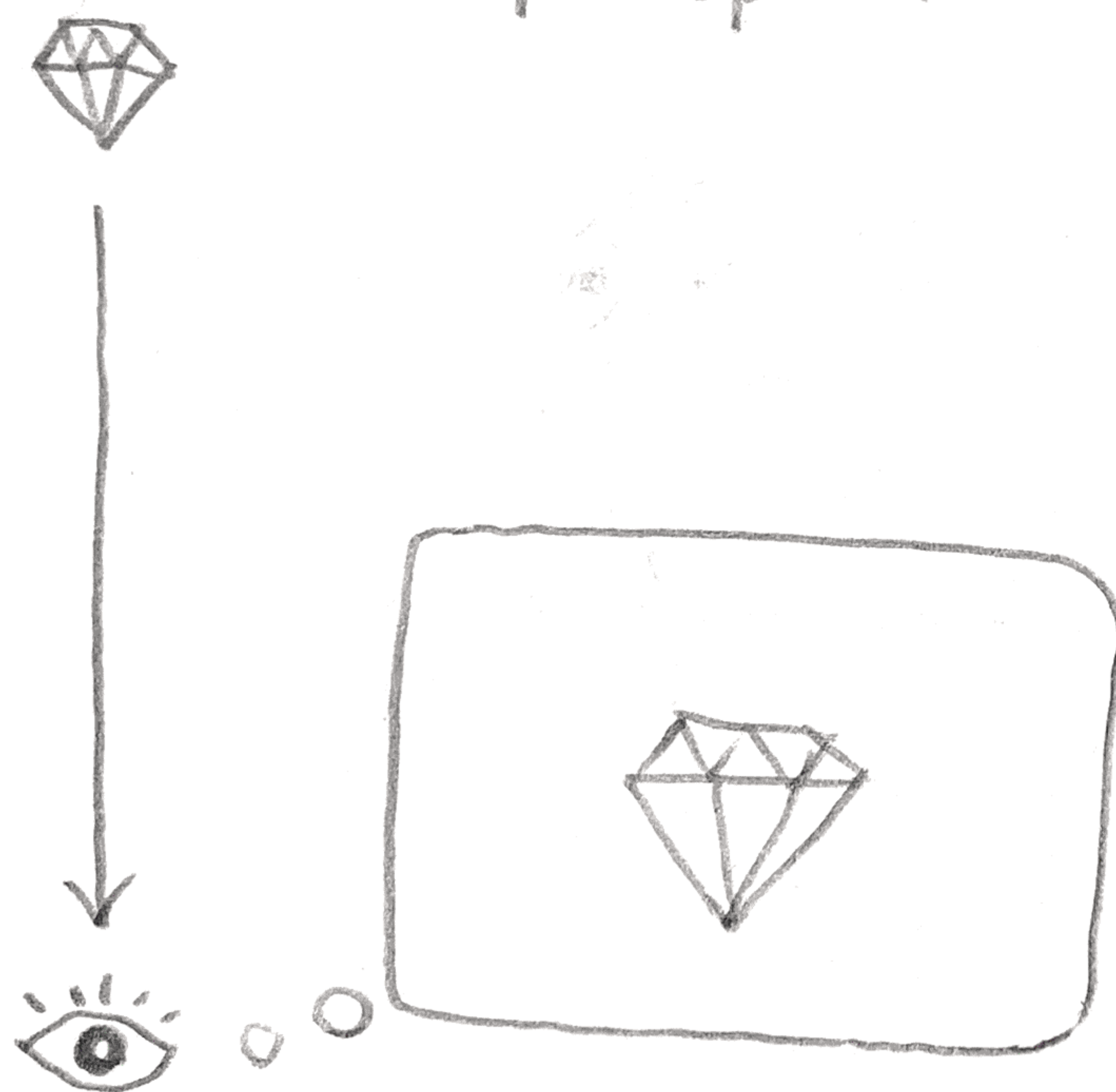


1. Object emits rays of light. Our eye receives them to form a perception.

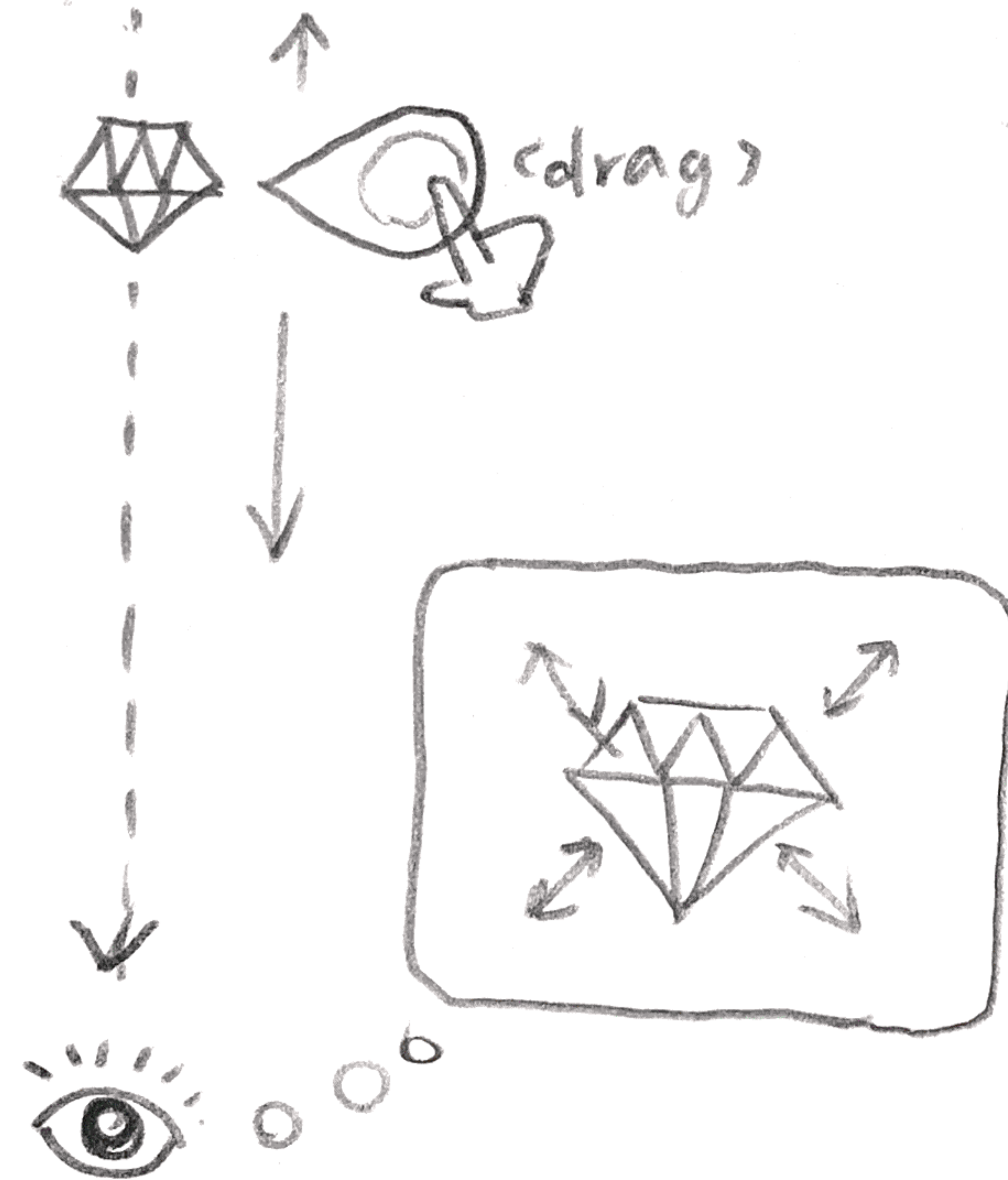


Next >

