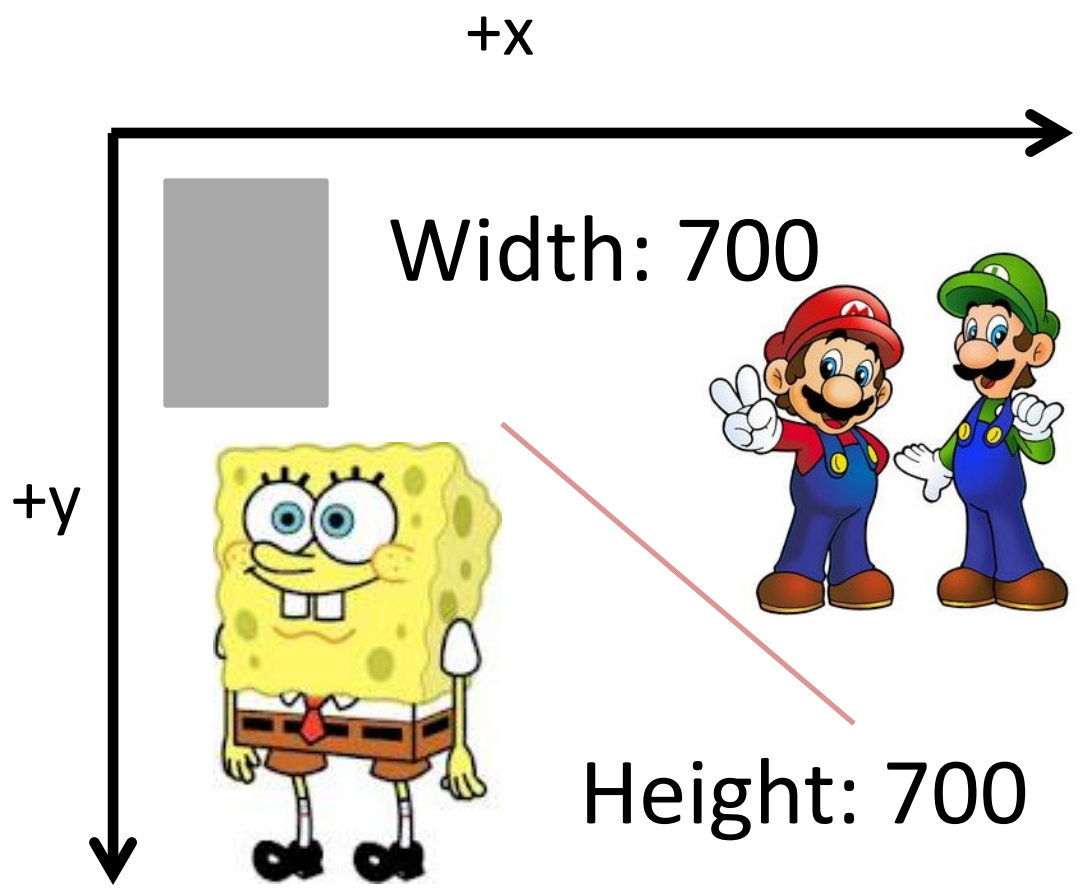
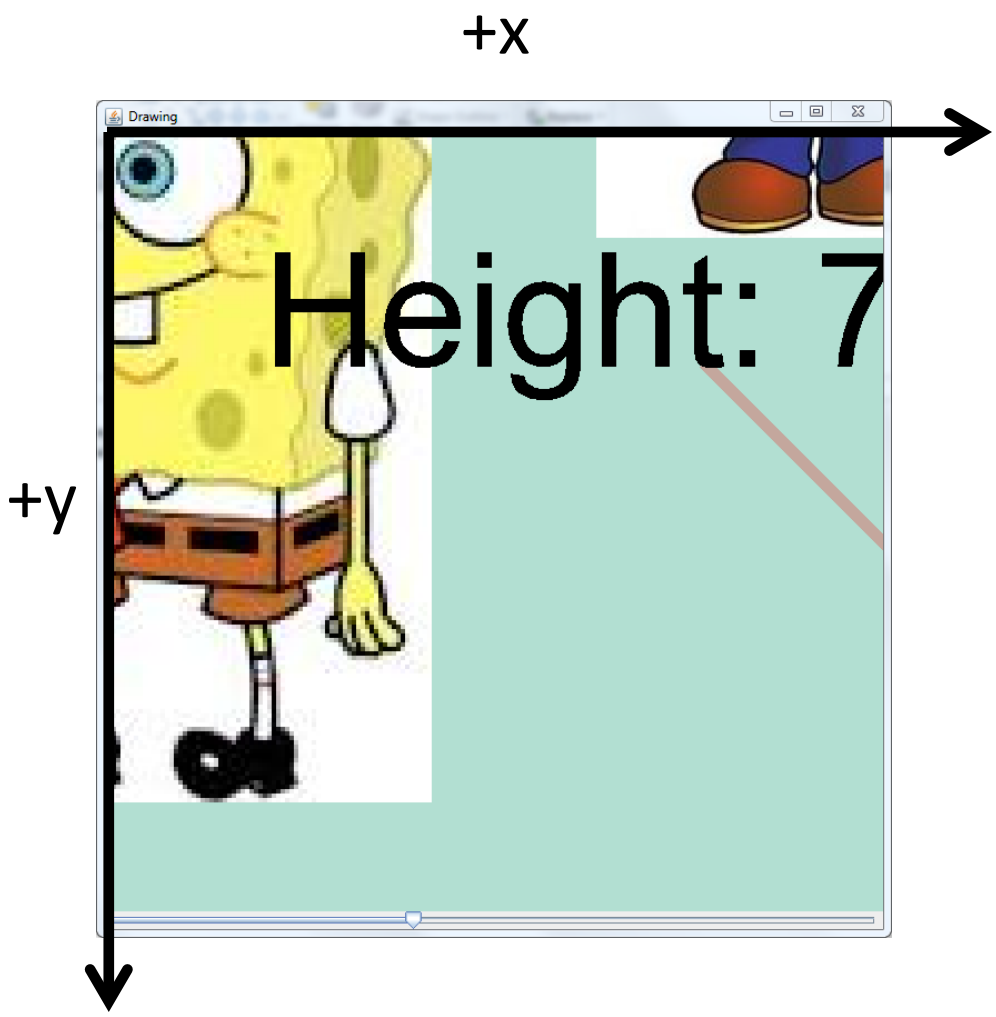
WORLD and DEVICE Coordinates

