Lecture 4

ORTHOGRAPHIC PROJECTIONS

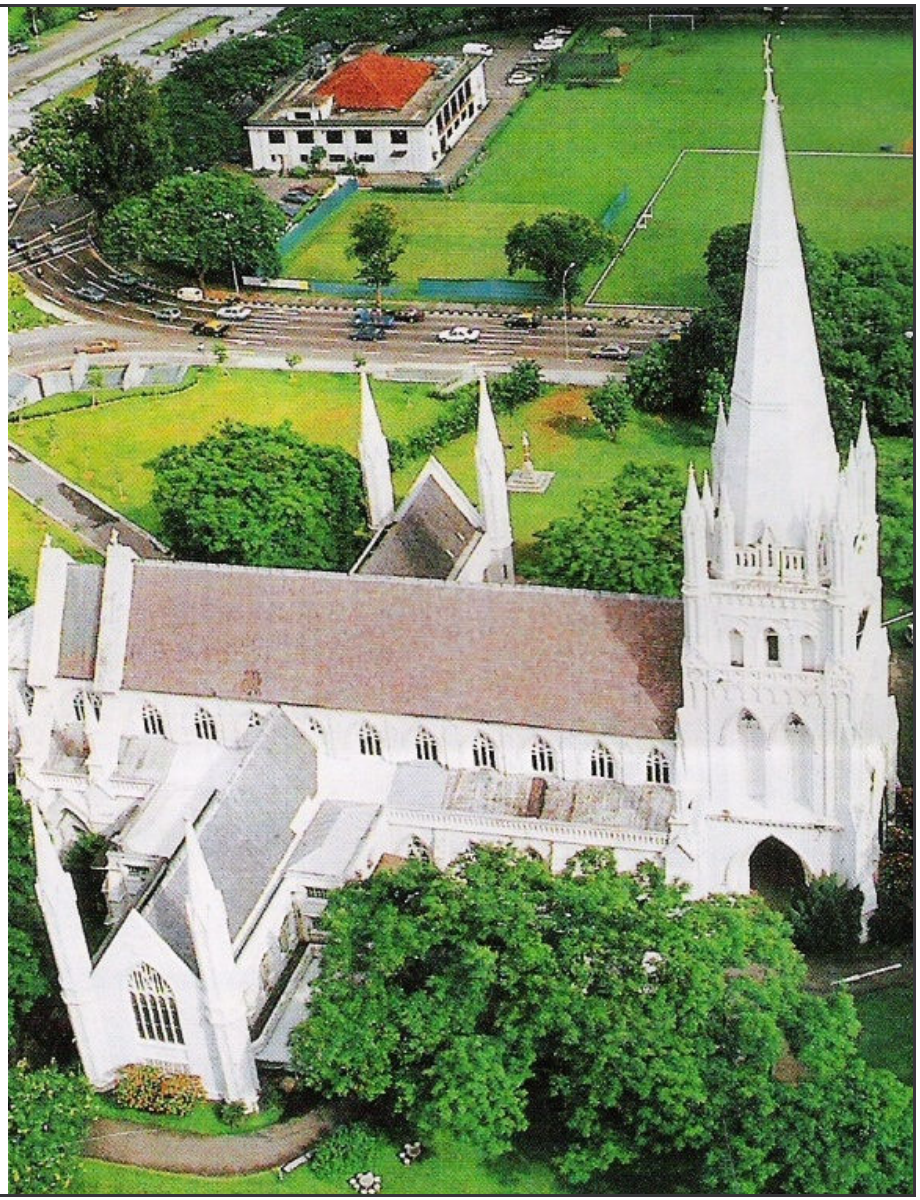
:: INTRODUCTION

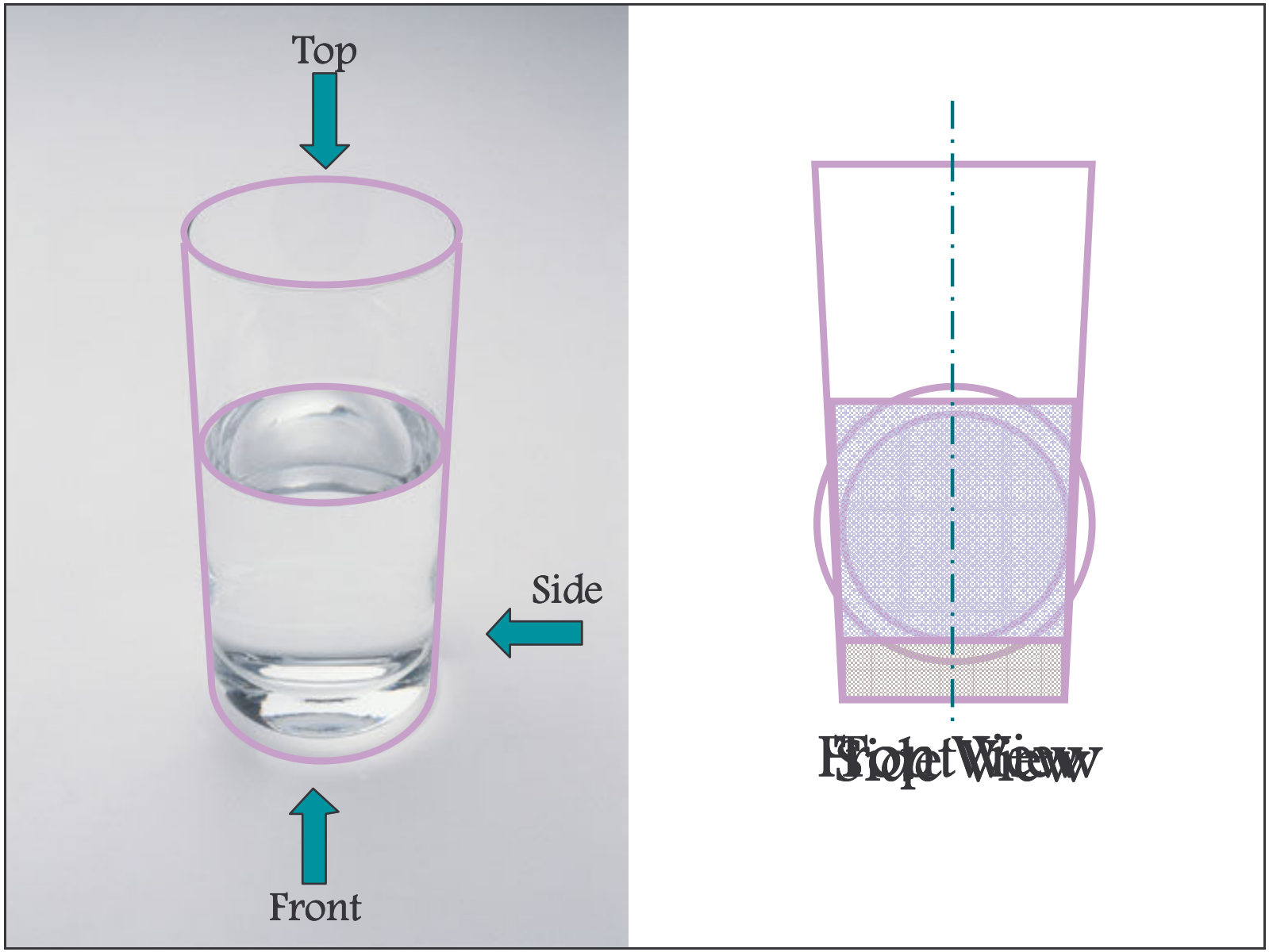
TA 101 : Engineering Graphics

2007-08 Semester II

January – May 2008

3D Viewing of an object from any point in space




Top
Side
Front
Front View

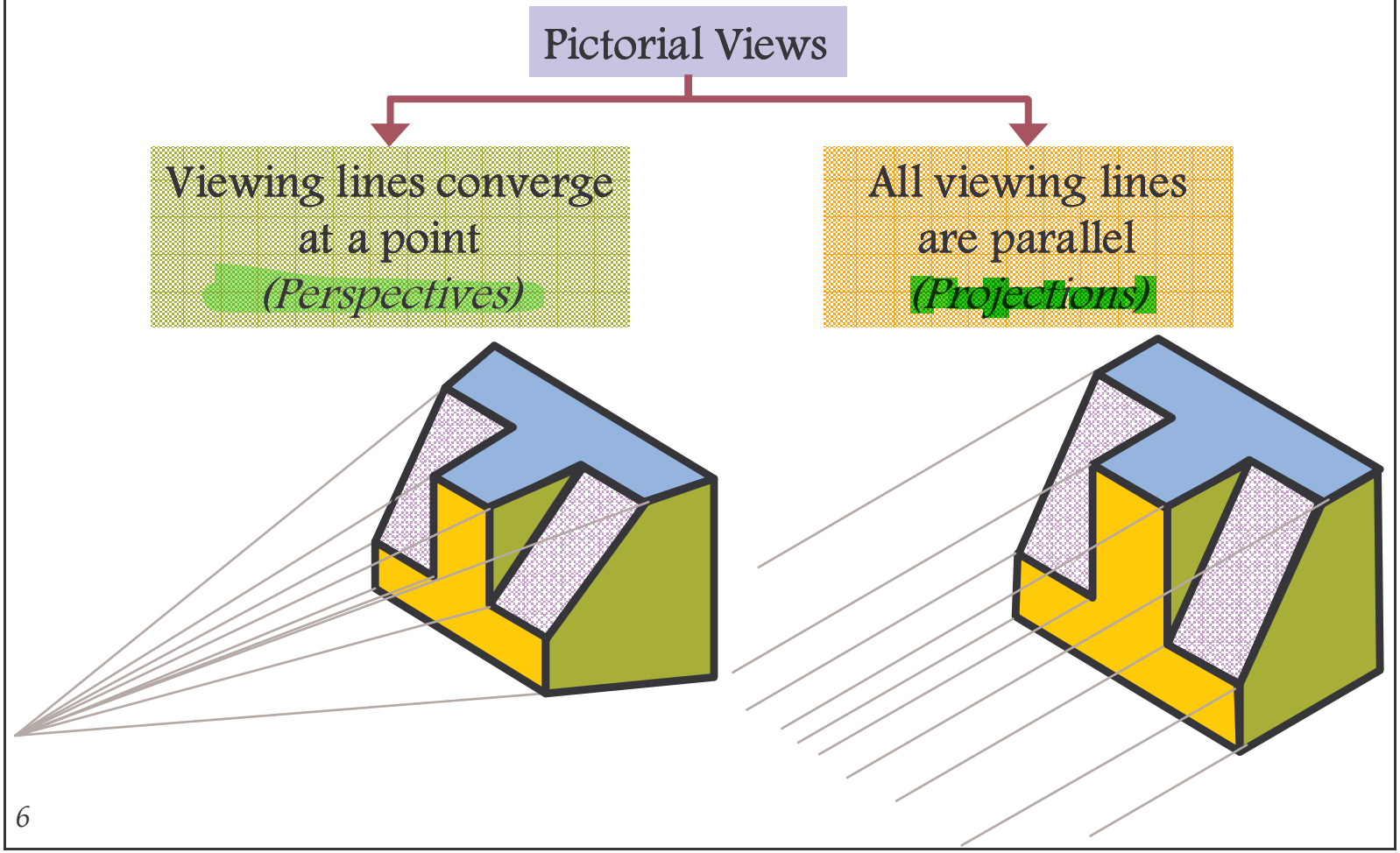
OUTLINE

- Classification of Views
- Principal Planes of Projection
- Angles of Projection

