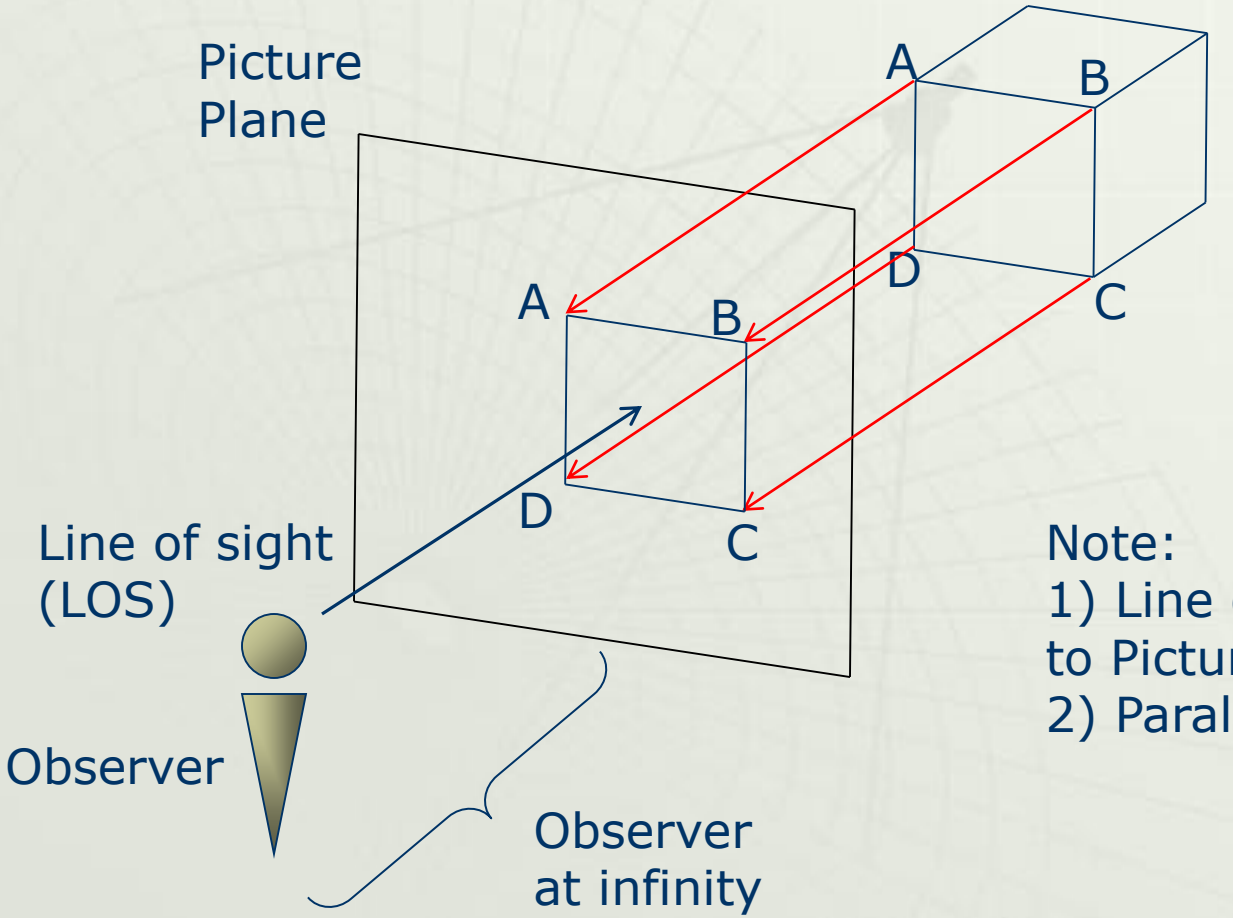
Sketching Multi-view Drawings

September 20, 2017

Learning Objectives

- Create a multiview drawing from an isometric drawing
  - Layout of profile, front, and top views
  - Line types
- List the 6 principle views
- Describe the difference between American and European layout

