

# **Presocratic Philosophy**

The Classical World: Spring 2010

- I. The Nature of the Evidence
- II. Central Themes and the Presocratic Era
- III. Milesians
- IV. Xenocrates
- V. Pythagoreans
- VI. Heraclitus
- VII. Eleatics
- VIII. Atomists

# References

Gallop, David, tr. *Parmenides of Elea*.

Long, A. A., ed. *The Cambridge Companion to Early Greek Philosophy*.

Mourelatos, Alexander, ed. *The Pre-Socratics: A Collection of Critical Essays*.

Waterfield, Robin, tr. *The First Philosophers*.

Wilbur, J. B. and H. J. Allen, eds. *The Worlds of the Early Greek Philosophers*.

# Sources of Textual Evidence

No complete works

## ***Fragments***

Lost work by Theophrastus (student of Aristotle)

Quoted in surviving texts

Compiled in late antiquity (e.g., Sextus Empiricus, Diogenes Laertius)

Quoted by early Christians (e.g., Hippolytus, Clement)

“Bn” – reference to Diels/Kranz compilation

## ***Testimonia***

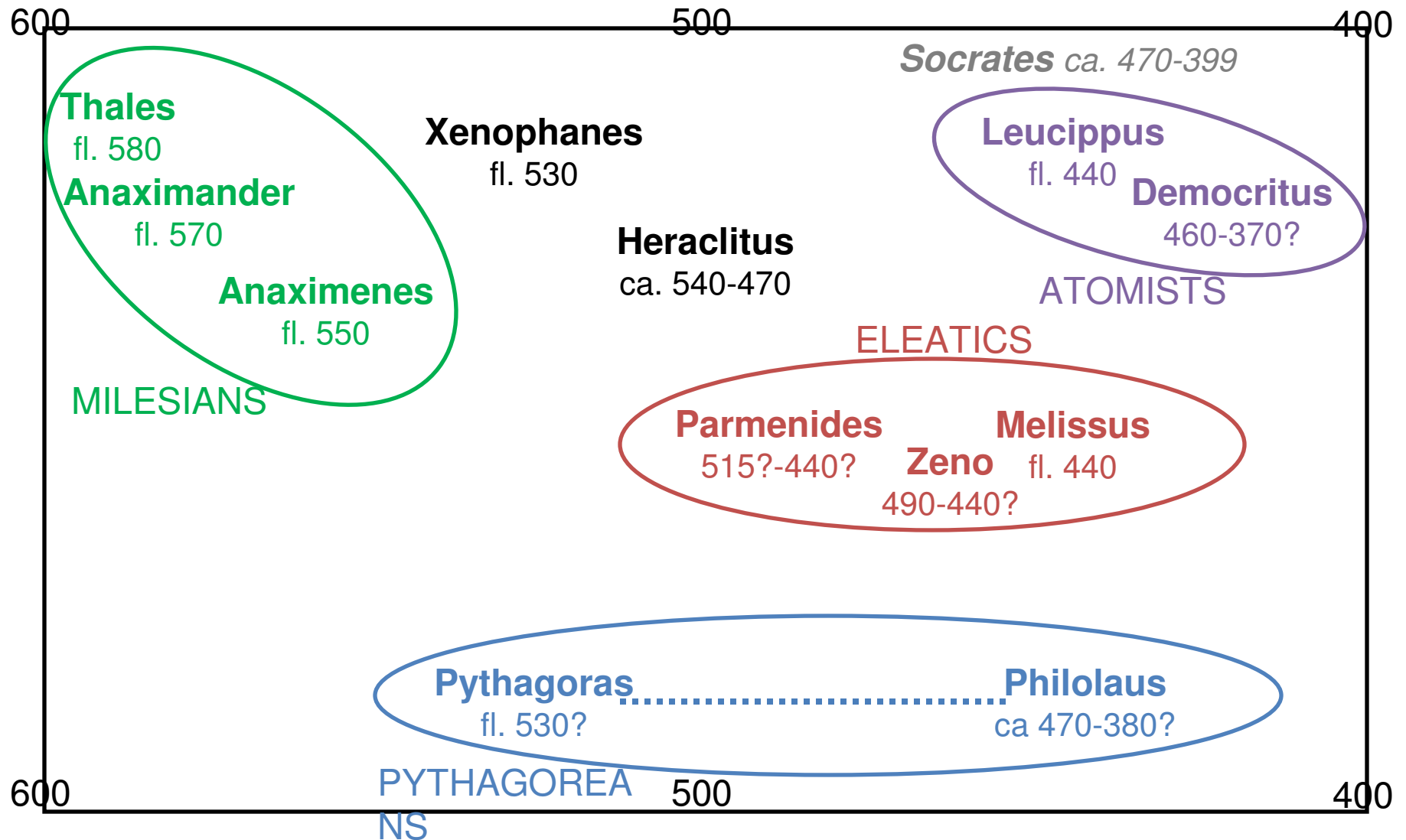
Referenced in surviving texts

“An” – reference to Diels/Kranz

# Presocratics: Central Themes

- *Naturalistic cosmology*
- *Religious skepticism*
- *Mathematical (geometric) reasoning*
- *Origin of rational argument*
- *Metaphysical issues:*
  - *The One and the Many*
  - *Permanence and Change*

# Timeline of Some Presocratics



# Milesians

Miletus, on Ionian coast

No surviving fragments; only testimonia

Explained origins naturalistically:

What is the basic source of all that is?

Thales (ca. 580) – water

Anaximander (ca. 570) – the boundless

Anaximenes (ca. 550) – earth

# **Xenophanes**

**From Colophon (Ionia)**

**Wandering poet, mid 6<sup>th</sup> century**

**Approximately 100 lines of poetry survive**

**Religious critic**

# Xenophanes

## Critical fragments:

If cows and horses or lions had hands,  