CLASSIFICATION OF VIEWS

CLASSIFICATION

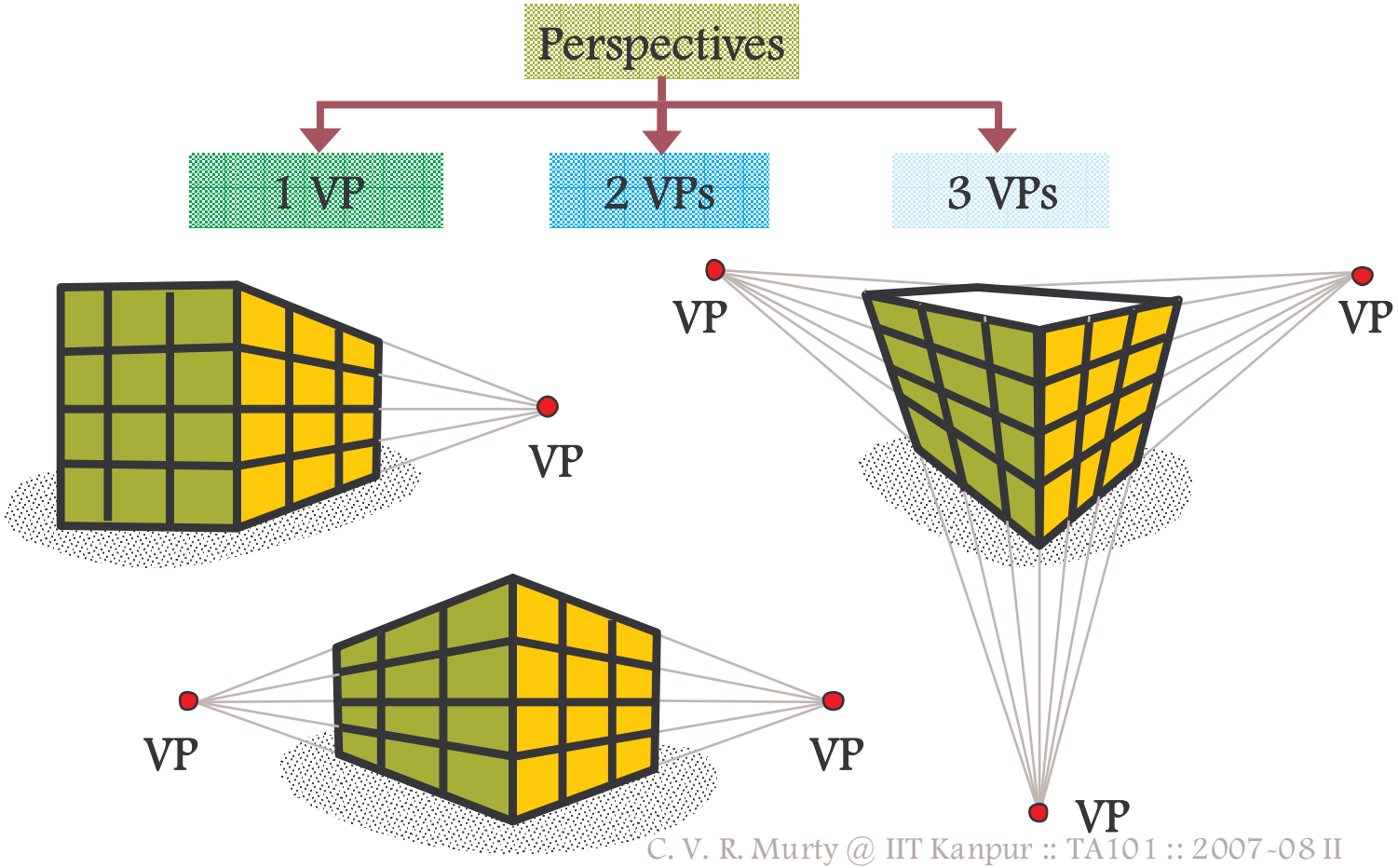
- Pictorial views



6

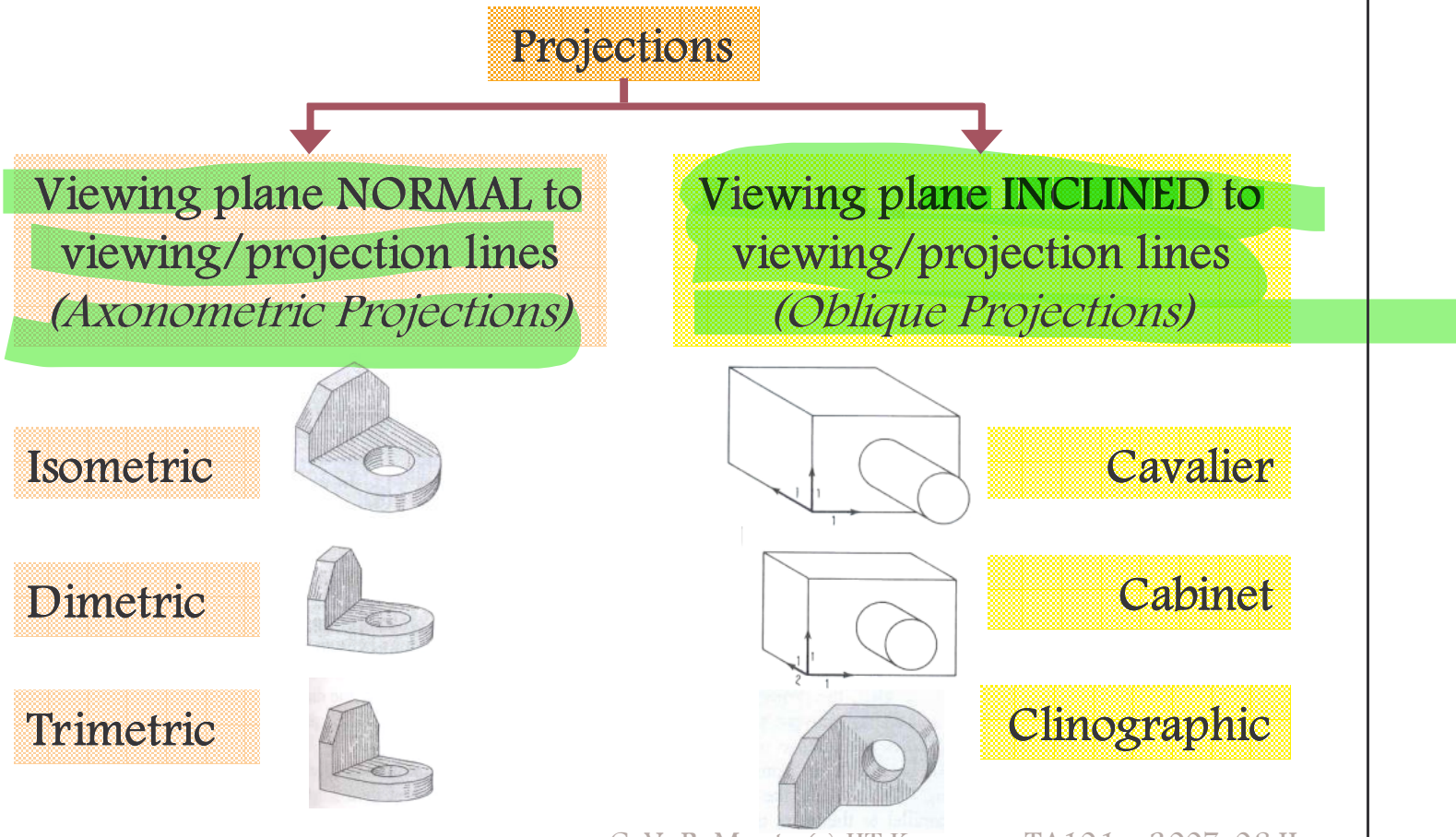
CLASSIFICATION

- Perspective Views



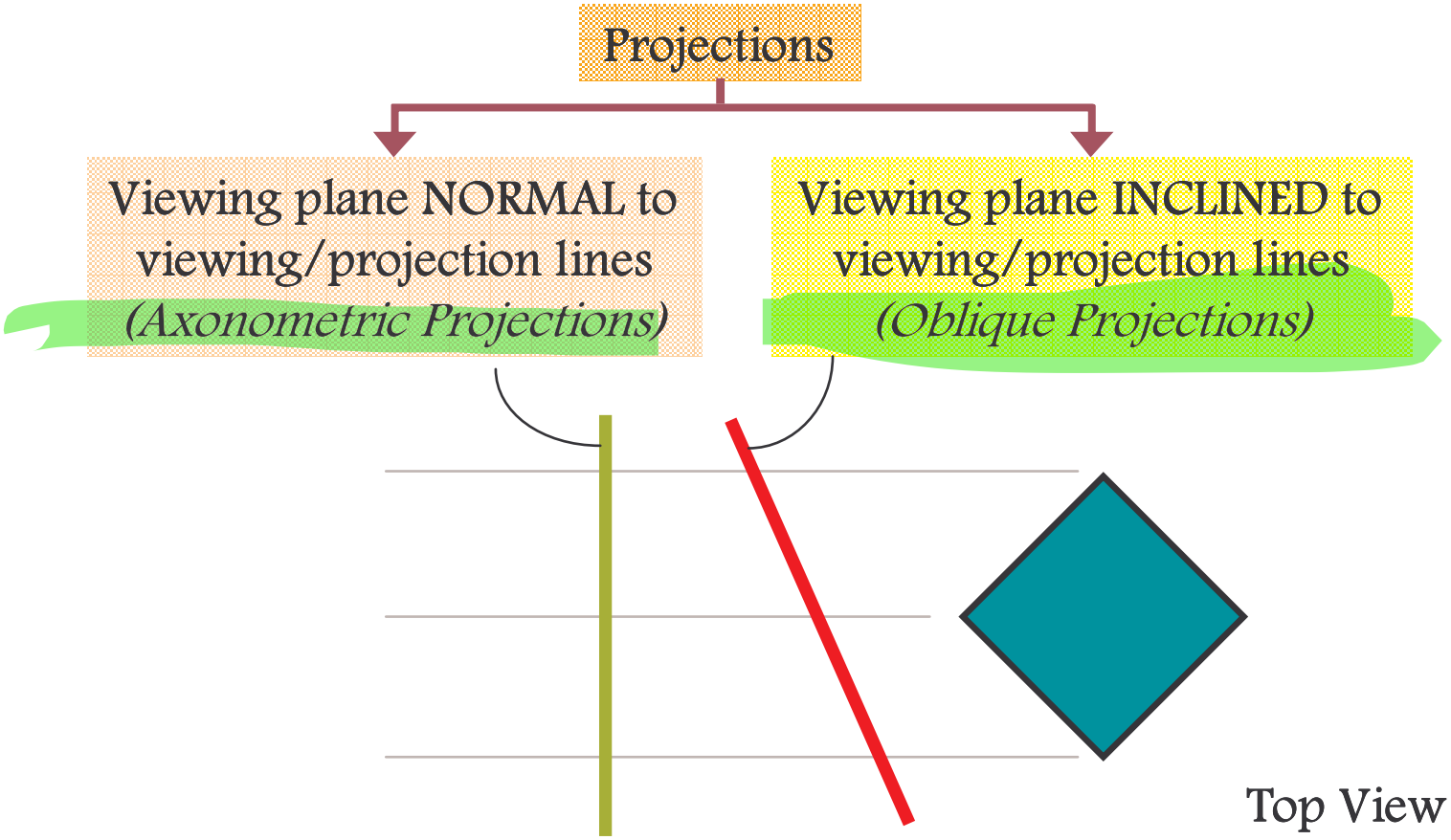
CLASSIFICATION

- Projections



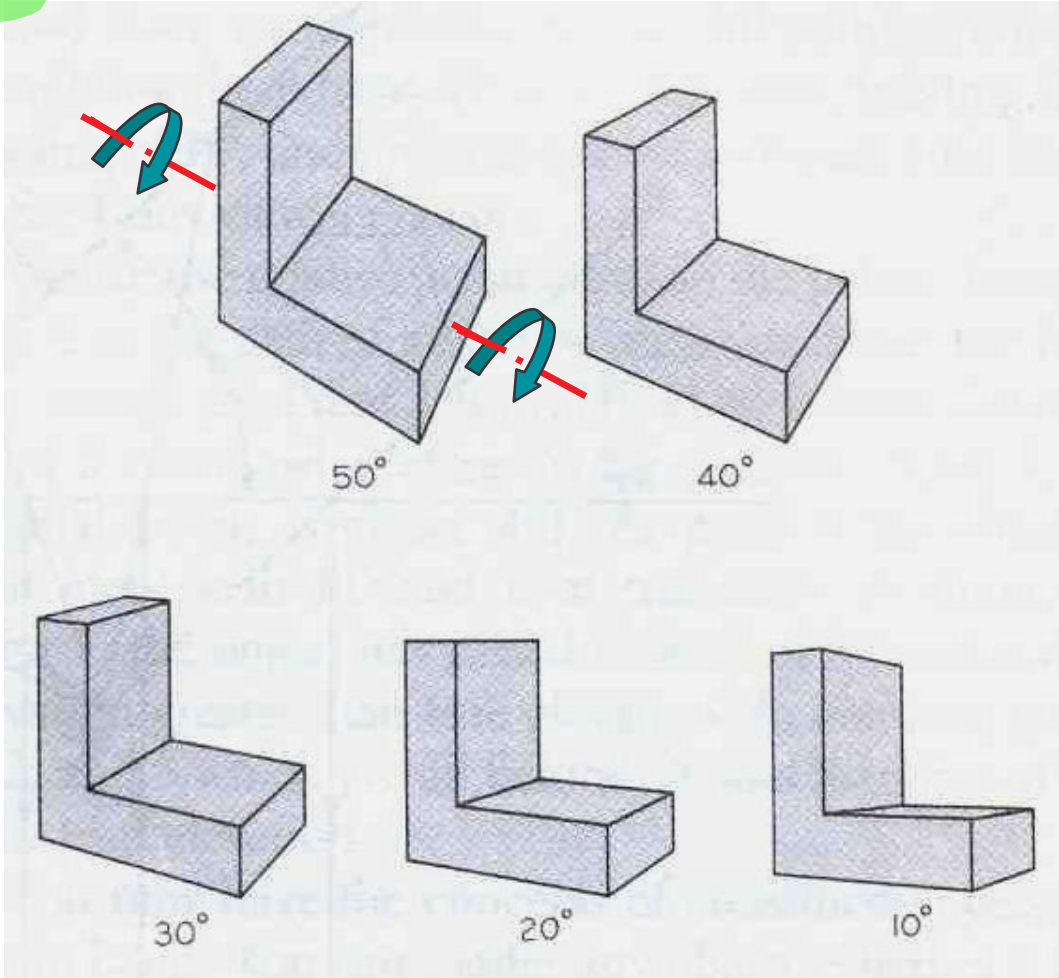
CLASSIFICATION

- Projections



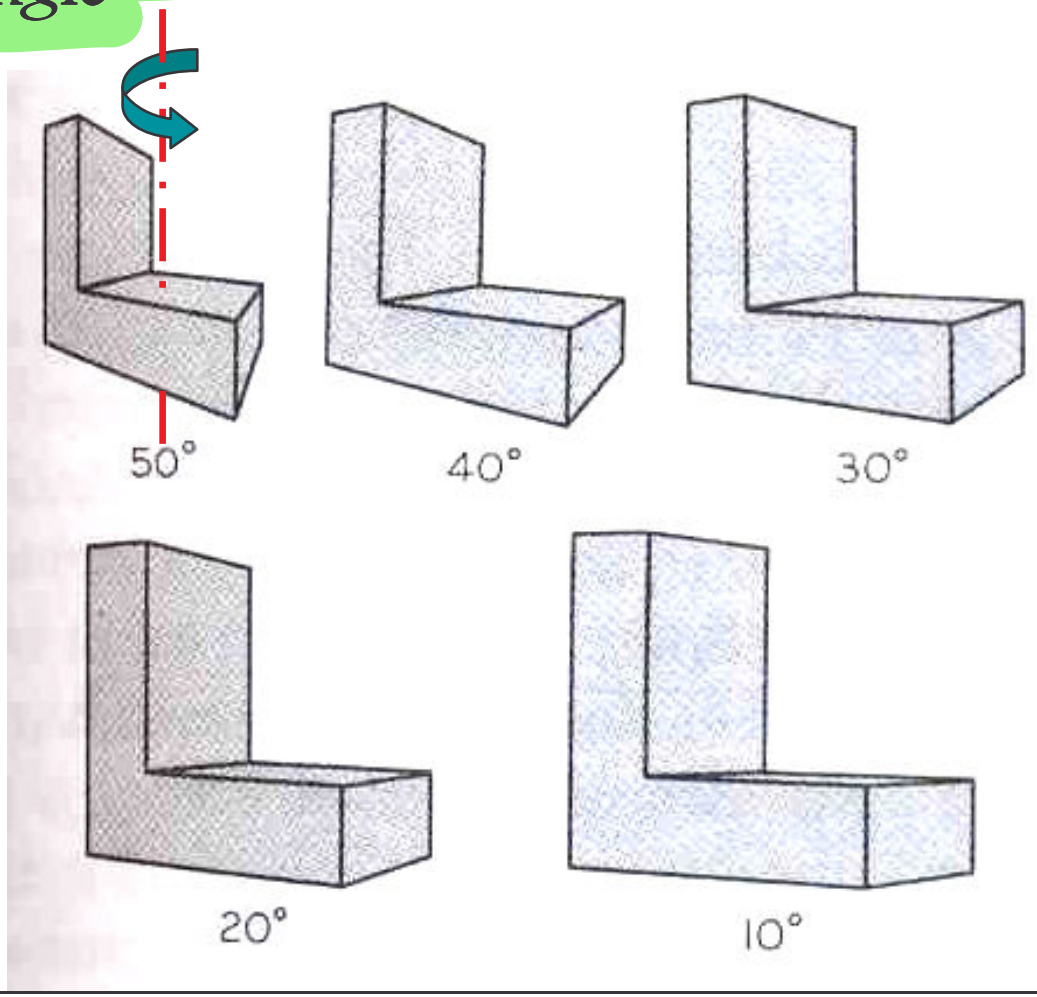
VIEWING PLANES

- Vertical Angle



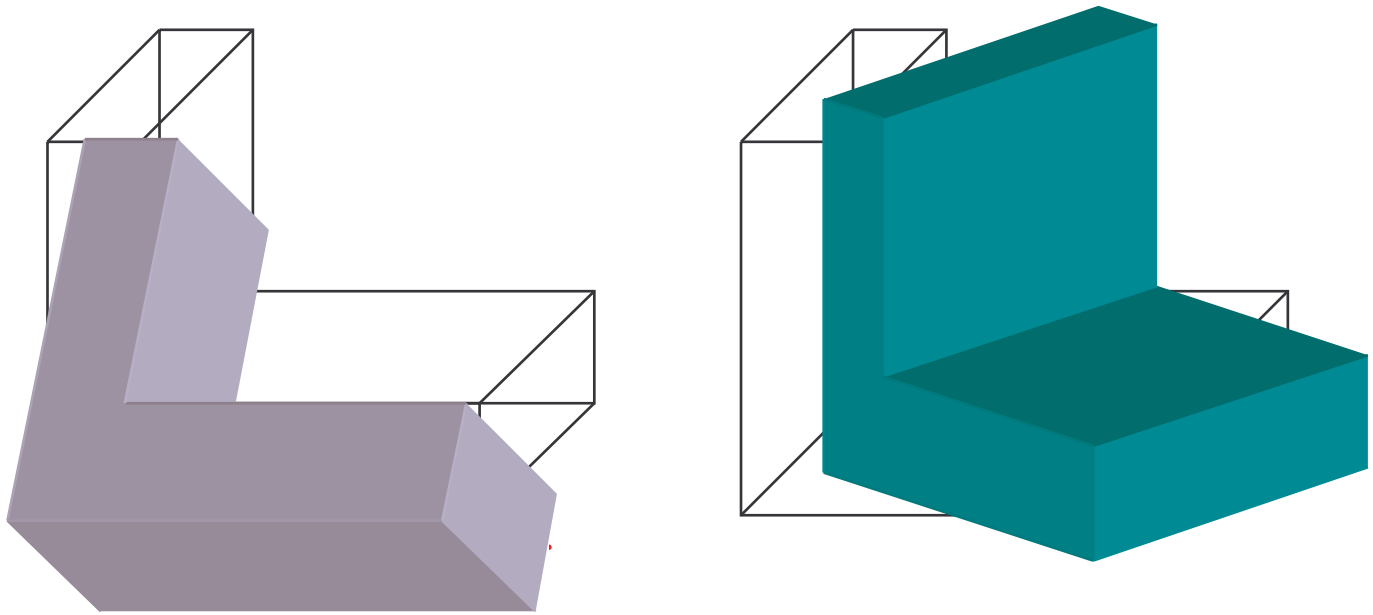
VIEWING PLANES

- Horizontal angle



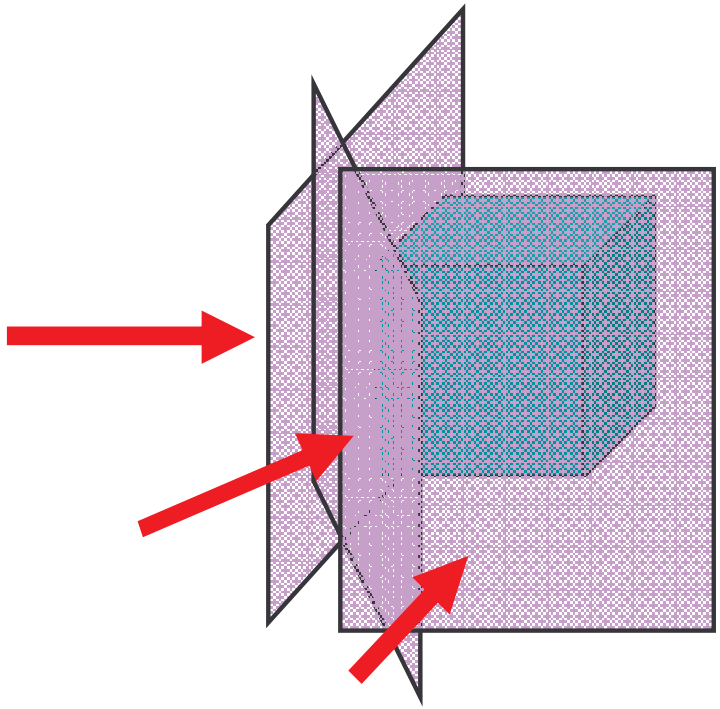