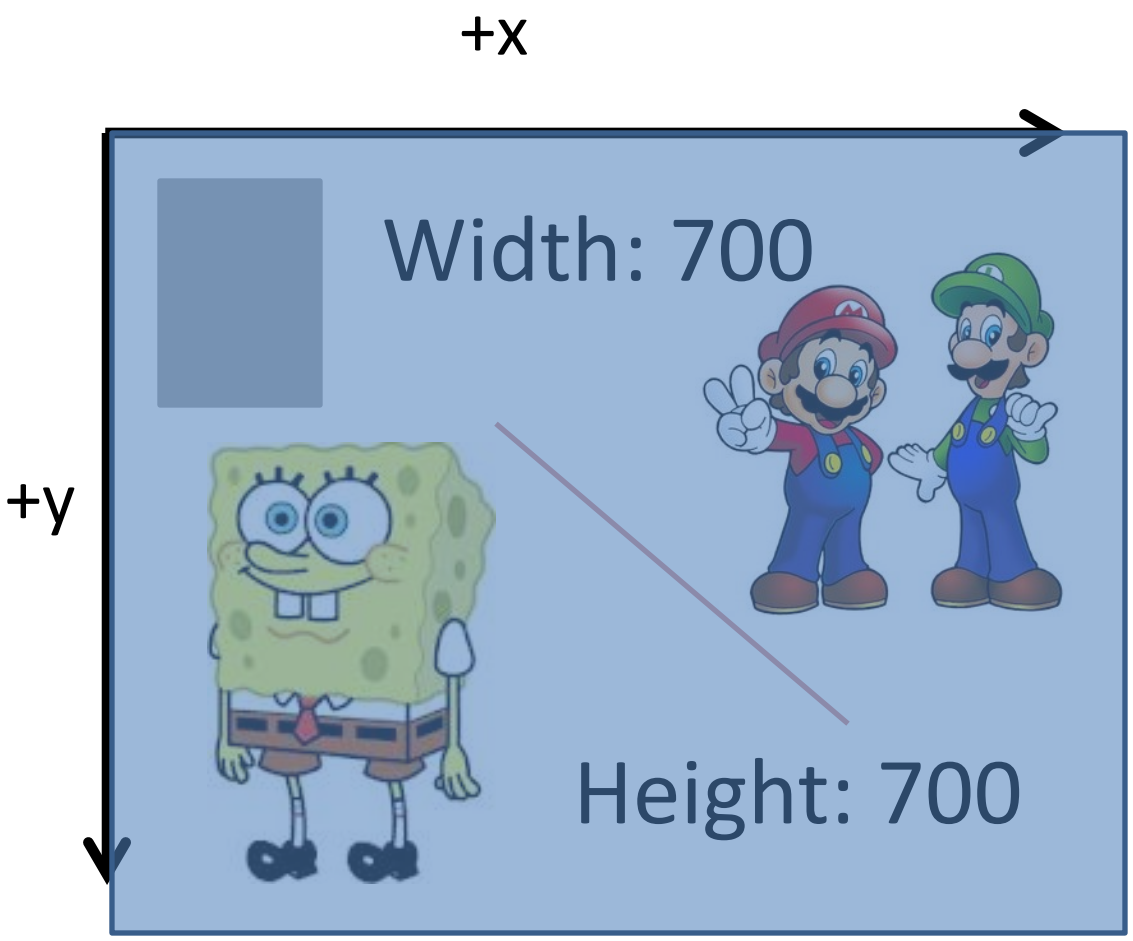
WORLD COORDINATES
(data structure, untranslated, unscaled)