Or could draw with their hands and make things as men can,  
Horses would have drawn horse-like gods, cows cow-like gods,  
And each species would have made the gods' bodies just like their  
own. (B15)

Ethiopians say that their gods are flat-nosed and black,  
And Thracians that theirs have blue eyes and red hair. (B16)

Homer and Hesiod have attributed to the gods  
Everything that men find shameful and reprehensible –  
Stealing, adultery, and deceiving one another. (B11)



# Xenophanes

## Constructive fragments:

One god, greatest among gods and men,  
In no way similar to mortal men in body or in thought. (B23)

He remains for ever in the same place, entirely motionless,  
Nor is it proper for him to move from place to place,  
But effortlessly he shakes all things by thinking with his mind. (B26)

Indeed, there never has been nor will there ever be a man  
Who knows the truth about the gods and all the matters of which I  
speak.

For even if one should happen to speak what is the case especially  
well,

Still he himself would not know it. But belief occurs in all matters. (B34)

# Pythagoreans

## Pythagoras (late 6<sup>th</sup> century)

Moved from Samos to Croton (Magna Graecia)

Attributions to Pythagoras unverified

## A kind of mystery cult

*akousmata* – precepts for living a pure life

*symbola* – marks of a Pythagorean

**Highly influential – Plato's Forms**

# Pythagorean Numbers

All numbers were represented geometrically, as ordered quantities

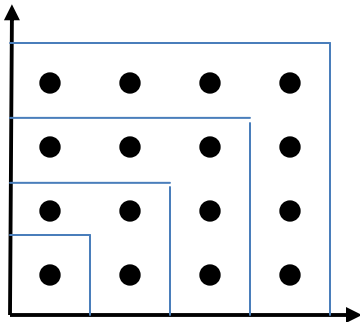
Numbers were treated spatially

## Square Numbers

Squares: 1, 4, 9, 16...

*(add odds to odds)*

odds = “the limited”

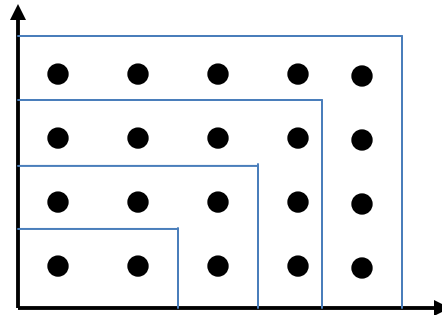


## Oblong Numbers

2, 6, 12, 20...

