Transformable

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April 19, 2024

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1 Transformable Shapes

Direct manipulation widgets to transform an object:

- scale by dragging corner and side handles
- rotate by dragging rotation handle
- translate by dragging shape

For translation:

- if mousedown inside rectangle, save mouse position
- on mousemove, calculate a drag delta, which is used for a shape position delta
- use shape position delta to draw shape
- on mouseup, commit shape delta to shape position, then clear shape delta

For scale:

- if mousedown inside circle, save mouse position
- on mousemove, use drag delta for a shape size delta
- use shape size delta to draw shape
- on mouseup, commit shape delta to shape size, then clear shape delta

For rotate:

- if mousedown inside circle, save mouse position

- on mousemove, use mouse position to calculate a shape angle delta

- use delta to draw shape

  - draw shape centered at 0,0

  - subtract shape x,y from mx,my

  - rotate mx,my by -angle

- simplify hit tests using transformed mouse position

- simplify angle delta calculation

- update translate to use rotated delta drag to align coordinate frames of shape and mouse

- update scale to translate shape so opposite corner remains fixed

- on mouseup, commit shape delta, then clear shape delta