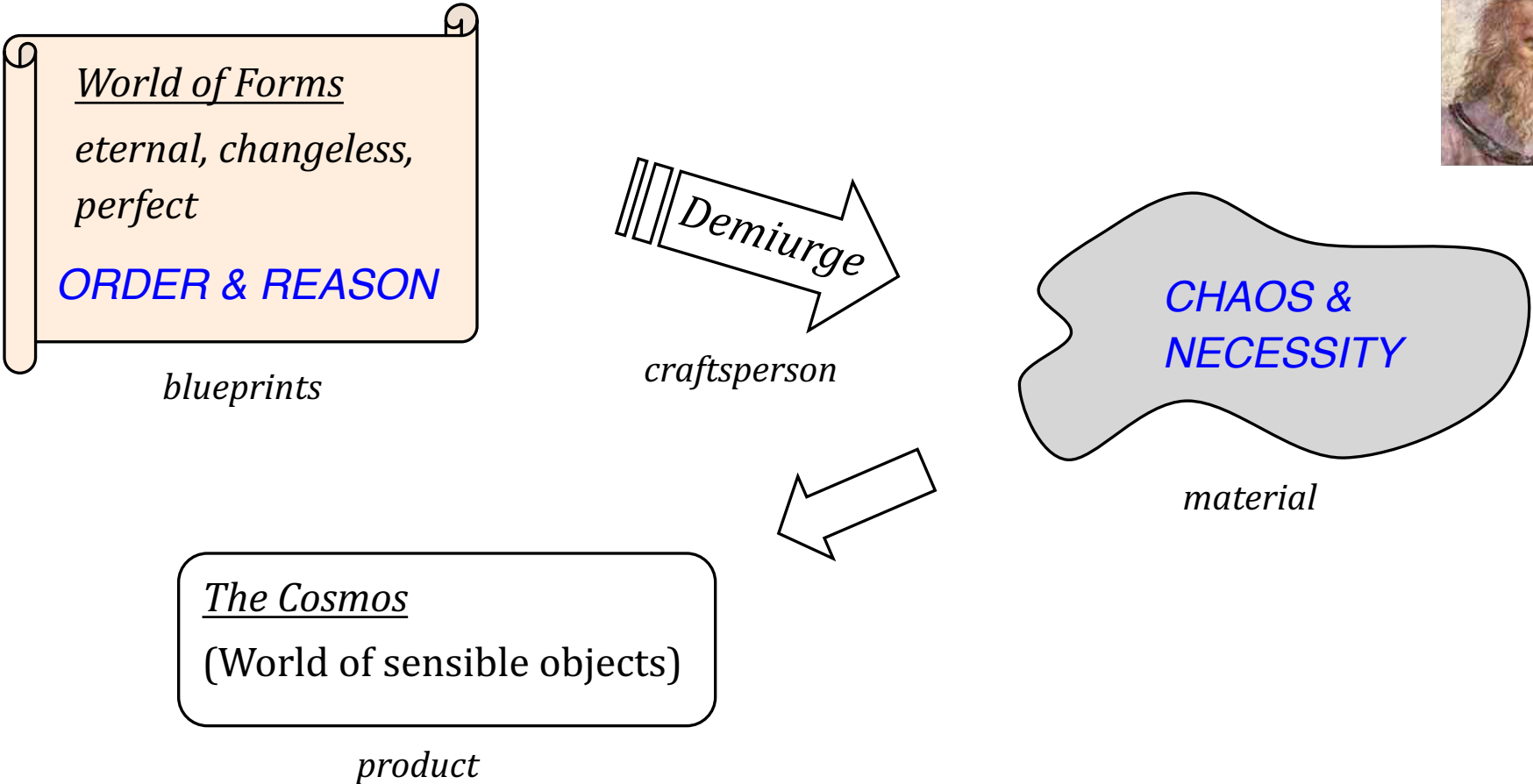


# 02. Plato's Cosmology

- 1. Demiurge and Creation
- 2. Three Constituents
- 3. The Receptacle
- 4. Geometric Atomism
- 5. The World Soul
- 6. Human Souls
- 7. Time



## Outline:



## Creation of the Cosmos

- Top-Down ("Works of Reason")
- Bottom-Up ("What comes about of Necessity")

# 1. Demiurge and Creation

- Demiurge: Craftsperson (manual laborer).
  - *New concept: creator god.*
  - *Distinct from the Good (highest Form which all other Forms seek to emulate).*

- Creation

- *Not creation ex nihilo (out of nothing): Demiurge uses pre-existing Forms as blueprints to impose order on pre-existing Chaos.*
- *Reason "persuades" Necessity*



*A response to the Atomists!*

- *Cosmos of Atomists is pure Chaos & Necessity, no Order & Reason.*

# 2. Three Constituents

- Forms: "Father"
- Copies (sensible objects): "Child"
- Receptacle: "Mother" ("nurse of all being")

### 3. The Receptacle

- That in which the cosmos is created: Forms are imposed on the Receptacle to generate individual objects.

Gold analogy:

- gold = malleable (plastic) stuff.
- can be shaped into different forms.
- But: gold, in and of itself, has various properties.

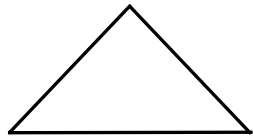
- Receptacle has *no* properties: "an invisible and formless being which receives all things and in some mysterious way partakes of the intelligible and is most incomprehensible".

Compare with:

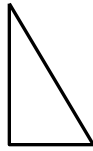
- Anaximander's neutral substratum.
- Aristotle's prime matter.
- Newton's concept of absolute space.

