TA 101A:2019-20:II

Lecture 19 –Space Geometry VI

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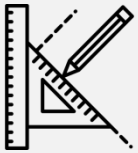
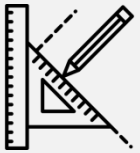
Recapitulation



- Most important concepts
  - For a given oblique line
    - Project it on an auxiliary plane as point view
    - Project it on an auxiliary plane as normal view
  - For a given oblique plane
    - Project it on an auxiliary plane as edge view
    - Project it on an auxiliary plane as normal view
  - The projections of a point on two adjacent orthographic planes are aligned along the projector
  - If two lines are parallel their projections will be parallel
  - Two lines are perpendicular if their projections are perpendicular while at least one of the lines is in normal view
  - A line will be perpendicular to a plane if the line is perpendicular to the edge view of the plane
  - The angle between a line and a plane is angle between the edge view of the plane and the Normal View of the line.

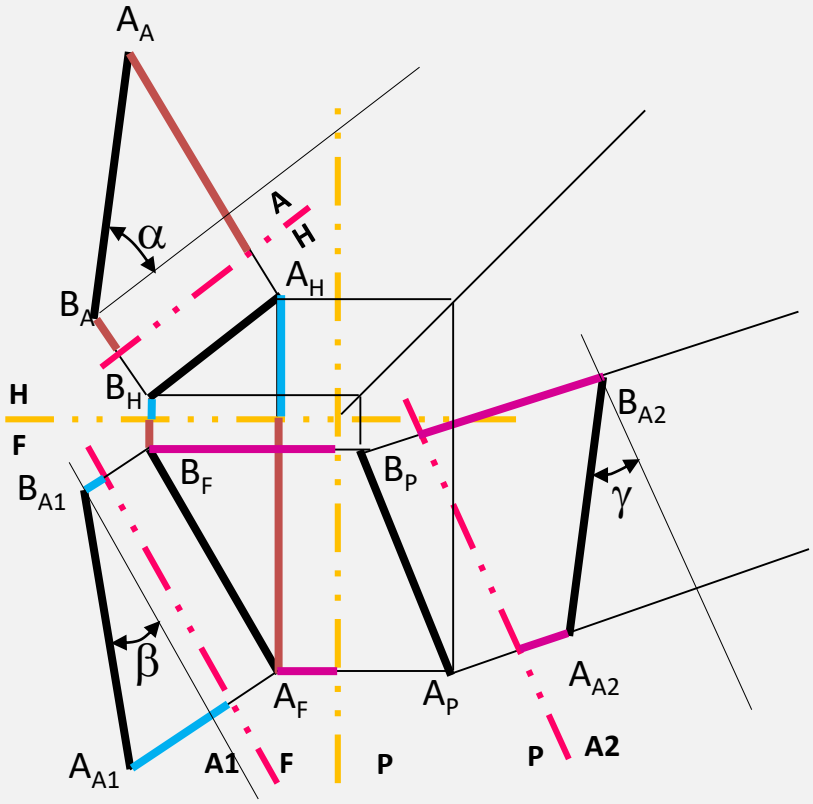
Recapitulation



- We have seen how to test
  - If two lines are parallel
  - If two lines are perpendicular
  - If two lines intersect
  - If a line lies on a plane
  - If a line is parallel to a plane
  - If a line is perpendicular to a plane
- Also seen how to drop perpendicular from a point on to a plane

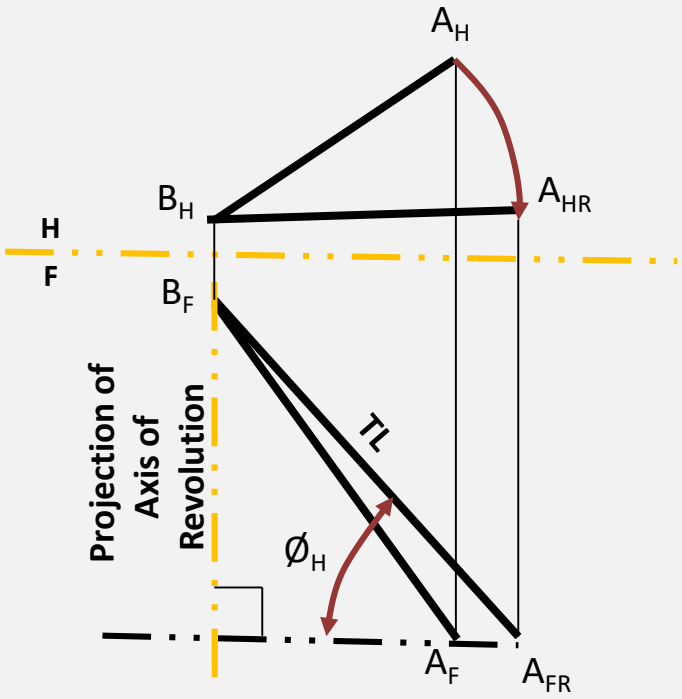
Interaction of Lines and Planes

- Angles of Lines with Principal Planes
  - Angle between Lines and the Principal Planes using Auxiliary Views
  - Get a view in which Plane appears in Edge View and the line in TL



