Projection

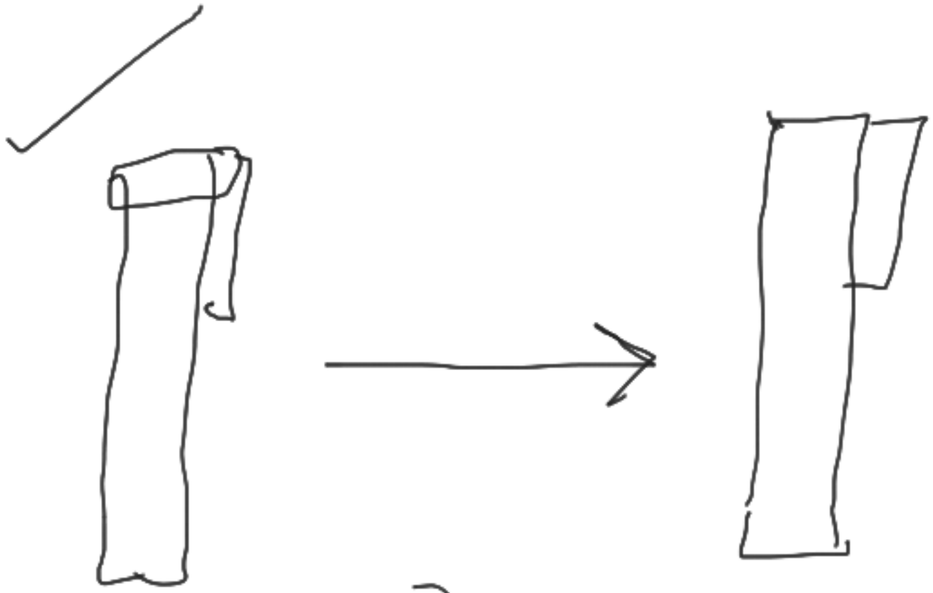
→ Process of converting a 3D object into a 2D object.