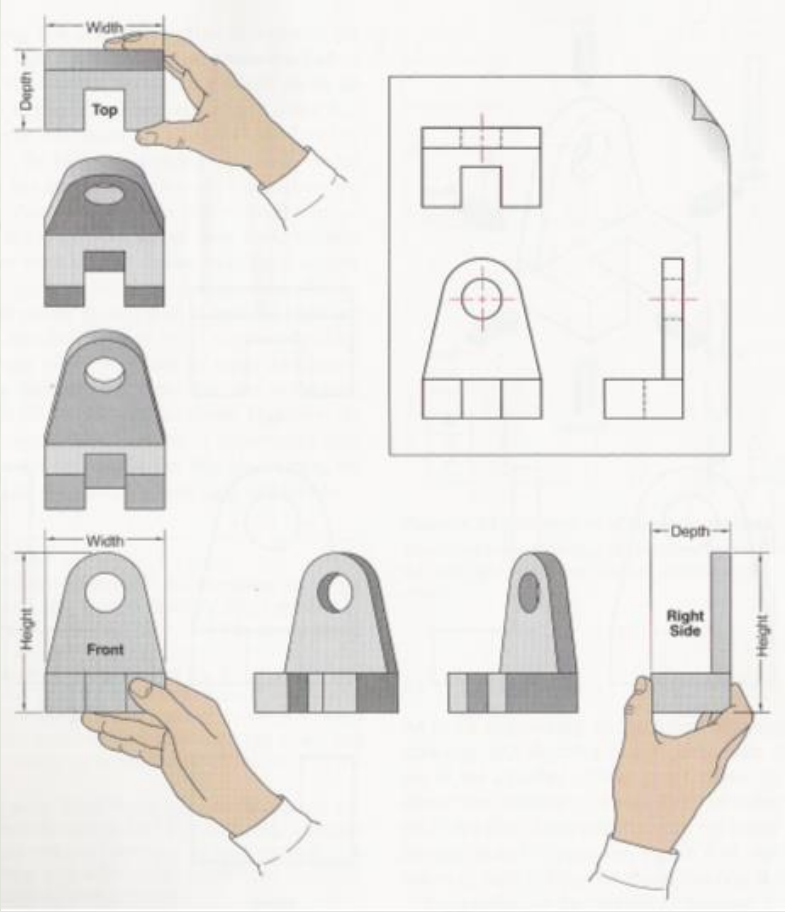
Recall: Obtaining an Orthographic Projection



Note:
1) Line of site Perpendicular to Picture Plane
2) Parallel lines of Sight

Multiview Drawings

Create a multiview using multiple orthographic projections



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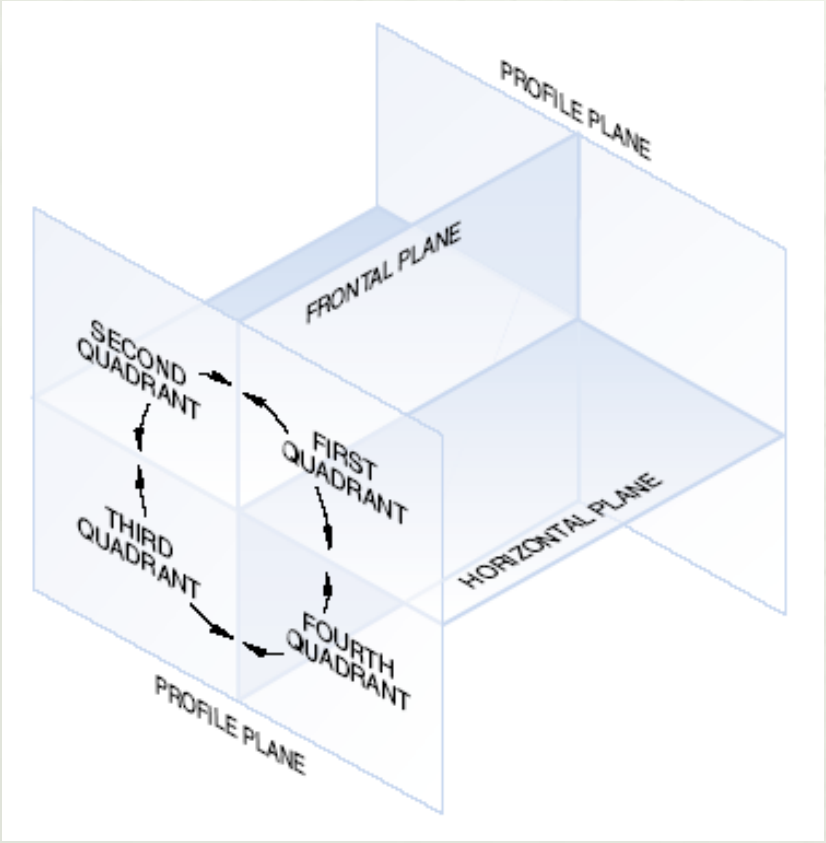
Principle Views



- 6 principle views:
  - Top
  - Bottom
  - Right
  - Left
  - Front
  - Rear
- Plane names:
  - Frontal Plane
  - Horizontal Plane
  - Profile Plane

