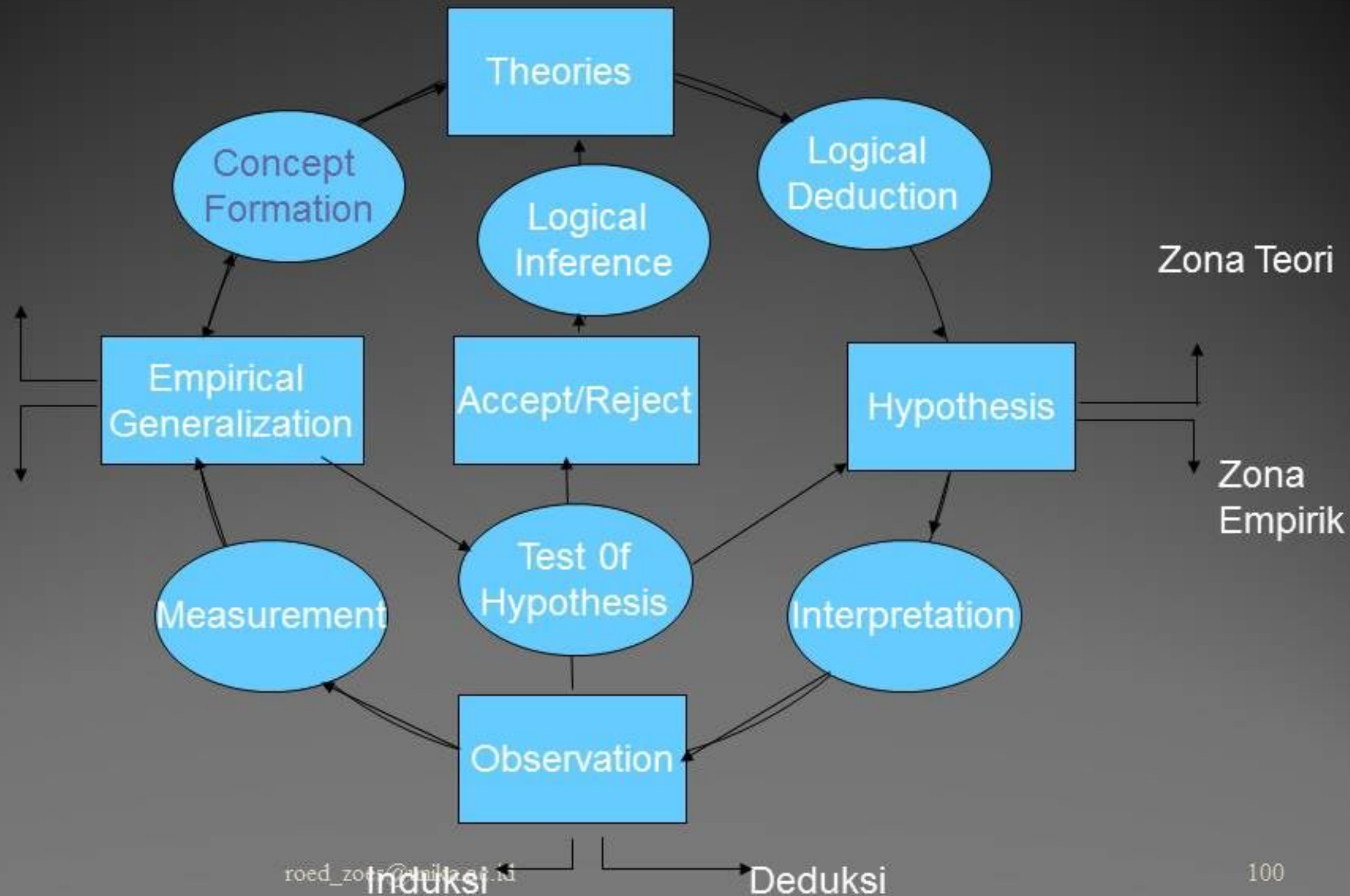
- Logika Induktif,
- Ilmu bergerak naik dari fakta2 fenomenal menuju generalisasi teoritik
- Validitas lewat empiri
- Ontologis Positivisme : realitas dapat dipecah-pecah, dapat dipelajari independen, dapat dieliminasi dari obyek lain, dapat dikontrol
- Variabel

- Epistemologi, pemisahan Subyek & obyek
- Variabel harus teramati dan terukur
- Logika kausalitas
- Relasional, Korespondensi
- Nomothetis > generalisasi
- Aksiologi : Value-free

