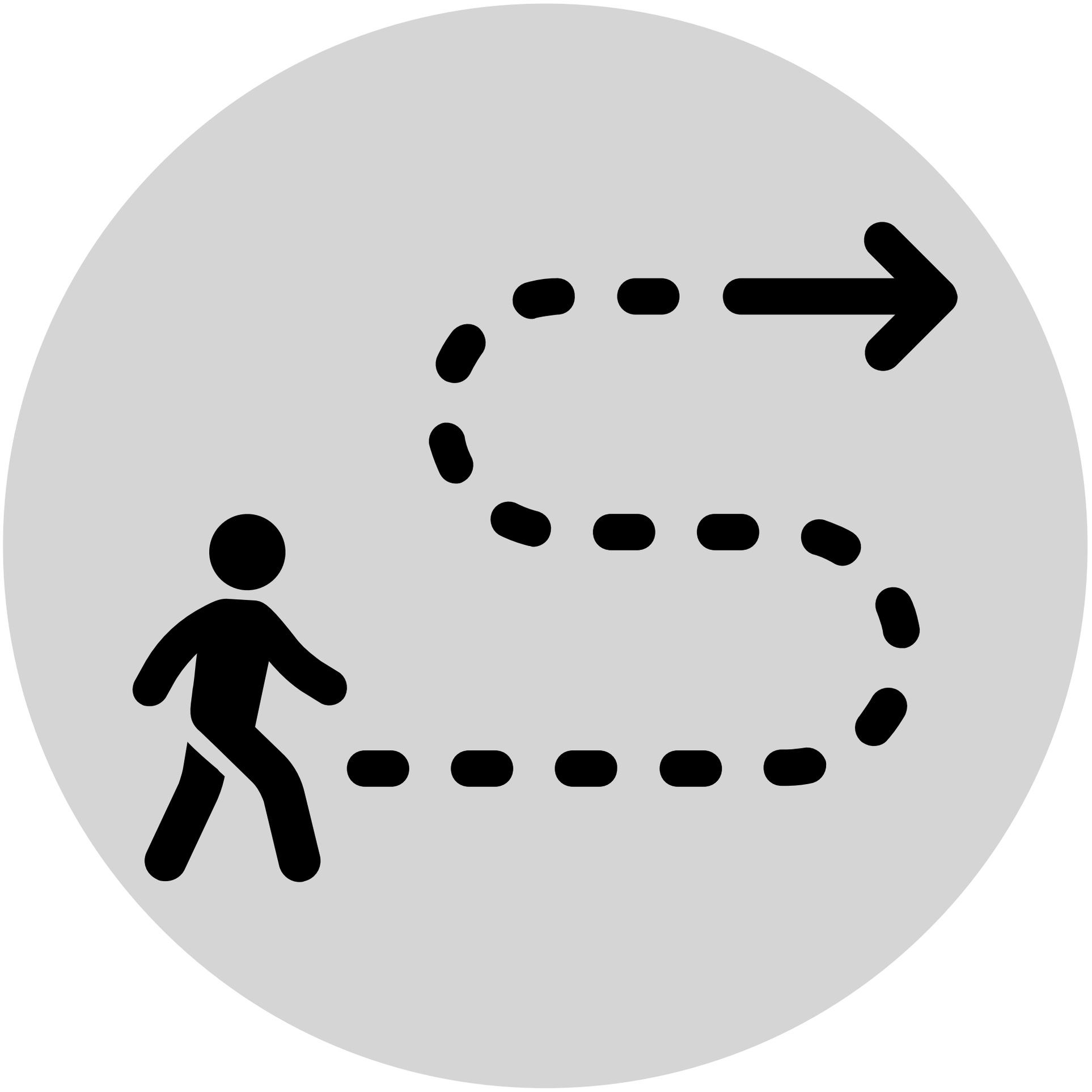


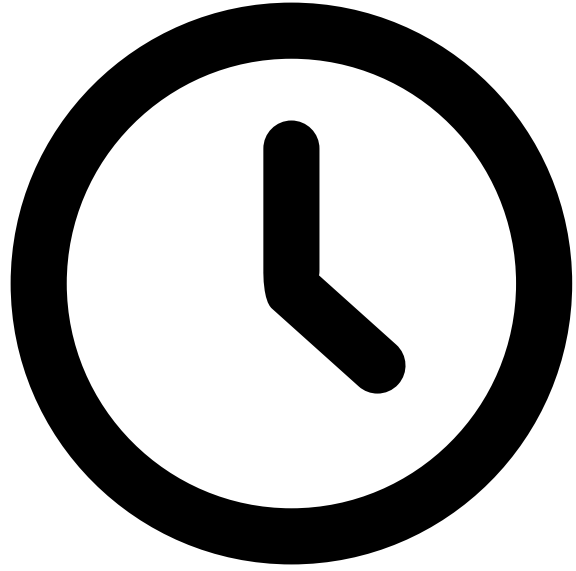
observed path

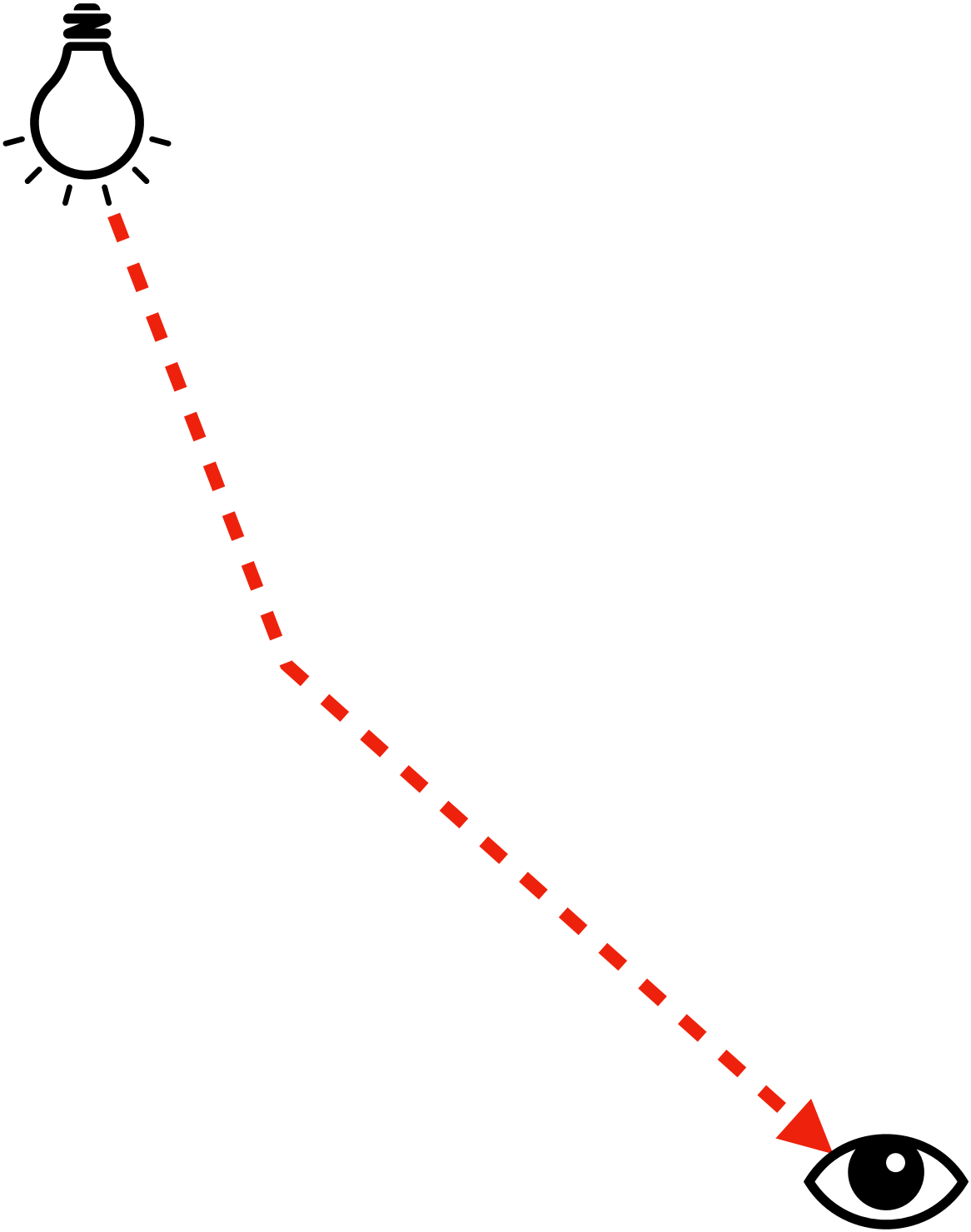
instantaneous rule

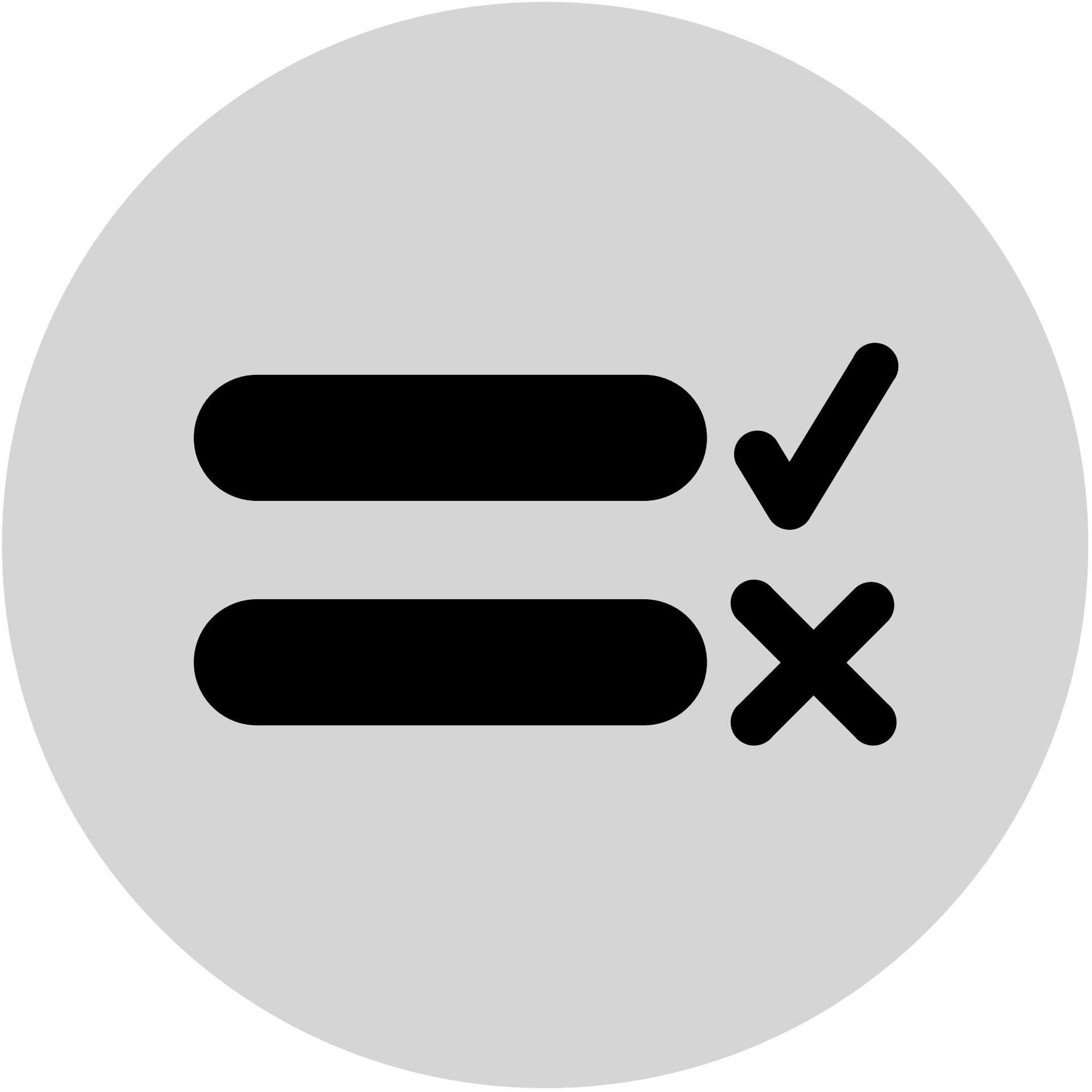
