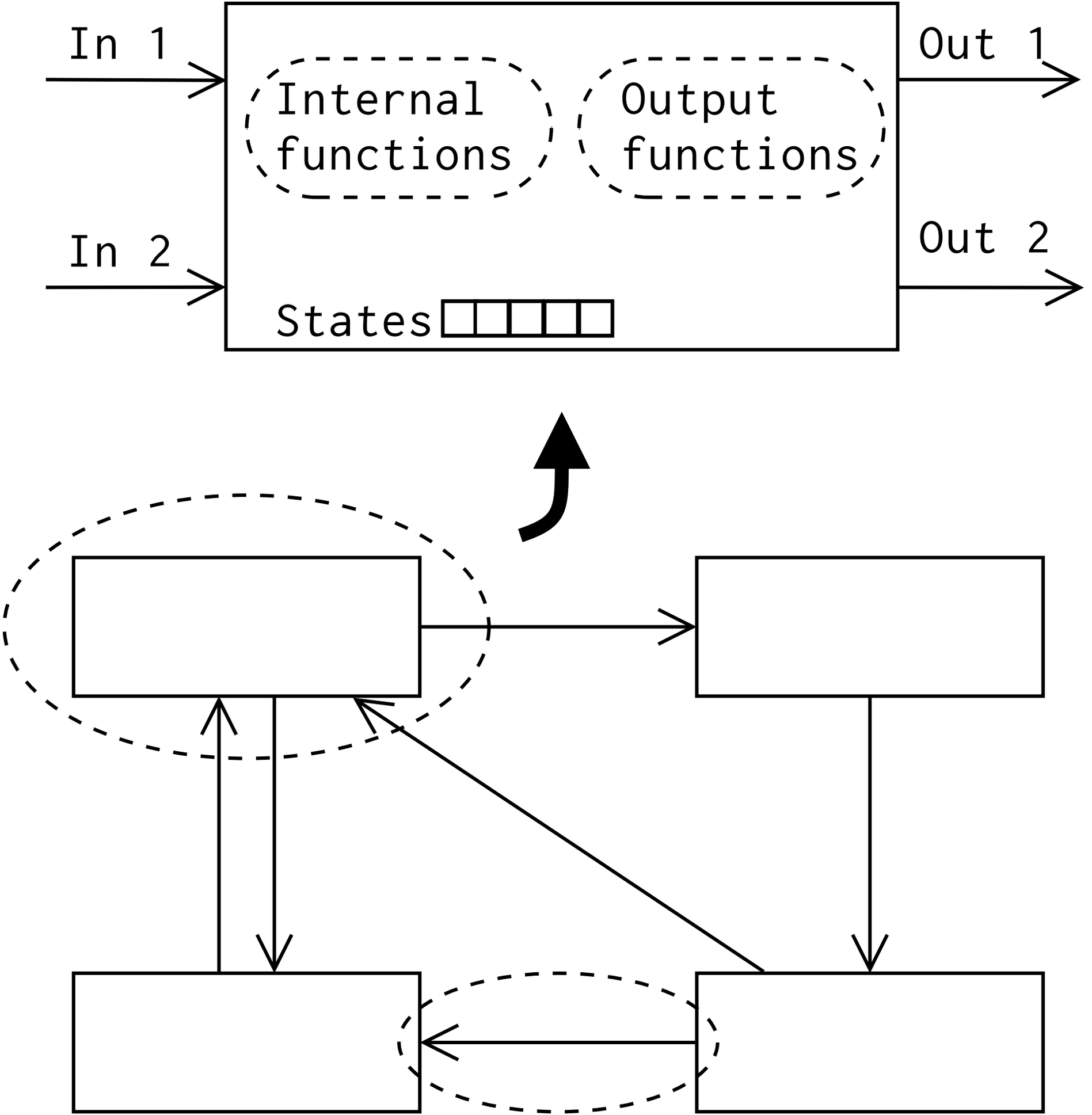
Scheduling of a Cyber-Physical System Simulation