VIEWING PLANES

- Horizontal & Vertical angles
  - Between viewing planes & principal planes of object



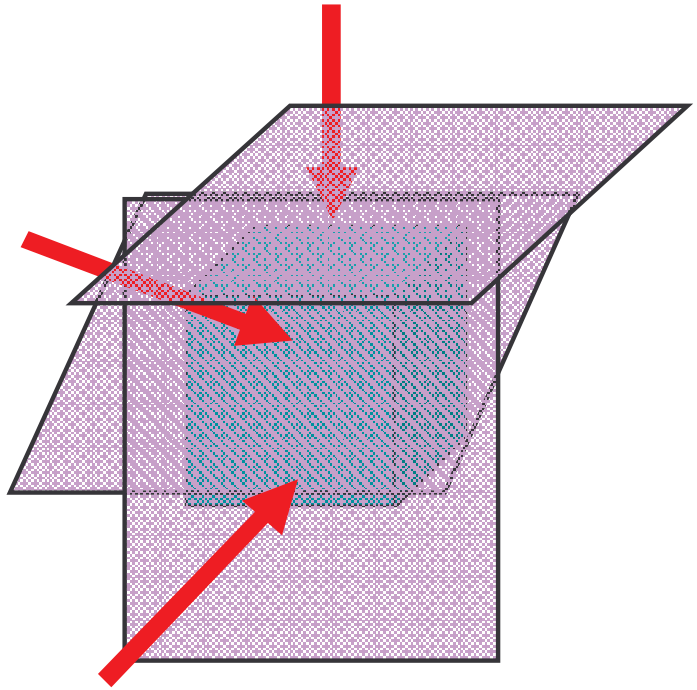
VIEWING PLANES

- Horizontal Angle
  - Between viewing planes & principal planes of object



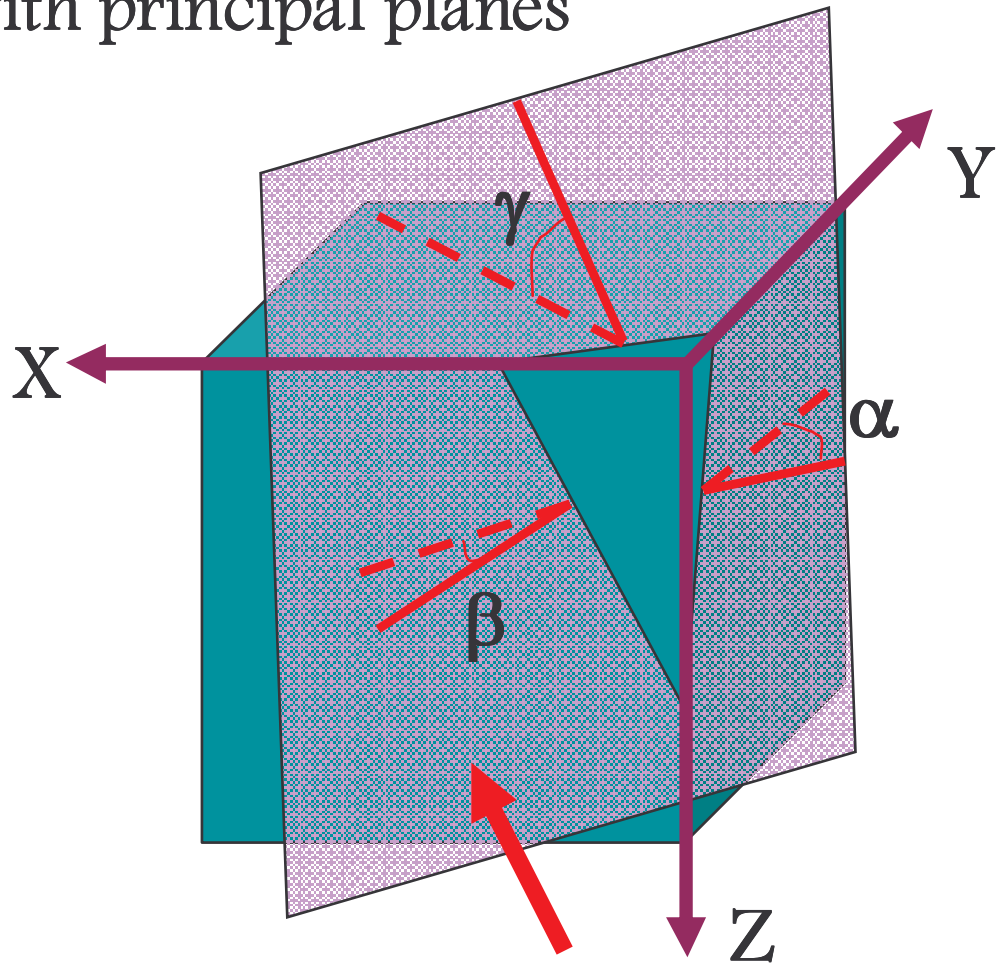
VIEWING PLANES

- Vertical Angle
  - Between viewing planes & principal planes of object



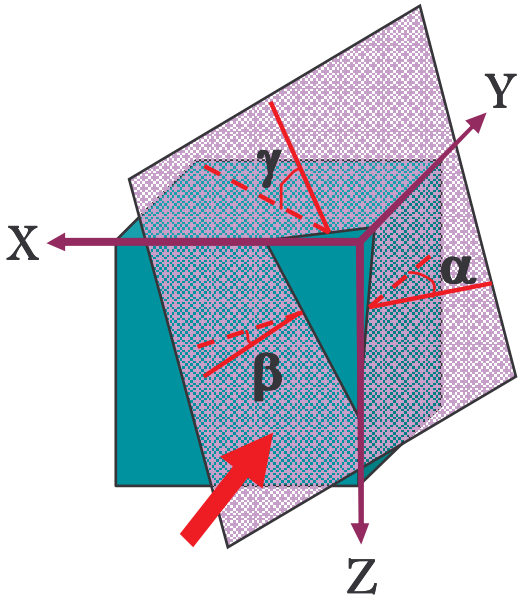
VIEWING PLANES

- Angles with principal planes



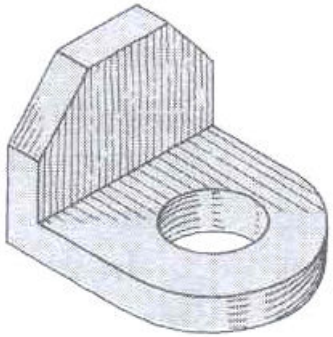