global principle

$$\frac{\sin(\theta_1)}{v_1} = \frac{\sin(\theta_2)}{v_2}$$

min time





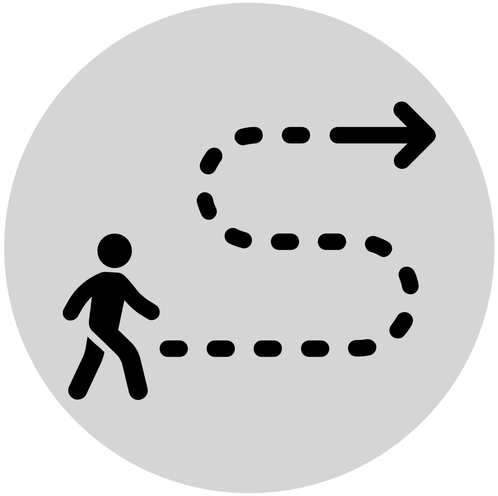


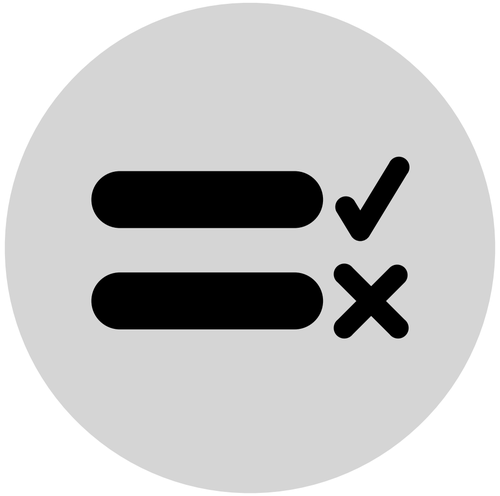
