

i s t a n b u l t e c h n i c a l u n i v e r s i t y
a r c h i t e c t u r a l d e s i g n c o m p u t i n g g r a d u a t e p r o g r a m
dads 2011: a springtime venture

The Digital Shape or...

Mind the Gap Reloaded!

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Course Outline

- What is **shape**? What is **a shape**?
- Geometry: euclidean vs. non-euclidean
- Points, lines, regions, surfaces, volumes
- Representing a shape... digitally!
- Synthesizing a shape
- Analyzing a shape
- Shape similarity and invariance
- Any other business of your taste...

What is (a) shape?

What is (a) shape?

shape  

[sheyp]  [Show IPA](#)

noun, verb, shaped, shap·ing.

–noun

- 1.** the quality of a distinct object or body in having an external surface or outline of specific form or figure.
- 2.** this quality as found in some individual object or body form: *This lake has a peculiar shape.*
- 3.** something seen in outline, as in silhouette: *A vague shape appeared through the mist.*
- 4.** an imaginary form; phantom.
- 5.** an assumed appearance; guise: *an angel in the shape of a woman.*

What is (a) shape?

Plato speaks as Socrates in Meno (400 BC):

(A) shape is the limit of solid

What is (a) shape?

Marr (>1970) says that shape is

the geometry of an object's physical surface

What is (a) shape?

Kendall's definition (>1950):

shape is all the geometrical information that remains when **location, scale, and rotational effects** are filtered out from an object

What is (a) shape?

A shape depends **on how you perceive it**

- Perceptions  Geometries
- Is the world flat or round?

What is (a) shape?

A shape depends **on which distance you look at it**

- A cloud, a snowflake, a tree, ...

How to describe a shape?

- By **abstraction**
 - ball-shaped, star-shaped, square-shaped
- By **example (similarity)**
 - a monkey **resembles** a human
- By **a(n) (series of) operation(s)**
 - possibly with a certain amount of randomness -
 - **Revolve** a plane to obtain a cylinder
- By **constraining space**
- By **a certain combination of all these**