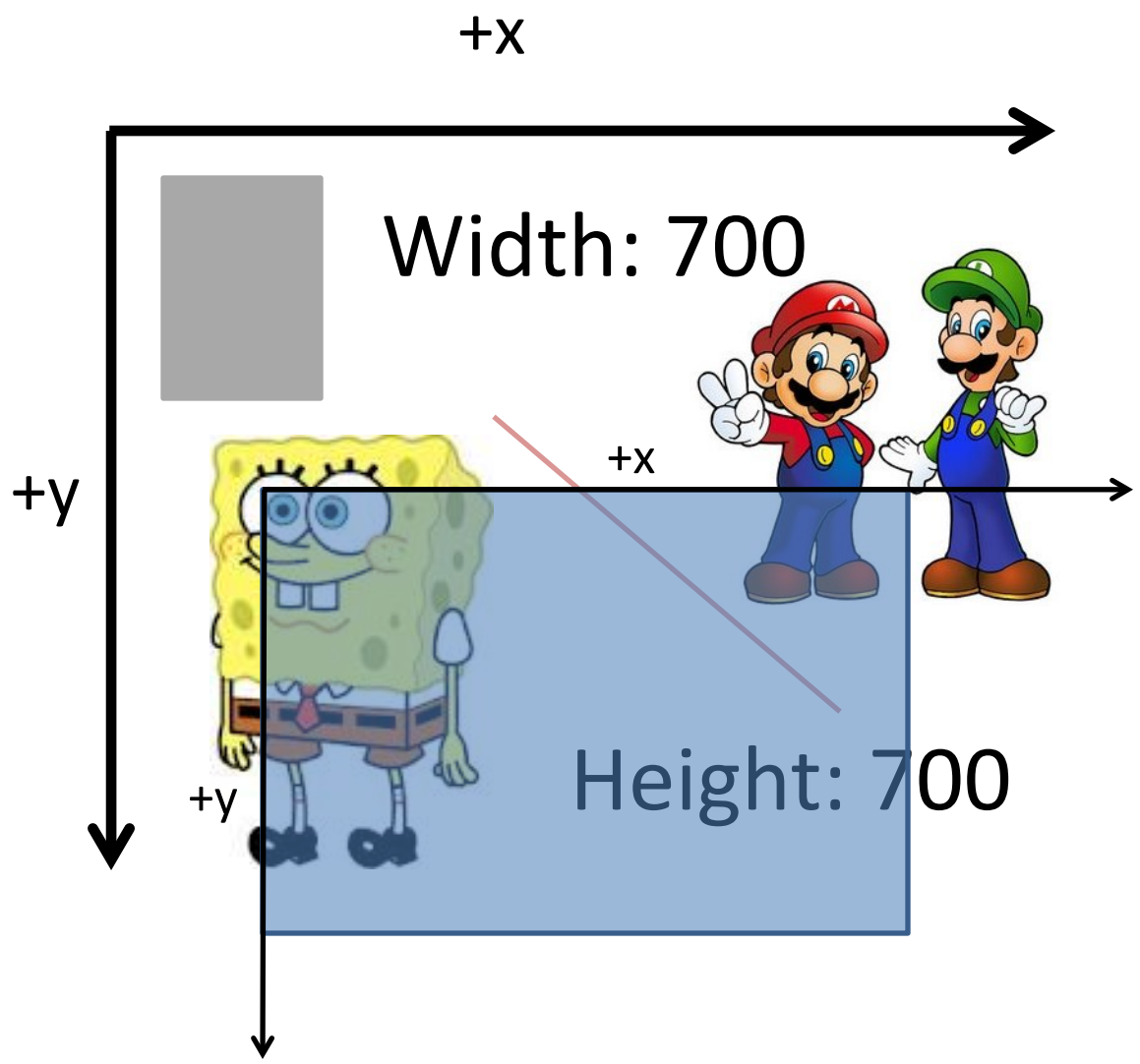
DEVICE COORDINATES
(image component, translated, scaled)