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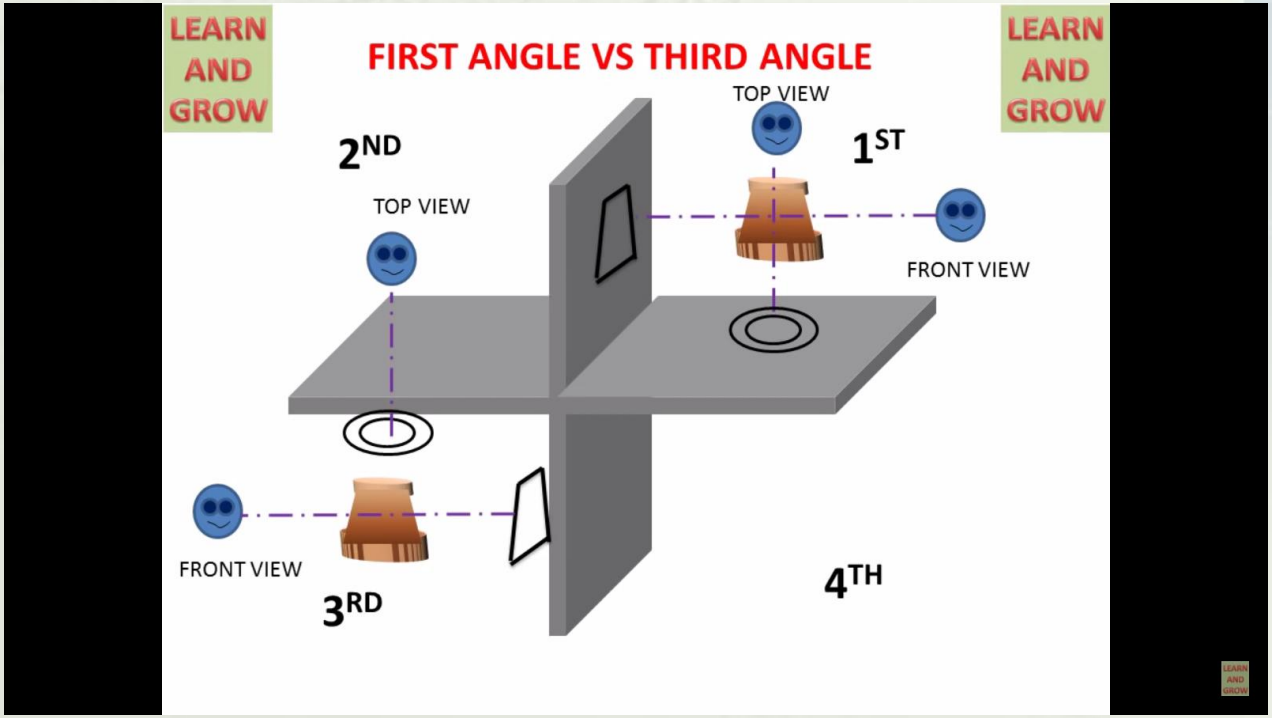
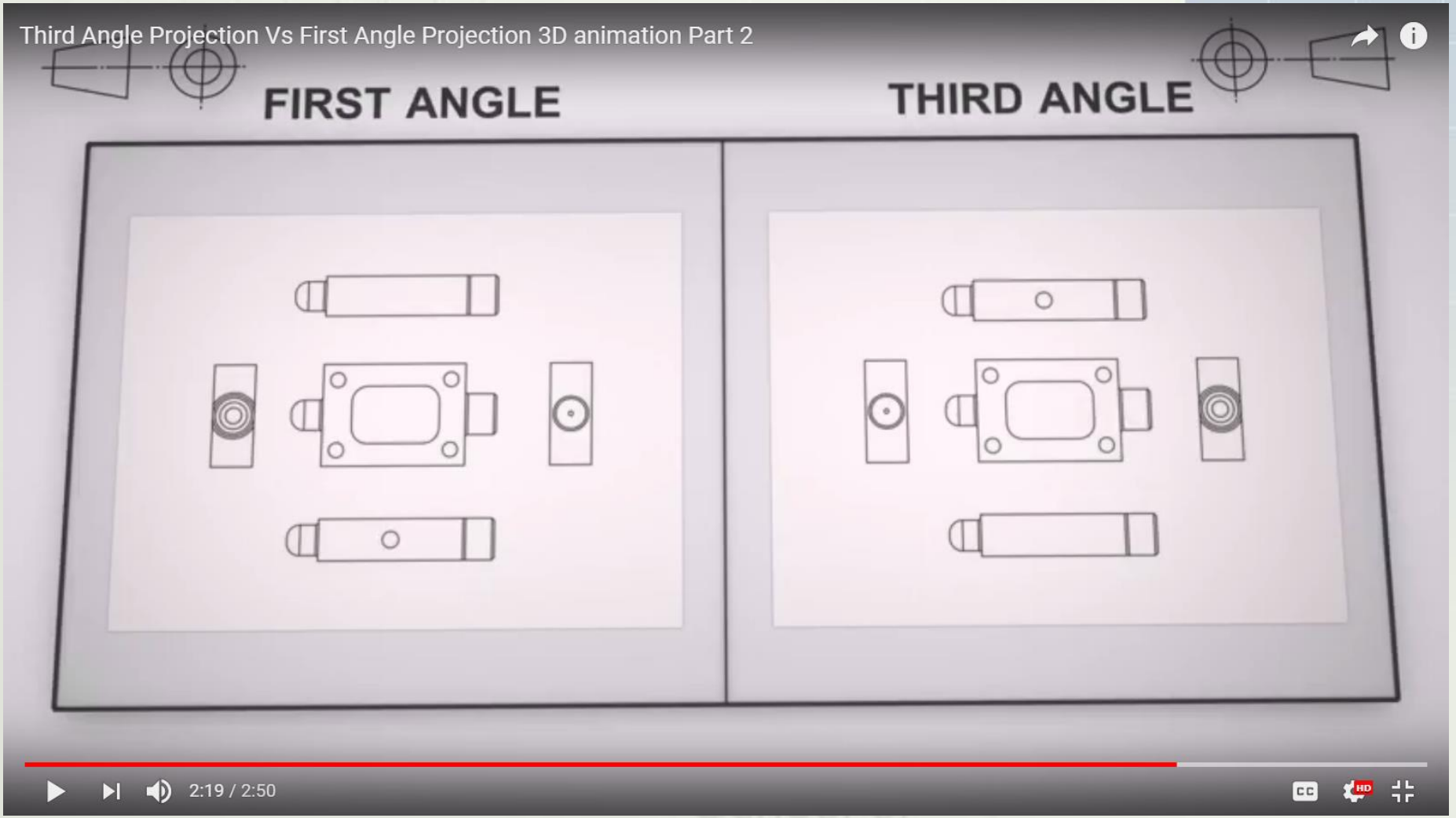
First Angle and Third Angle