$P(x, y, z) \longrightarrow P(x', y')$

3D object

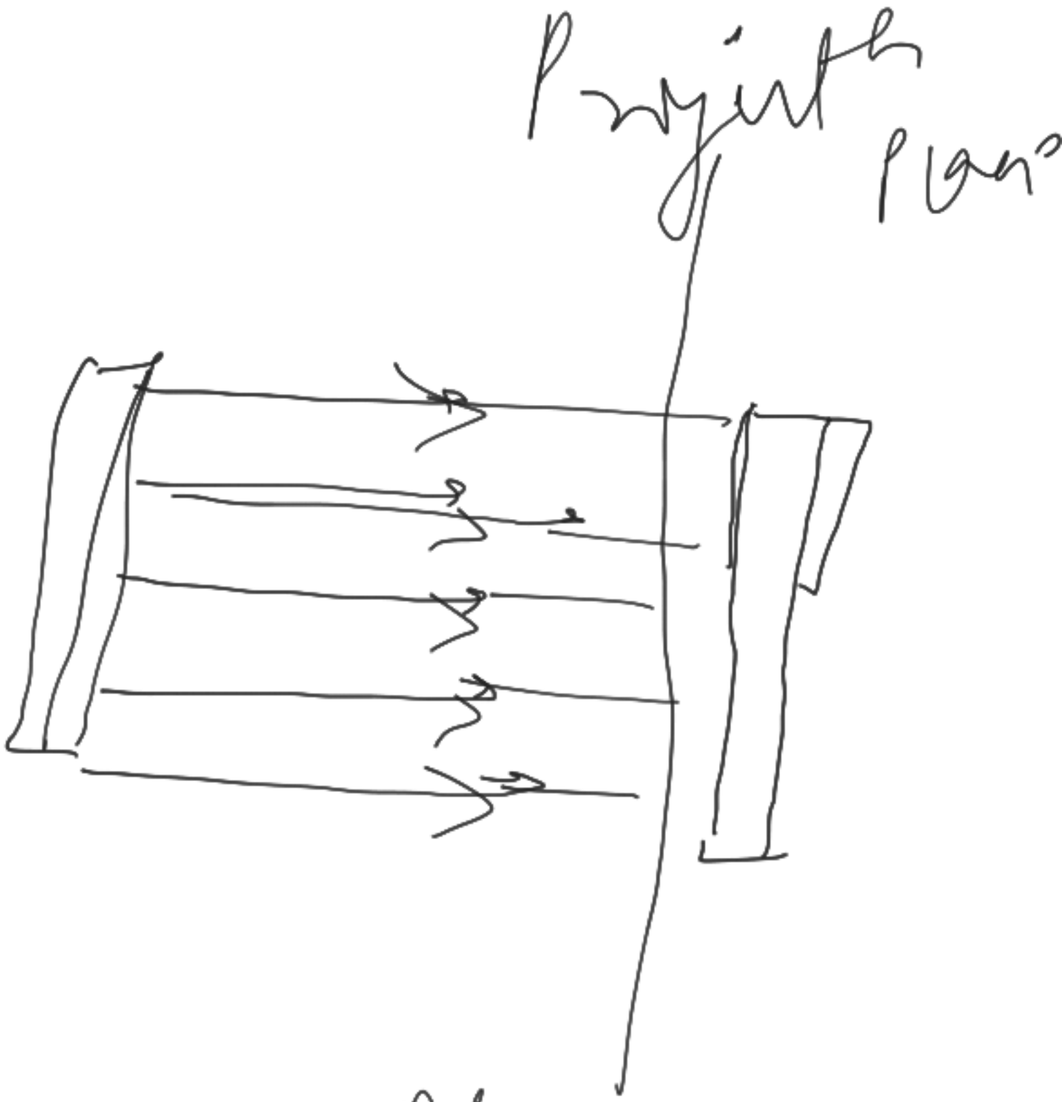
$Z = 0$

2D object (Depth)

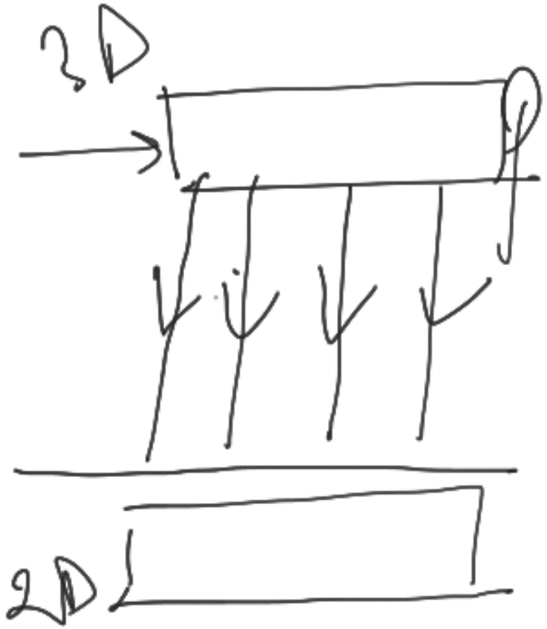


$P(x, y, z) \longrightarrow P(x, y)$

$z = 0$



Projektion



Parallell

Perspektive

Center of Projektion

Projektion Referens Point

PRP or COP

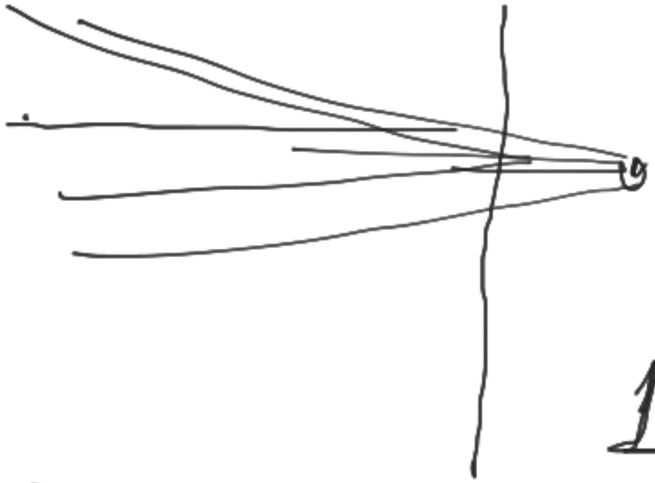
(1) PRP or VP → Point at which projection line converge.