*(add evens to evens)*

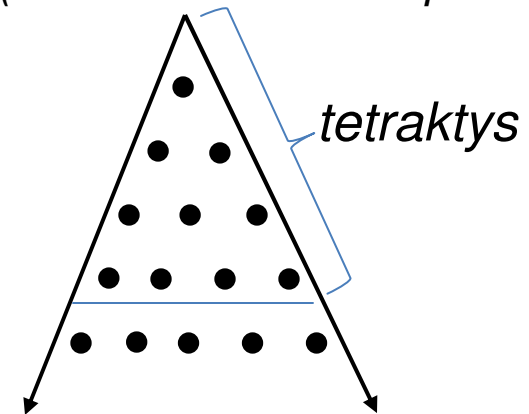
evens = “the unlimited”



## Triangular Numbers

1, 3, 6, 10, 15 ...

*(add numbers in sequence)*



# Pythagorean Harmony

*Tetraktis*:  $1+2+3+4 = 10$

- 1: The monad; origins
- 2: The 1<sup>st</sup> even; female; the limitless
- 3: The 1<sup>st</sup> odd; male; the limit
- 4: The 1<sup>st</sup> square; justice
- 5:  $2+3$  – the unity of male and female; marriage; mean of 10

Contains the ratios of musical harmony:

- 1:2 – octave
- 3:2 – the fifth
- 4:3 – the fourth

# Pythagorean Mysticism

*The Pythagoreans spoke of two causes in the same way, but added, as an idiosyncratic feature, that the limited and the unlimited were not separate natures, on a par with fire or earth or something, but the unlimited itself and the one itself were taken to be the substance of the things of which they are predicated. This is why they said that number was the substance of everything. (A8; Aristotle, *Metaphysics*)*

# Heracclitus

Lived in Ephesus, ca. 540-470

More than 100 fragments

Most are brief and cryptic – poetic

Caustic!

*Wide learning does not teach insight; otherwise it would have taught Hesiod and Pythagoras, not to mention Xenophanes and Hecataeus. (B40)*

# Heracclitus

## Central themes in Heraclitean fragments:

- Contrast between the ignorant masses and the wise
- Human ignorance
- Unity of the logos that governs all
- The world is in flux
- Fire as the origin and the destiny of the world

# **Heraclitus: Ignorance and Wisdom**

*A man is thought as foolish by a supernatural being as a child is by a man. (B79)*

*What intelligence or insight do they have? They trust the people's bard and take for their teacher the mob, not realizing that 'Most men are bad, few good.'" (B104)*

*The true nature of a thing tends to hide itself. (B123)*



# Heraclitus: Logos

*But of this principle (logos) which holds forever people prove ignorant, not only before they hear it, but also once they have heard it. For although everything happens in accordance with this principle, they resemble those with no familiarity with it ... . (B1)*

*The one and only wise thing is and is not willing to be called by the name of Zeus. (B32)*

*It is wise for those who listen not to me but to the principle (logos) to agree in principle that everything is one. (B50)*

# Heraclitus: Flux

*On those who step into the same rivers ever different waters are flowing. (B12)*

*We step and do not step into the same rivers, we are and are not. (B49)*

*It is impossible to step twice into the same river. It scatters and regathers, comes together and dissolves ... . (B91)*

# Heraclitus: Flux, cont'd

*War is the father of all and king of all. Some he reveals as gods, others as mean. Some he makes slaves, others free. (B53)*

*It is necessary to realize that war is common, and strife is justice, and that everything happens in accordance with strife and necessity. (B80)*

*Cool things become warm, warm things cool down, moist things dry out, parched things become damp. (B126)*

# Heraclitus: The Eternal Fire

*Order was not made by god or man. It always was and is and shall be an ever-living fire, flaring up in regular measures and dying down in regular measures. (B30)*

*Fire on its approach will judge and condemn everything. (B66)*

*... as Heraclitus says that at some time everything becomes fire. (A10; Aristotle, *Physics*)*

# Heraclitus

Responding to doctrines of Pythagoreans

- *all is not harmony, but strife and conflict rules!*
- *the world is not stable, but in flux!*

Lasting influence on the Stoics

*Logos as governing the universe*

*Fire as the birth and death of all*

# Eleatics

A “school” at Elea (Magna Graecia)

Parmenides (ca. 515?-440?)