## 4. Geometric Atomism

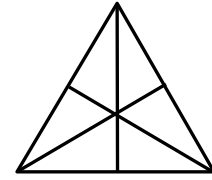
- Two types of fundamental geometric atoms:



*isosceles (45°, 45°, 90°)*



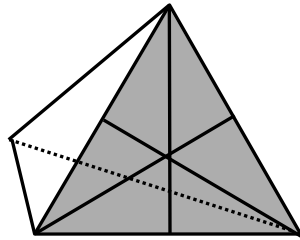
*scalene (30°, 60°, 90°)*



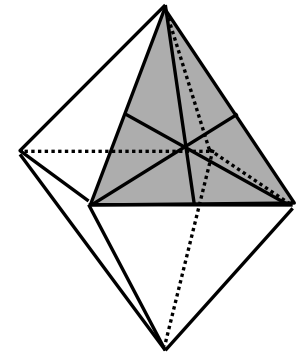
*6 scalenes make up an equilateral.*

- Four elements are geometric solids comprised of geometric atoms:

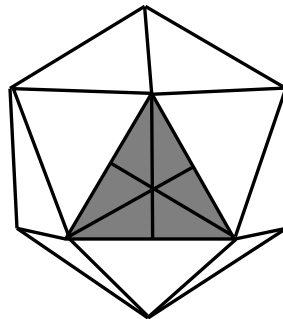
- *Fire particle = tetrahedron (4-sided solid).*
- *Each side = equilateral.*
- *24 atomic triangles.*



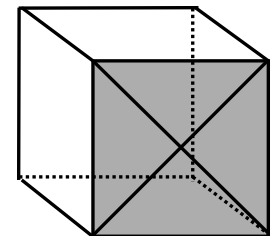
- *Air particle = octahedron (8-sided solid).*
- *Each side = 1 equilateral.*
- *48 atomic triangles.*



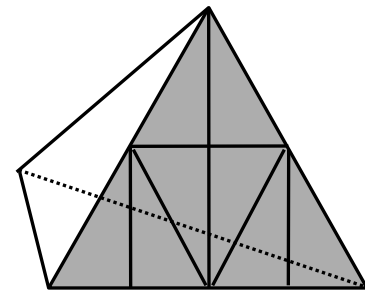
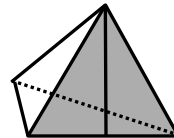
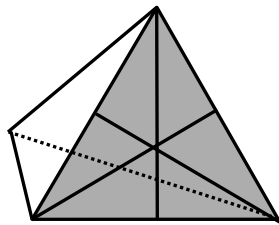
- *Water particle = icosahedron (20-sided solid).*
- *Each side = equilateral triangle.*
- *120 atomic triangles.*



- *Earth particle = cube (6-sided solid).*
- *Each side = 4 isosceles.*
- *24 atomic triangles.*

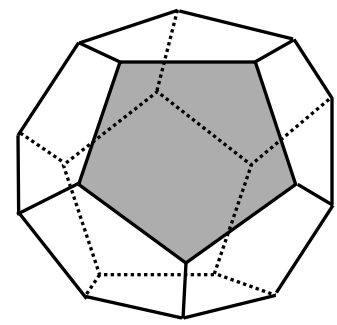


- Any given element can come in different sizes.
  - *Ex*: Primary fire particle has 24 atoms. A smaller version can be constructed from 8; a larger version from 32.



- Fifth regular solid = 12-sided dodecahedron.
  - *Demiurge uses it to construct the spherical cosmos.*

- *Cosmos = dodecahedron (12-sided solid).*
- *Each side = 1 pentagon.*
- *Cannot be constructed from geometric atoms.*



## Motivations

- Only 5 possible *regular solids*.
- Foundation of Cosmos = *geometry* (harmony and order).

*Distinguish geometry from number.*

- *Pythagoreans emphasize number as foundation of Cosmos.*
- *Compare later with Galileo and Kepler.*

- Provides an account of transformations between elements (*change*).
  - *Transformations between the elements occur by breaking a given element up into its constituent parts and recombining the parts.*
  - *Thus:*
    - 1 *water* (20 sides) = 1 *fire* (4 sides) + 2 *air* (16 sides) = 2.5 *air* (8 + 8 + 4 = 20 sides)
    - 1 *air* (8 sides) = 2 *fire* (4 + 4 = 8 sides)
  - *But:* *Earth particles cannot be transformed into the others, since earth is made up of isosceles triangles.*
  - *Also:* *Scheme doesn't preserve volumes (no conservation of matter).*

*Possible response:*

- *The "matter" of an element consists only in its surface area.*
- *It's volume consists of space (the receptacle).*

## 5. The World Soul

- The Cosmos is a *living being*: possesses a *soul* (self-moving thing) and a body.
- World soul is a mixture of divisible and indivisible Sameness, Difference ("other"), and Being ("essence").
- Divided into harmonically proportionate parts.

## 6. Human souls

- Composed of remains from World Soul.
  - Each soul is assigned to a star.
  - Death:
    - *Good souls return to their stars for "a blessed and congenial existence".*
    - *Evil souls are reincarnated, first as women, then as "lesser brutes".*
- *Scientific claim?*
  - *Reflection of patriarchal ancient Greek society?*
  - *Is contemporary science any more immune to cultural and societal influences?*

## 7. Time

- Created along with Cosmos.
- A "moving image of eternity", "moving according to number".
- A measure of change in the Cosmos.
- Planets as instruments of time.