(2) Perspective → PRP at finite point or VP

Parallel → PRP at infinite point

(3) Realistic Images (Relative proportion doesn't preserve)

4 Vanishing Point :-



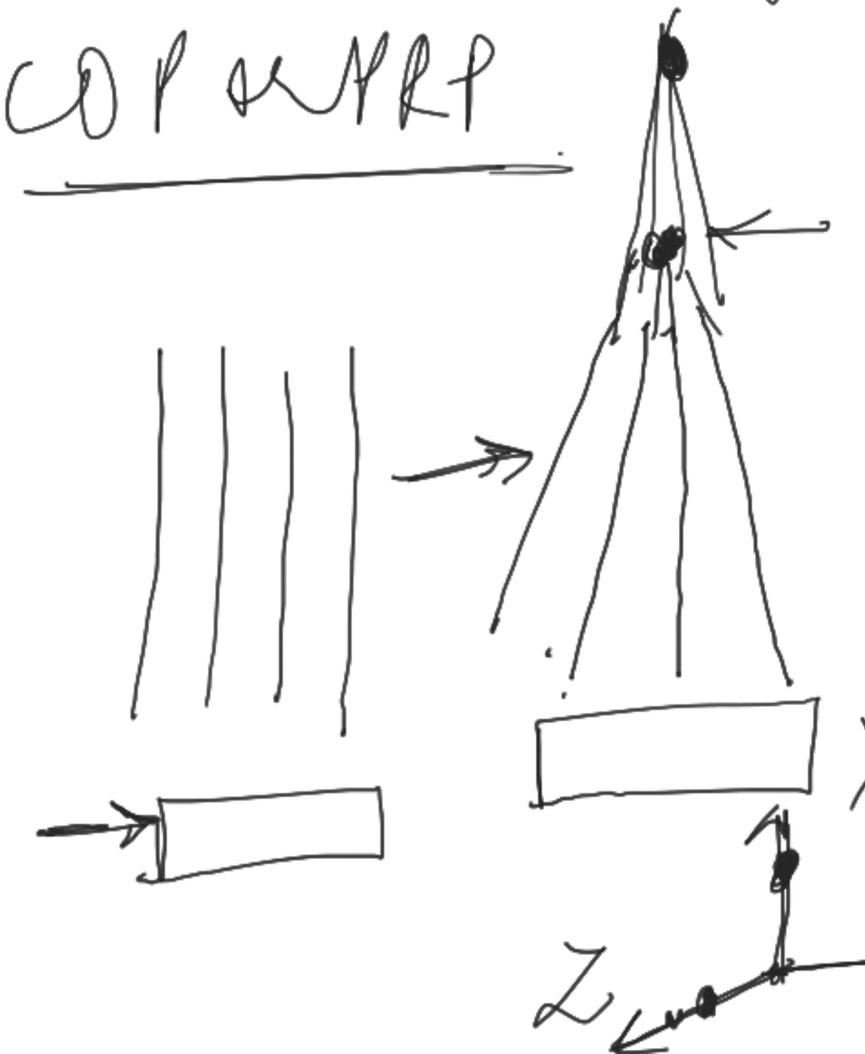
COP

1

COP

fixed

COP of VRP

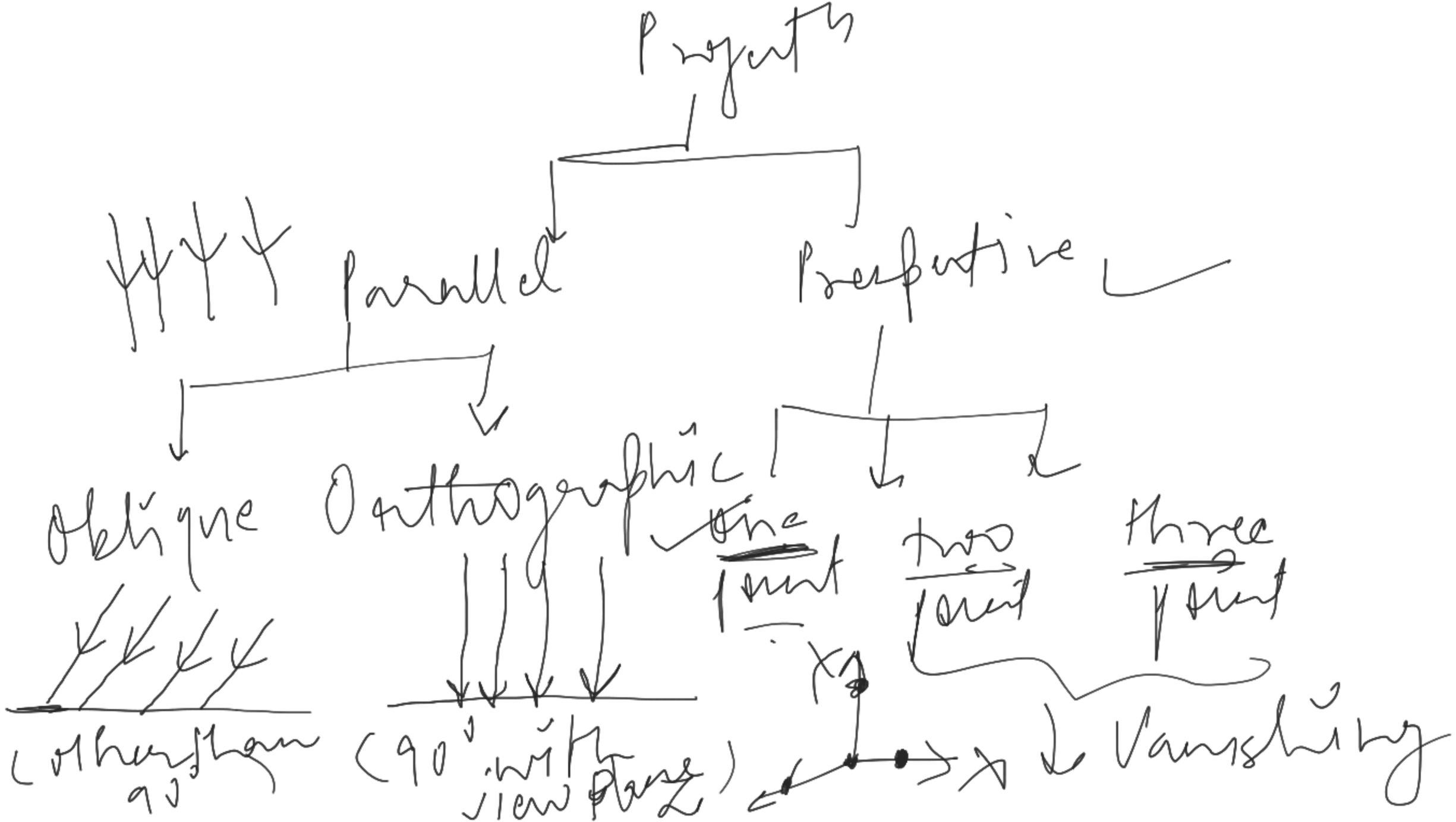


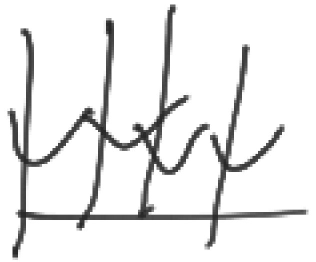
Vanishing point

↓

can be infinitely

no of vanishing points.


Projection
Parallel
Perspective
Oblique
Orthographic
(other than 90°)
(90° with view plane)
One point
Two point
Three point
Vanishing

Oblique  Orthographic 

Cavalier

$\alpha = 45^\circ$ with view plane.

Cabinet

$\alpha = 63^\circ$ with view plane

Multiview

• Project lines are ∥ to any of the Principle axis.