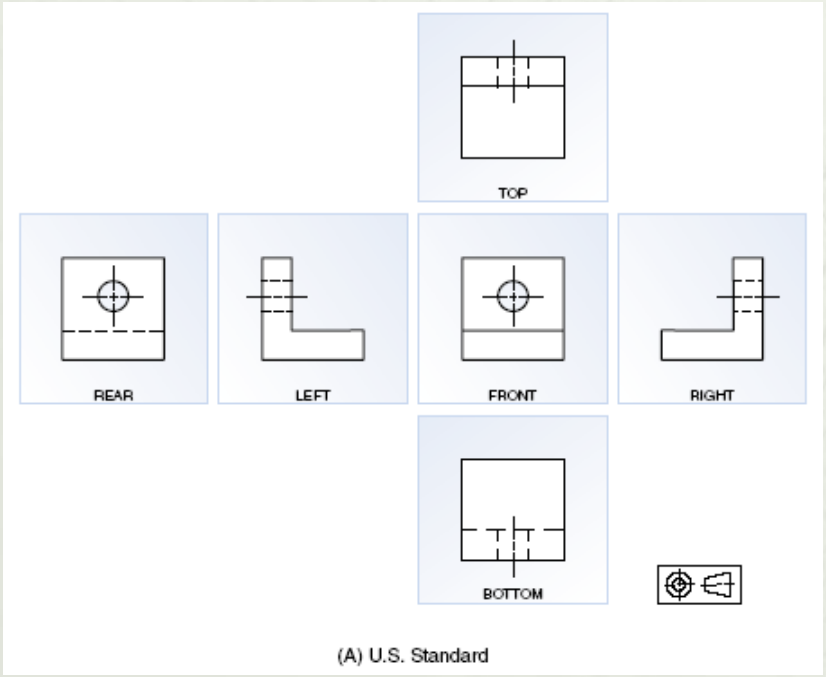
- First Angle Projection Will be in 1st Quadrant
  - Object plane will be between the Observer and the Projection Plane
- Third Angle Projection – Will be in 3rd Quadrant
  - Projection Plane will be between observer and object.



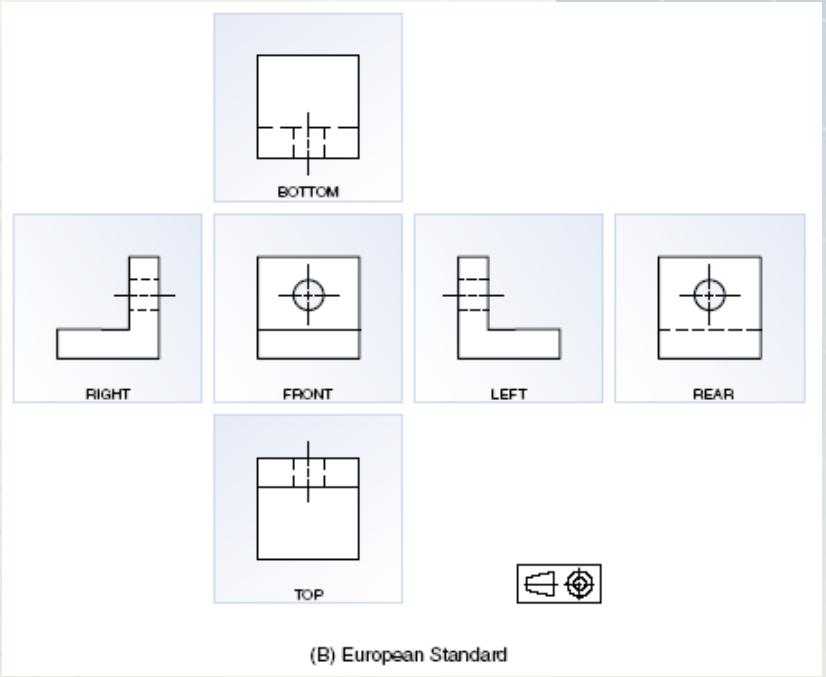

Third Angle Projection Vs First Angle Projection 3D animation Part 2
FIRST ANGLE
THIRD ANGLE
2:19 / 2:50