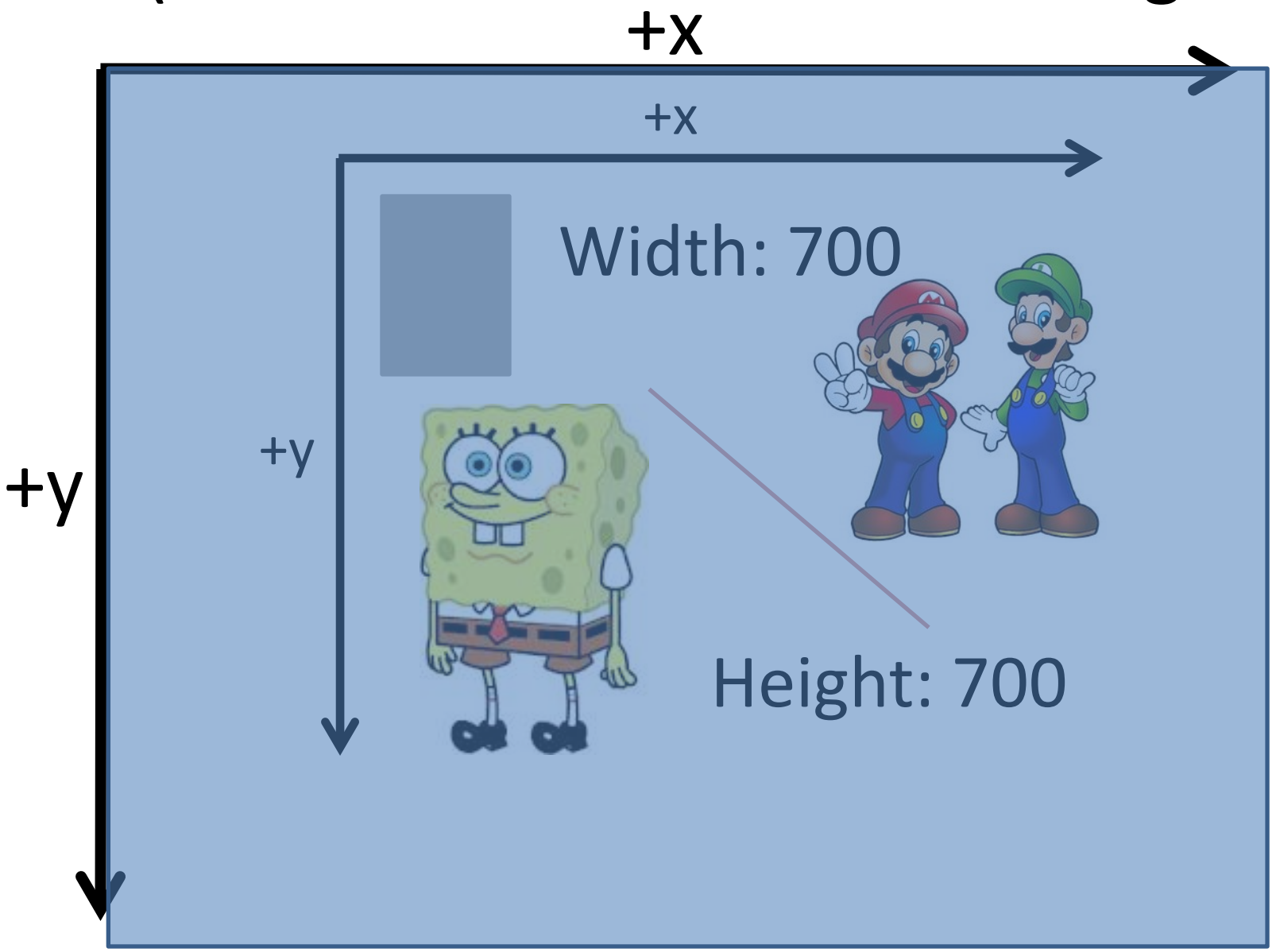
DEVICE & WORLD COORDINATES (before translation and scaling)