Axonometric

• Direction of lines not ∥ to principle axis

Parallel

(1) Projected lines are || to each other

(2) VRP is at infinite distance

(3) Size & shape of object is preserved.

Perspective.

(1) Not || to each other
They appear to converge towards a fixed point known as VRP or VOP.

(2) finite distance

(3) ~~Size &~~ Not preserved.

(4) There is no foreshortening

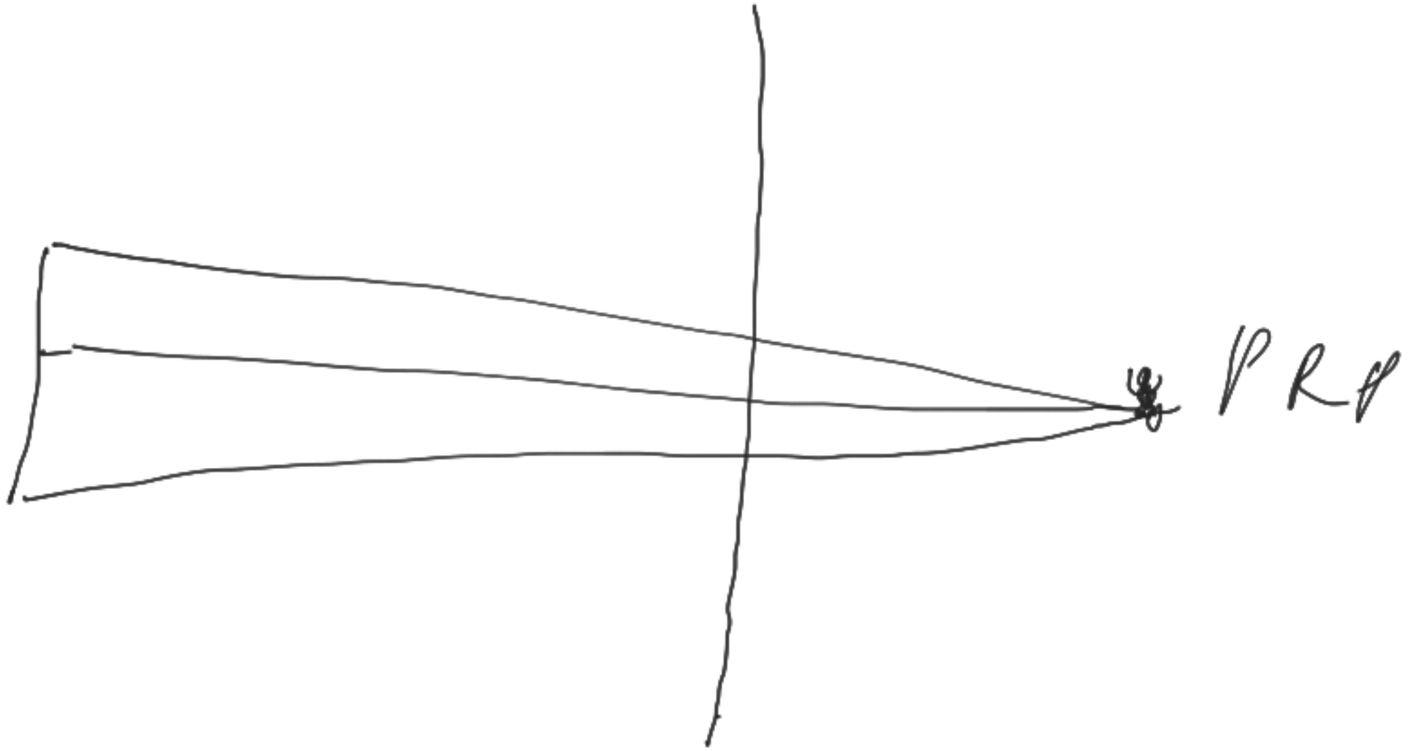
(5) It doesn't give realistic view

(6) View confusion never arise in ll projects

(4) Perspective foreshortening (obj. lying close to view plane will look longer)

(6) Realistic view

(6) It arises in case of perspective projection.


PRP