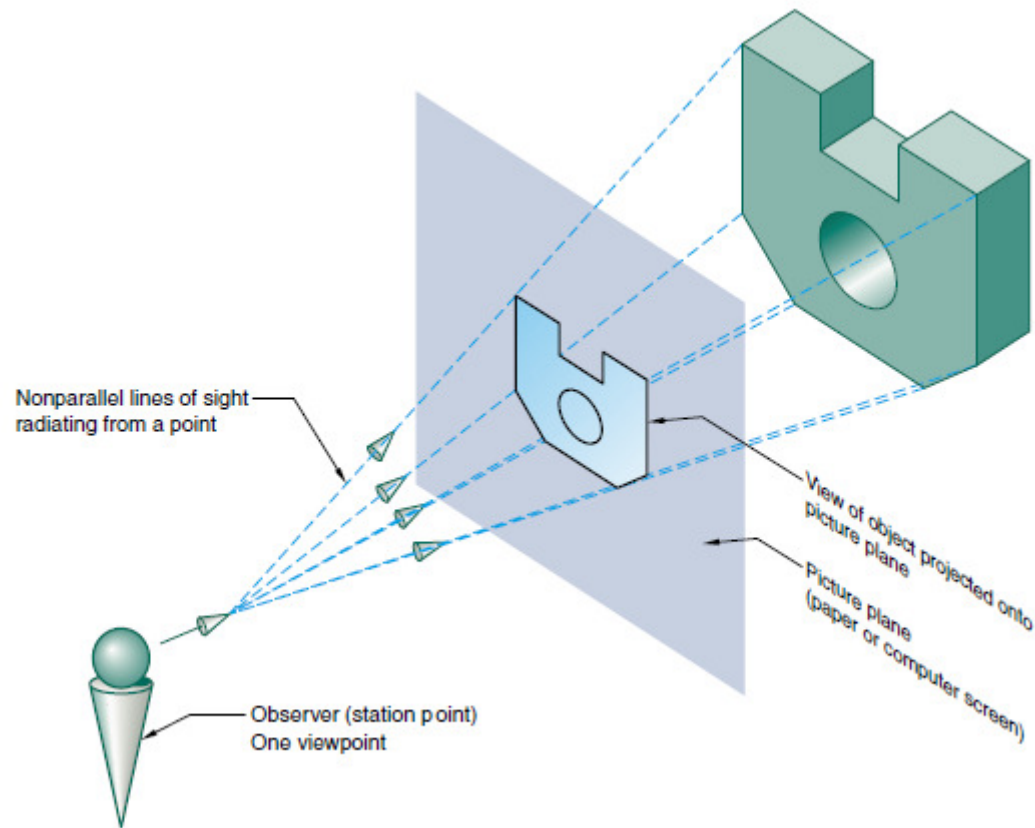


Orthographic Projections



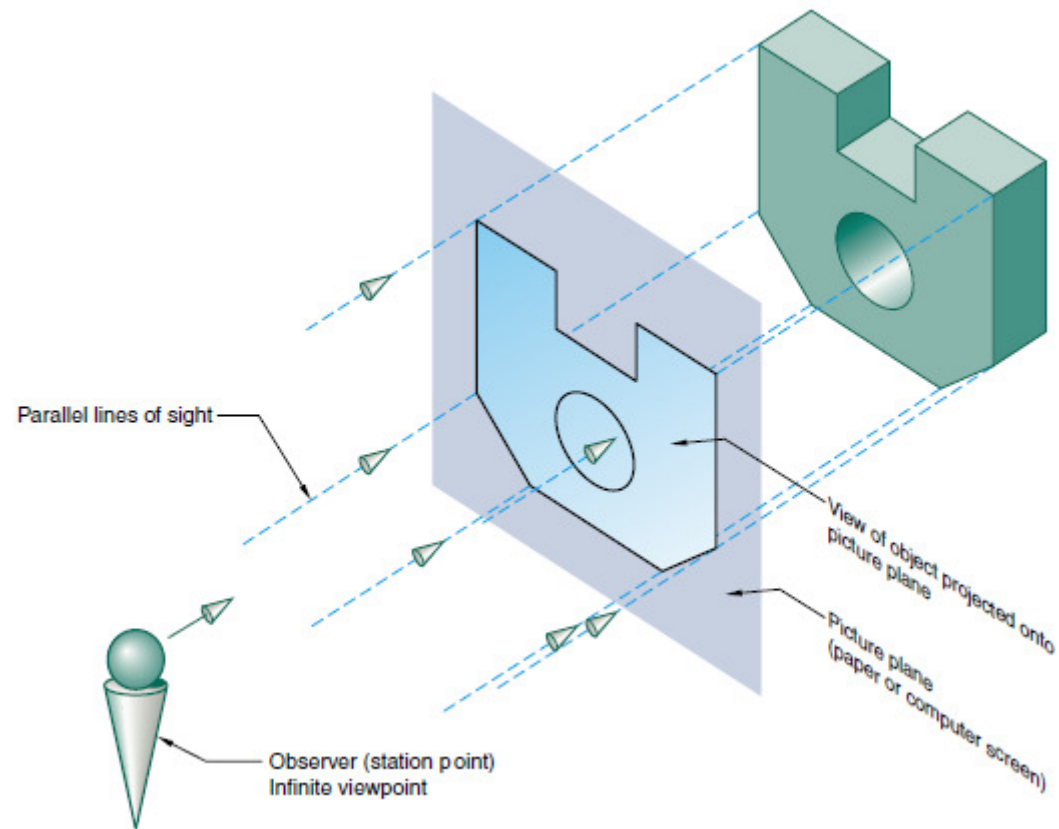
Dr. Piyush Shakya
Associate Professor
Department of Mechanical Engineering
Indian Institute of Technology Madras, Chennai