# Metoda Ilmu Pengetahuan : Siklus Empiris, Hipotetiko Dedukto Verifikatif



# Siklus Empiris, Hipotetiko Dedukto Verifik





# Towards Positivism

- Rene Descartes , ———— • RASIONALISME  
– 1596 - 1650
  - David Hume ———— • EMPIRISISME  
– 1711 - 1776
  - John Locke ————  
– 1632 1704
  - George Berkeley ————  
– 1685 - 1753
  - August Comte ———— • POSITIVISME  
– 1685 - 1753
-



# August Comte :

## 3 Tahap perkembangan

### Sejarah :

– Animisme - Politeisme - Monoteisme

- Metafisis

- Alam - Panteisme

- DARK-AGES >< Reformasi-Protestanisme-Kapitalisme

- Positif

- Sains-Teknologi, Metodologi ilmiah

- Atheisme-Agnostisme-Deisme-Panteisme

- MODERNISME-Individualisme-Liberalisme><Fundamentalism



# Jenis2 Positivisme :

- Positivisme Sosial : Comte
  - J. Bentham & J.S. Mill, Masyarakat & sejarah
- Positivisme Evolusioner
  - C.Darwin-H.Spencer, Fisika - Biologi, Evolusi Universal, Progresif
- Positivisme Kritis : Kritisisme Empiris > Positivisme Logis
- Positivisme Logis :
  - 1920 Wienerkreis, R.Carnap > Manifesto
  - 1940an Wittgenstein: Tractatus Logicus Philosophicus > Verifikasi > Teori gambar
  - Bebas dr Teologi & Metafisika > Ilmu2 alam = Unified Science

# Metoda riset Kualitatif Rasionalistik

- Berlawanan dengan Positivisme, ilmu berasal dari pemahaman intelektual yg dibangun atas argumentasi logis, bukan dibangun atas pengalaman empiris
- Positivisme Ilmu sosial menghambat kemajuannya
- Empiri dan pemaknaan sama pentingnya
- Positivisme berat ke Empiri-sensual & mengabaikan pencarian makna dibalik yang sensual >> Penelitian Sosial kehilangan makna

- Validitas : abstraksi, simplifikasi dan idealisasi dari realitas
- Koherensi dengan sistem logikanya
- Pemaknaan empiri Justifikasi a-Priori
- Empiri :Indrawi, logik & teoritik
- Ontologi : Kesatuan Holistik, bukan parsial
- Epistemologi, pemisahan Subyek & obyek

# Metoda riset Kualitatif

## Fenomenologik

- Edmund Husserl: tak hanya empirik, ttp juga fenomena: persepsi, pemikiran, kemauan, keyakinan dari Subyek ttg sesuatu diluar Subyek, Transenden , bukan hanya a-Posteriori.
- Fenomenologis : Melihat dunia dari kaca mata obyek penelitian kita.
- Paradigma Naturalistik, Ethnometodologi, hermeneutik, Grounded-research dll
- Tak terbatas Empiri, tetapi juga fenomena : persepsi, pemikiran, keyakinan, kemauan, transenden

- Ontologi : = Rasionalisme, Ontologi : Kesatuan Holistik, bukan parsial
- Epistemologi : Natural tanpa kerangka teori (artifisial)  
> Holistik, obyek bersifat Natural, bukan parsial.
- Bersatunya Subyek & Obyek
- Idiografis bukan Nomothetis
- Axiologis : ada kebenaran Etis Value-bound
- Empiri : Indrawi, logik , teoritik & transendental

- Idealisme >< Materialisme
- Rasionalisme : Descartes
- Idealisme : Kant, das Ding an-sich
- Realitas Internal – External
- Externalisasi : Perilaku/tindakan
  - Kinetis : Artefak & Modifikasi alam
  - Verbal: Teks

- Kant, Realitas :
  - Fenomena, bisa diamati
  - Noumena : Kreativitas bebas
- Fenomenologis : Melihat dunia dari kaca mata obyek penelitian kita.