Fermat's principle

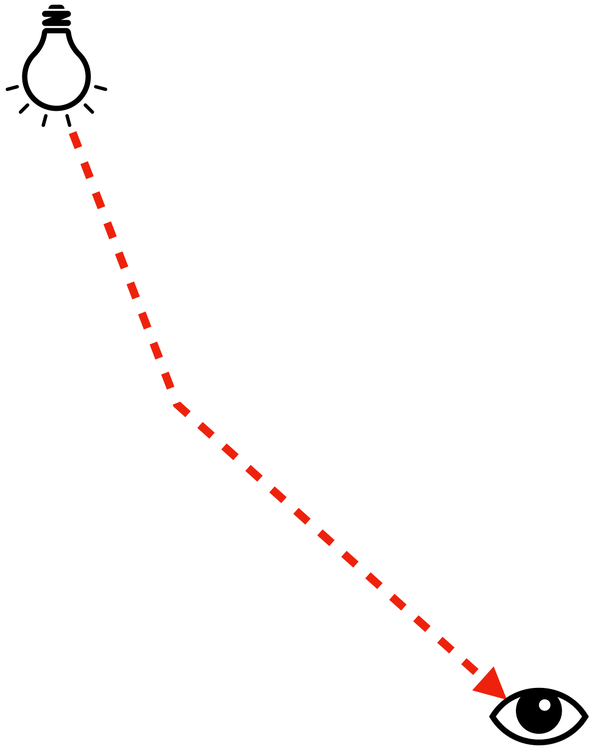
observed path

instantaneous rule

global principle





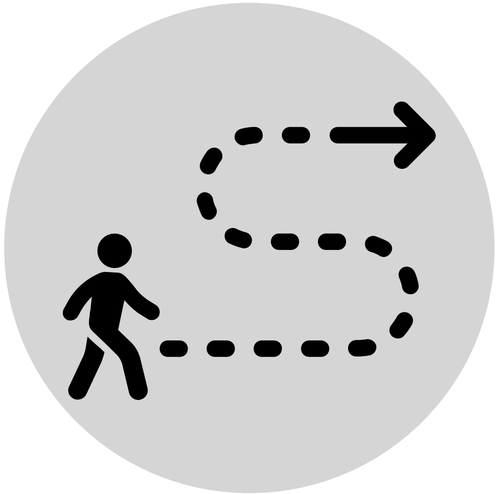


$$\frac{\sin(\theta_1)}{v_1} = \frac{\sin(\theta_2)}{v_2}$$