Zeno of Elea (ca. 490-440?)

Melissus of Samos (fl. 440)

# Eleatics

## **Response to Milesians and Pythagoreans:**

*Rejected the view that the many could have arisen from an original unity.*

## **Central tenets:**

- 1) Monism – All is one*
- 2) Change is an illusion*

# Parmenides of Elea

Poem “On Nature”

Extant fragments: about 150 of 450 lines

(1) Proem (prologue)

(2) Principles of “The Way of Truth” (alētheia)

(3) The Way of Truth: Arguments

(4) The Way of Appearance (doxa)



# From “On Nature”

It must be that what is there for speaking and thinking of *is*;  
for [it] is there to be

Whereas nothing is not; ... (B6.1-2)

*A Reading of Parmenides' argument:*

1. Whatever we can speak and think about has some being, about which we can speak and think.
2. Nothing has no being.
3. Therefore, whatever we can speak and think about is not nothing.  
(1,2)
4. Whatever is not nothing, exists.
5. Therefore, whatever we can speak and think about, exists. (3,4)

# More from “On Nature”

A single story of a route still  
Is left; that [it] *is*; on this [route] there are signs  
Very numerous: that what-is is ungenerated and imperishable;  
Whole, single-limbed, steadfast and complete;  
Nor was [it] once, nor will [it] be, since [it] is, now, all together,  
One, continuous; for what coming-to-be of it will you seek?  
In what way, since, did [it] grow? Neither from what-is-not shall I allow  
You to say or think; for it is not to be said or thought  
That [it] *is not*. And what need could have impelled it to grow  
Later or sooner, if it began from nothing?  
Thus [it] must either be completely or not at all.  
Nor will the strength of trust ever allow anything to come-to-be from what-is  
Besides it; therefore neither [its] coming-to-be  
Nor [its] perishing has Justice allowed, relaxing her shackles,  
But she holds [it] fast ... (B8.1-15)

# A Reading of B8.1-15

1. *Non-being* cannot be spoken or thought of.
2. [What cannot be spoken or thought of cannot be the origin of anything.]
3. Further, if *being* originated from *non-being*, then its origin would have occurred at an arbitrary time.
4. [*Being* could not have originated at an arbitrary time.]
5. Therefore, *being* could not have originated from *non-being*. (1,2; also 3,4)
6. Nothing can originate from *being* that is distinct from *being*.
7. Therefore, *being* could not have originated from any distinct *being*. (6)
8. Therefore, *being* could not have originated at all. (5, 7)
9. [If *being* were to perish, then something distinct would originate from it.]
10. Therefore, being cannot perish. (6,9)
11. Therefore, being neither comes into being nor perishes. (8,10)

# Zeno of Elea

## **Change is unreal: Paradoxes**

- Dichotomy
- Achilles and the Tortoise
- The Arrow
- The Stadium

## **Plurality is unreal**

# Zeno's Dichotomy Paradox

Supposing space is infinitely divisible...



# Zeno's Dichotomy Paradox

Supposing space is infinitely divisible...



# Zeno's Dichotomy Paradox

Supposing space is infinitely divisible...



# Zeno's Dichotomy Paradox

Supposing space is infinitely divisible...





# Zeno's Dichotomy Paradox

Supposing space is infinitely divisible...