# ONTOLOGI > EPISTEMOLOGI

METODA



- Bernalar
- Berkemauan
- Berperasaan
- Tak terikat determinasi alamiah
- BEBAS - KREATIF

ONTOLOGI > EPISTEMOLOGI

Worldview > Teori > Metode > Teknik > Gejala



# REALITAS : INTERNAL - EXTERNAL



Realitas External

Externalisasi realitas Internal

- KINETIS : Artifak :Lingk dimodifika
- VERBAL : Teks
- ALAM ASLI

- COGNITION , the What
- CONATION , the Why
- EMOTION , the Way

# Immanuel Kant

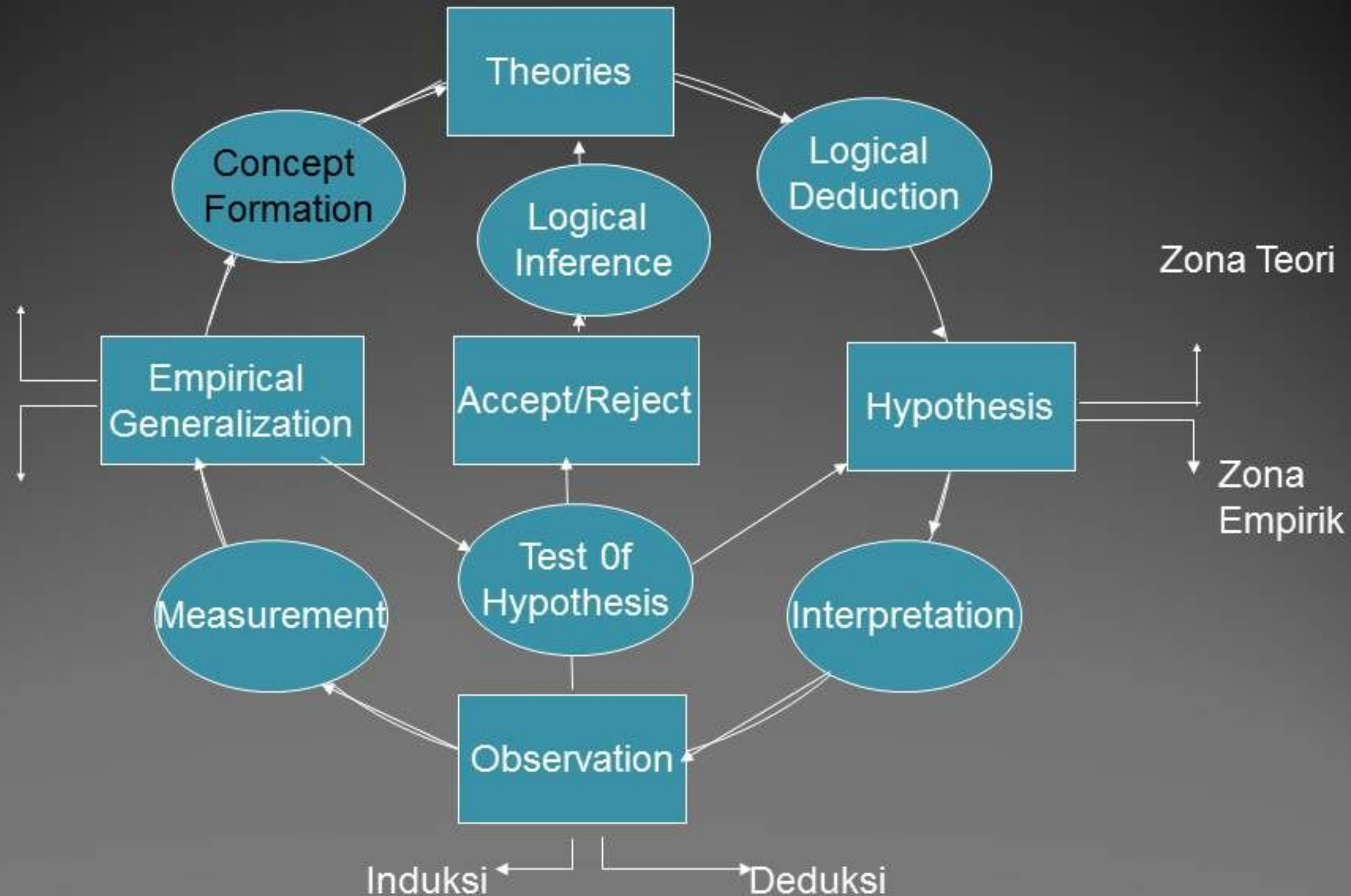
FENOMENA > Positivis > Behaviorisme : Stimulus - Response

REALITAS:

NOUMENA: **Rasionalisme** : Perilaku=Pencerminan Struktur dalam Manusia  
Benda & Perilaku > Konsep makna dlm sistem Pengetahuan Manusia

FENOMENOLOGI: Spt yg dialami/dihayati pelaku sendiri

# Siklus Empiris, Hipotetiko Dedukto Verifikatif



# The end of Science??\*

Oleh : A. Rudyanto Soesilo

\*)John Horgan 1997







*Otoritas pendefinisi Kebenaran  
abad XV - Now*

- Sains, sebagai otoritas pendefinisi kebenaran telah menggeser peran agama.
- Positivisme yg rasional & Empirik menjelaskan Misteri Alam Semesta.