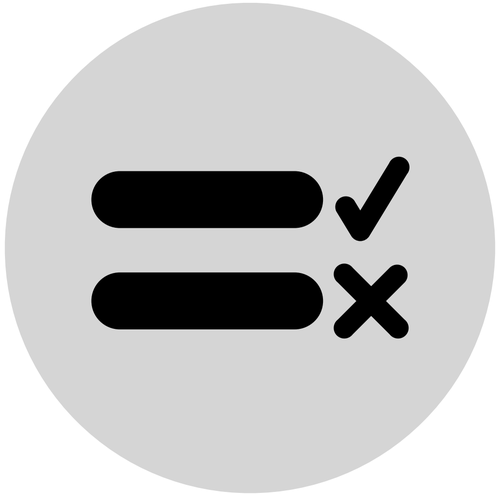
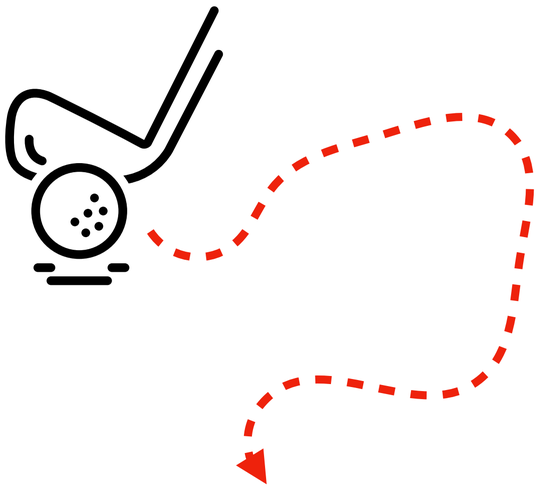
min time

Fermat's principle

observed path



instantaneous rule



global principle