VIEWING PLANES

- Axonometric Projections
  - Viewing plane NORMAL to viewing/projection lines



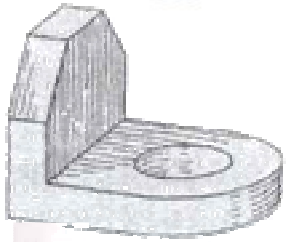
Isometric

$\alpha = \beta = \gamma$



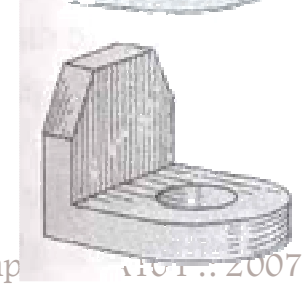
Dimetric

$\alpha = \beta \neq \gamma$



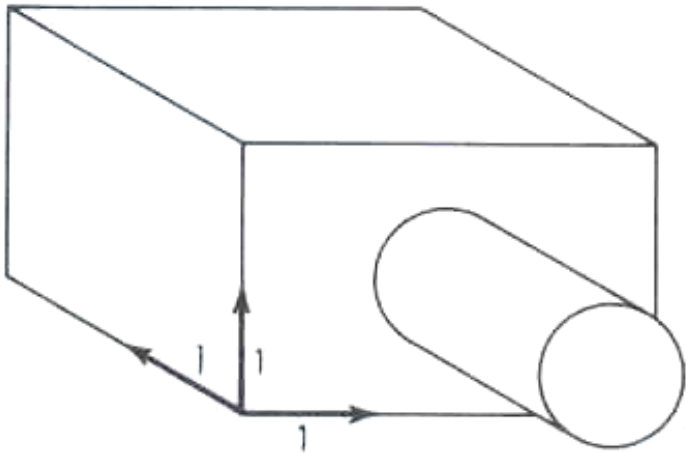
Trimetric

$\alpha \neq \beta \neq \gamma$

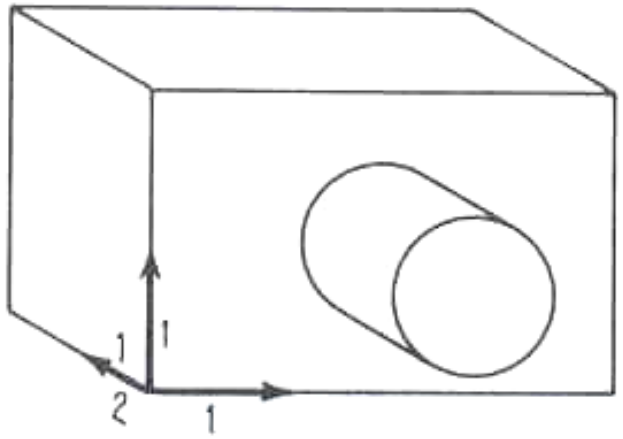


VIEWING PLANES

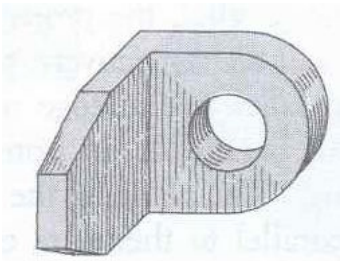
- Oblique Projections
  - Viewing plane INCLINED to viewing/projection lines



