

## TimeIncrement()

Assuming arguments  $\{x, dx, tprev, tcur, dt\} \in \mathbb{R}$ ,  
calculate  $x'$ —the number to which  $x$  should be updated given time changes:

$$\Delta t := tcur - tprev$$

$$\frac{dx}{dt} = \frac{\Delta x}{\Delta t} \Rightarrow \Delta x = \Delta t \frac{dx}{dt}$$

$$x' = x + \Delta x \text{ ensuring } x' \in [0, 1]$$