Considerations:

* static image is good enough.

2. You feel the object gets bigger when it is closer.

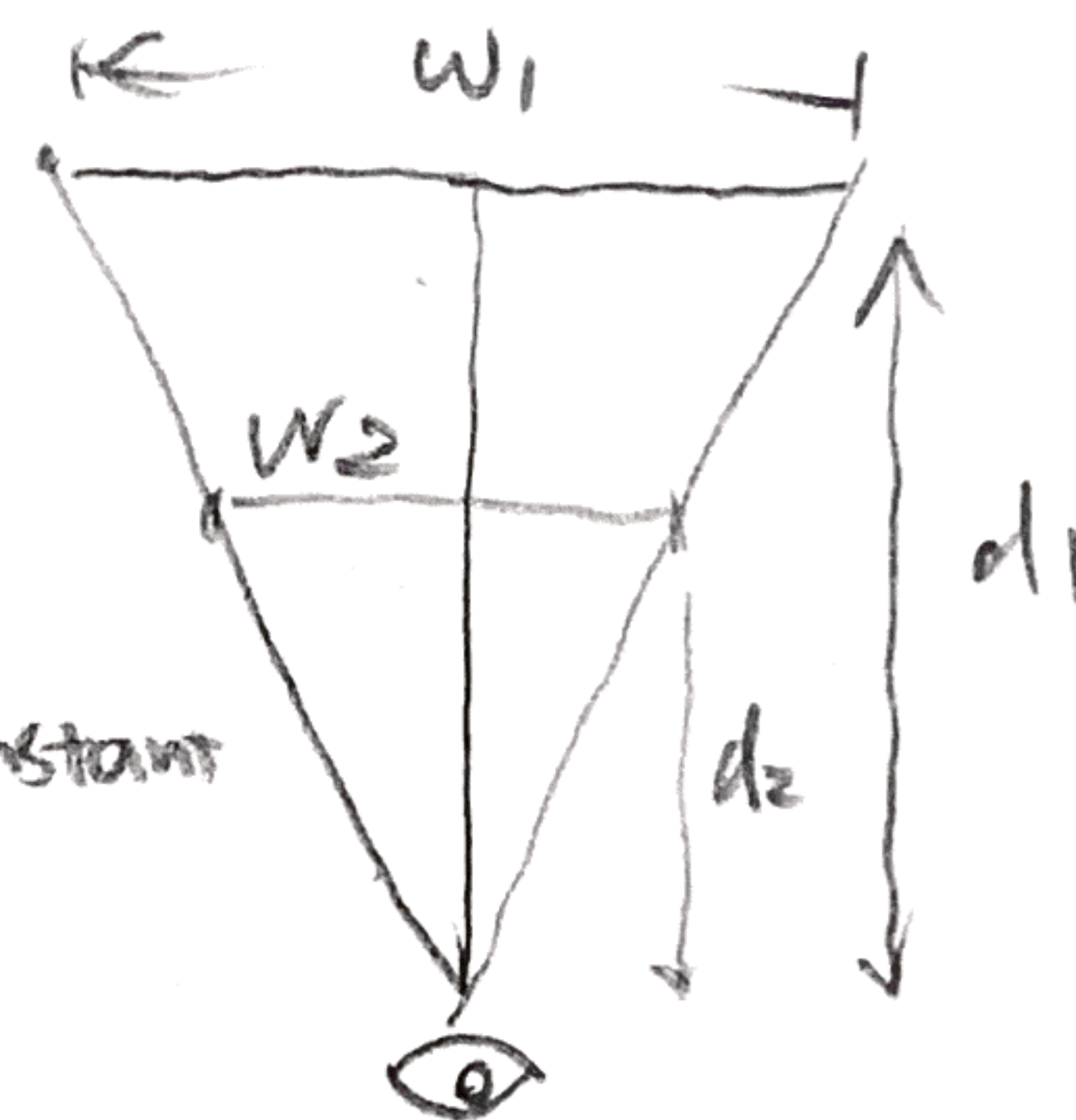


Notes

interactive.