GENESIS UNVEILED  
WWW.ARTOFGREGMARTIN.COM

*Greg Martin*



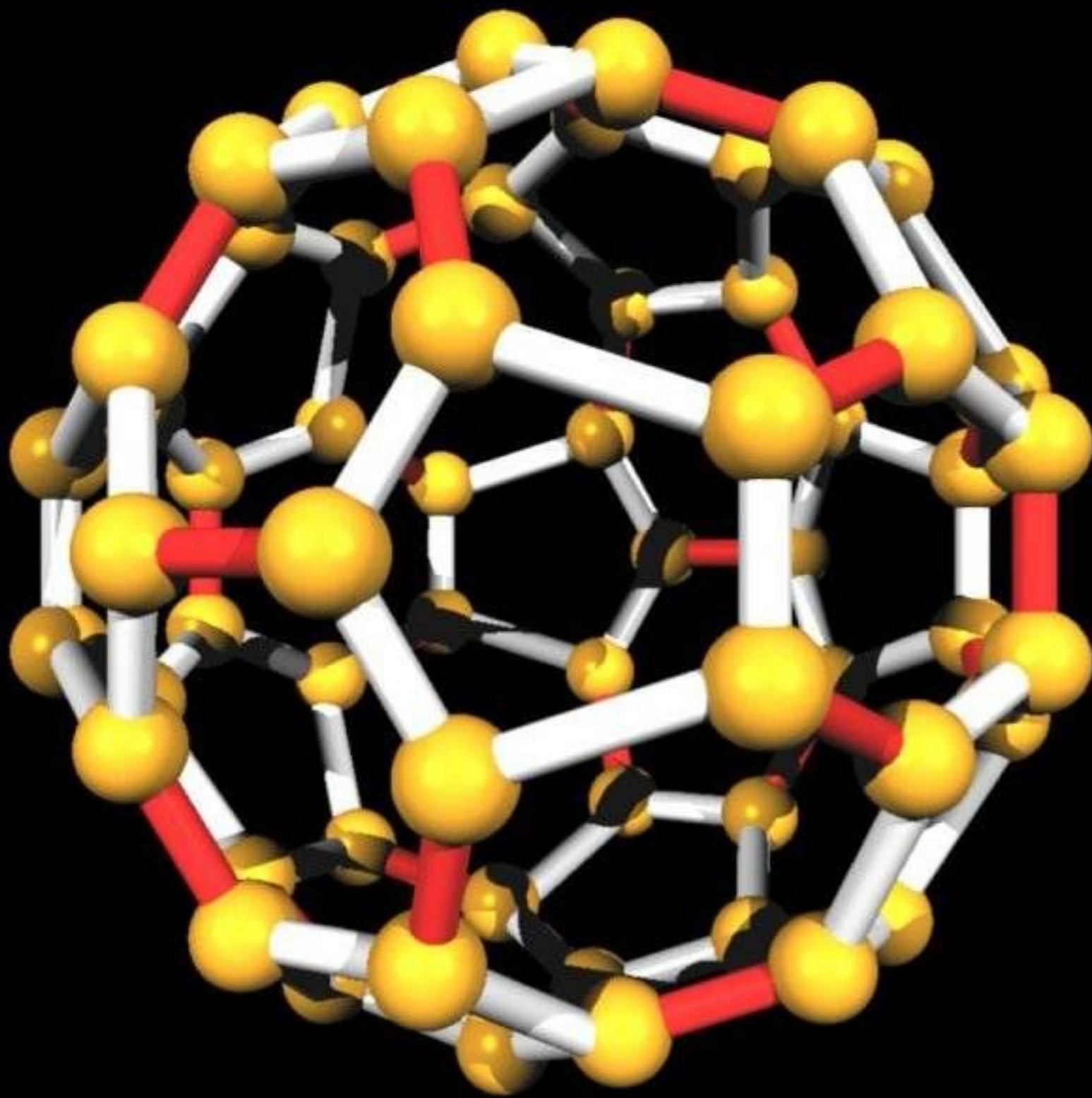
# Penemuan2 Ilmiah pendefinisi kebenaran

- Sir Isaac Newton Hk. Gerak & Gravitasi
- Charles Darwin Evolusi&Seleksi alamiah
- Albert Einstein Relativitas
- Francis Crick&Watson D.N.A
- Stephen Hawking Evolusi alam semesta & Big Bang
- Next ??