American vs European Standard

We use third angle convention in North America



Third Angle



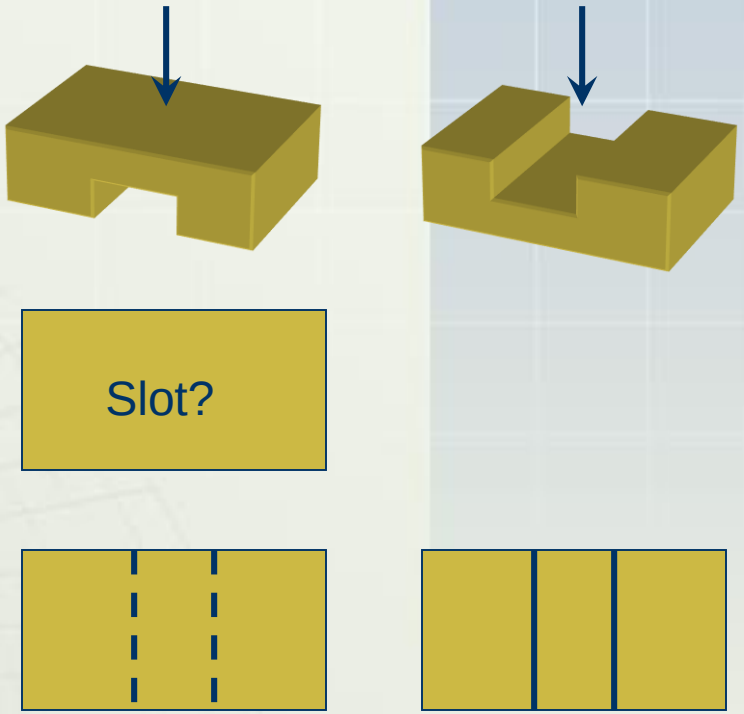
First Angle

Note how the views are aligned

First-angle projection: The points of interest are projected in the *same* direction as the ray of sight; the points are projected onto the plane that lies *behind* the object, as determined by the ray of sight; the plane of projection acts like the top of a table over which the points of interest are dropped into place.
Third-angle projection: The points of interest are projected in the *opposite* direction of the ray of sight; the points are projected onto the plane that lies *in front* of the object, as determined by the ray of sight; the plane of projection acts like a glass table from under which the observer sees the points of interest after they have been dropped into place on the top of the table.

Language of Lines - Rehash

- Sketches use many *line types* to clarify drawings
- If we look *down* on this block…
- We cannot see slot.
- How should we indicate it's there?



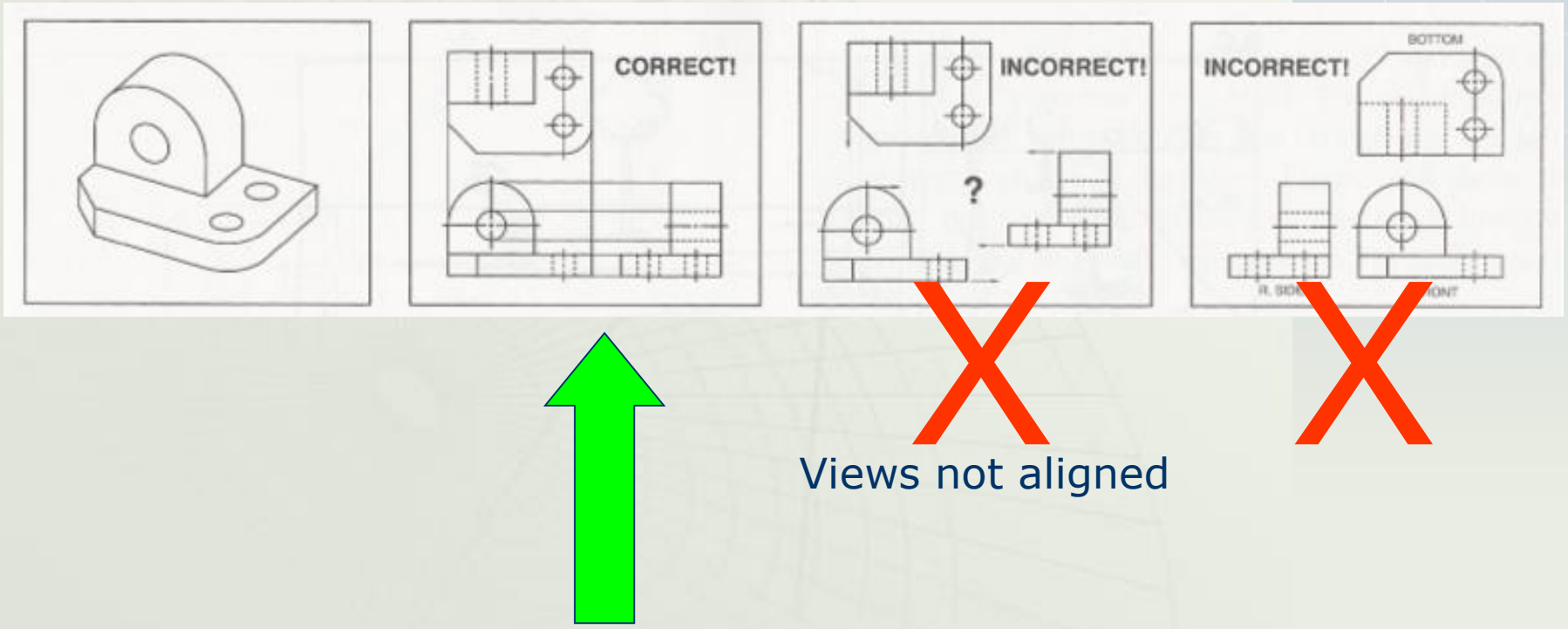
What if Lines Overlap?