Perspective Projection

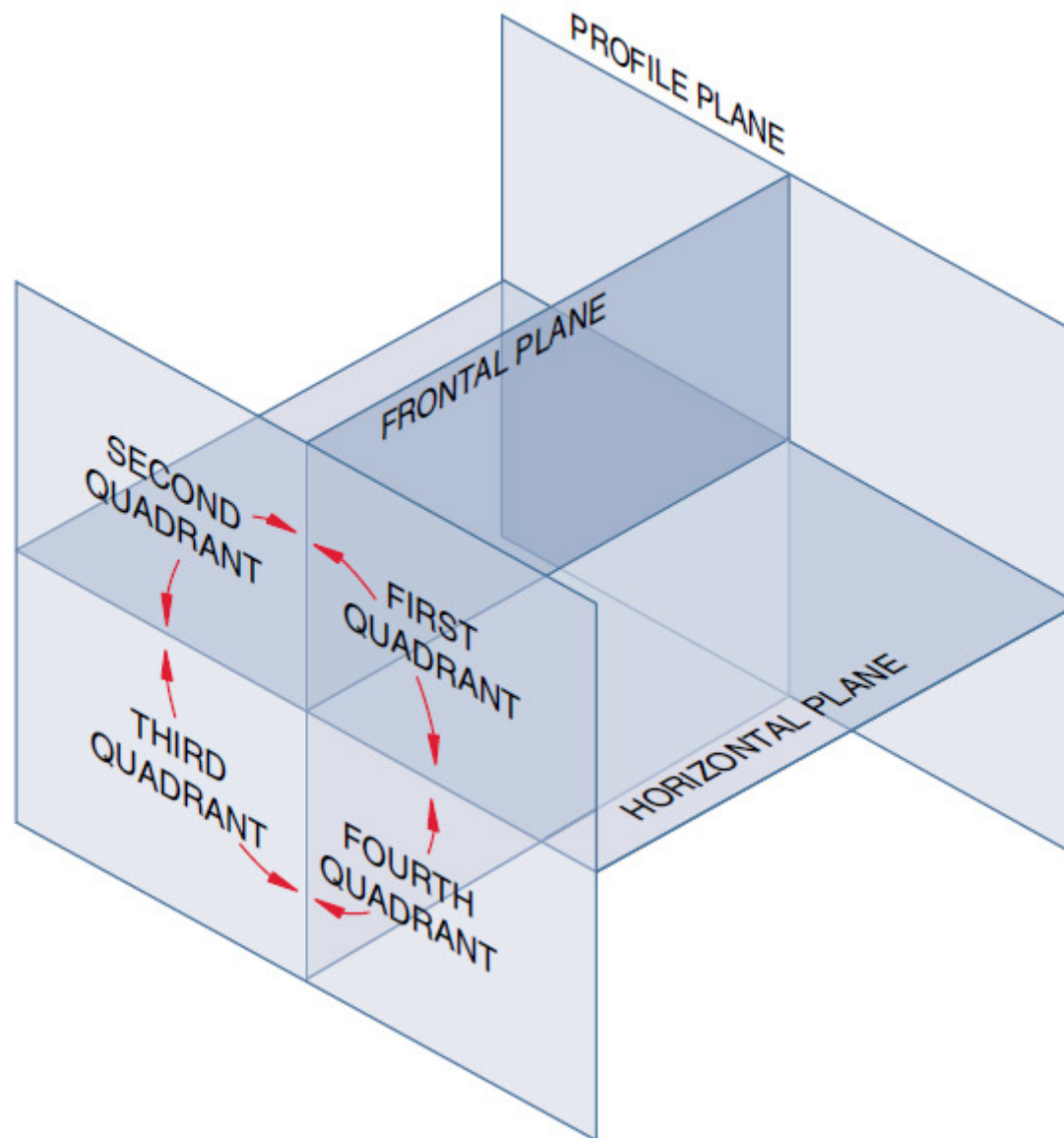


A camera captures views in perspective projection

Parallel Projection



Principal Projection Planes



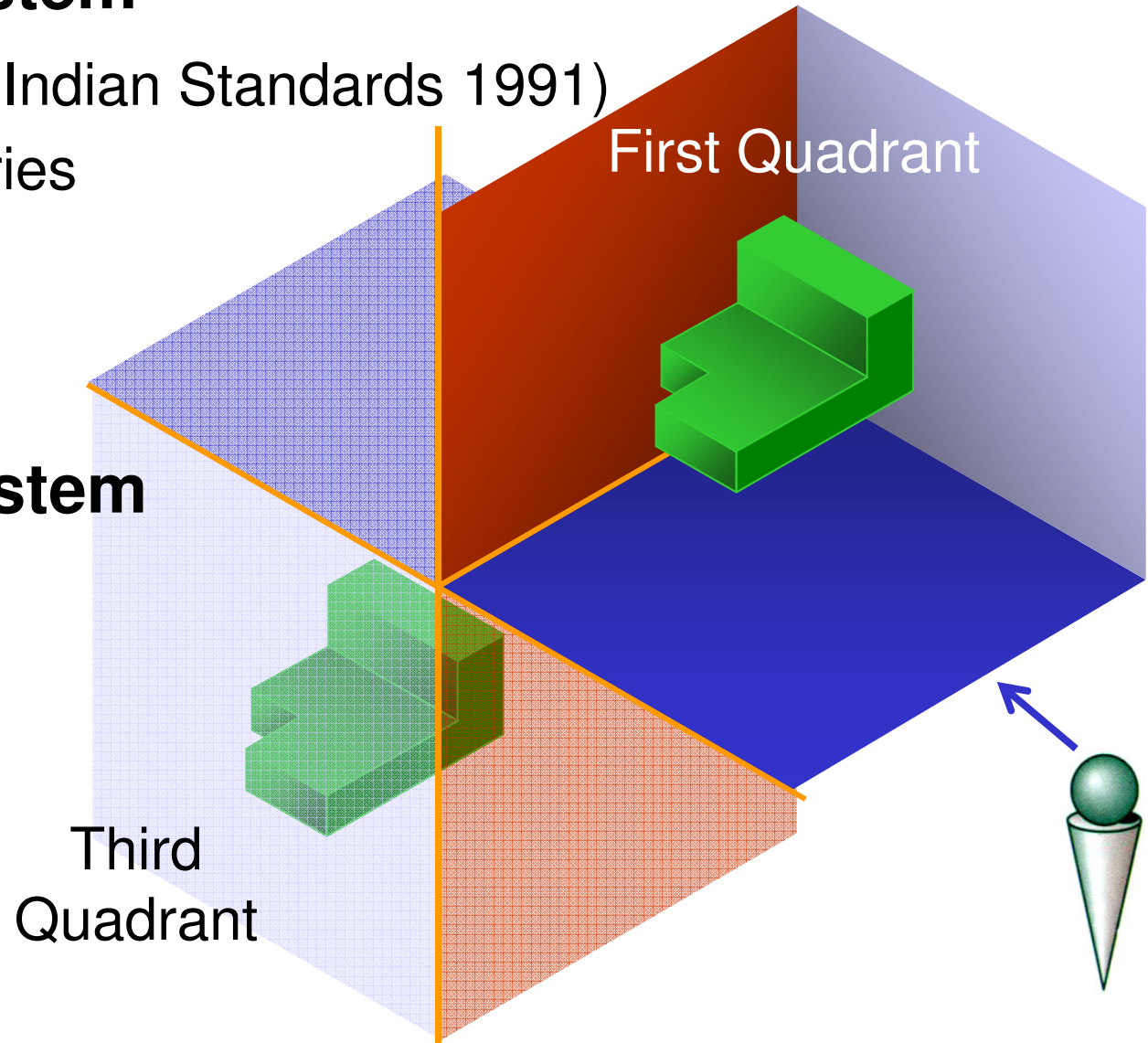
Projection System

1. **First** angle system

- India (Bureau of Indian Standards 1991)
- European countries
- ISO standard