Cavalier



Cabinet

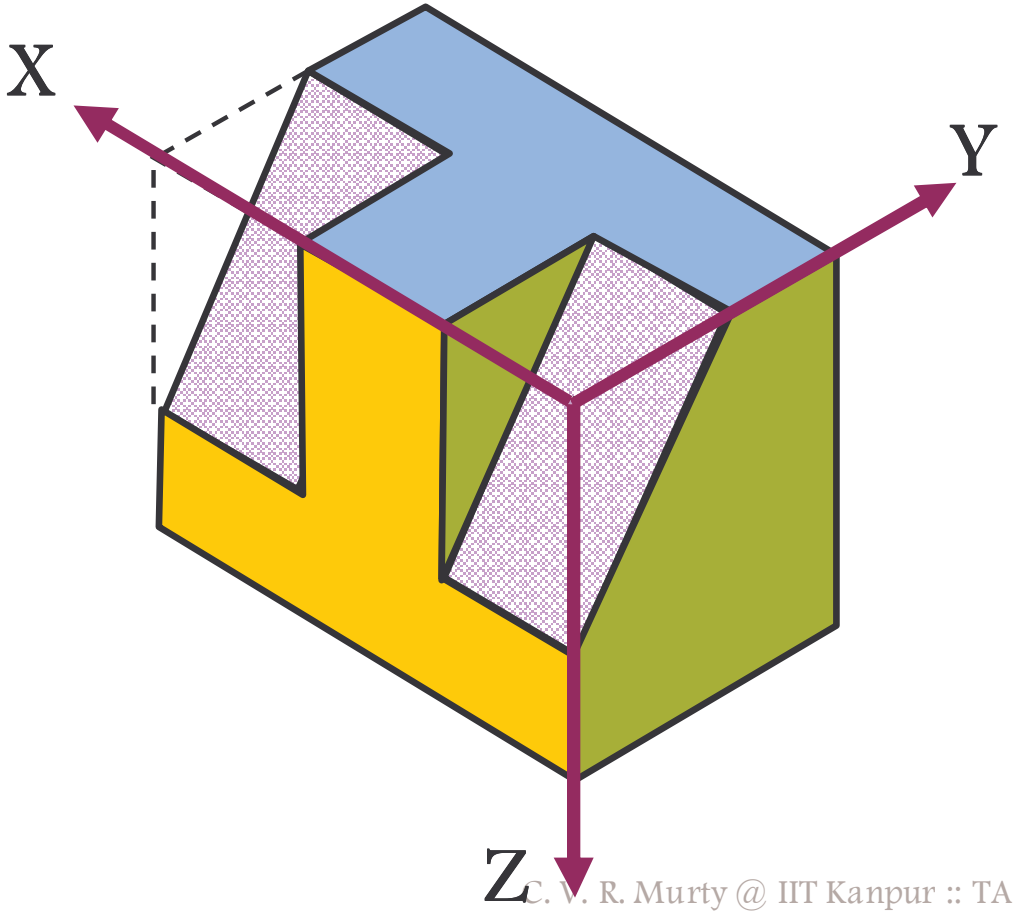


Clinographic

PRINCIPAL PLANES

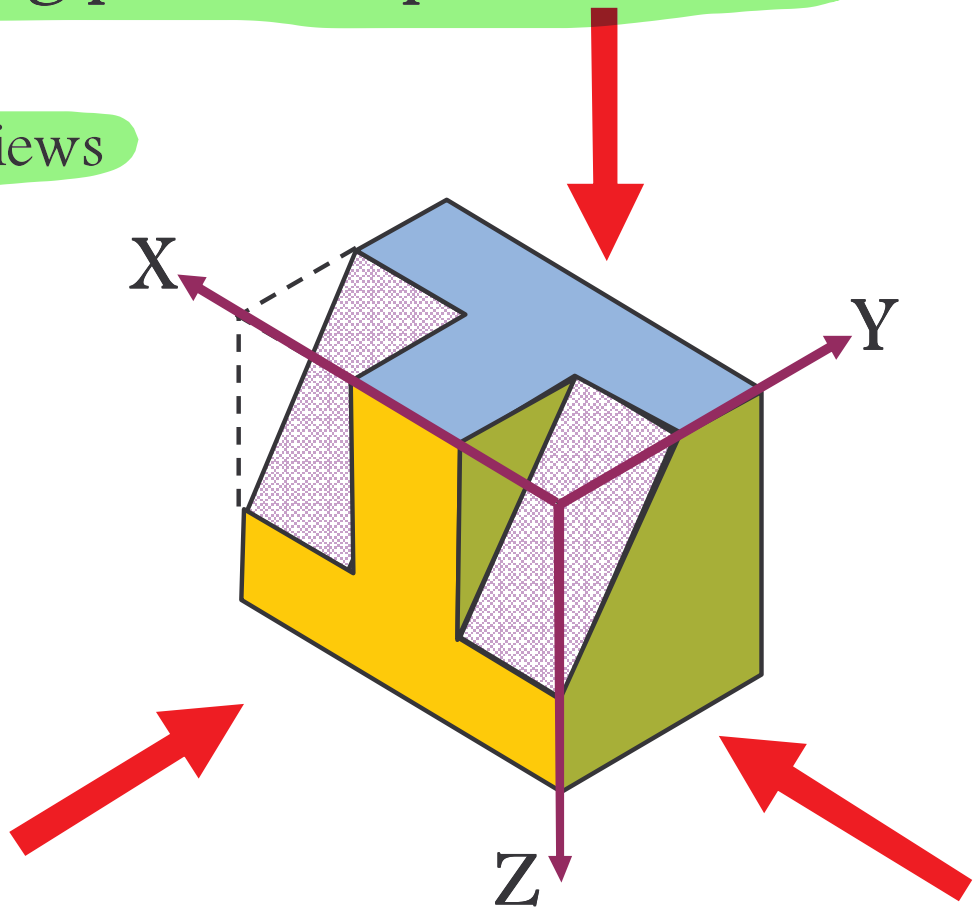
ORTHOGRAPHIC PROJECTIONS

- Each object can be seen to have principle planes



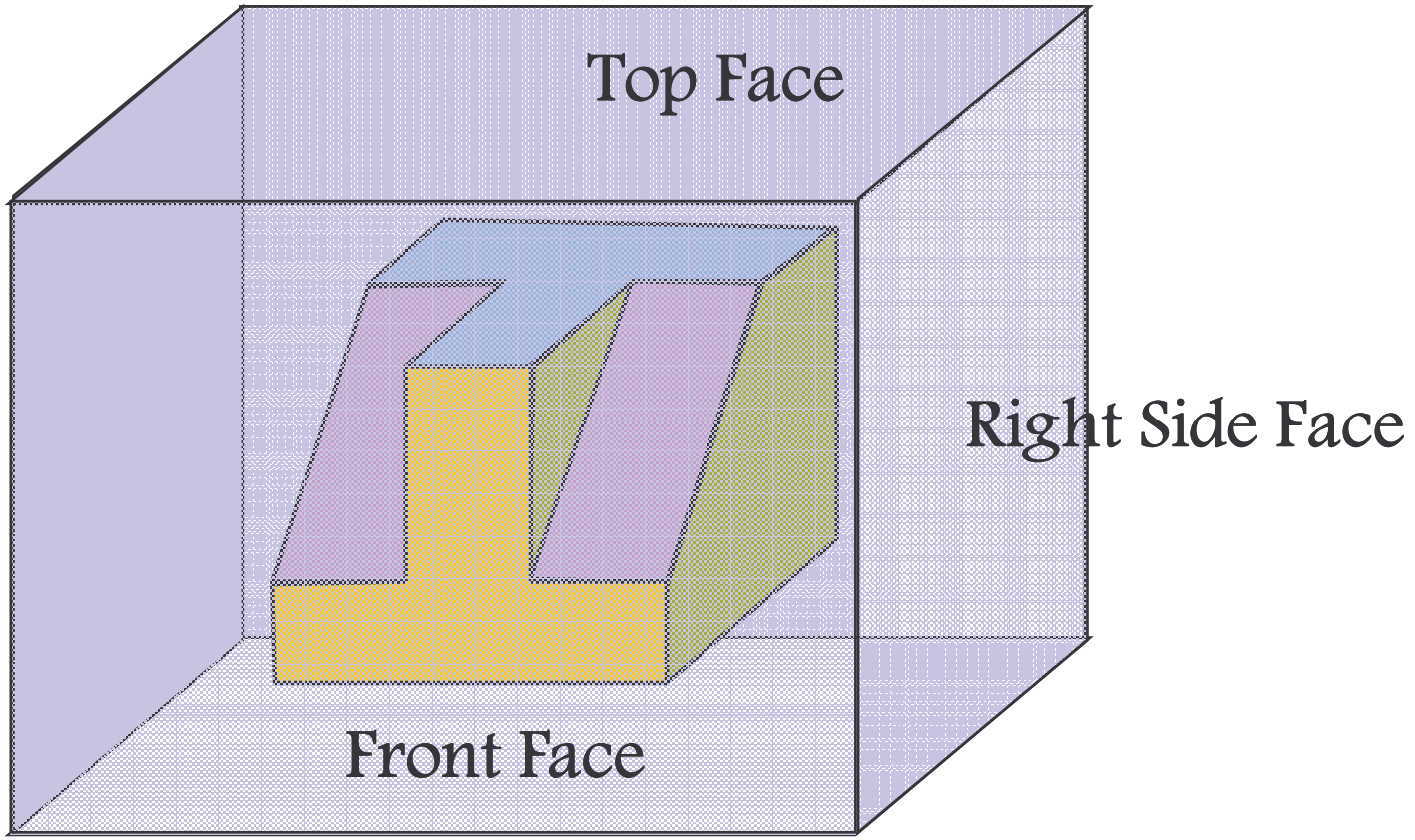
ORTHOGRAPHIC PROJECTIONS

- When the viewing planes are parallel to these principal planes
  - Orthographic views