viewport

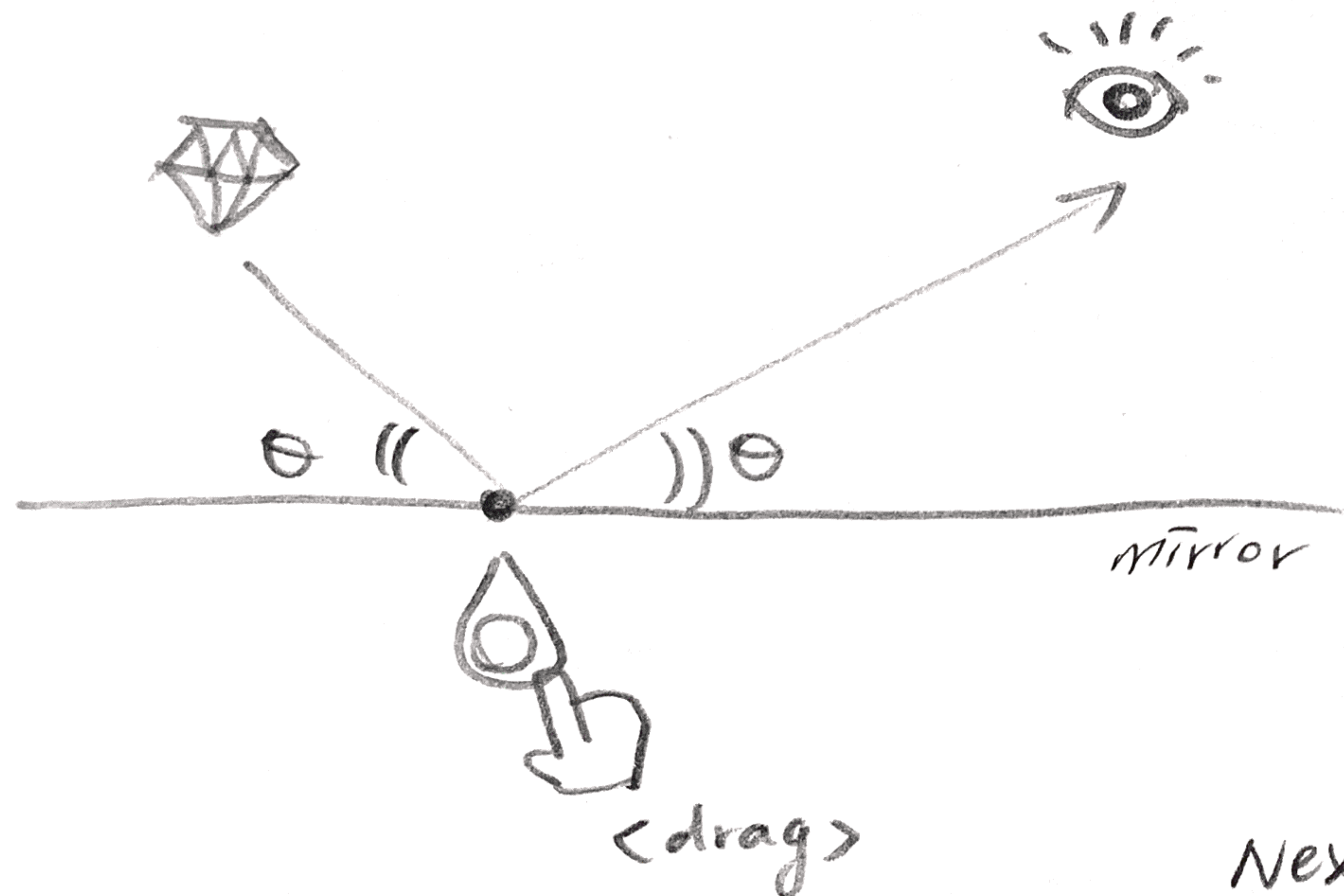
$$\frac{w_1}{d_1} = \frac{w_2}{d_2} = \text{Constant}$$



Next >

3. (Introduction to the basic rules of reflection)