# Big bang laboratorium



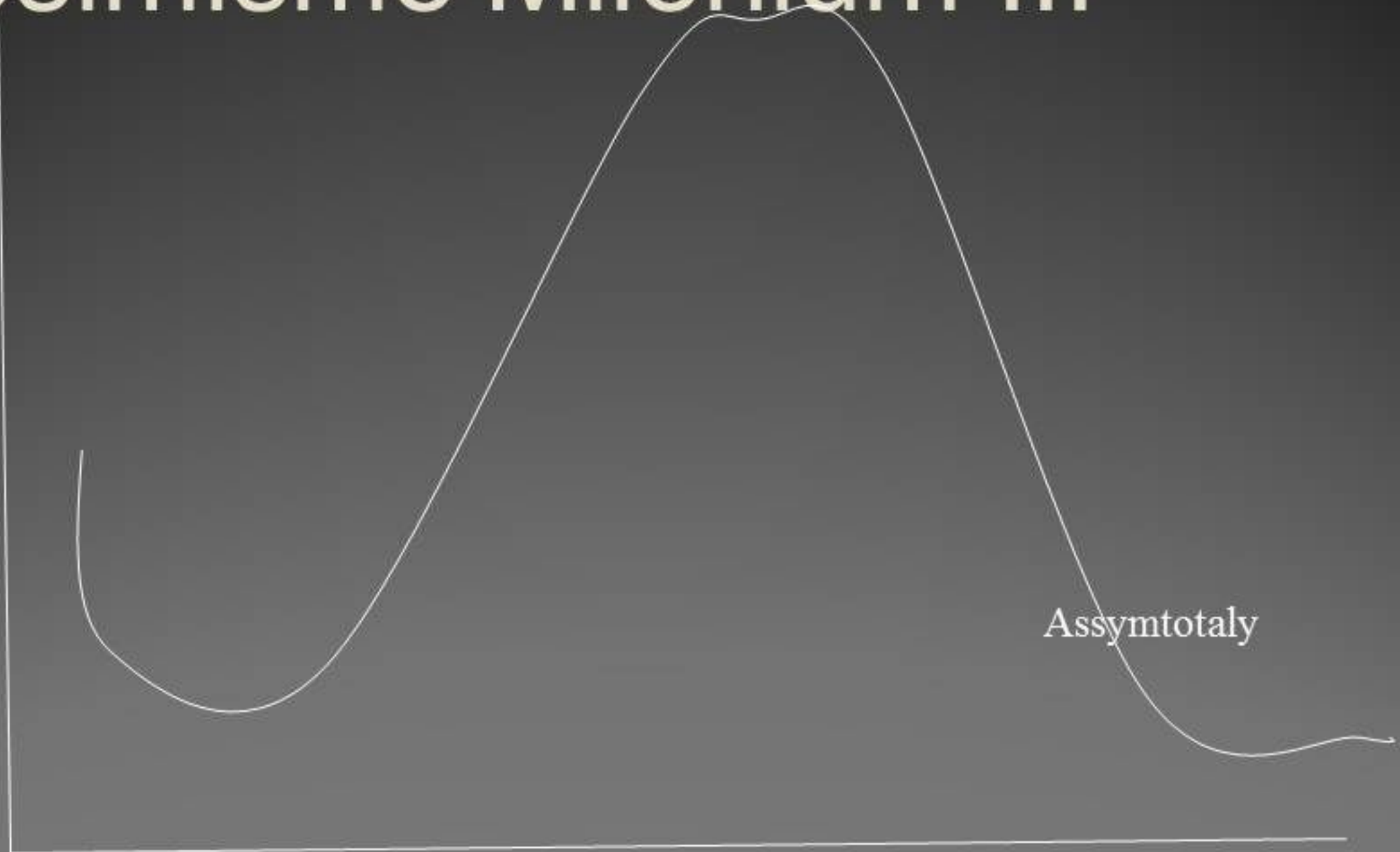




# End of Science?

- Sains telah mendekati kesempurnaan
- 2200 semua misteri alam telah terungkap
- Setelah itu hanya tetesan kebenaran saja secara lambat
- Tidak ada lagi kebaruan, sekadar catatan kaki
- Hanya 'pemberontakan2' yg gagal
- Grafik tumbuh – kembang – layu

# Pesimisme Milenium III









*Hatur Nuwun*

**Program PASCASARJANA  
Unika Soegijapranata**