56

The simulation logical architecture

Formalization of simulation scheduling

22


In 1
In 2
Internal functions
Output functions
Out 1
Out 2
States

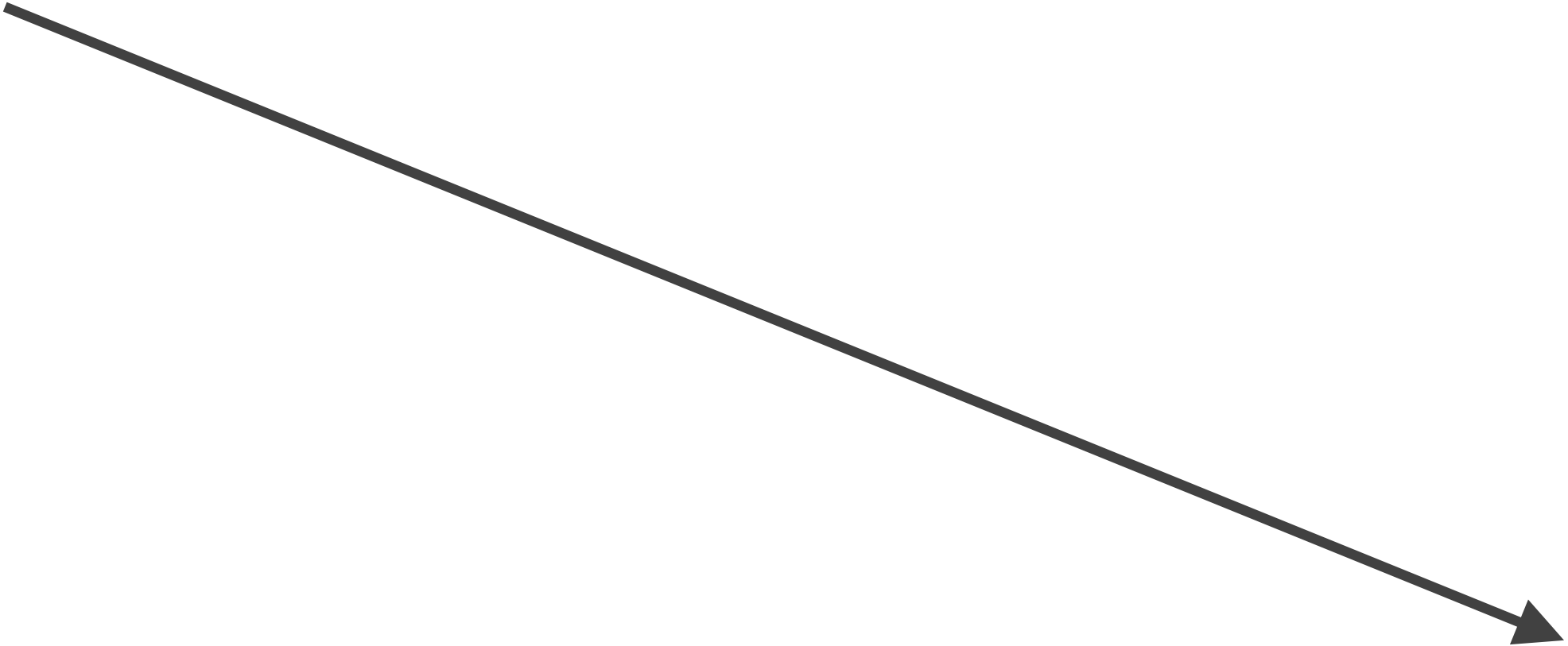
$$sla = < C, \Lambda, R >$$

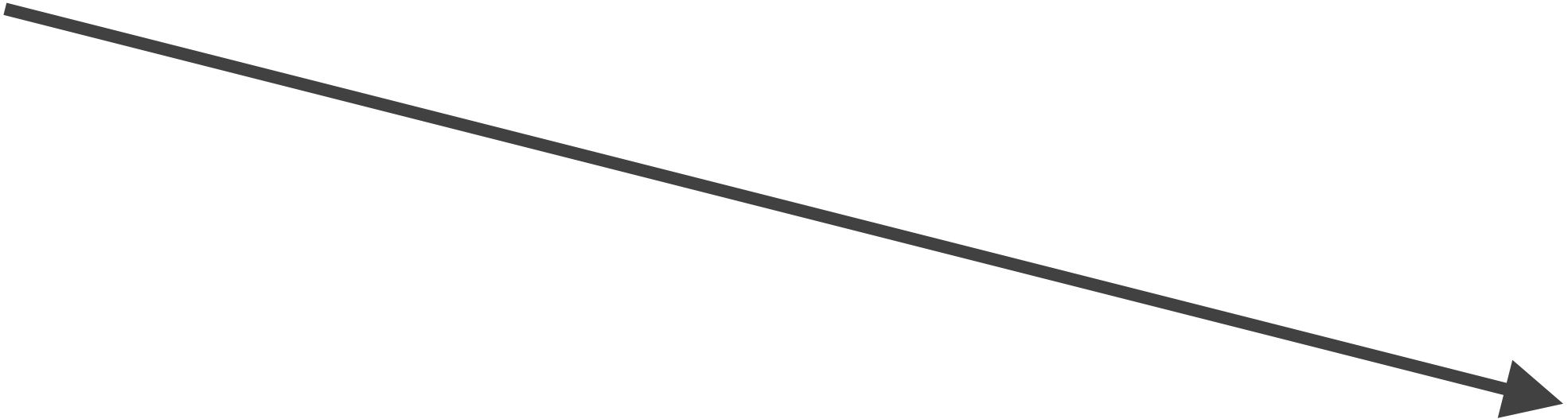
$$c = < P_{in}, P_{out}, S_0, S, \Delta_{in}, \Delta_{out} >$$