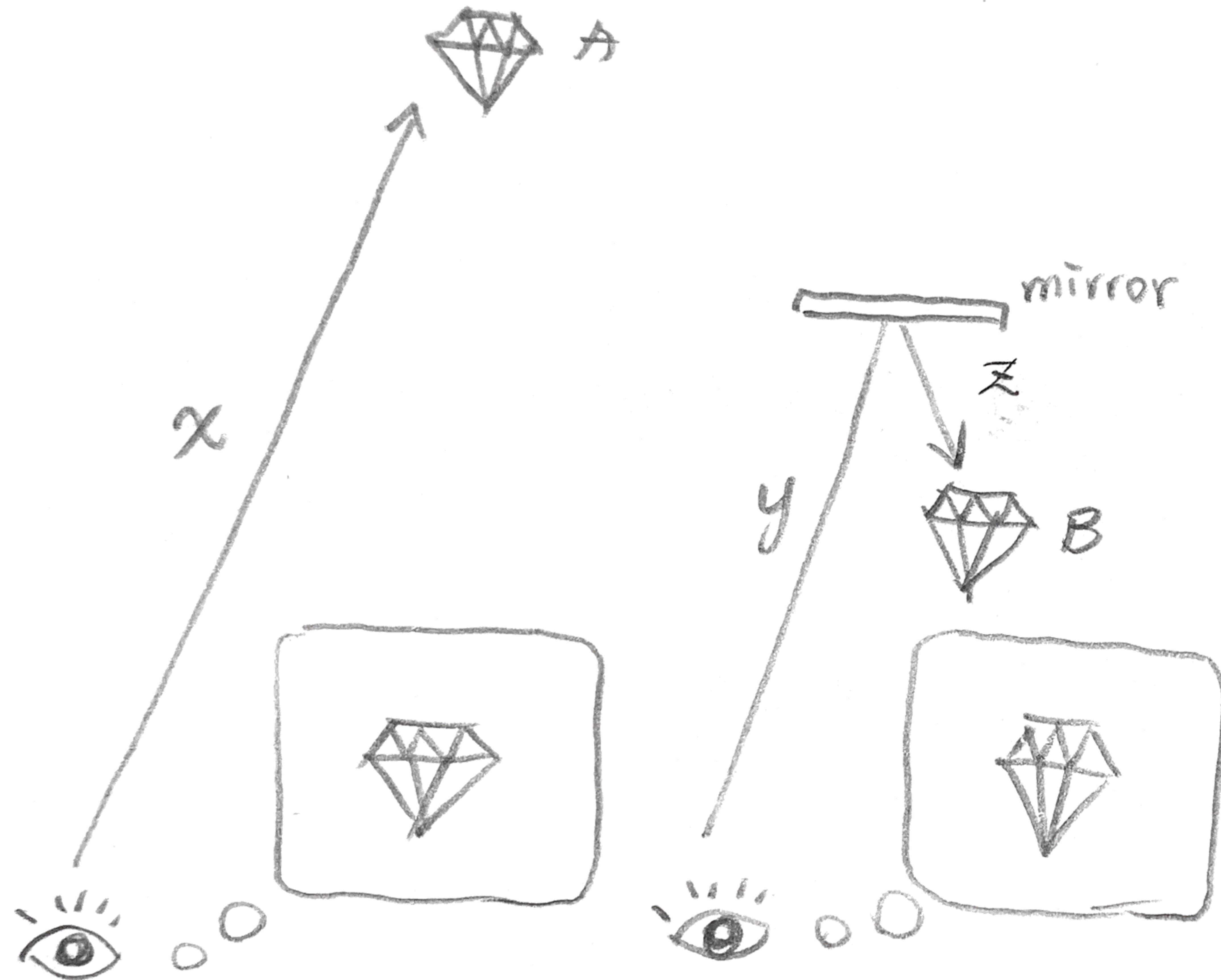
When a ray of light encounters a surface, the angles that the incoming & outgoing light make with the surface are equal



Interactive

Next >

4.



Fun fact: you would perceive A & B as equal size when

$$x = y + z \quad \text{Next >}$$



Question:

should this be interactive?