Use the Convention for Line Precedence:

1. Visible
2. Hidden & Cutting/section plane
3. Center
4. Break
5. Dimension & extension
6. Section

Properly Laying Out Views

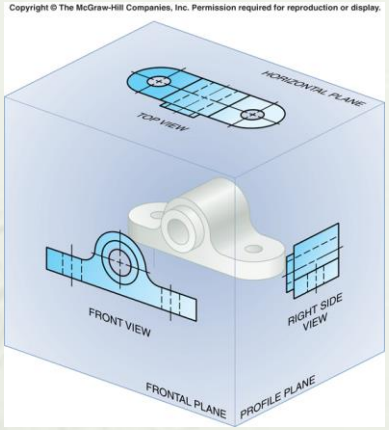
Incorrect placement



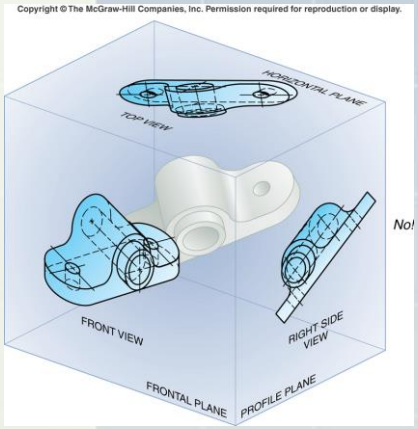
Views not aligned

View Selection

1. Position in glass box so:
   - Major features perp. to or Parallel to sides