$$\delta_{out} = < o, I, S, \delta_{i^n \times s^m \to o}, t >$$

$$\delta_{in} = < I, S_{in}, s_{out}, \delta_{i^n \times s^m \to s}, f, t >$$

$$\lambda = < p_{in}, p_{out} >$$





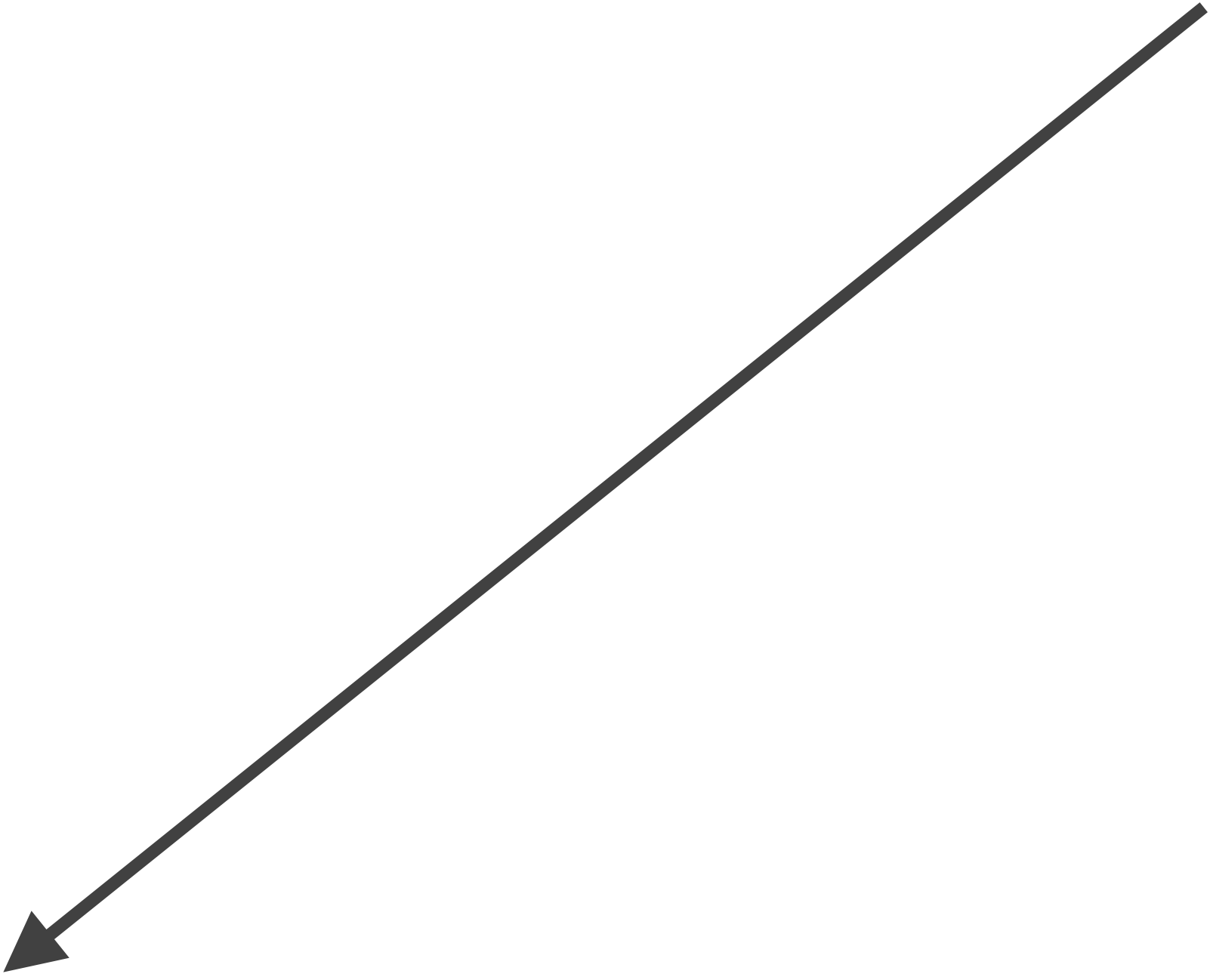
Requirements