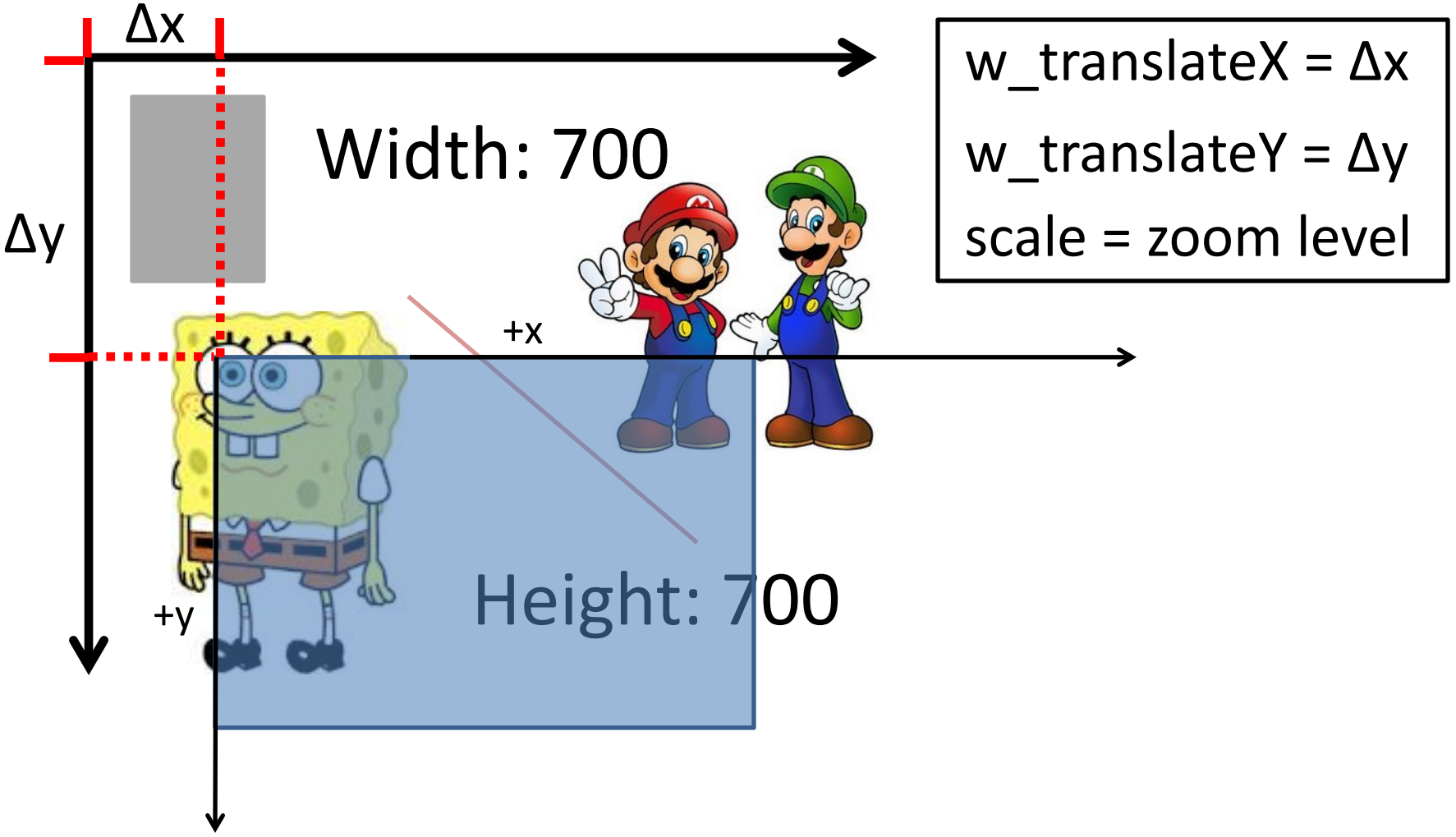
DEVICE & WORLD COORDINATES (after translation and zooming IN)