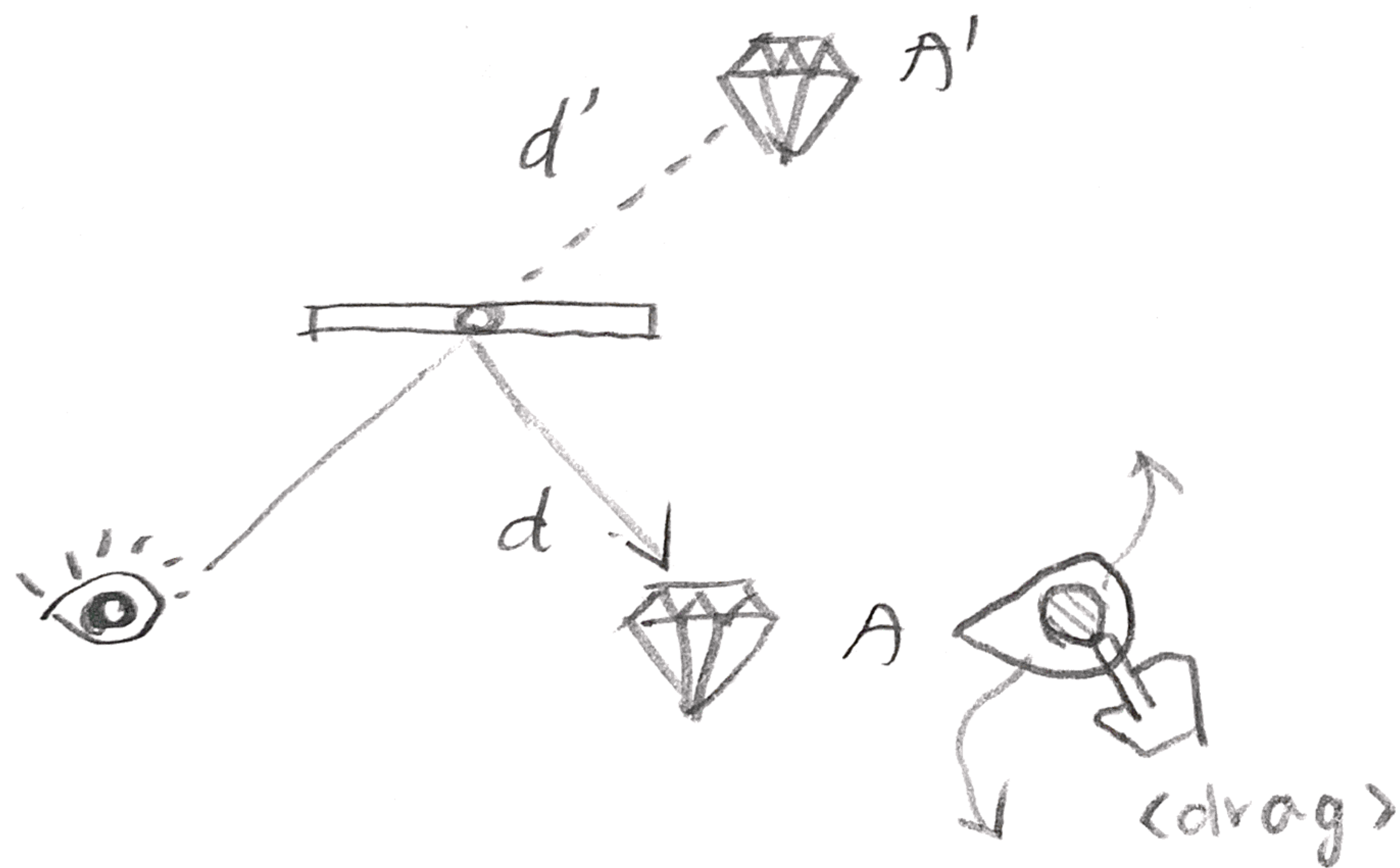
too many visual items

→ confuse user

probably should reduce interactivity to unload burden.

5.

Here is an easy way to understand how the position of an object correspond with where you perceive its virtual image in the reflections

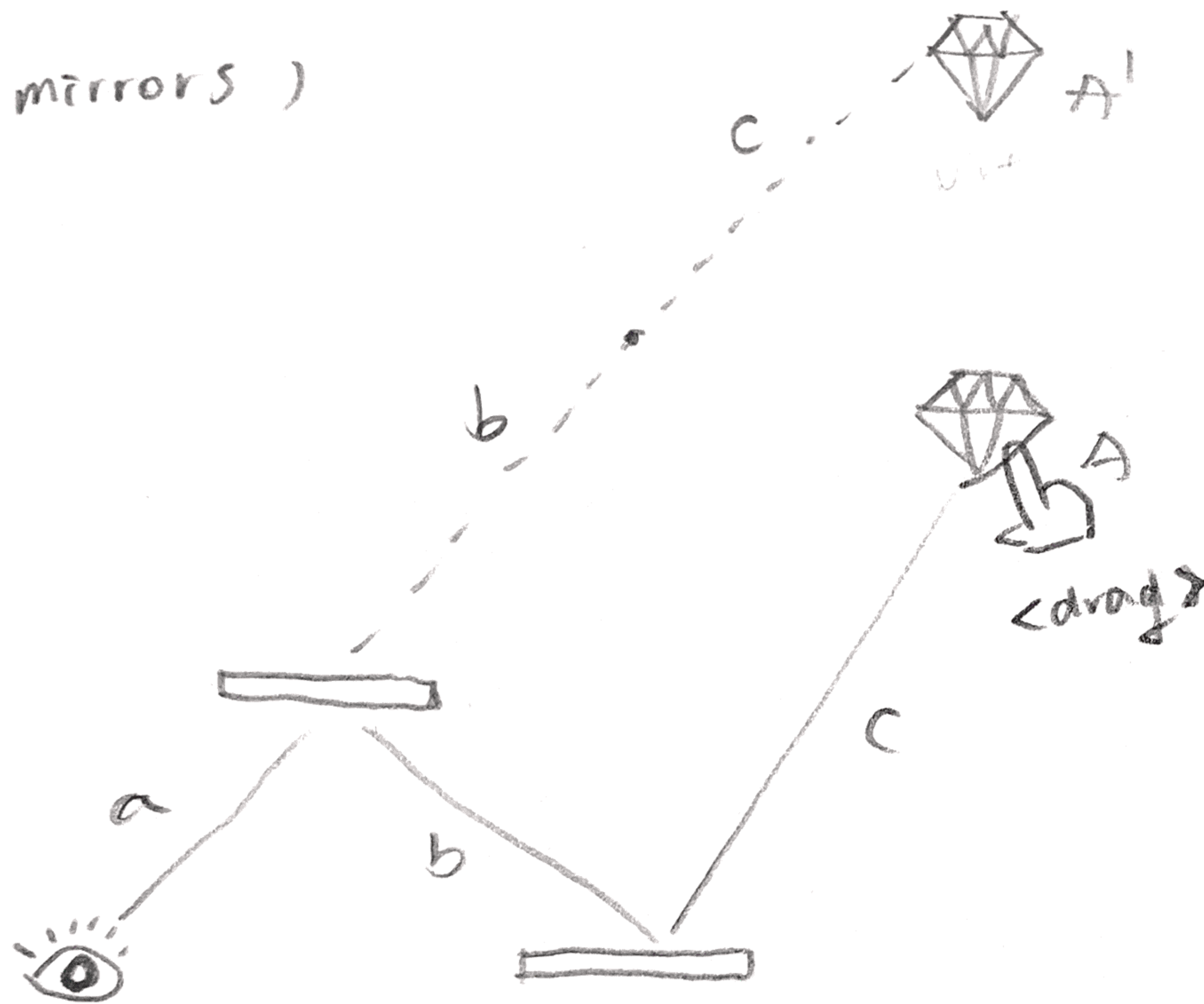


Interactive:

- * move A & A' will update its position
- * needs to be able to trace path of the ray on the fly

math is
difficult!