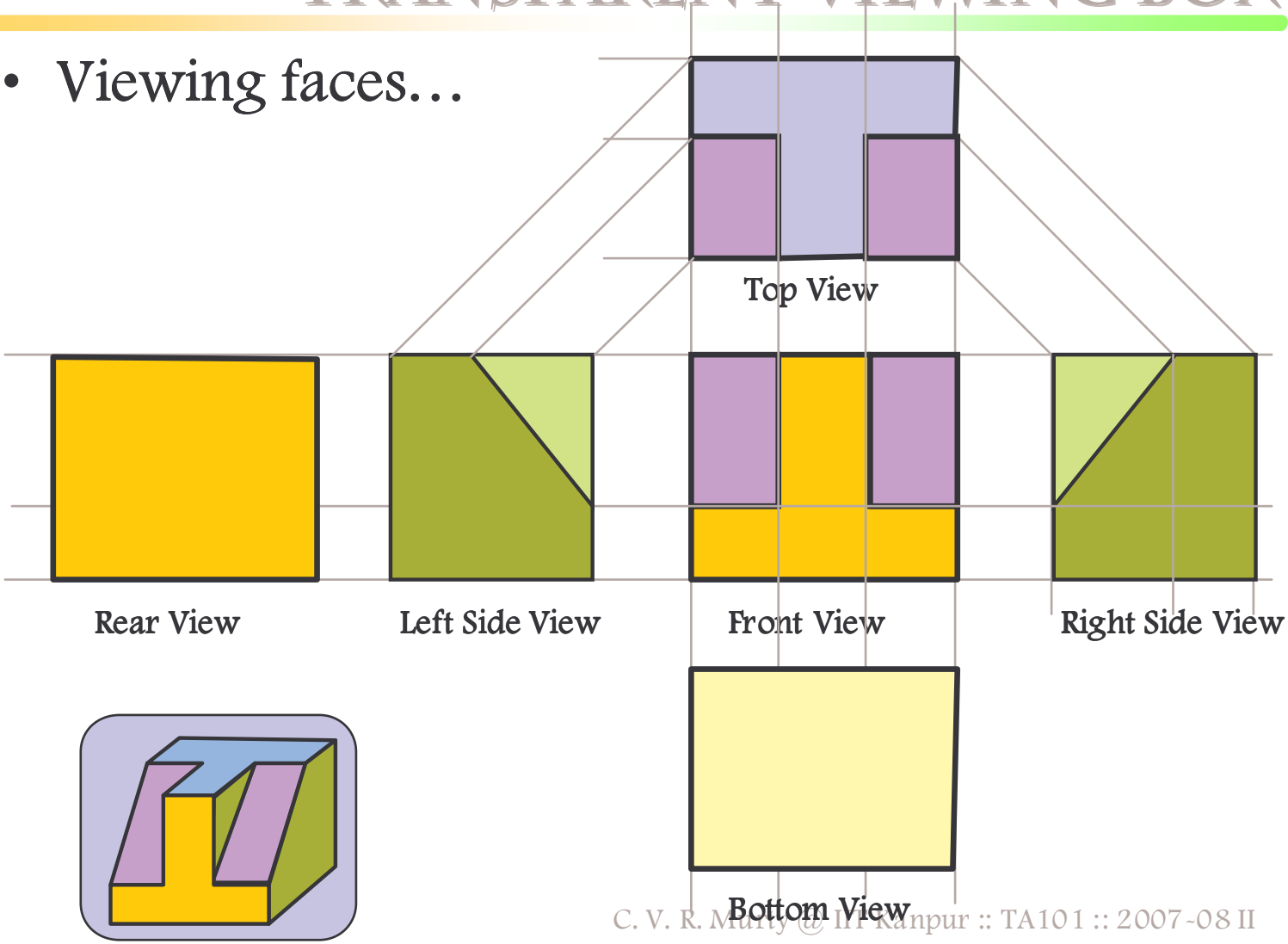
TRANSPARENT VIEWING BOX

- Viewing faces

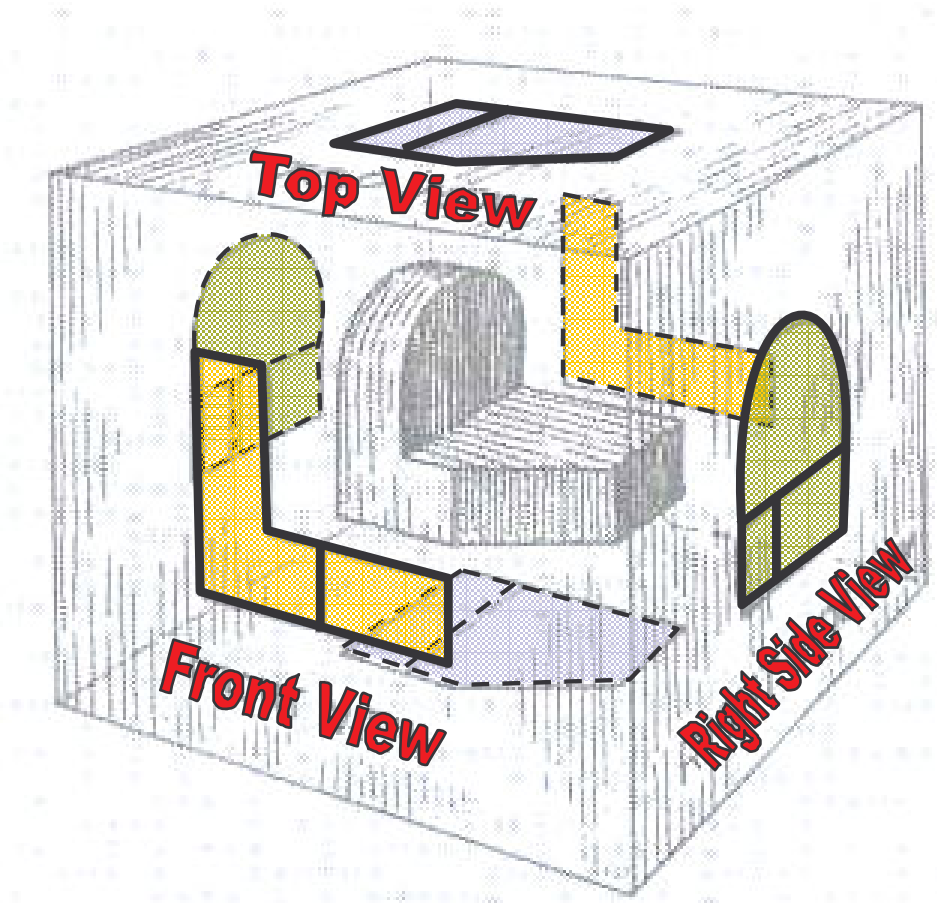


TRANSPARENT VIEWING BOX

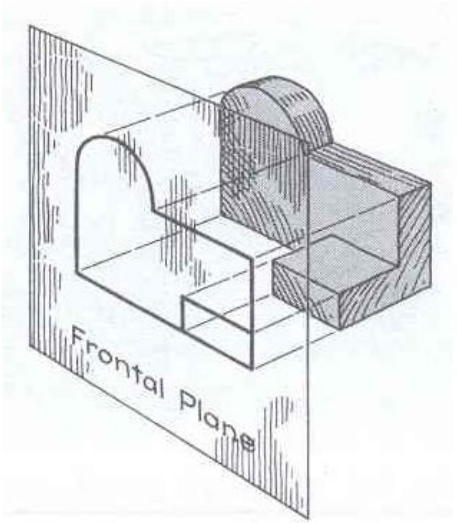
- Viewing faces…

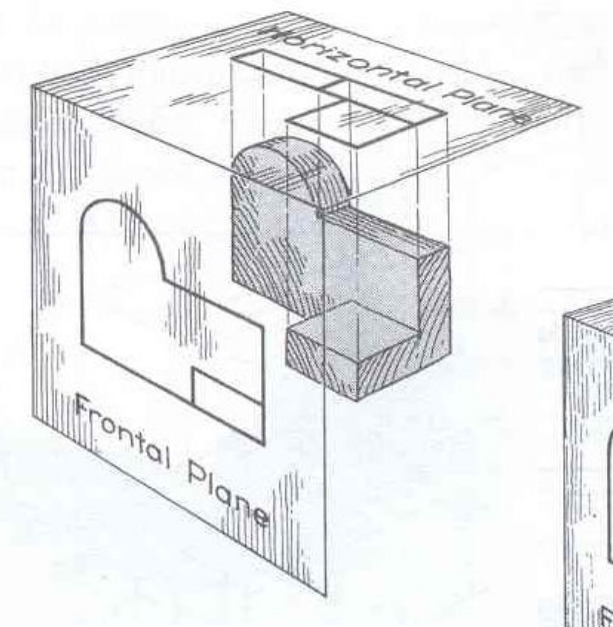


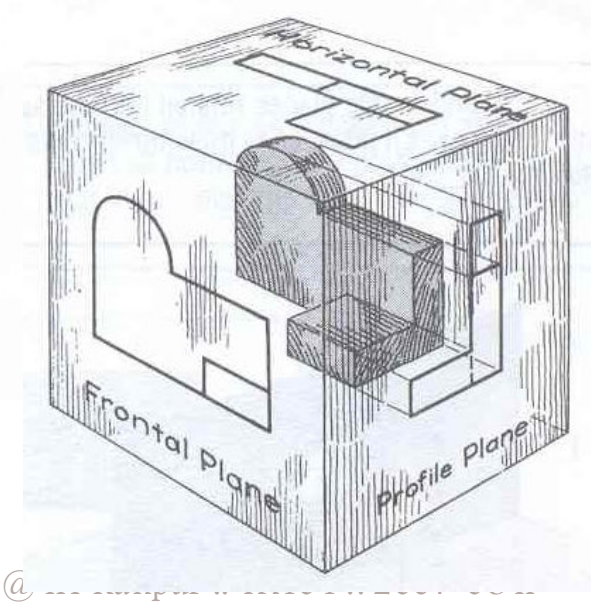
TRANSPARENT VIEWING BOX



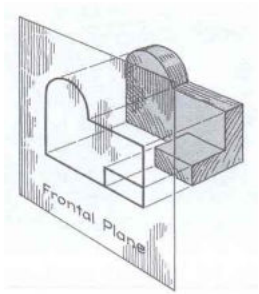
TRANSPARENT VIEWING BOX

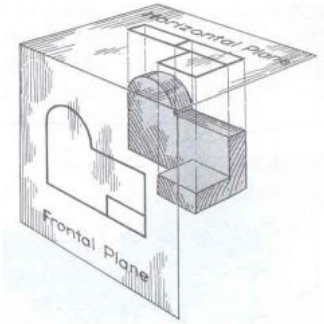


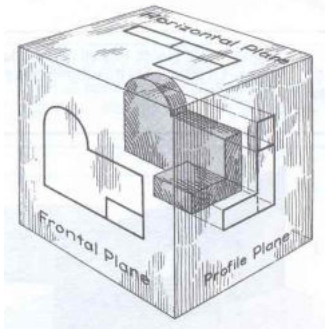


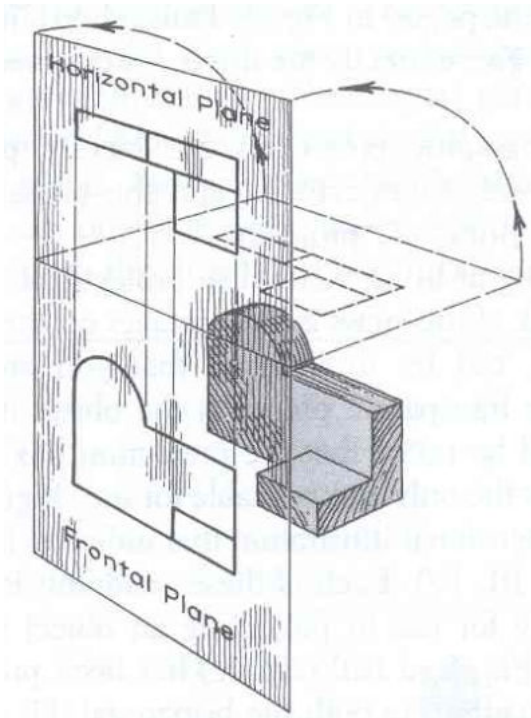


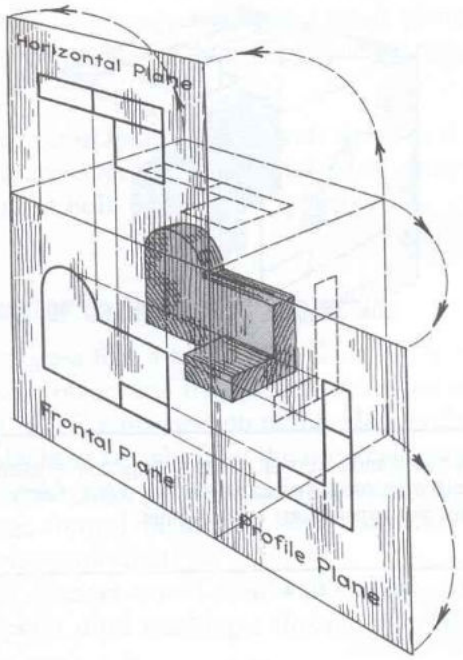