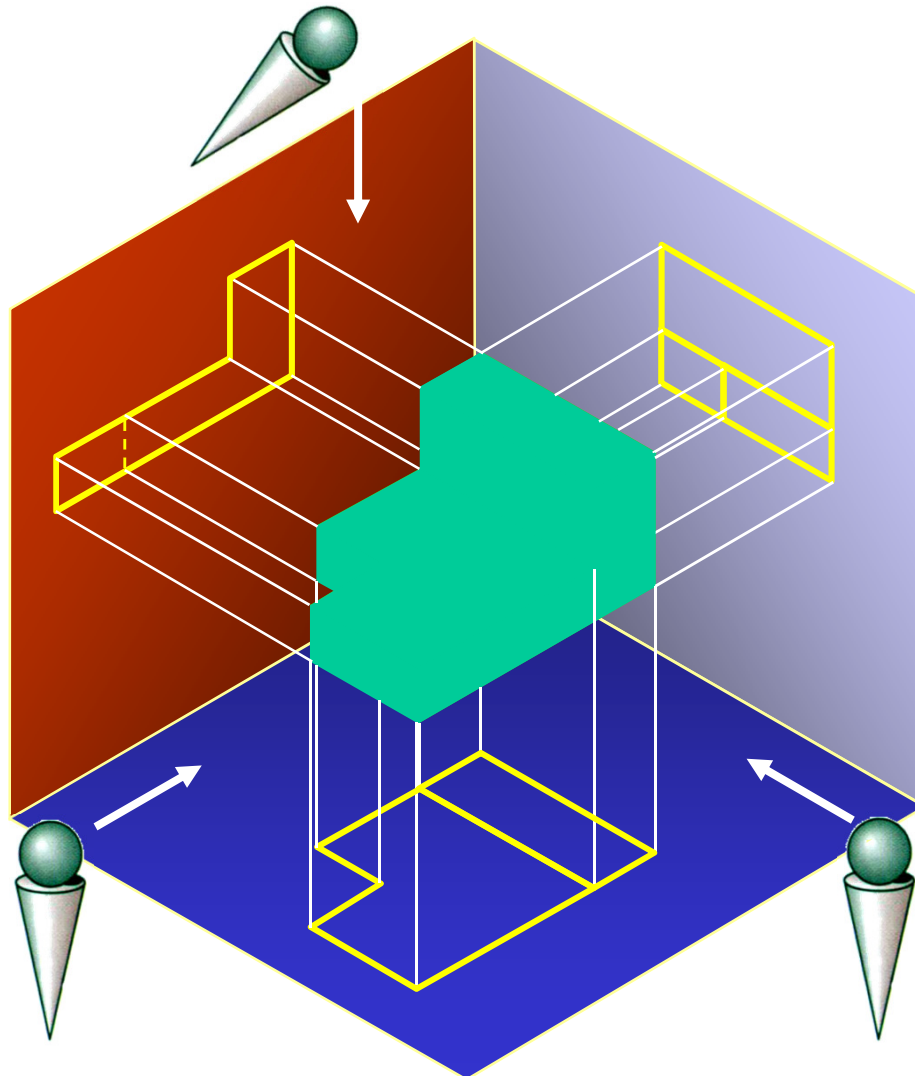
2. **Third** angle system

- Canada
- USA
- Japan, Thailand

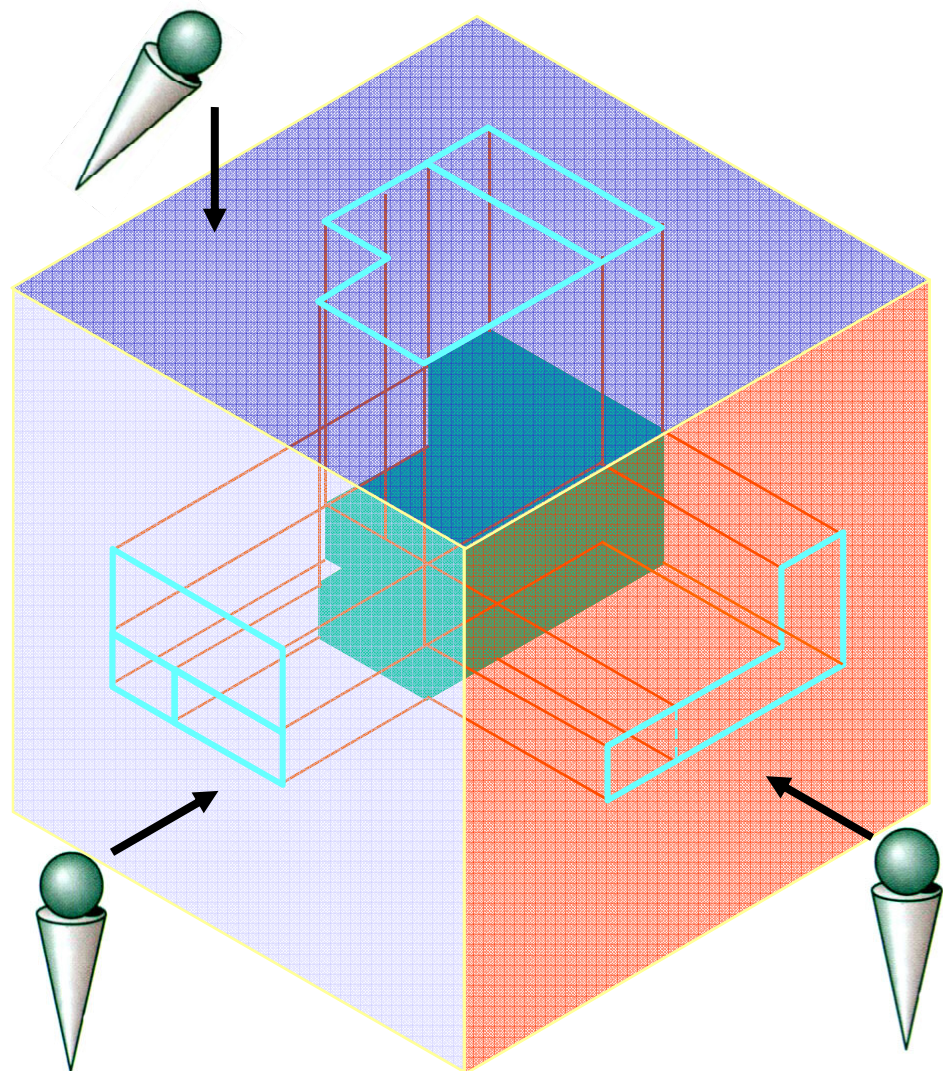


Orthographic projection

1st angle system

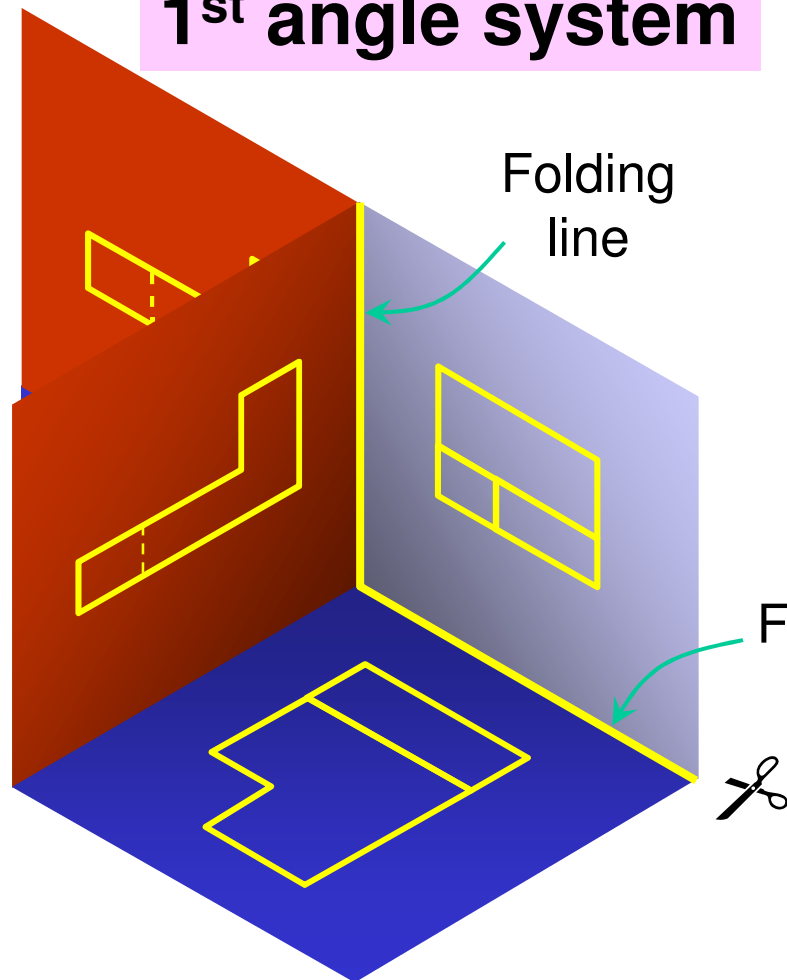


3rd angle system

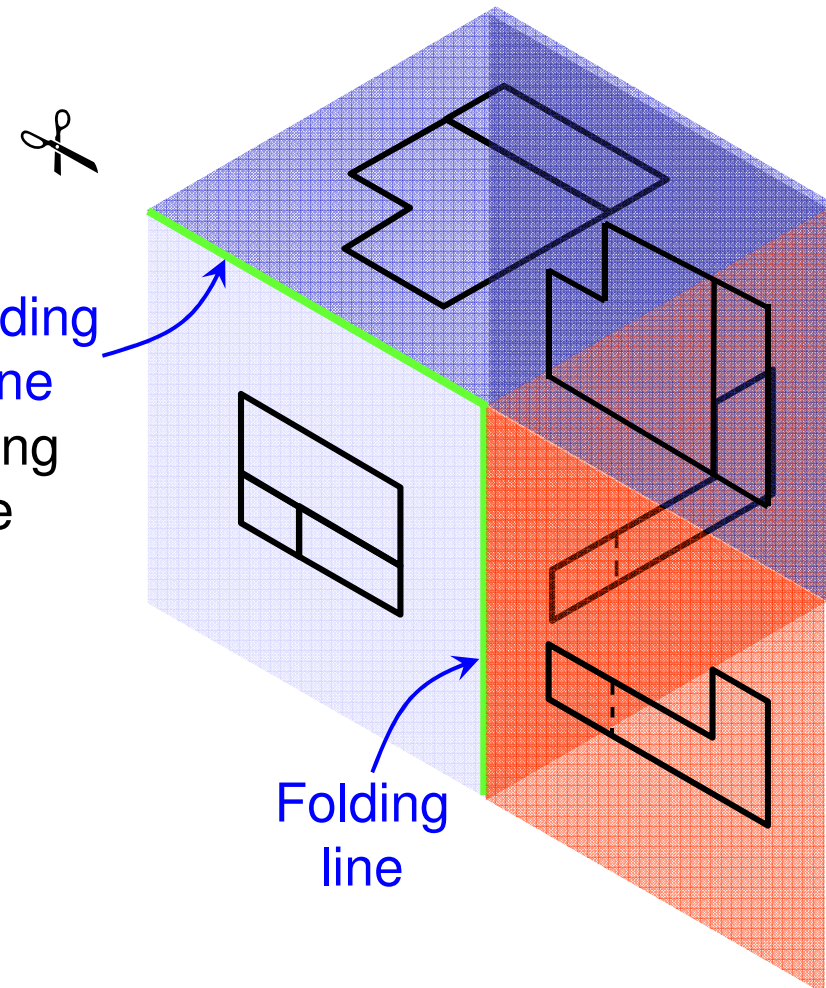


Orthographic Views

1st angle system