6. (2 mirrors)



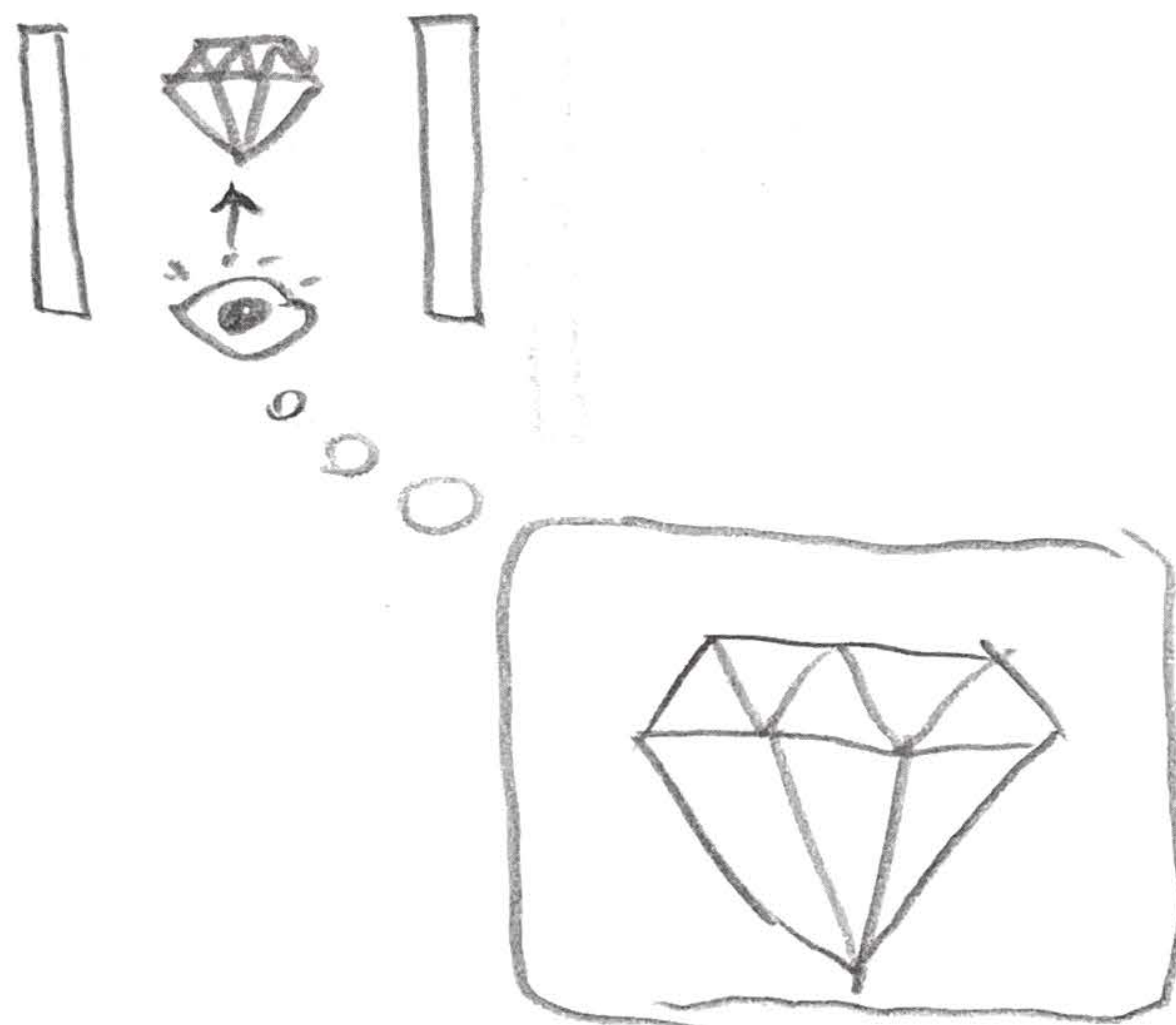
(interactive)

the virtual image A'
will update its position
accordingly.