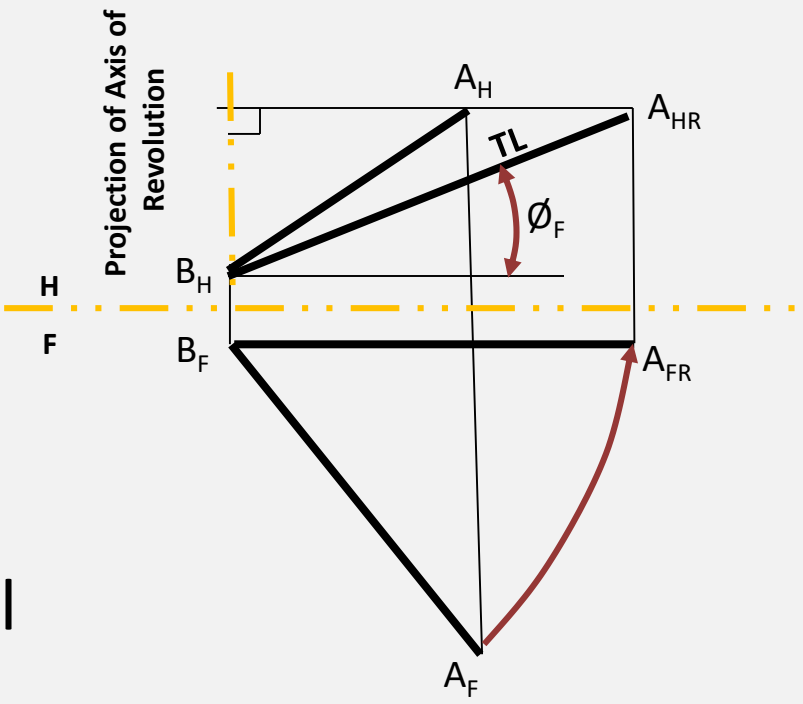
Interaction of Lines and Planes

- Angles of lines with Principal Planes using method of revolution
- With H plane
- Note that the Axis of Revolution is perpendicular to the plane with which the angle is to be found – Horizontal Plane in this case
- $\emptyset_H$ is the angle with H plane