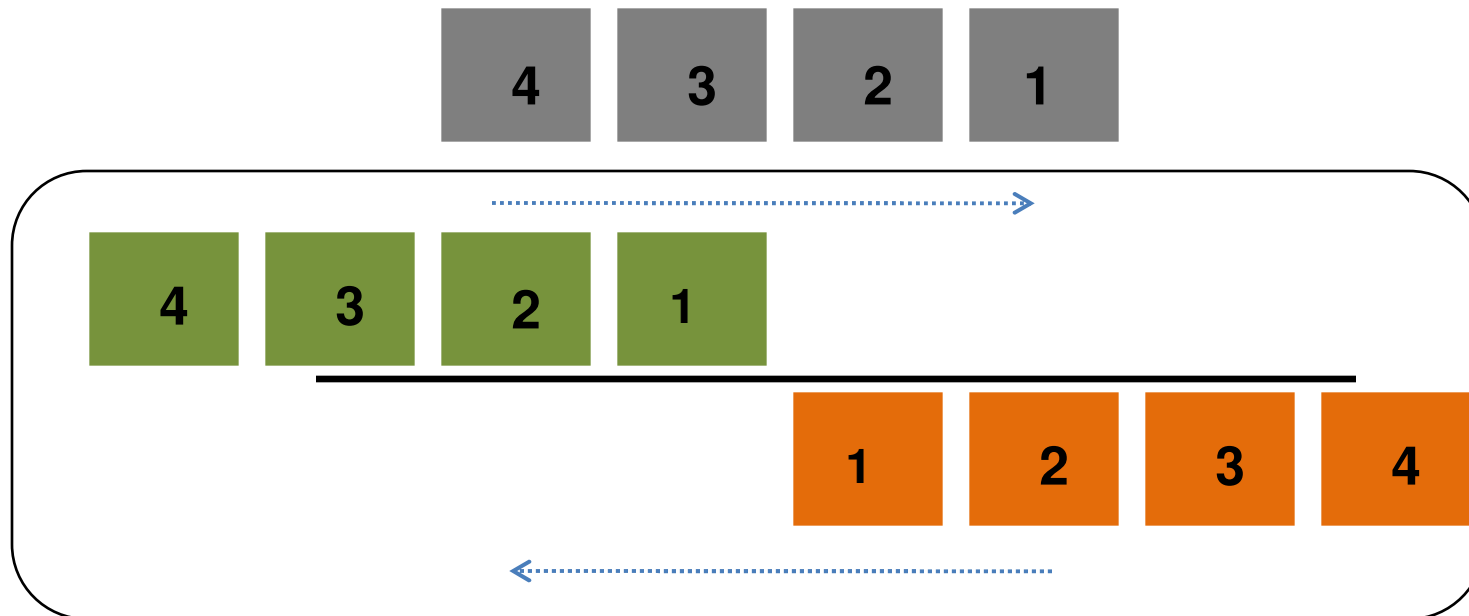
# Zeno's Dichotomy Paradox

Supposing space is infinitely divisible...