when A is moved,

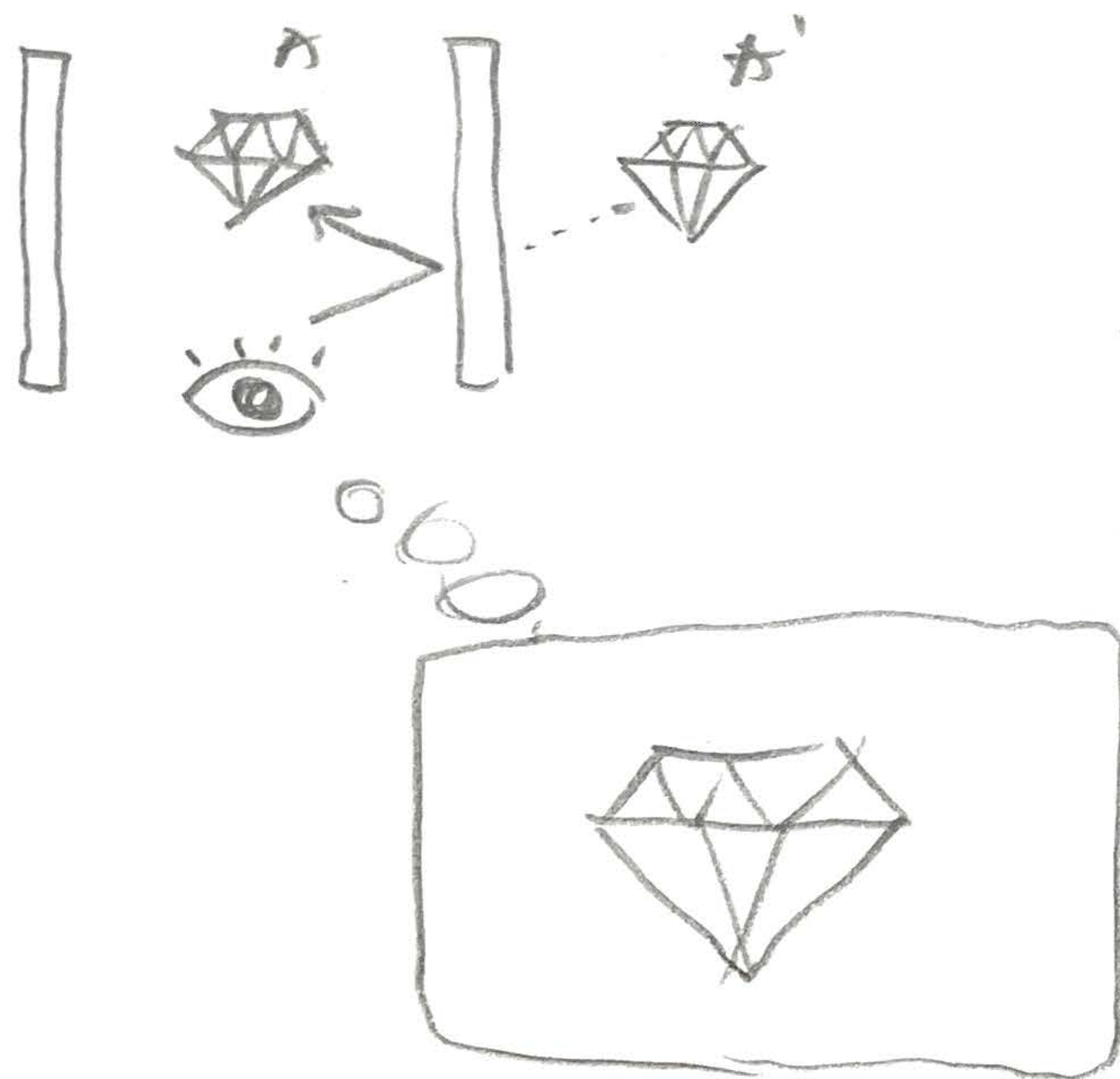
7.1

$r=0$



7.2

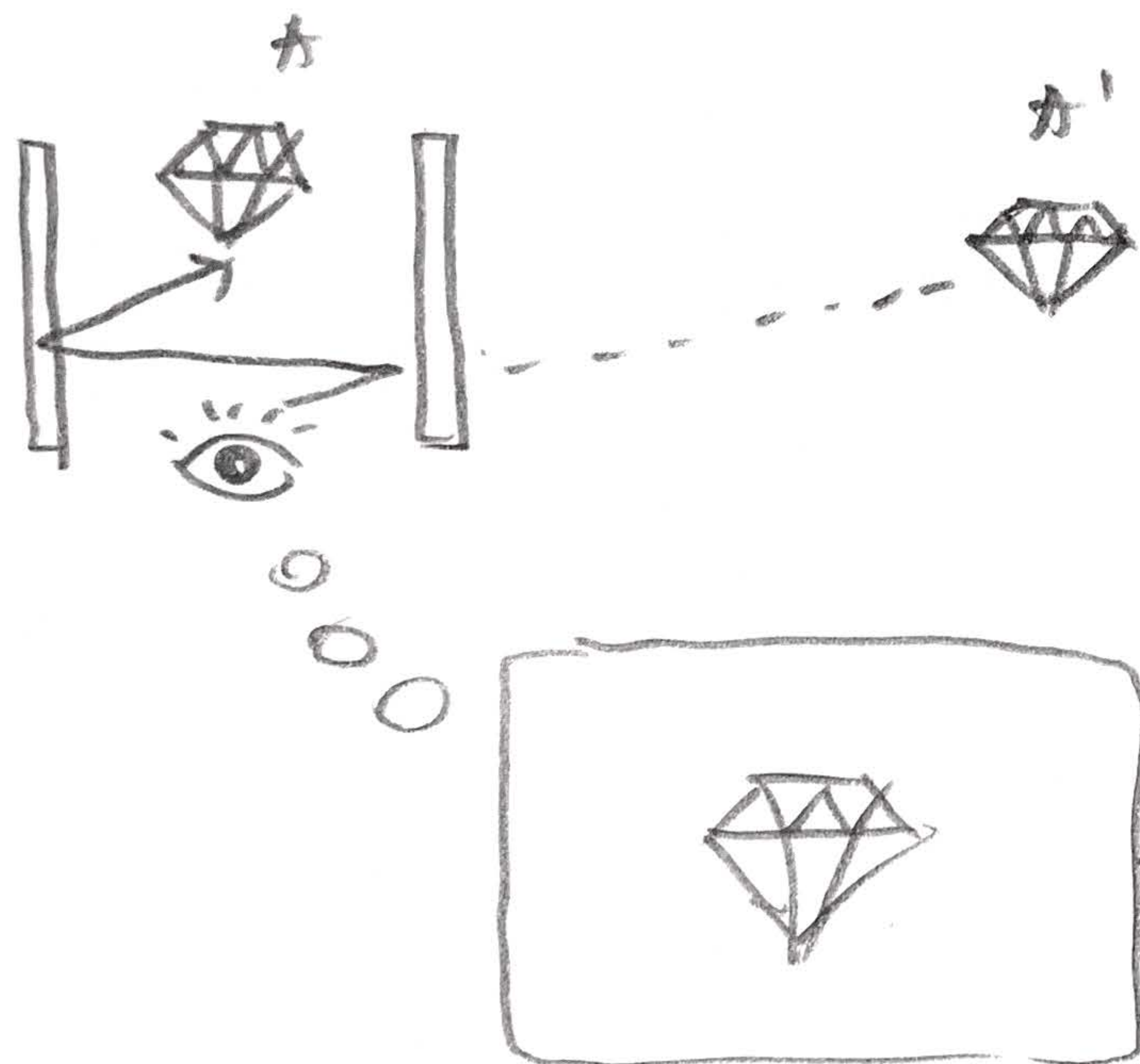
$r=1$



Smaller than when $r=0$

7.3

$r=2$



Q. How to make 7.1 ~ 7.3 interactive?

3 buttons?