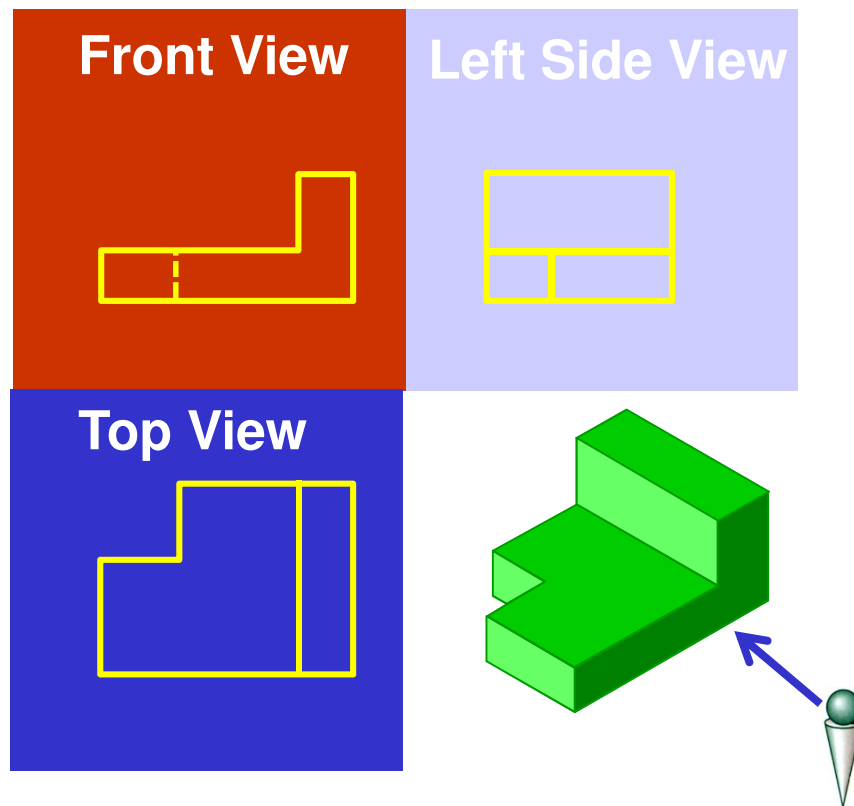


3rd angle system

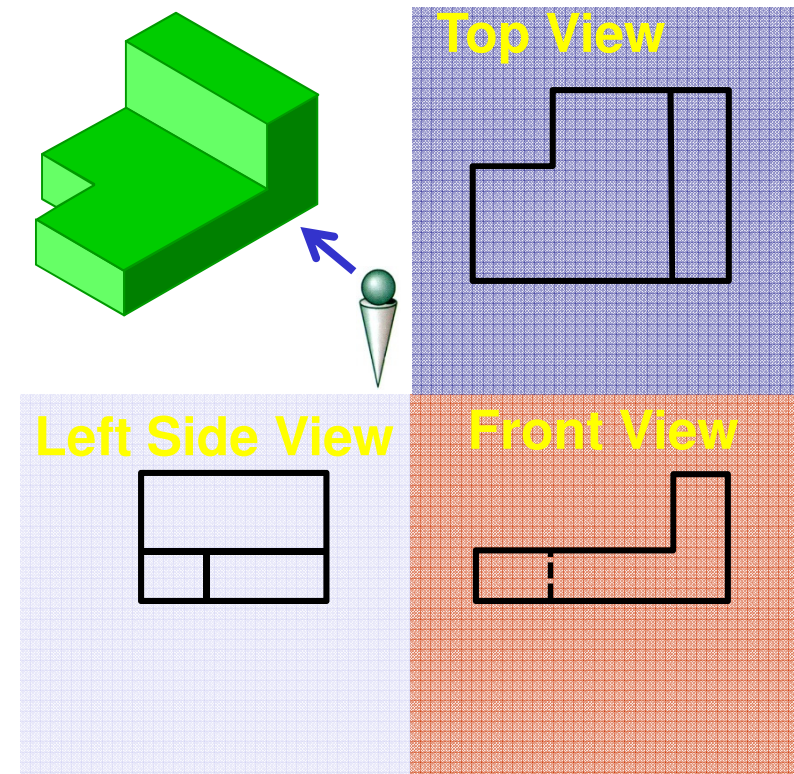


Orthographic Views

1st angle system

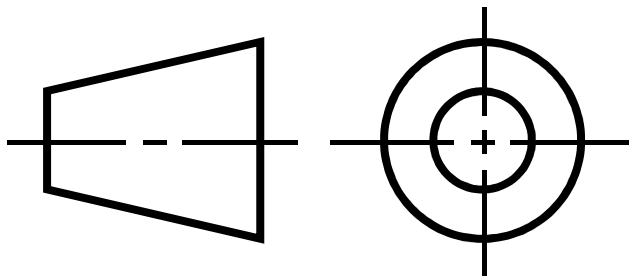
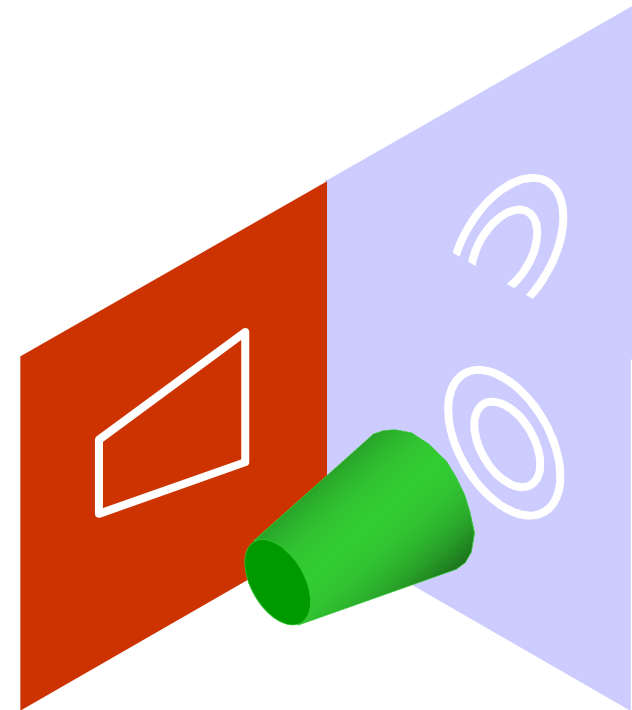


3rd angle system



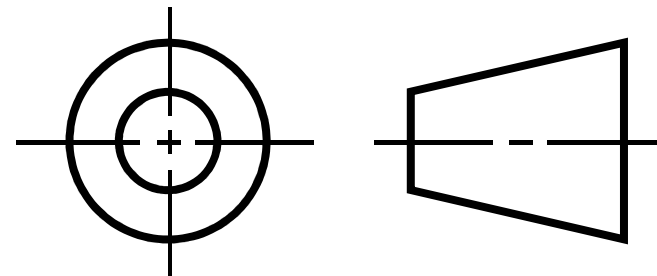
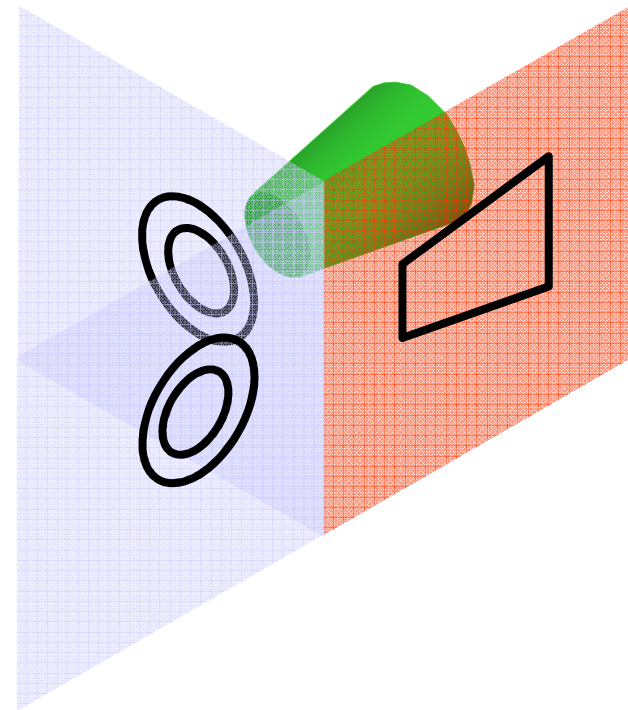
Projection Symbols