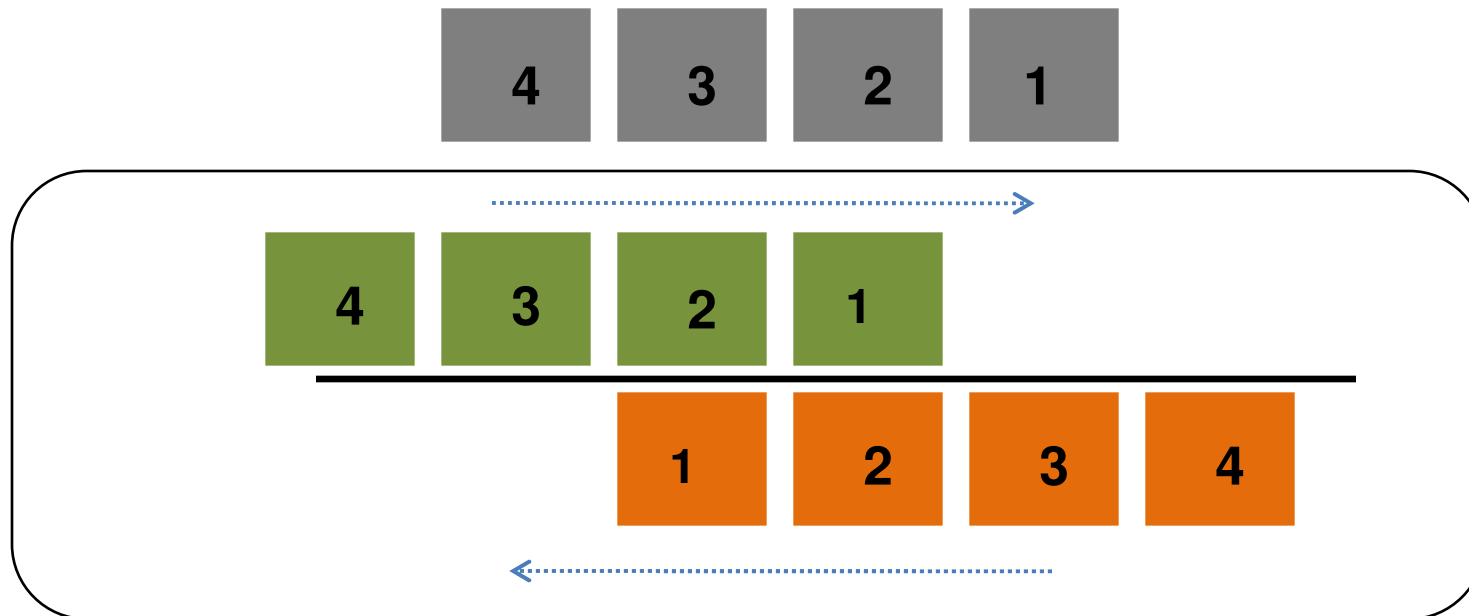
# The Stadium Paradox

Supposing space is not infinitely divisible...