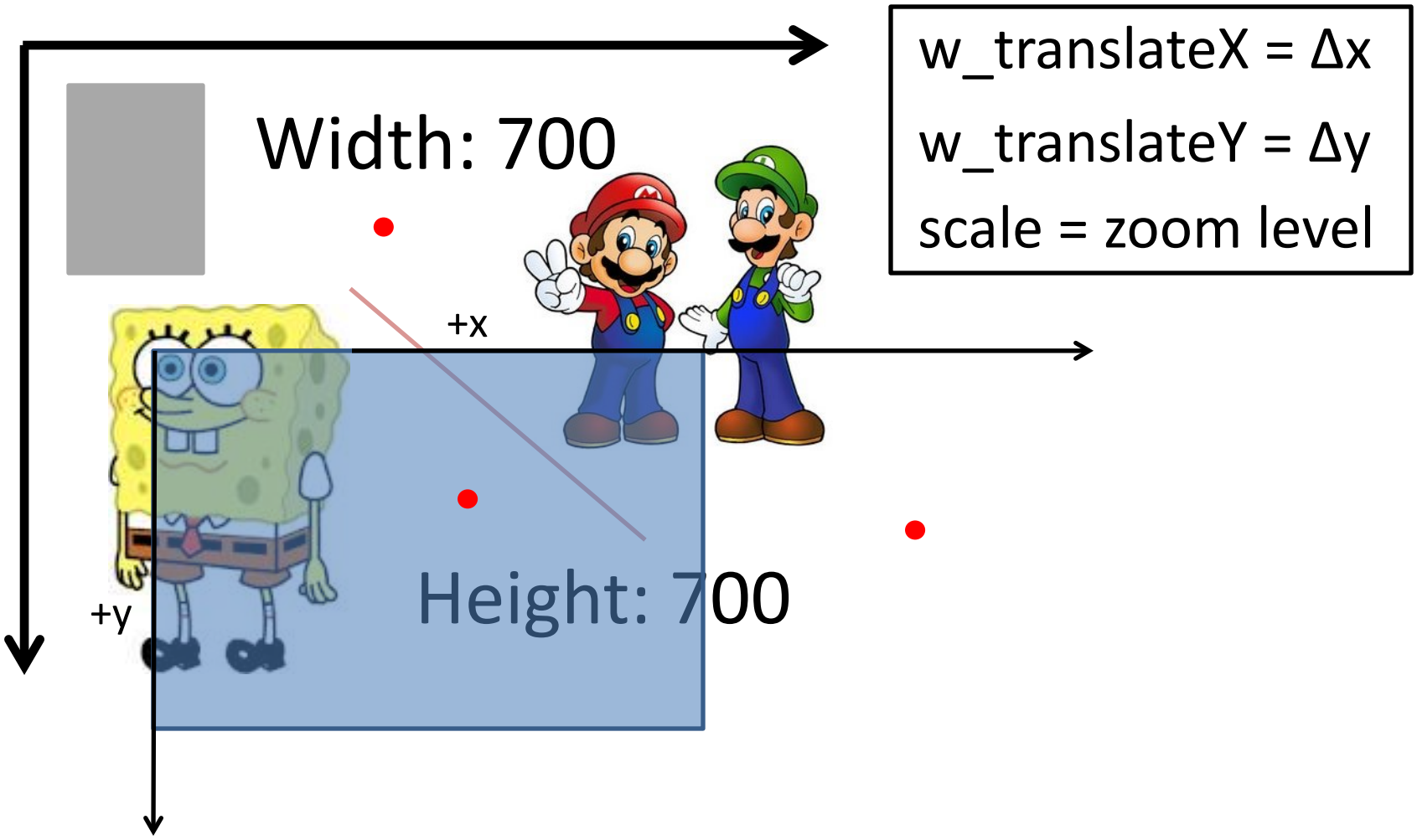
DEVICE & WORLD COORDINATES
(after translation and zooming OUT)