TRANSPARENT VIEWING BOX





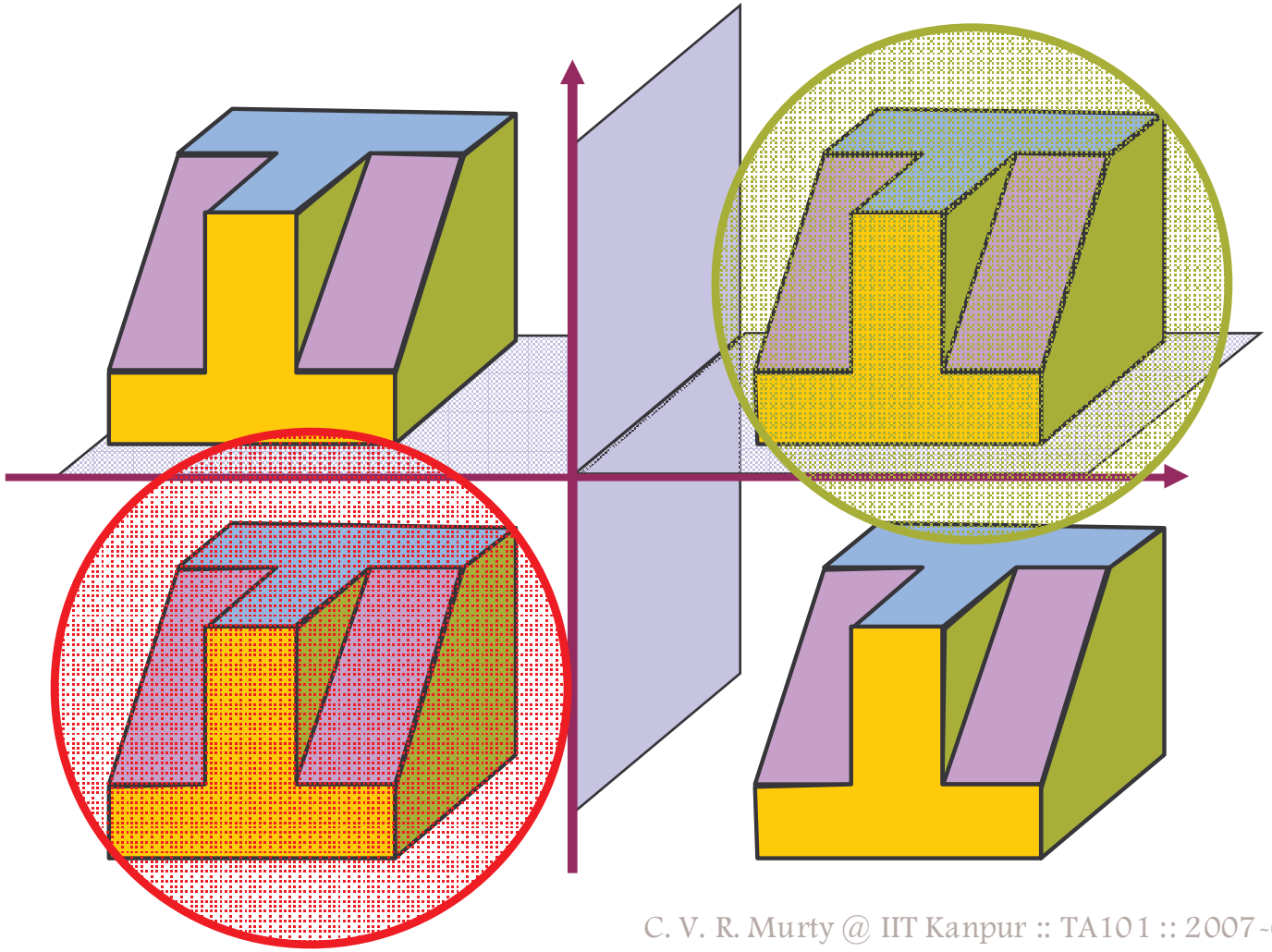






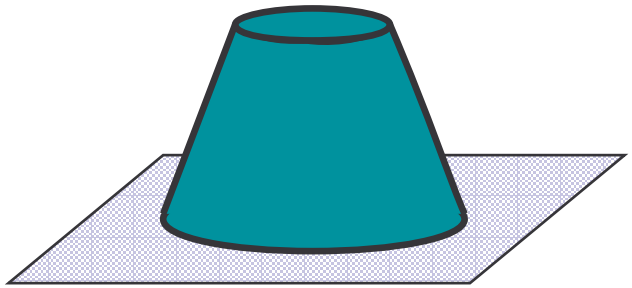
ANGLES OF PROJECTION

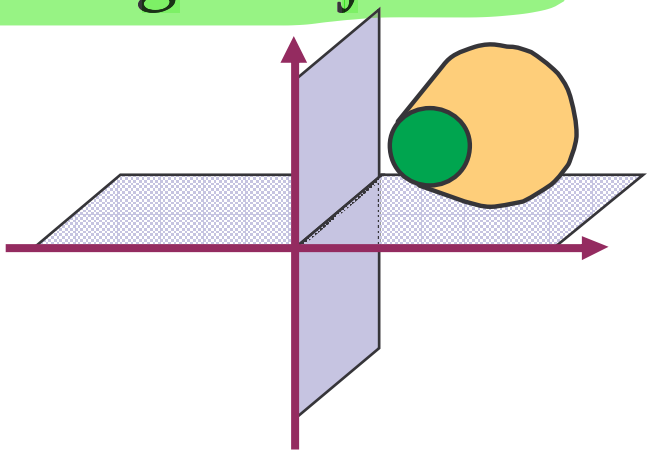
ORTHOGRAPHIC PROJECTIONS

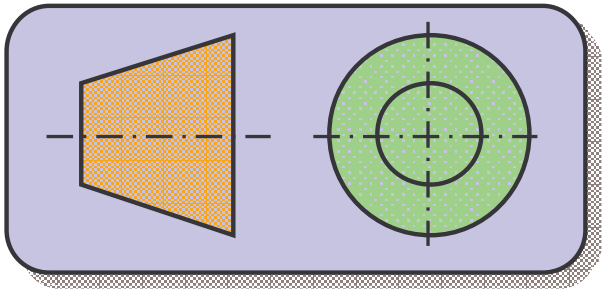


CONVENTION

- Convention to indicate FIRST Angle Projection





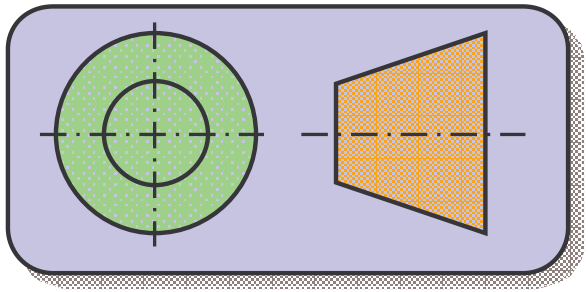


Right Side View
(drawn on left side)

Front View

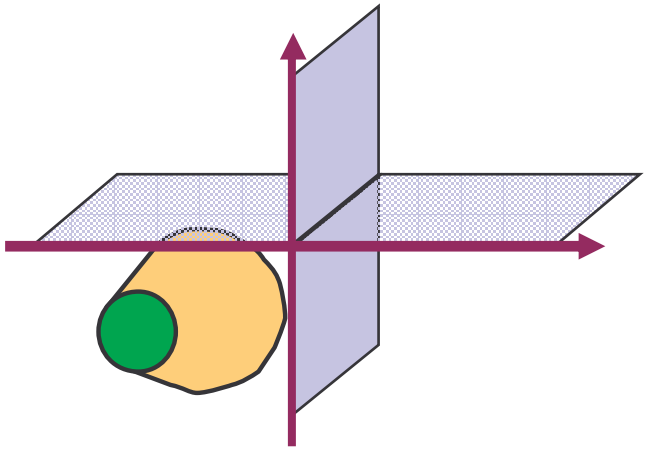
CONVENTION

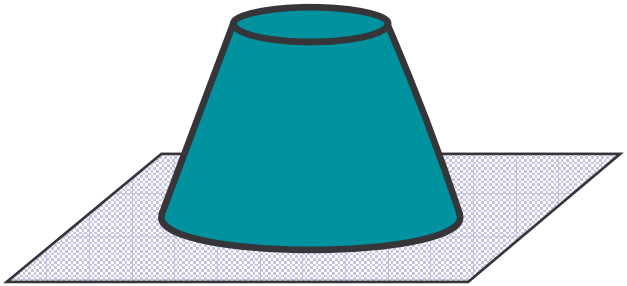
- Convention to indicate THIRD Angle Projection