First angle system



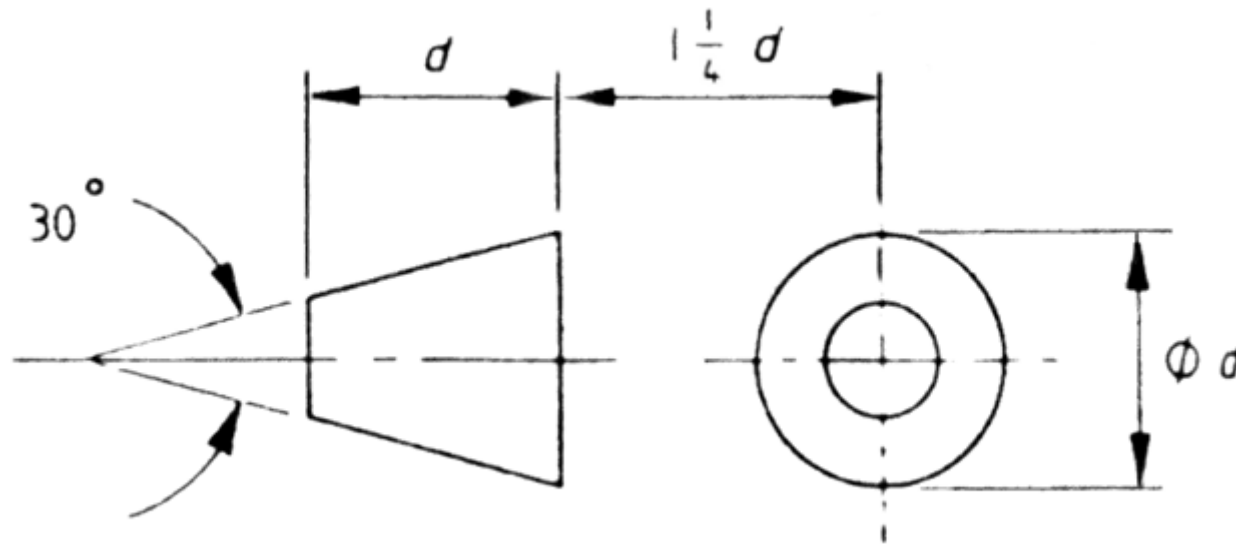
Front View Left Side View

Third angle system



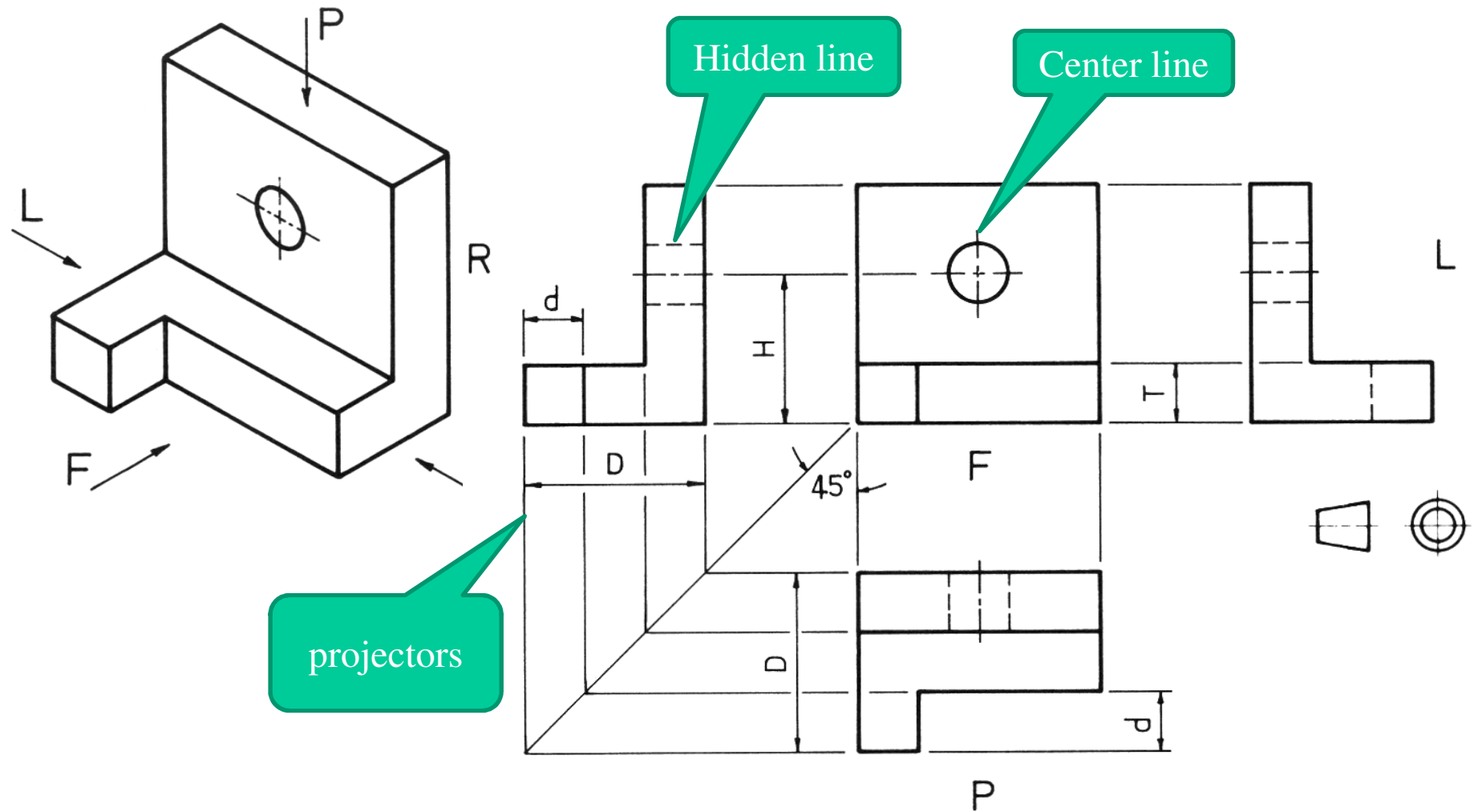
Left Side View Front View

First Angle Projection Symbol Proportions

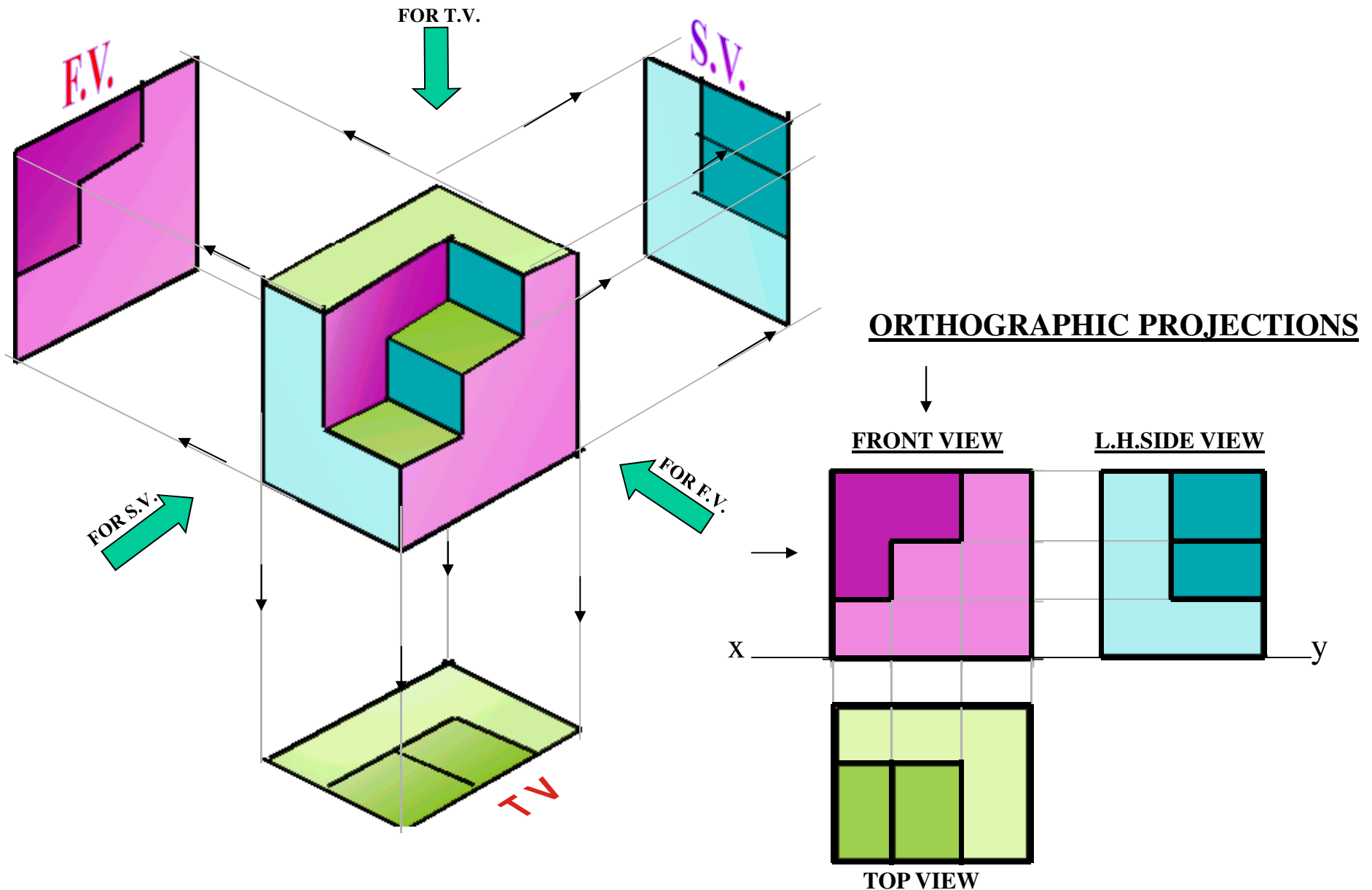


Hidden Lines

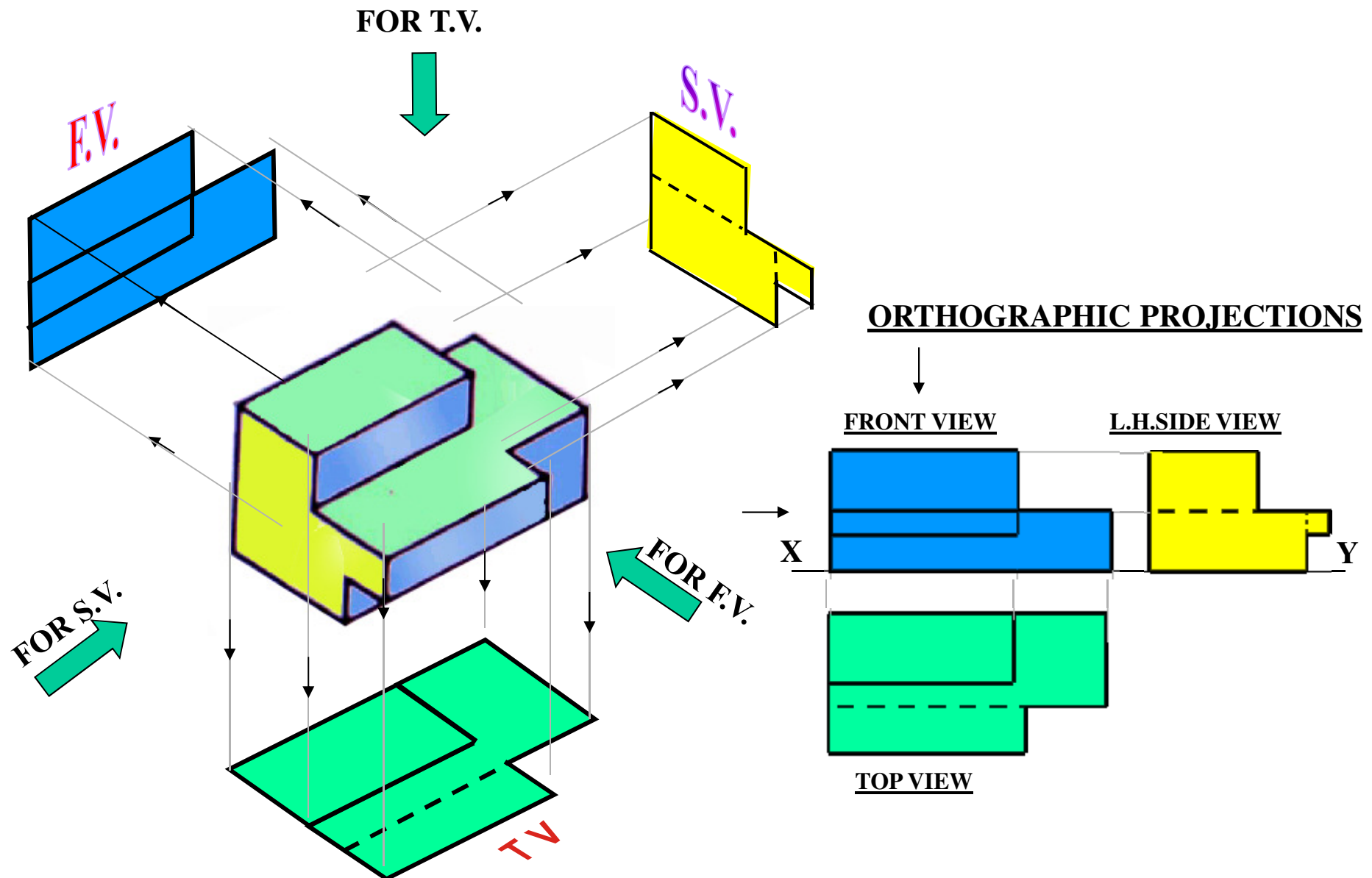