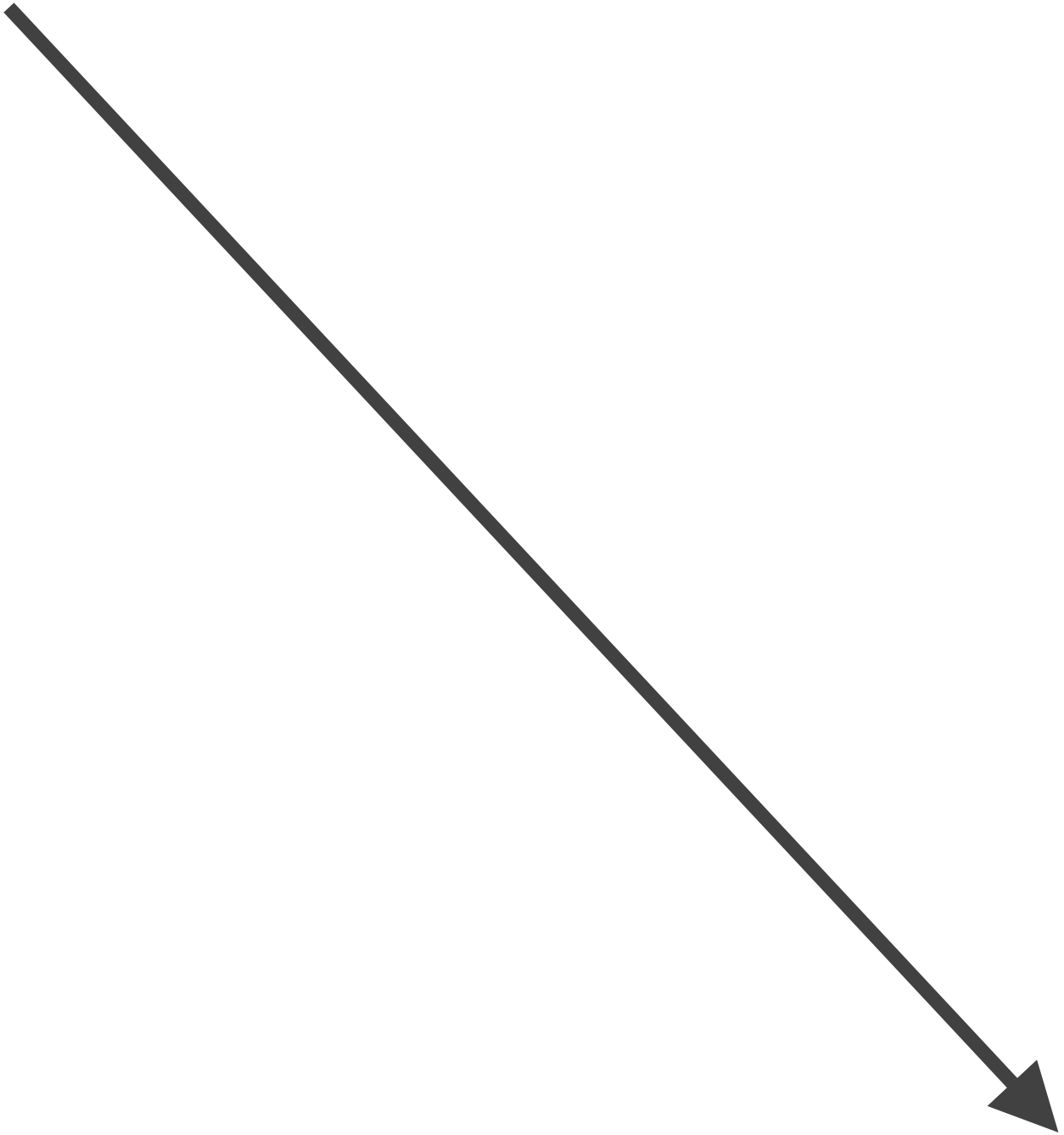
Channels

Components

Internal advancement

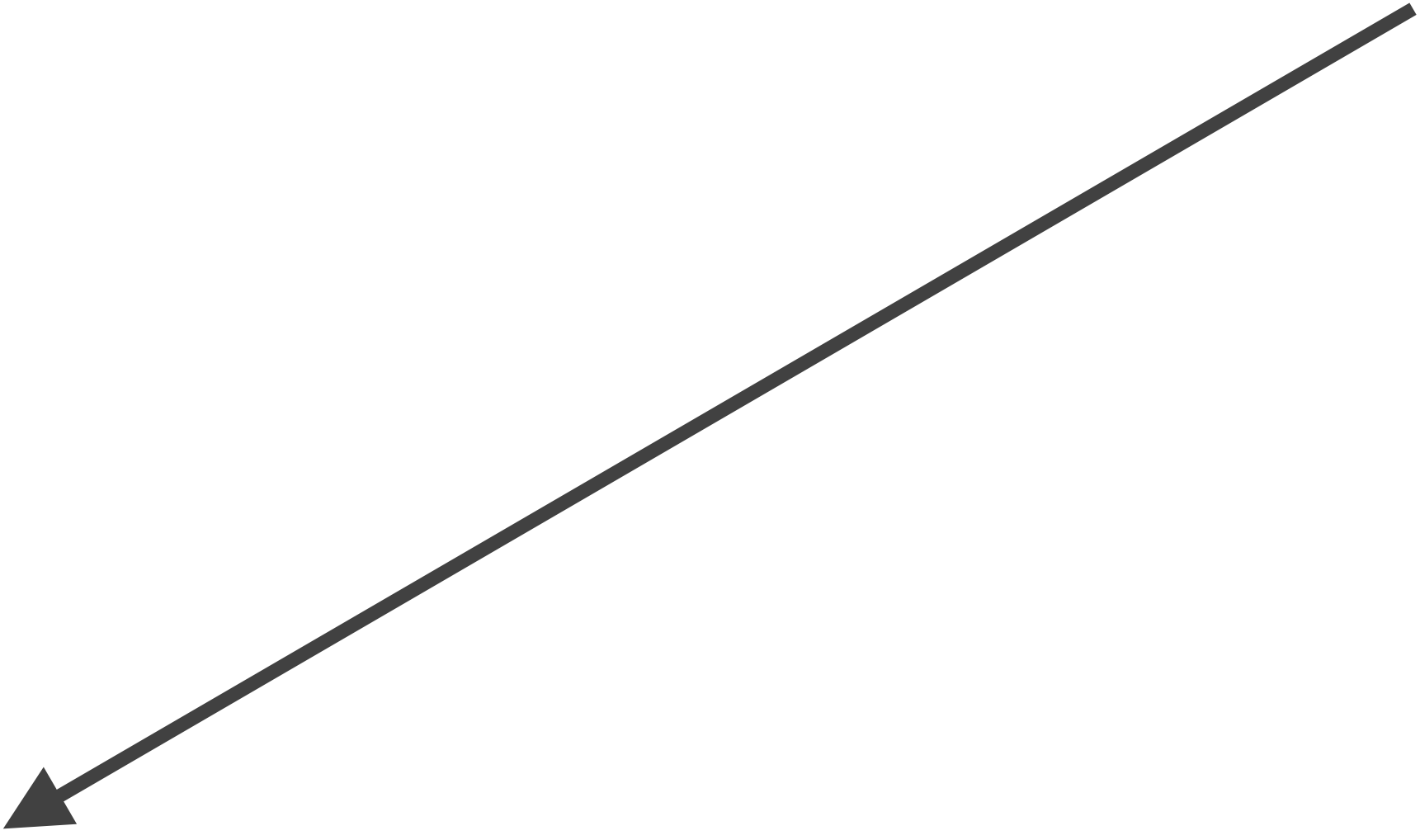
Output





Ports

States



Ports

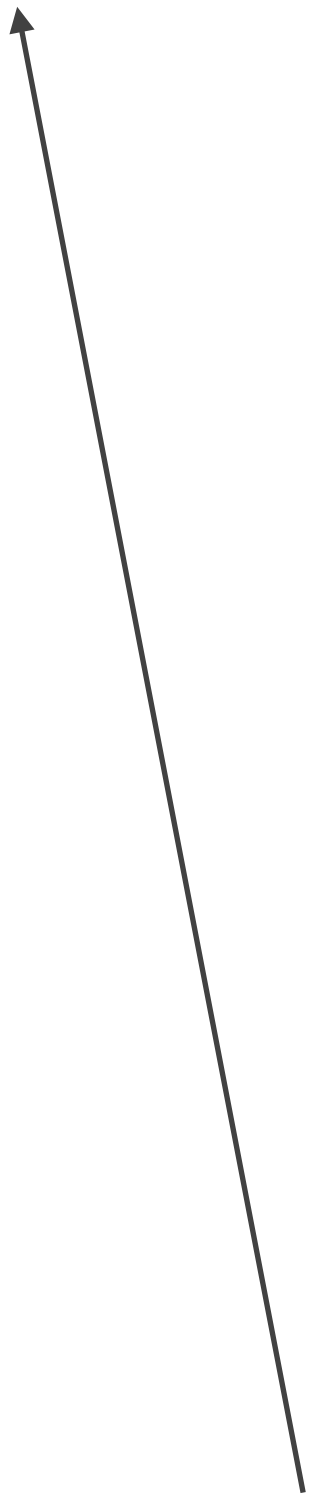
Inputs

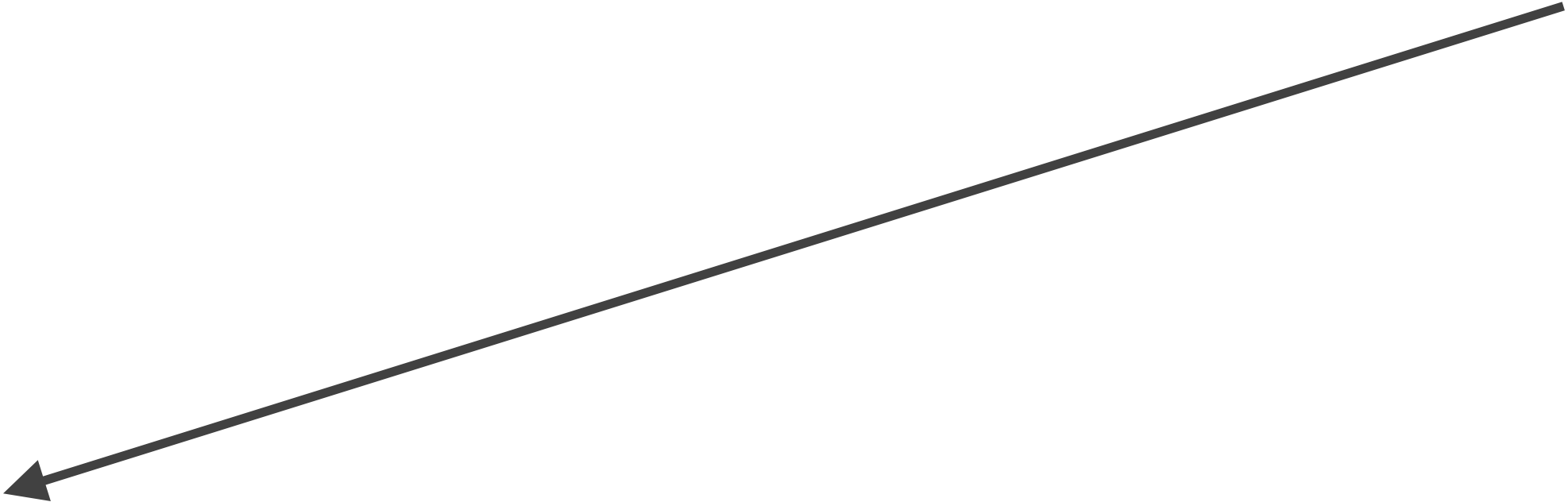