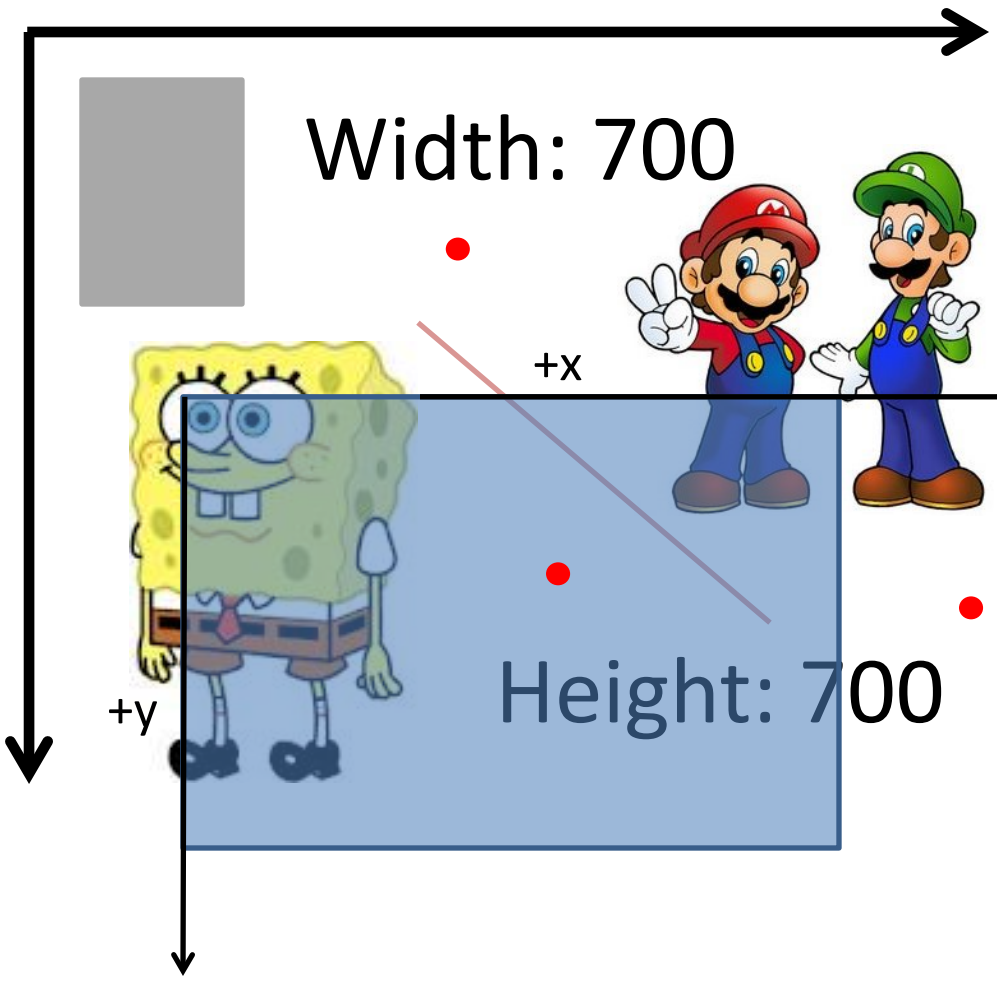
DEVICE COORDINATE PARAMETERS (translation distance and scale factor)