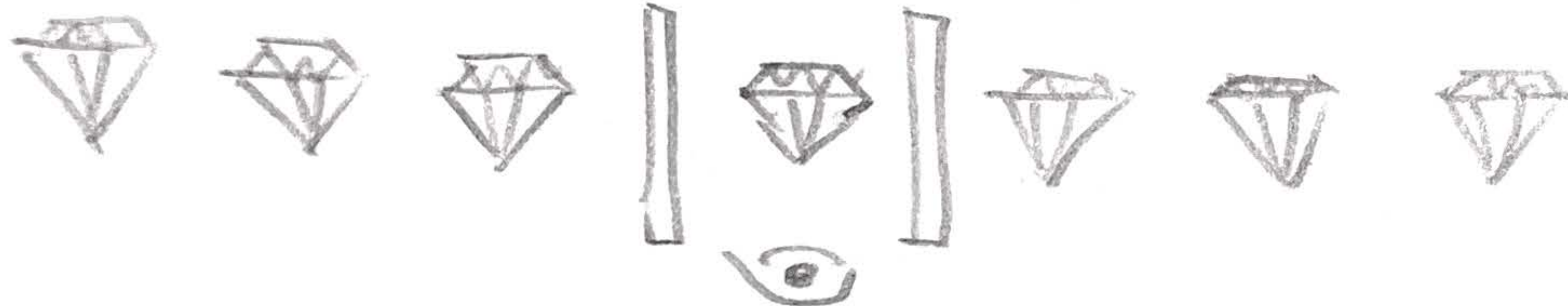
$r=0$ $r=1$ $r=2$

smaller than when
 $r=1$

7.9

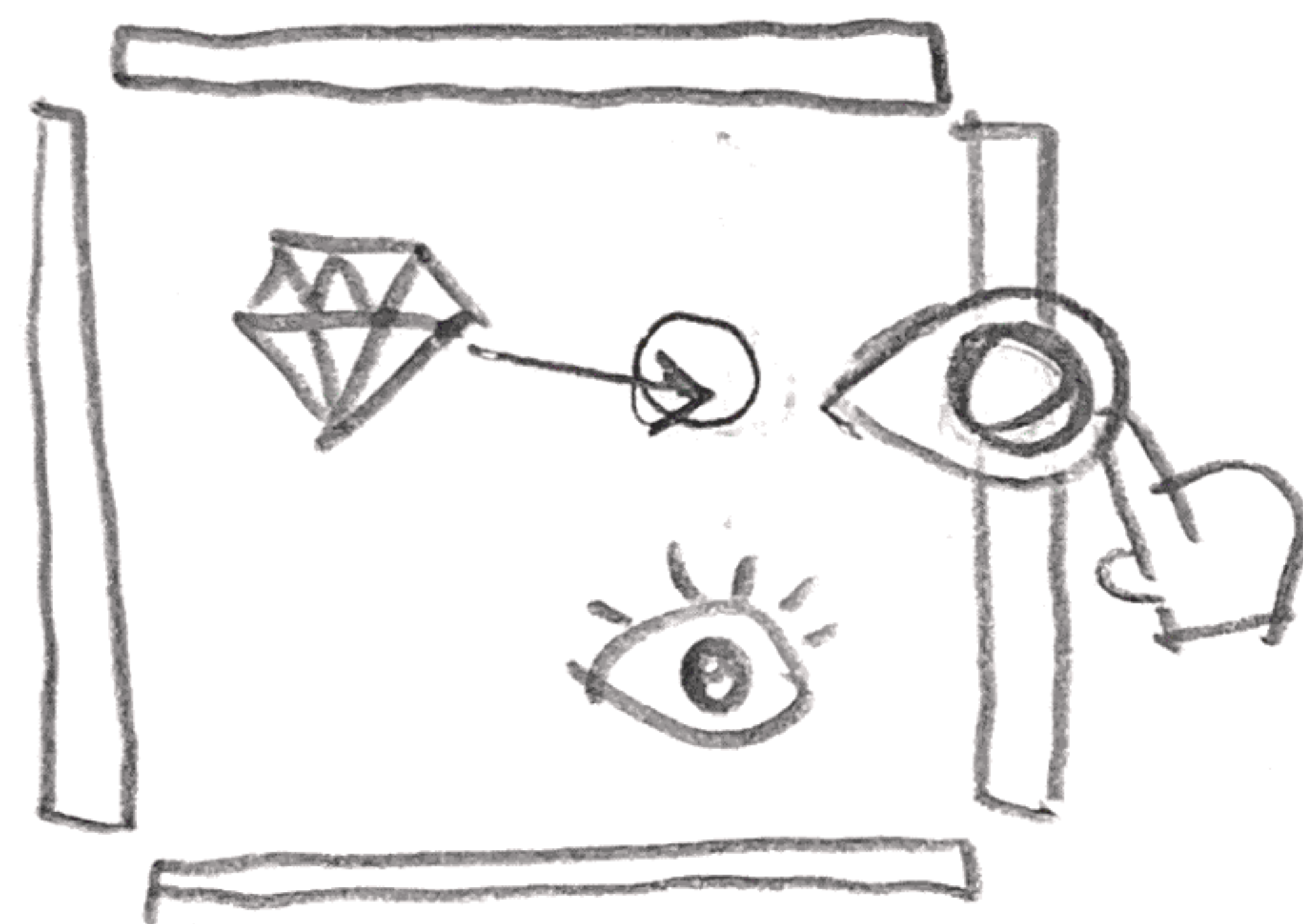
You end up seeing infinite
virtual images.

$r=3$ $r=2$ $r=1$ $r=0$ $r=1$ $r=2$ $r=3$...



Static image is good.

8. In a box



(Interactive)
Drag the dot to change
the direction of the
ray emitted from the
gem, see if it hits
the eye.