States

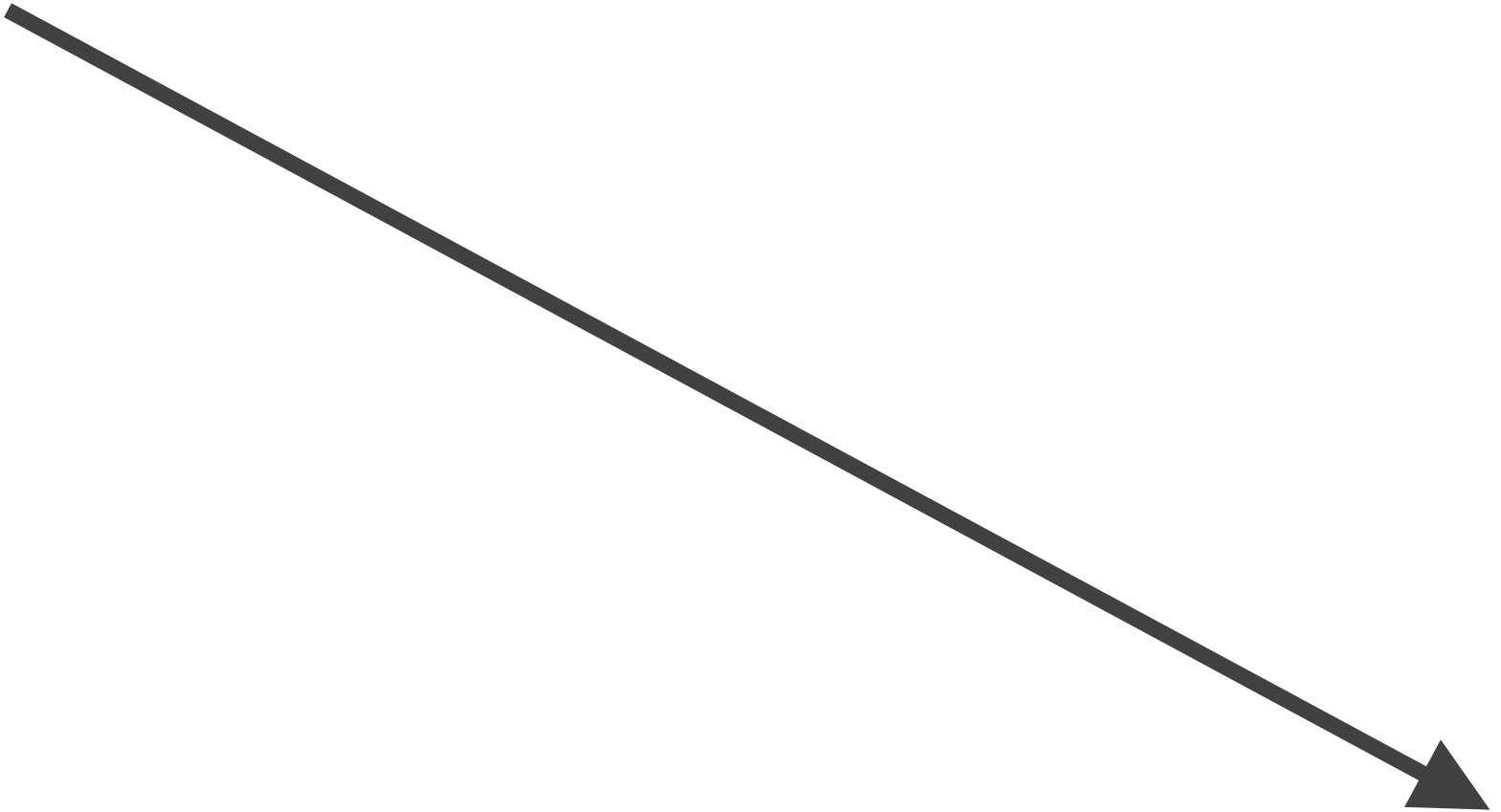
Functions

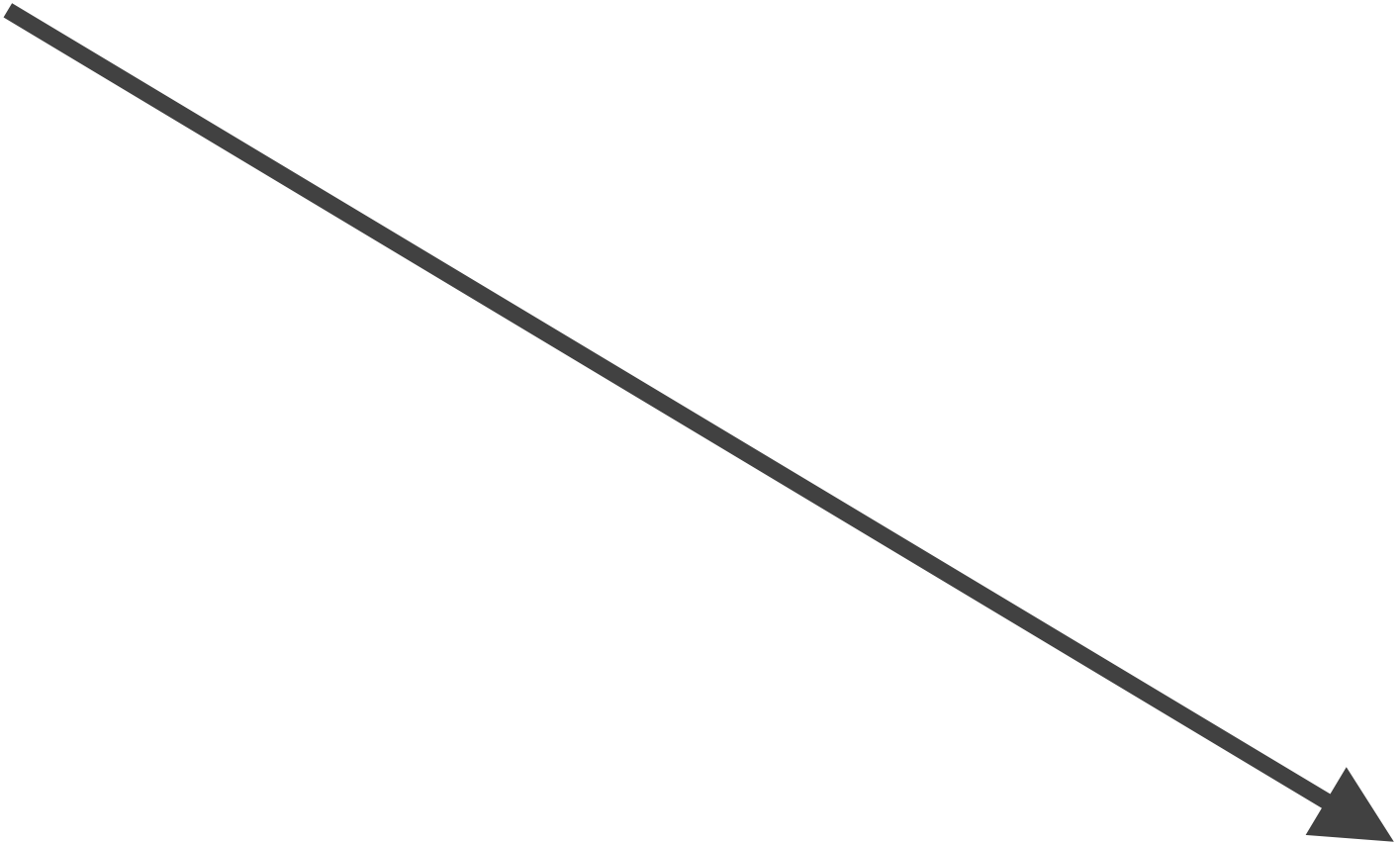
Frequency

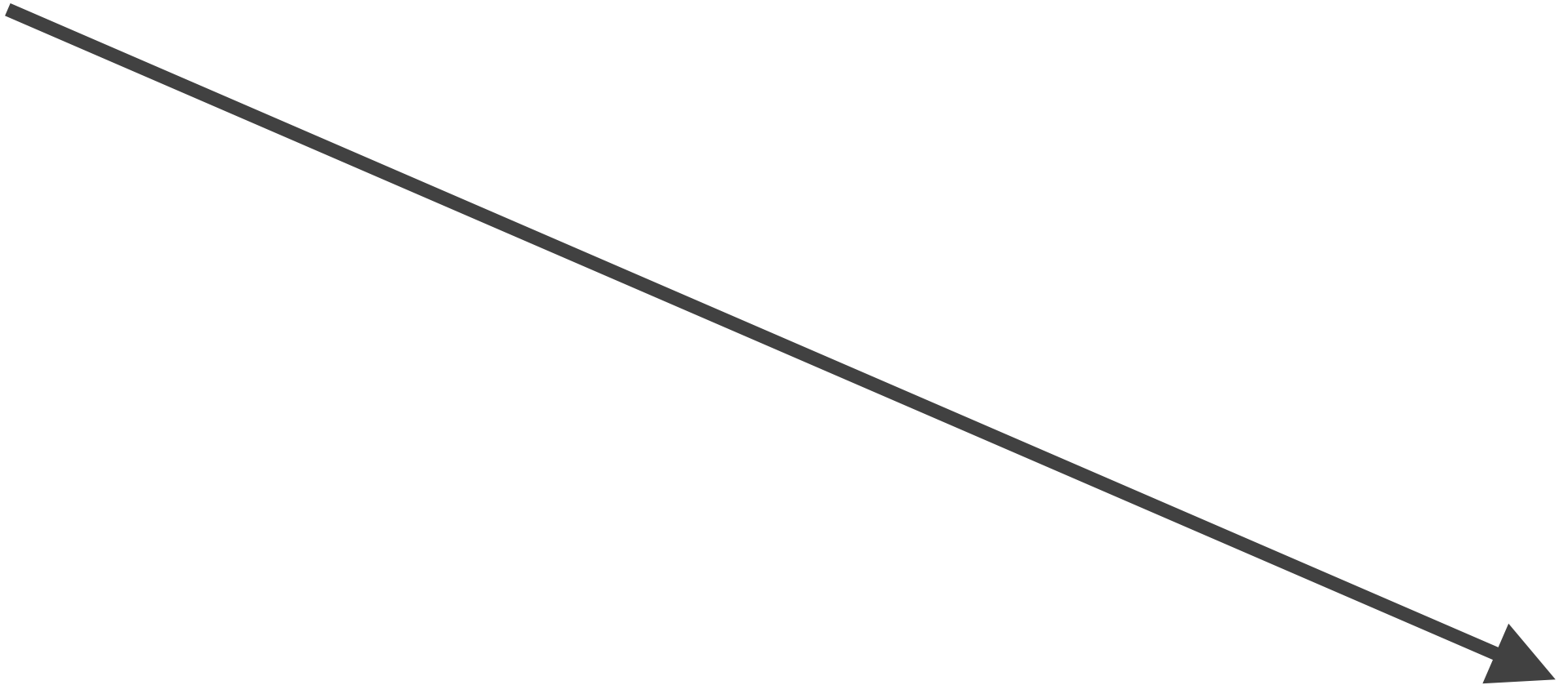
Budget

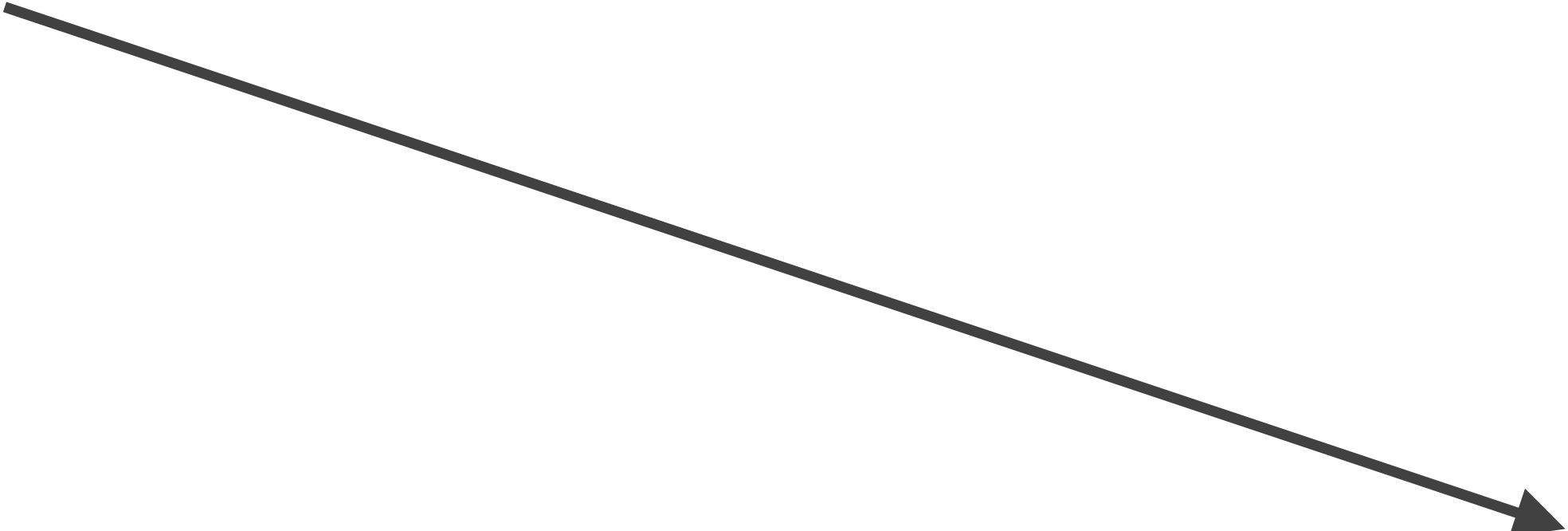


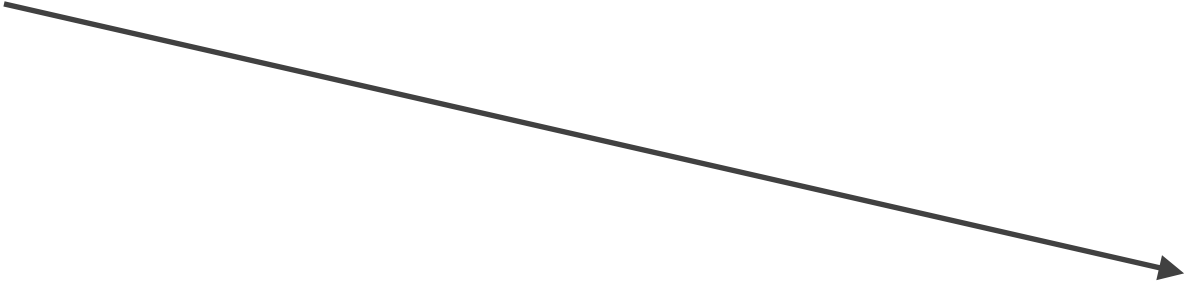