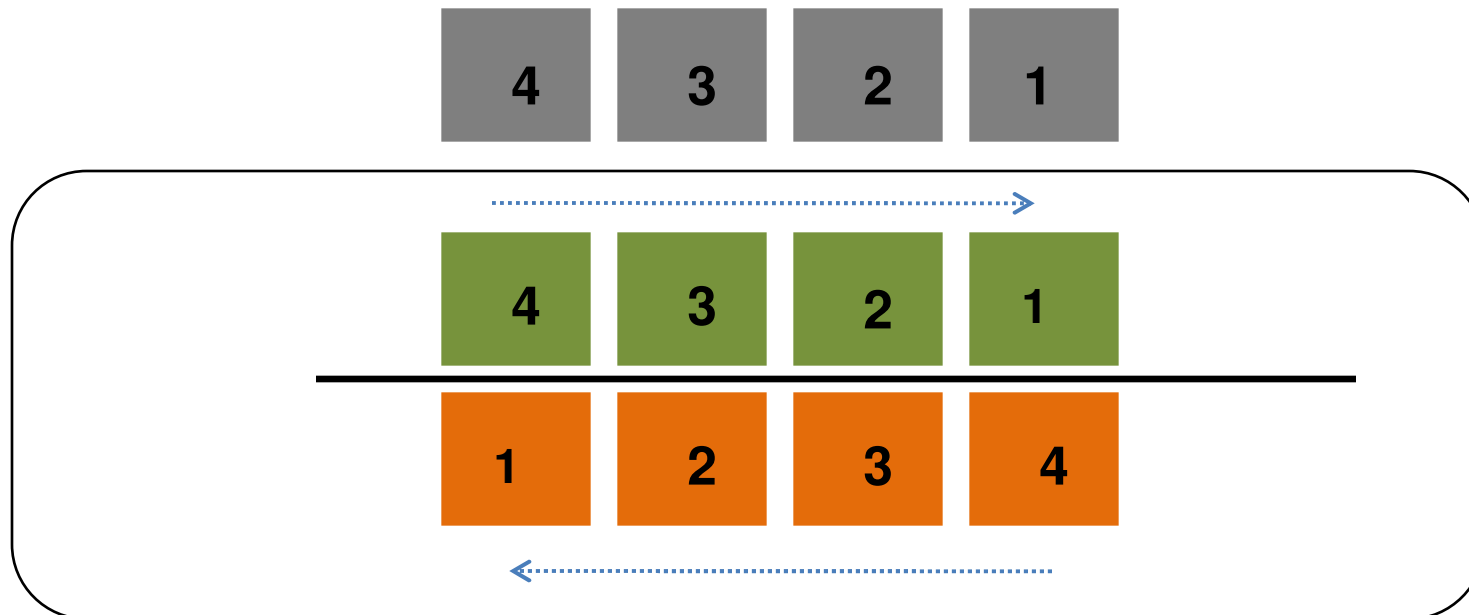
# The Stadium Paradox

Supposing space is not infinitely divisible...



# The Stadium Paradox

Supposing space is not infinitely divisible...



# Zeno *contra* Plurality

[Nothing without magnitude exists, since:] *If such a thing were added to anything else, it would not make it larger; for if ... it is added, no increase with respect to magnitude can take place. And therefore the thing which is added is bound to be nothing. (B1)*

That is:

1. Suppose that something Z without magnitude exists.
2. If Z is added to any object X, then X will not increase in magnitude.
3. If X does not increase in magnitude from one moment to the next, then nothing was added to X.
4. Therefore, Z is nothing. (2,3)
5. Therefore, Z does not exist. (4)

# **Zeno *contra* Plurality, cont'd**

*But if there is a plurality, it is necessary for each thing to have a certain magnitude and solidity, and for there to be a distance between one part of it and another. And the same goes for the part of it that protrudes: it too will have magnitude and some part of it will protrude. ... And so, if there are many things, they are bound to be both small and large – small enough to have no magnitude and large enough to be infinite. (B3)*

# **Zeno *contra* Plurality – a reading**

1. Suppose there is a plurality of things.
2. Each thing must have magnitude.
3. Therefore, there is a finite distance between the left and right halves of any such object, A. (2)
4. The same reasoning applies to the right half of A (call it B) – there is a finite distance between the left and right halves of B.
5. The same reasoning can be iterated indefinitely.
6. Therefore, the magnitude of object A is limitless. (4,5)
7. Therefore, objects must be infinitely large. (6)
8. The magnitude of the parts of object A grow smaller with each iteration of steps 4 & 5.
9. Therefore, some objects must be without magnitude. (8)
10. (7) and (9) are contradictory.
11. Therefore, there is not a plurality of things.



# Atomists

## Two Central Figures, from Abdera

Leuucippus, fl. 430 – little known about him

Democritus, ca. 460-370?  
contemporary of Socrates

# Atomists: Central Views

Disagreed with Eleatics on monism and change

Denied that matter was infinitely divisible  
*atom* = “uncuttable” or indivisible

Agreed with Eleatics that “what-is” is imperishable – “what-is” are the atoms

# Atomists: Plurality

All there is, are atoms and the void

“what-is” = atoms

“what-is-not” = void

The world (Earth) is an arrangement of  
atoms

# Atomists: Change

Change happens strictly through  
mechanistic interaction of atoms

Leucippus:

*Nothing occurs at random, but everything happens for a  
reason and because it has to. (B2)*

“For a reason” = “for a cause” not “for a purpose”

# Atomists: Origin of Worlds

*Democritus said that the atoms had two properties, size and shape... (A47)*

Atoms move in the void in a swirl.

Atoms separate from each other, like with like.

Like atoms form spherical bodies.

Lighter collections of atoms are attracted to heavier bodies of atoms.

Thus, worlds are formed (infinite in number).

# **Atomists: Influence**

## **Atomist ideas adopted by Epicureans:**

- The world is entirely material
- No principle (logos) governs the world
- Things happen due only to chance causal interactions among atoms
- The world is entirely deterministic

# ***Dreadful Oversimplification!***

Milesians ..... *From the one, many! Proto-science!*

Xenophanes ..... *critic of Greek pantheon!*

Pythagoreans ... *all is number! influenced Plato!*

Heraclitus ..... *flux! fire! influenced Stoics!*

Eleatics ..... *all is one! no change! paradoxes!*

Atomists ..... *atoms! void! influenced Epicureans!*