Some parts of the object cannot be seen from the position of the observer, as they will be covered by portions of the object closer to the observer's eyes. The edges of such hidden parts are shown by **dashed lines**.



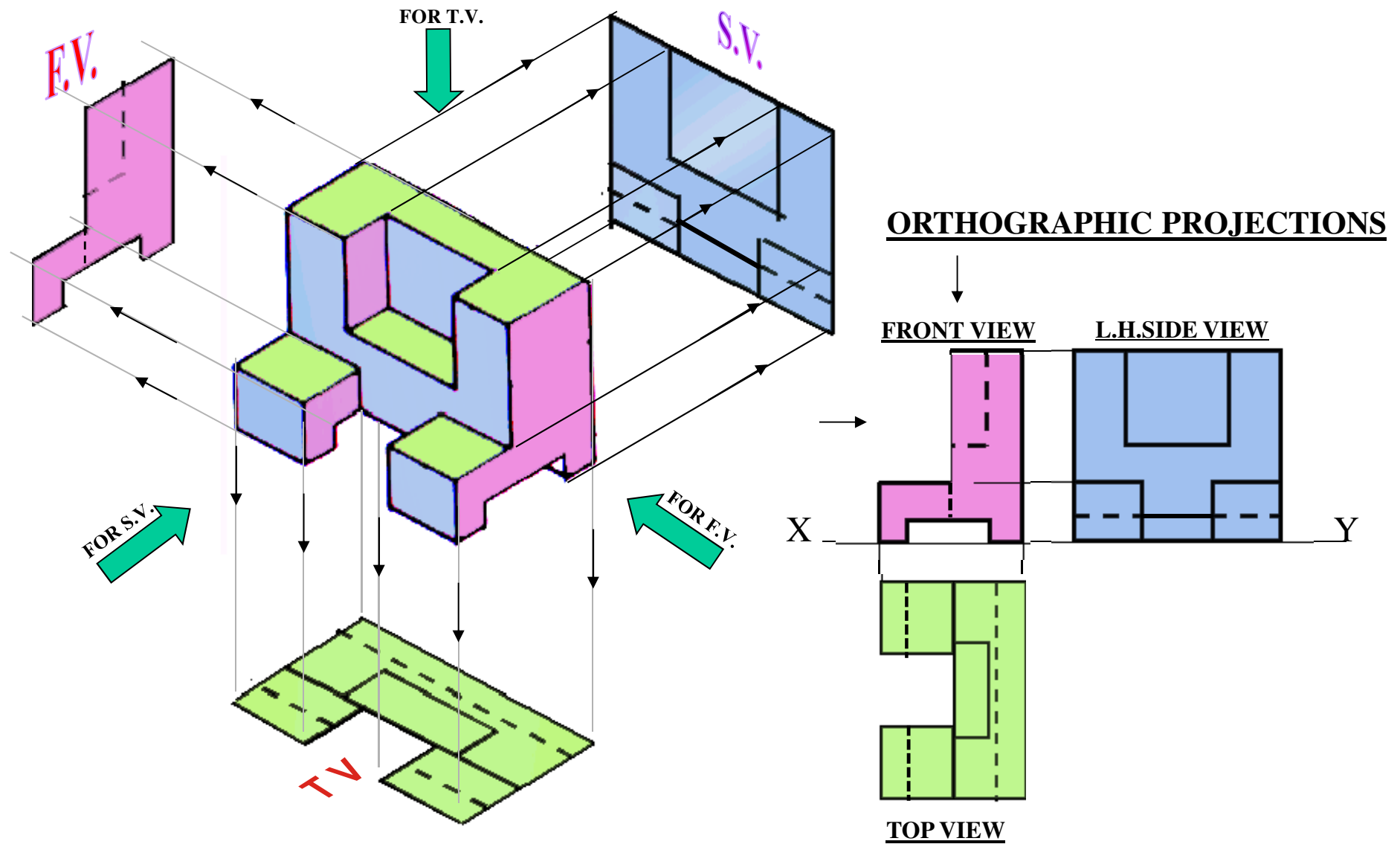
First Angle Projection (Example)



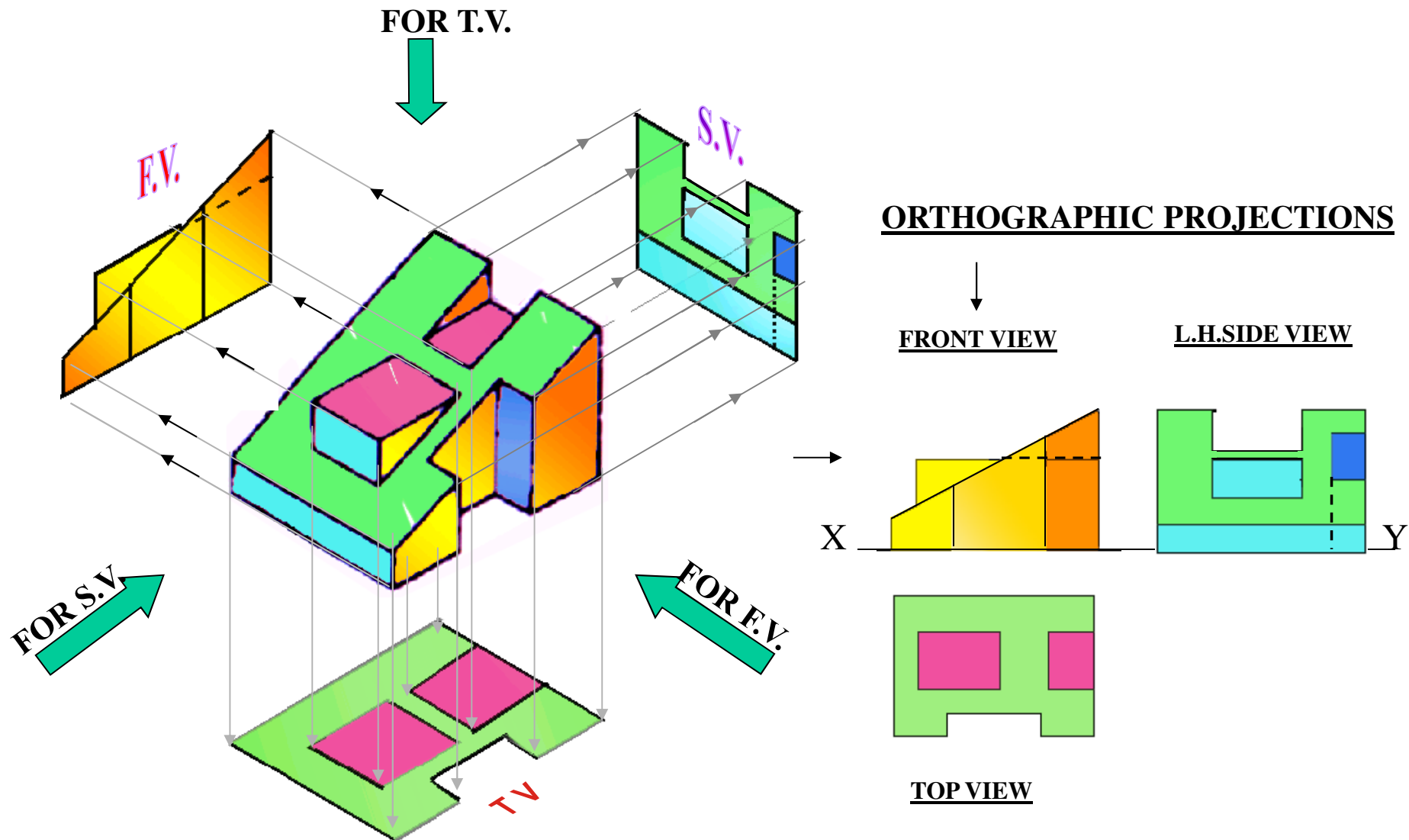
First Angle Projection (Example)