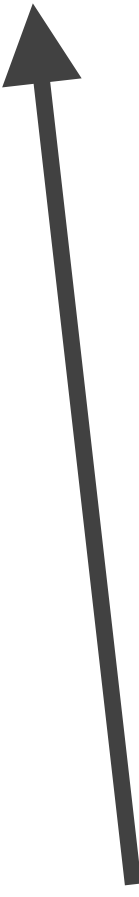


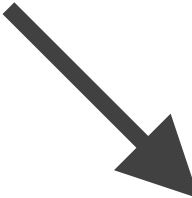


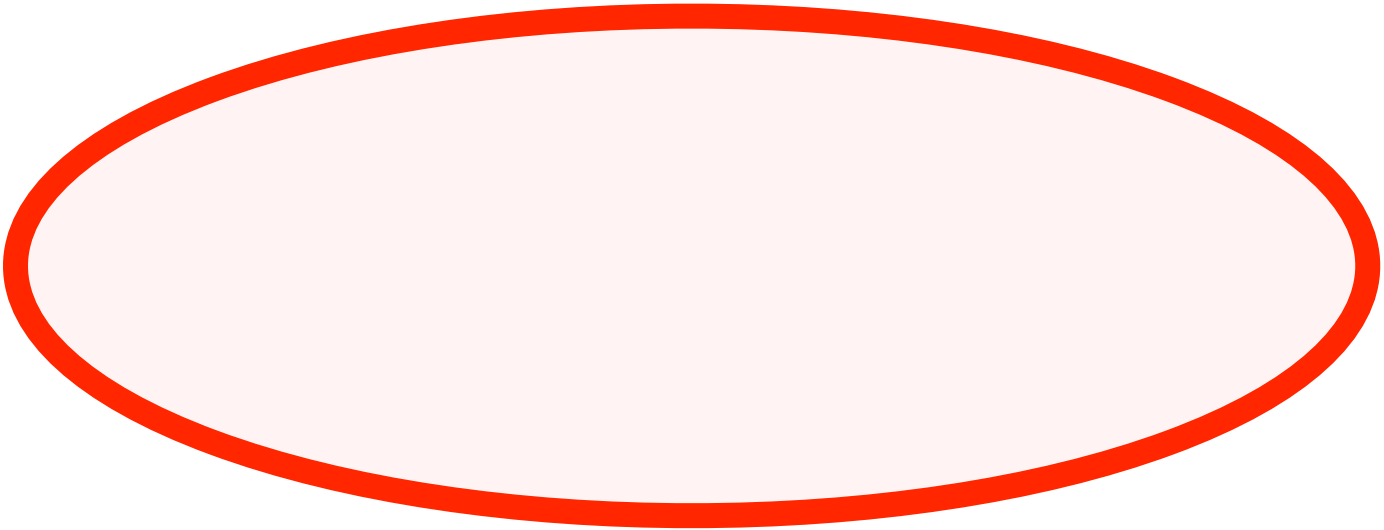


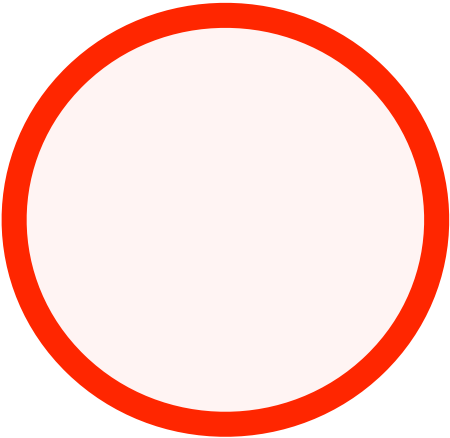


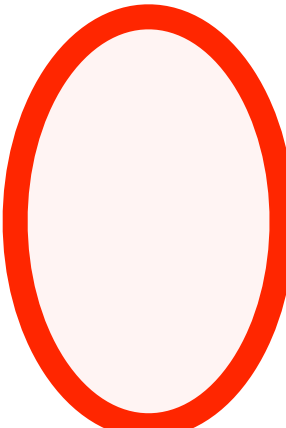