Every point has coordinates in both world and device coordinates



Converting points from WORLD to DEVICE coordinates, and vice versa



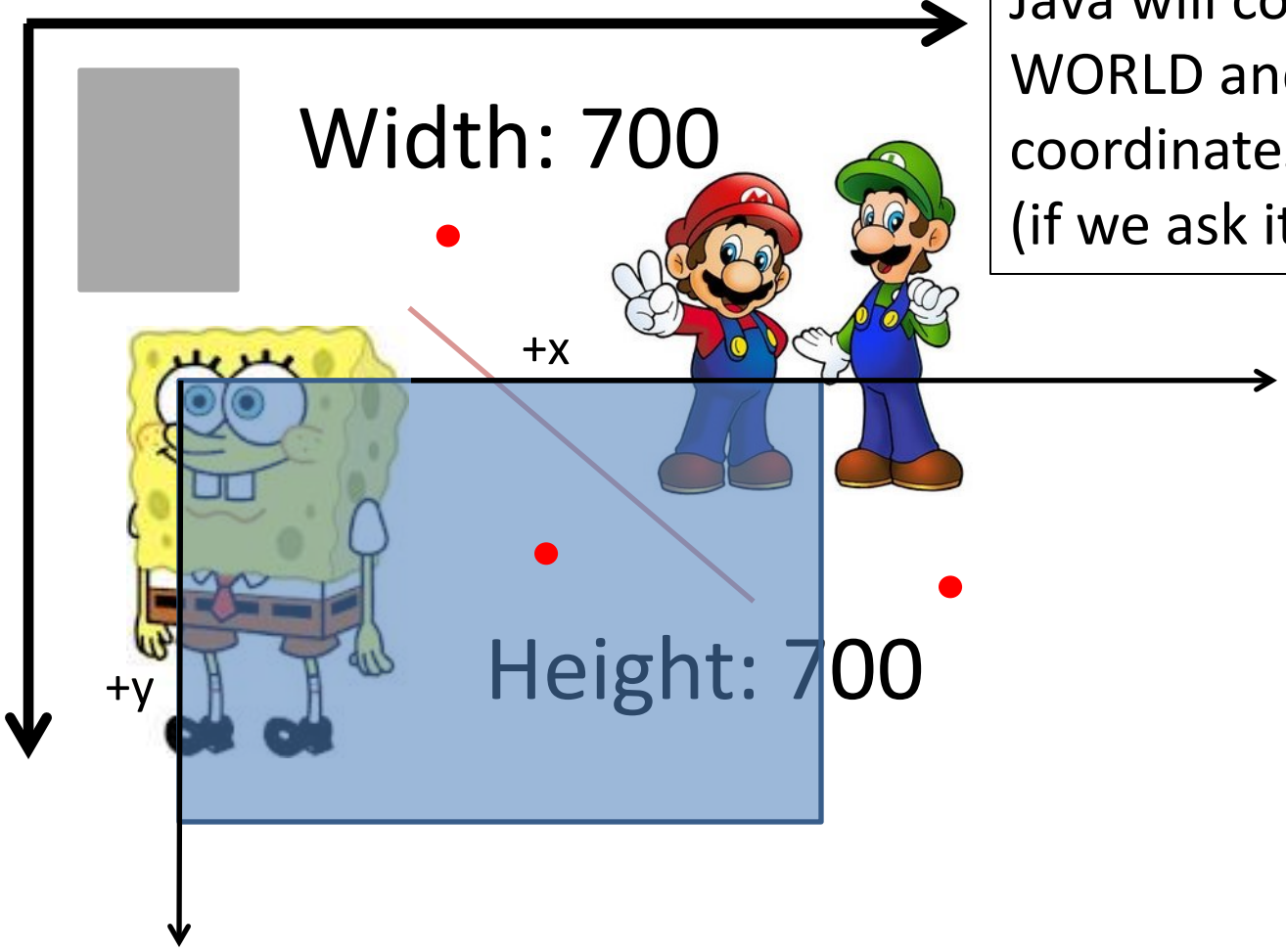
In data structure, shape locations are defined In WORLD COORDINATES

On-screen shape locations are defined in DEVICE COORDINATES

Mouse event locations are reported by Java in DEVICE COORDINATES

Hit Testing must be done in WORLD COORDINATES

Converting points from WORLD to DEVICE coordinates, and vice versa



GOOD NEWS!
Java will convert between WORLD and DEVICE coordinates for us
(if we ask it nicely)

Record Indexer Coordinate Transformation

- translate(imageComponent.getWidth() / 2.0,
  imageComponent.getHeight() / 2.0);
- Scale(scale, scale);
- translate(-image.getWidth() / 2.0 + w_translateX,
  -image.getHeight() / 2.0 + w_translateY);