   - Minimize # hidden lines

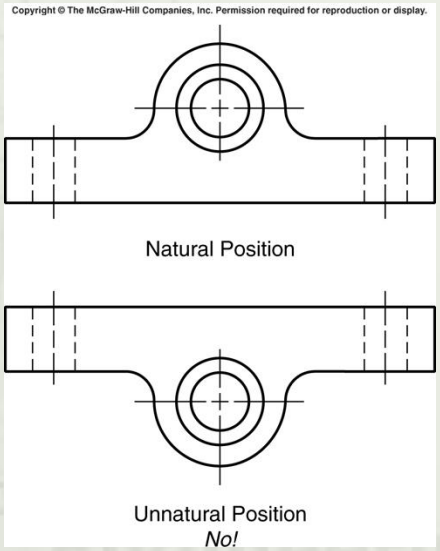


This

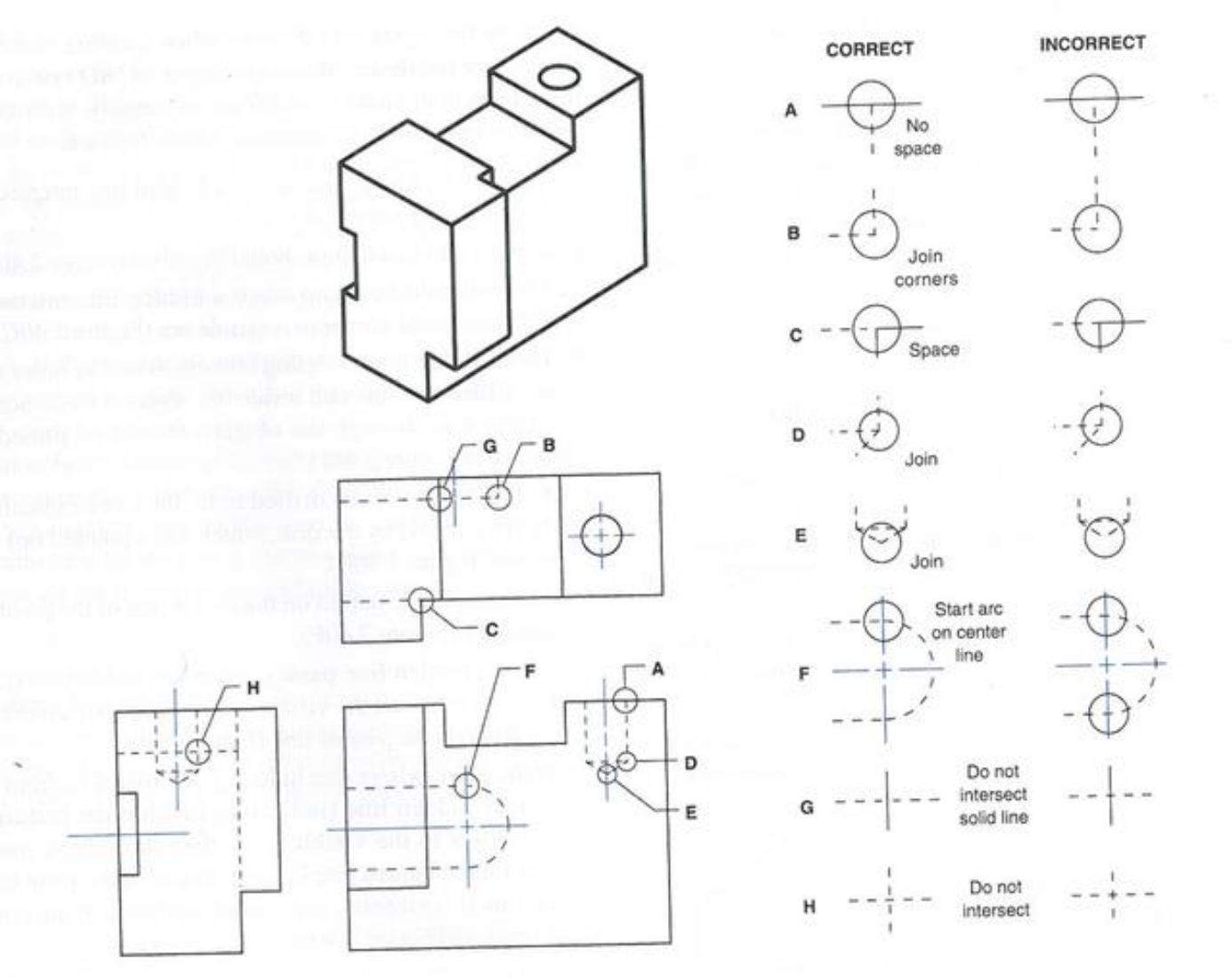


NOT This

2. Choose F view to show object in 'natural' state
   - E.g., a car would be on its wheels



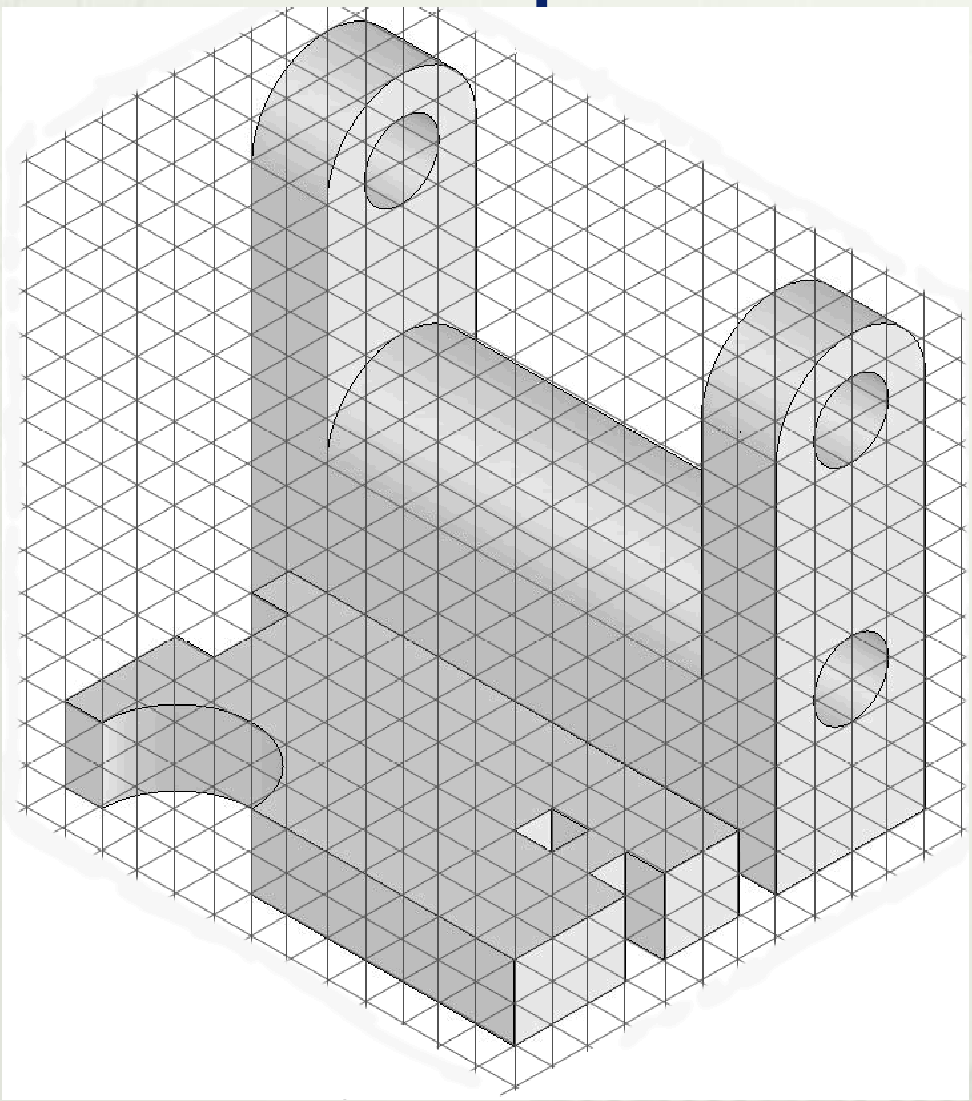
Drawing Conventions

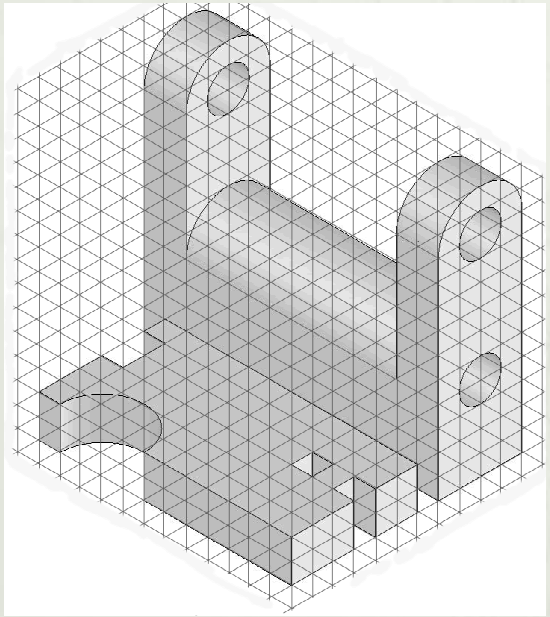


Creating Multiviews

In-class examples

Example