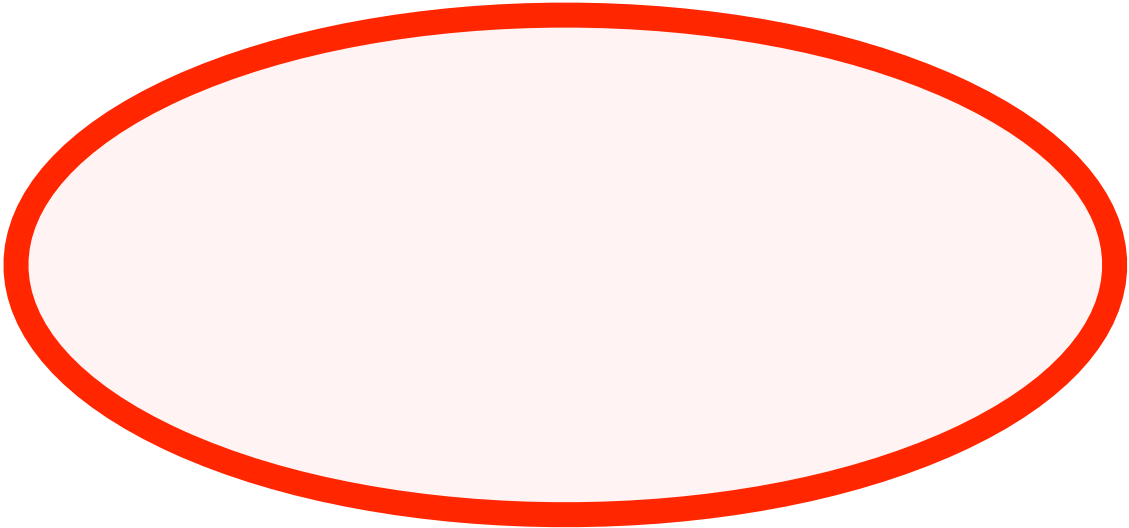










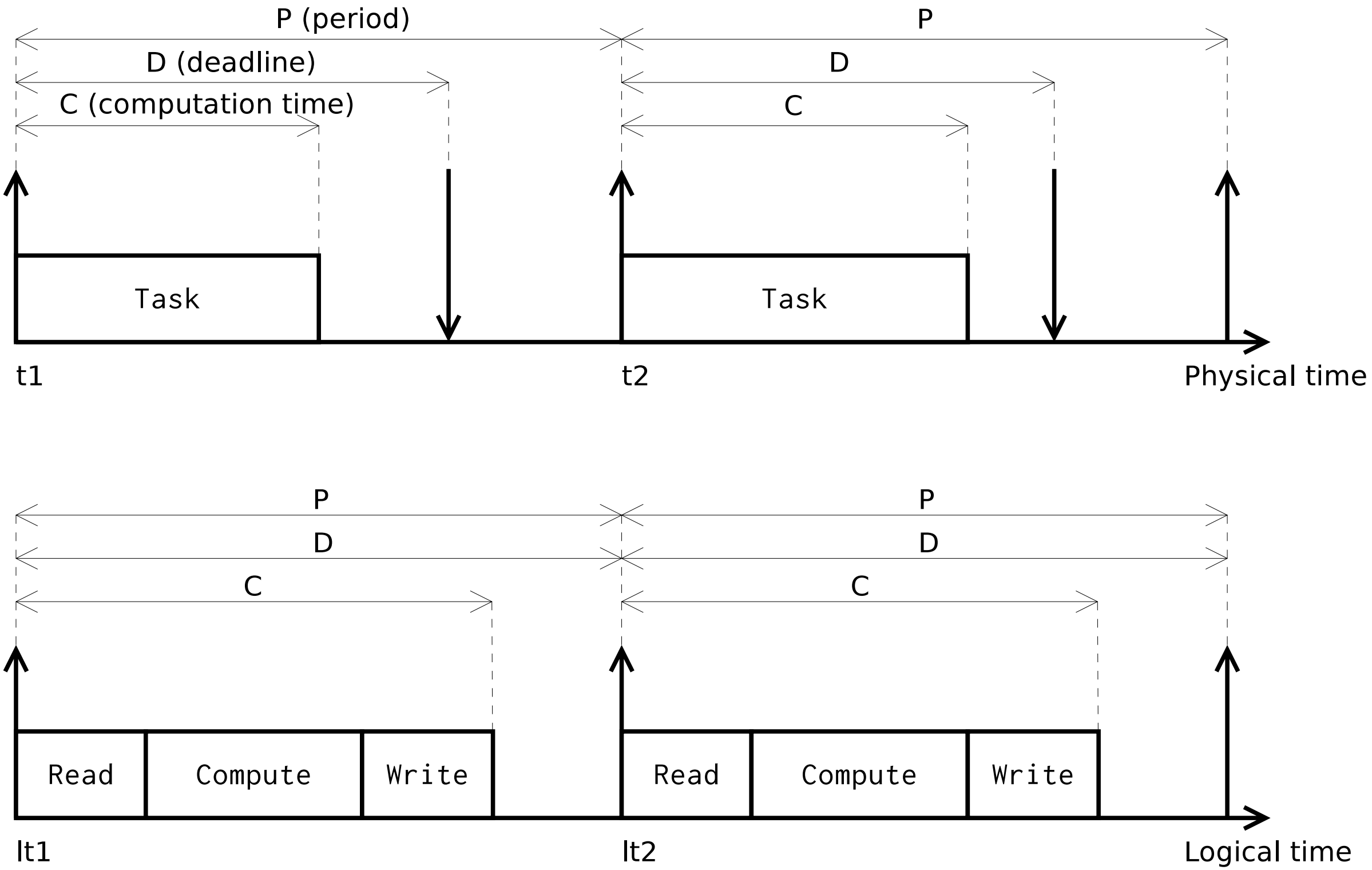


The simulation execution architecture

$$sla = < C, \Lambda, R >$$

$$c = < P_{in}, P_{out}, S_0, S, \Delta_{in}, \Delta_{out} >$$

$$\delta_{out} = < o, I, S, \delta_{i^n \times s^m \to o}, t >$$


P (period)
P
D (deadline)
D
C (computation time)
C
Task
Task
t1
t2
Physical time
P
P
D
D
C
C
Read
Compute
Write
Read
Compute
Write
lt1
lt2
Logical time

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