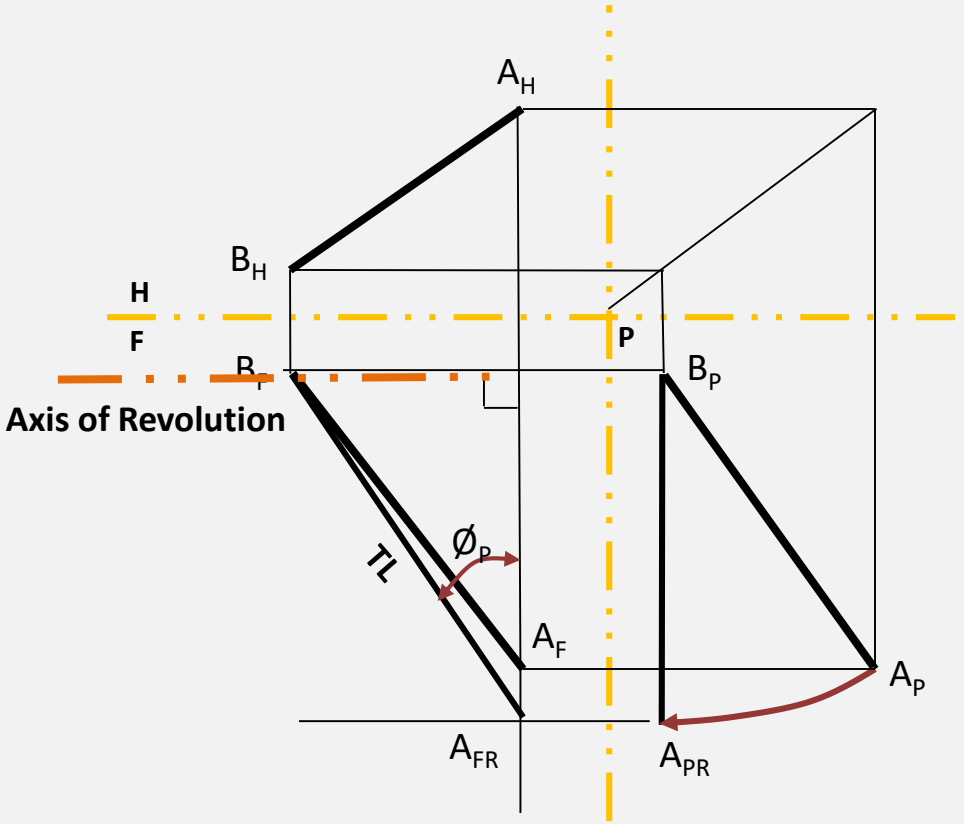
Interaction of Lines and Planes

- Angle of line with Frontal Principal Plane using method of revolution
- Note that the Axis of Revolution is perpendicular to the plane with which the angle is to be found – Frontal Plane in this case
- $\emptyset_F$ is the angle with F plane



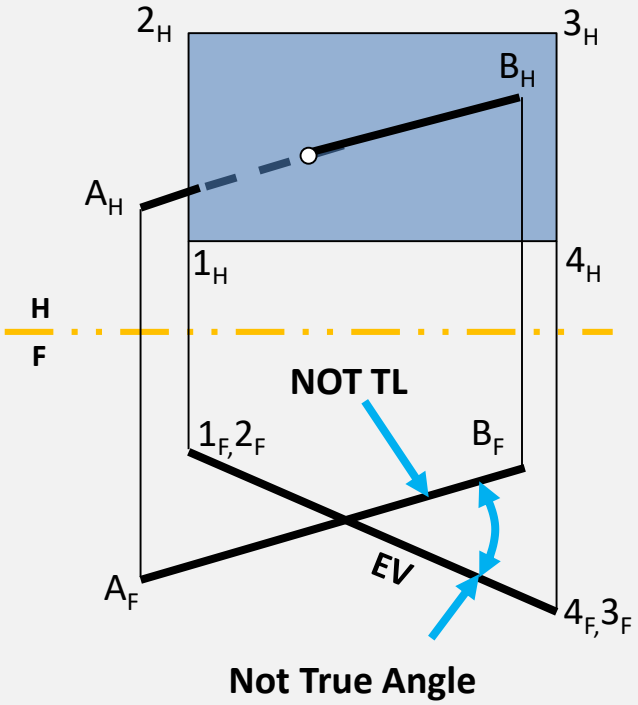
Interaction of Lines and Planes

- Angle of line with Profile Principal Plane using method of revolution
- Axis of Revolution is perpendicular to the plane with which the angle is to be found – Frontal Plane in this case
- $Ø_P$ is the angle with P plane

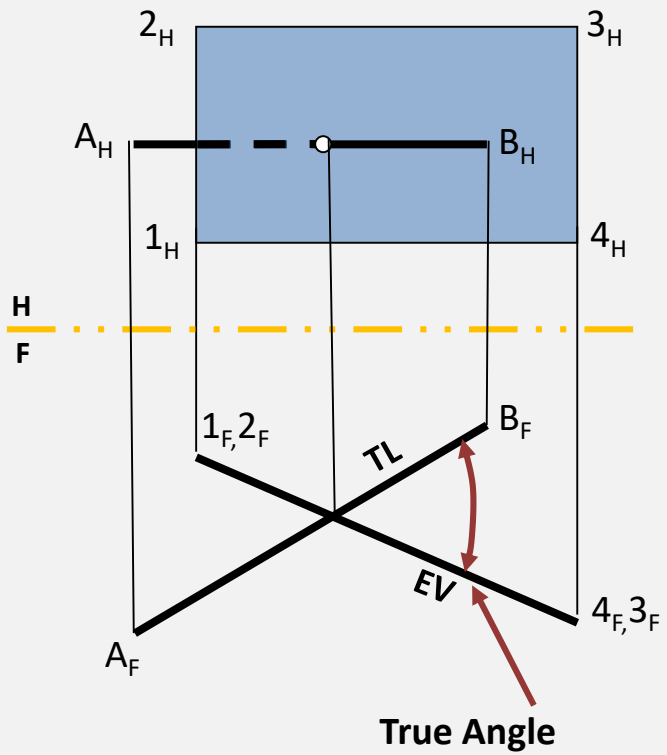


Interaction of Lines and Planes

- Condition to determine angle between a line and a plane

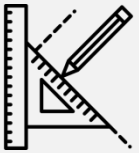


Not True Angle



True Angle

Why part of line in H projection as dashed and part as solid?



Thank you !