Answer for question 1

Tangency Examples

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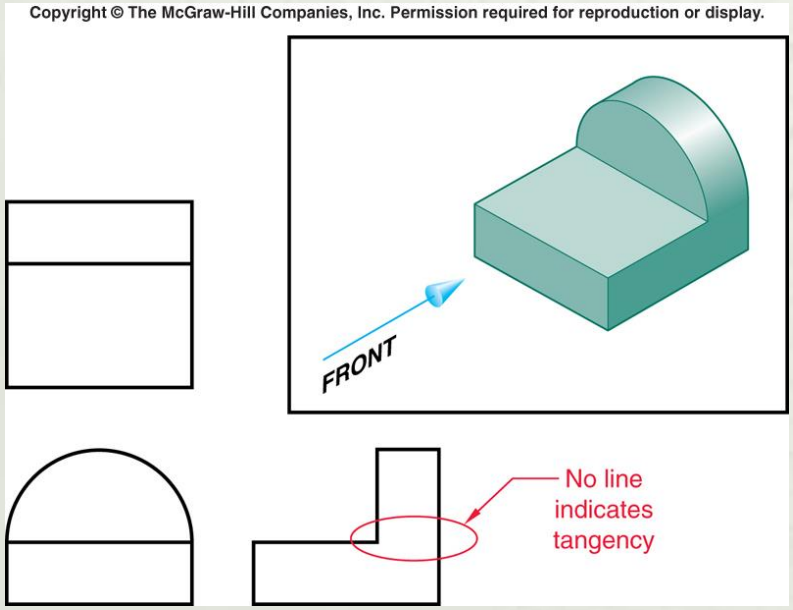

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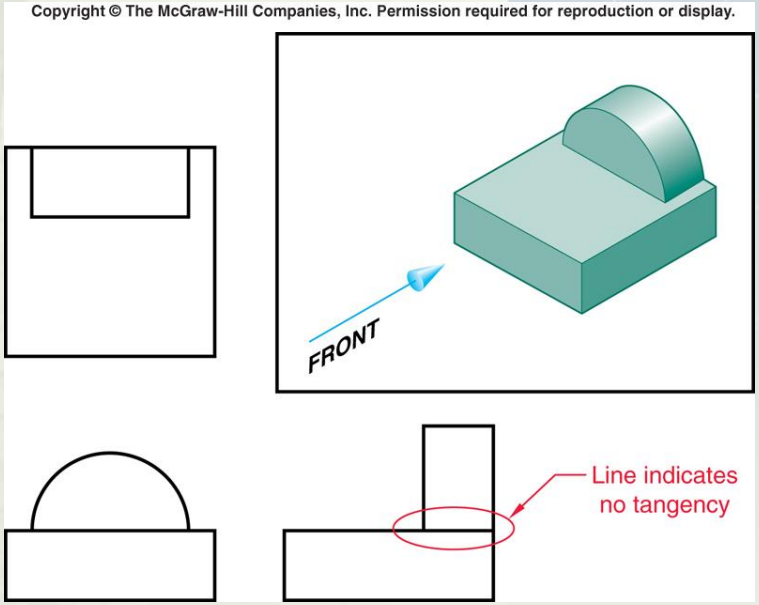

Next Class

- More examples of Multiview
- Multiview to Isometric

Homework:

- HW 2 due next week, Sep 26th 2017 at 9:29 AM in the ENSC 204 Dropbox