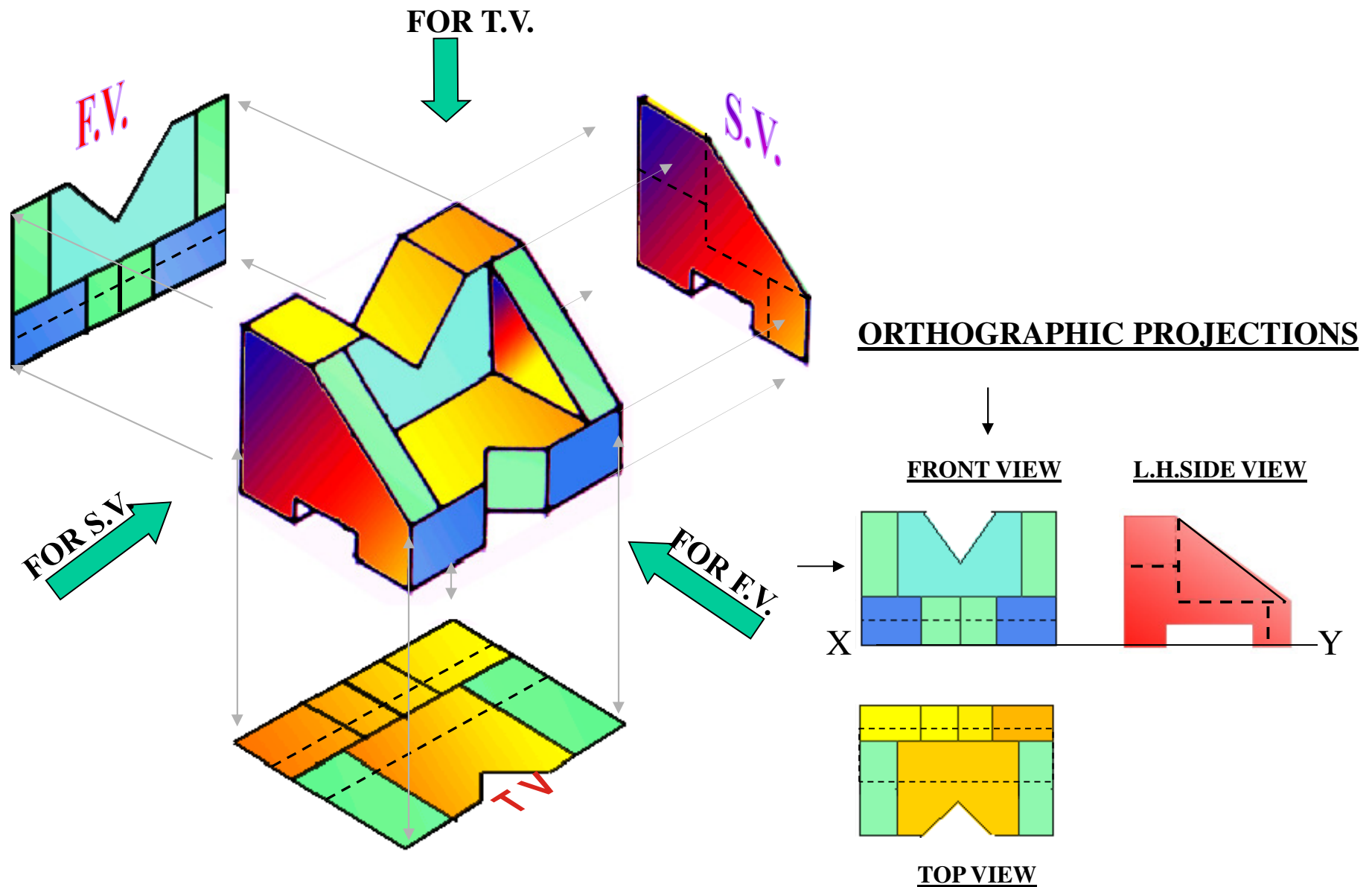
First Angle Projection (Example)



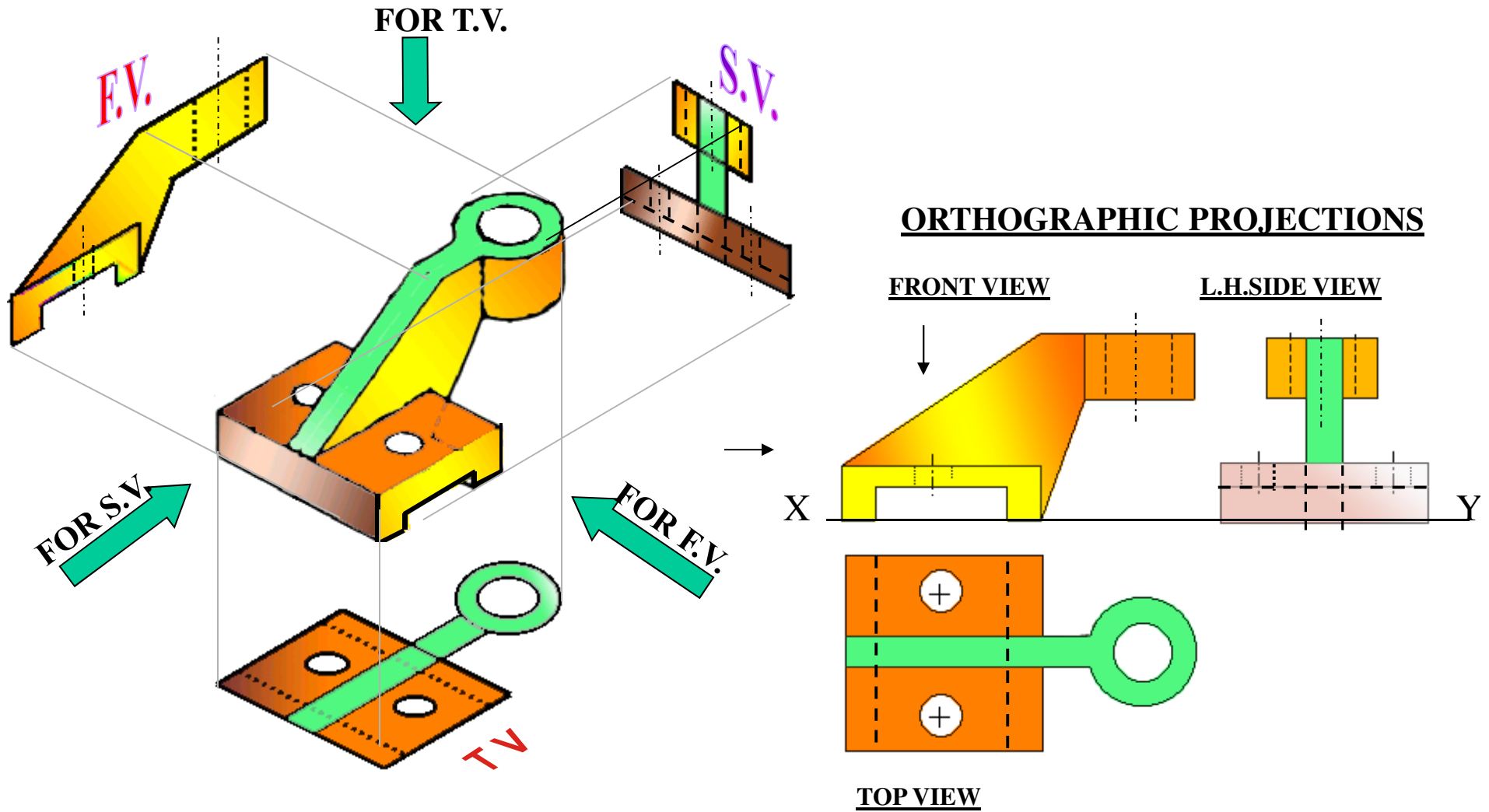
First Angle Projection (Example)