Front View

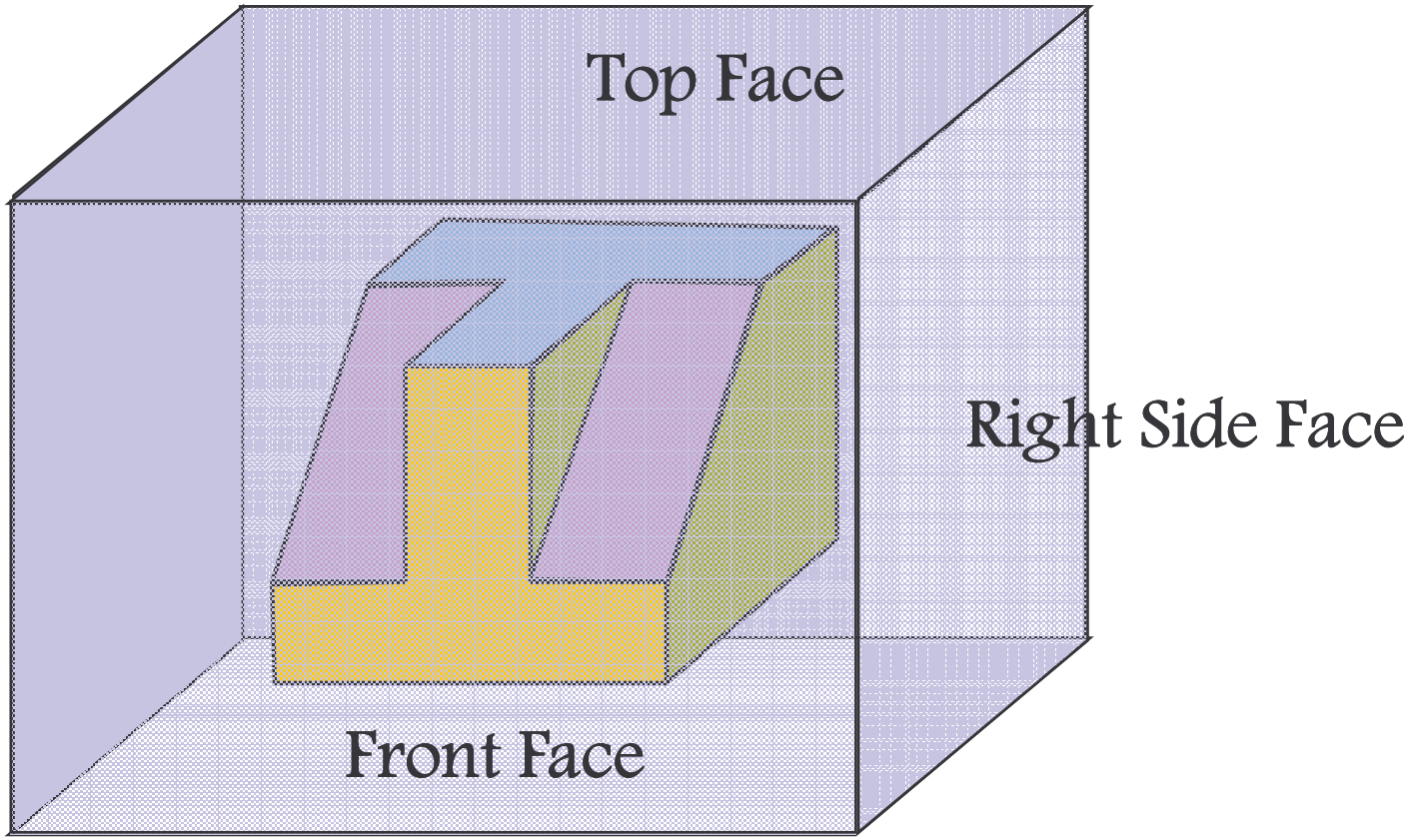
Right Side View
(drawn on right side)





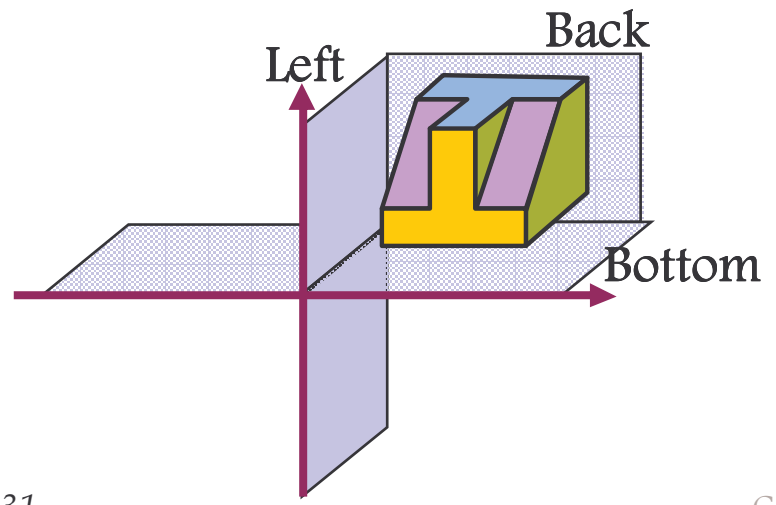
TRANSPARENT VIEWING BOX

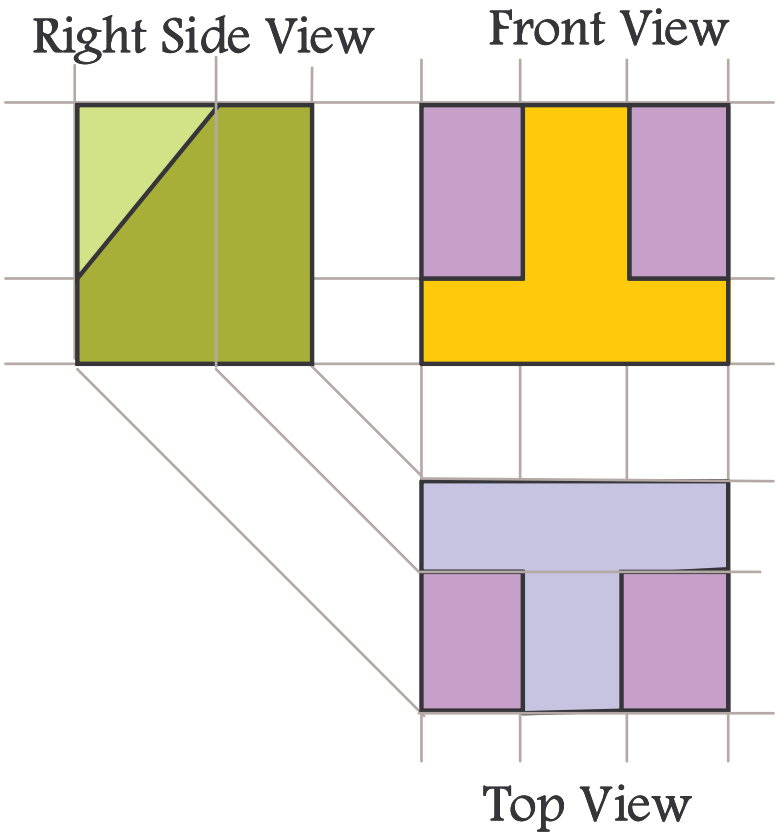
- Viewing faces



TRANSPARENT VIEWING BOX

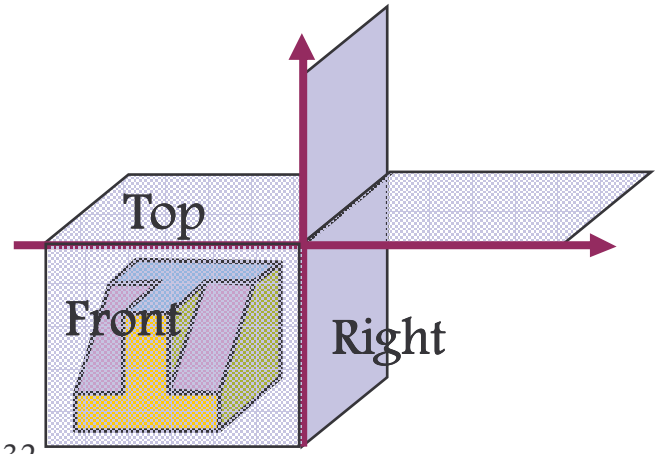
- FIRST Angle Projection
  - Object in front of plane

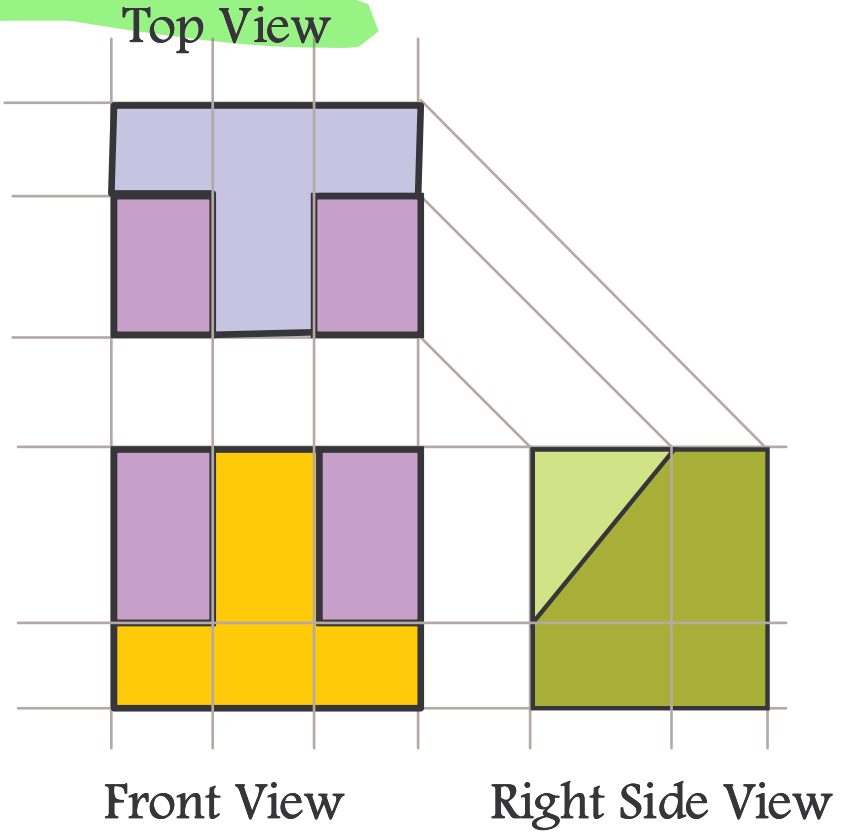


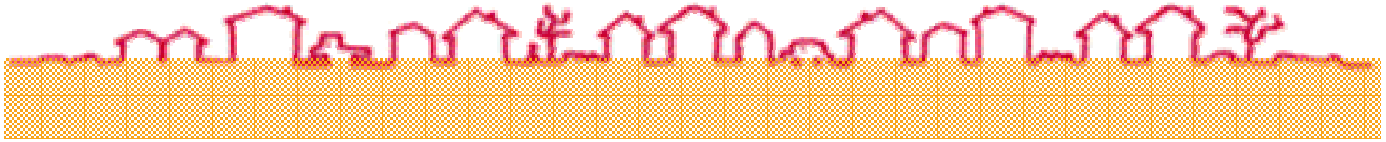


TRANSPARENT VIEWING BOX

- THIRD Angle Projection
  - Object behind plane







Have a Great Day!!