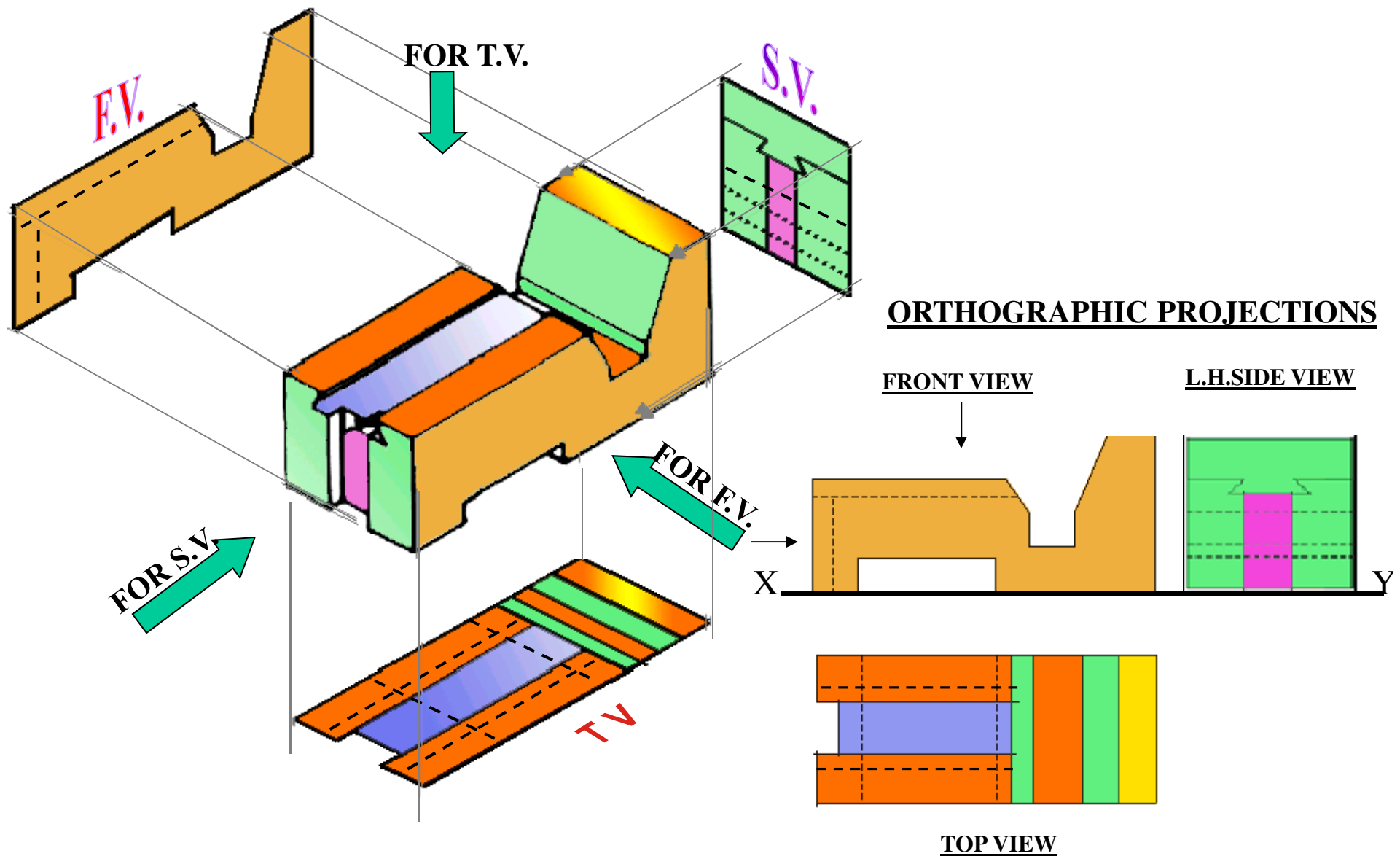
First Angle Projection (Example)



First Angle Projection (Example)

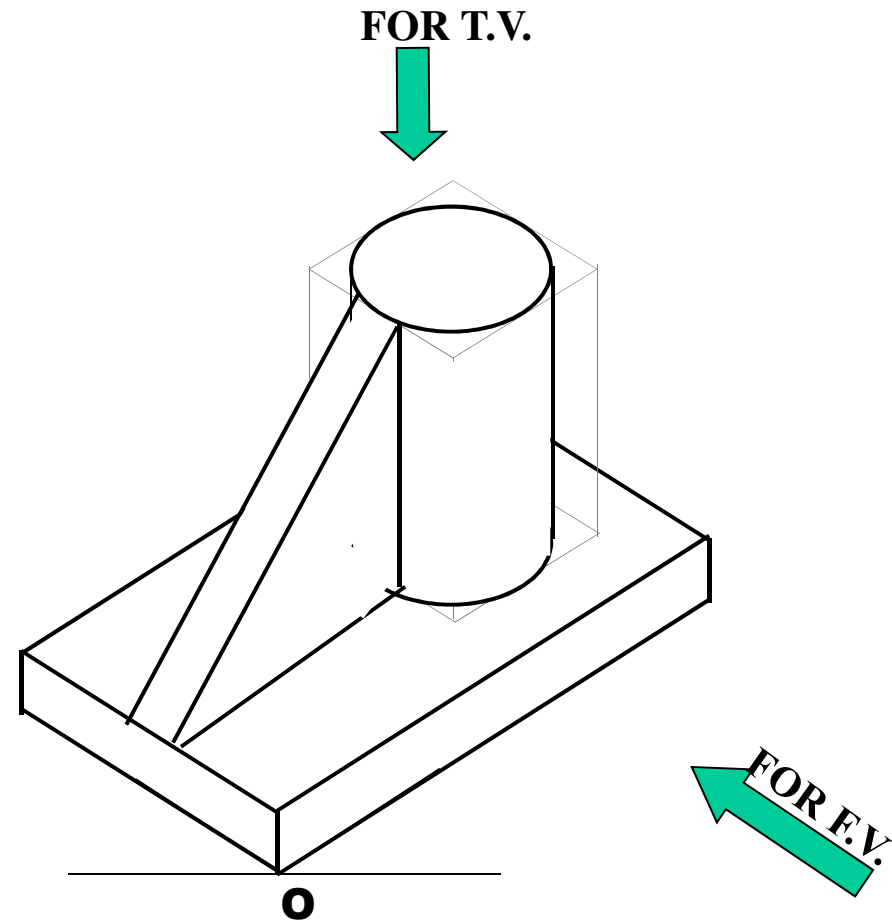
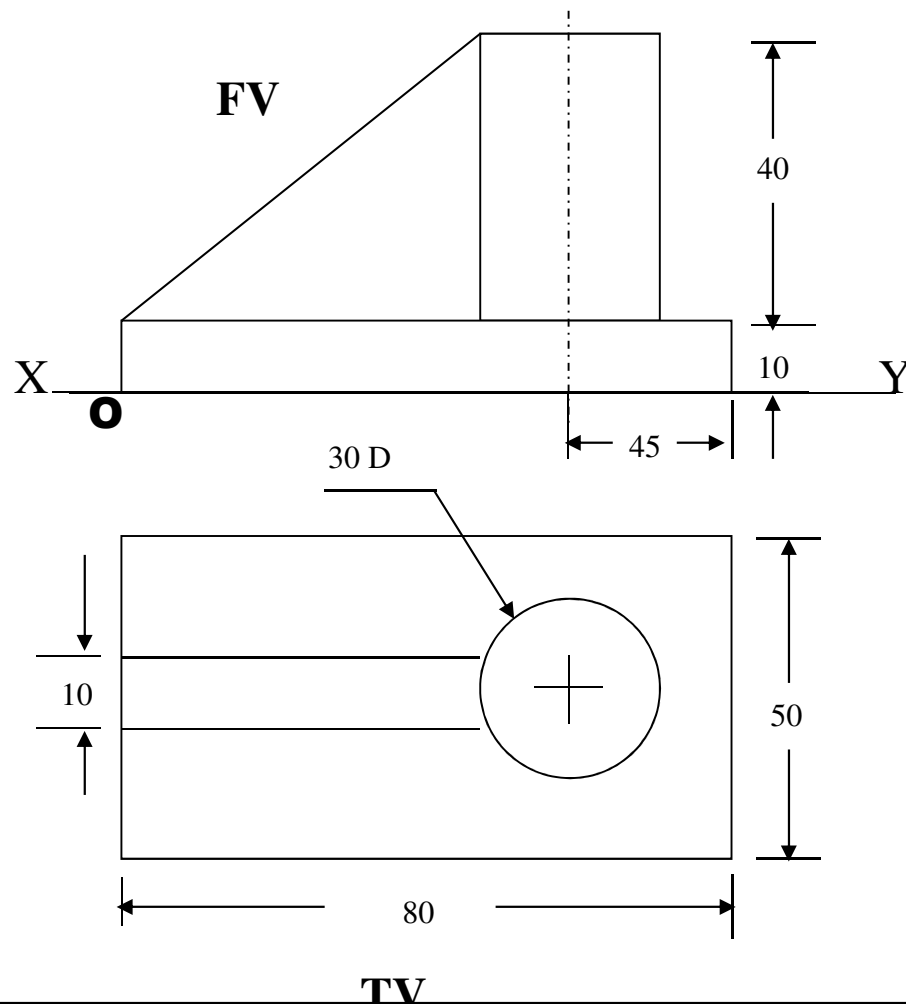


First Angle Projection (Example)



First Angle Projection (Example)

ORTHOGRAPHIC PROJECTIONS





Thank you