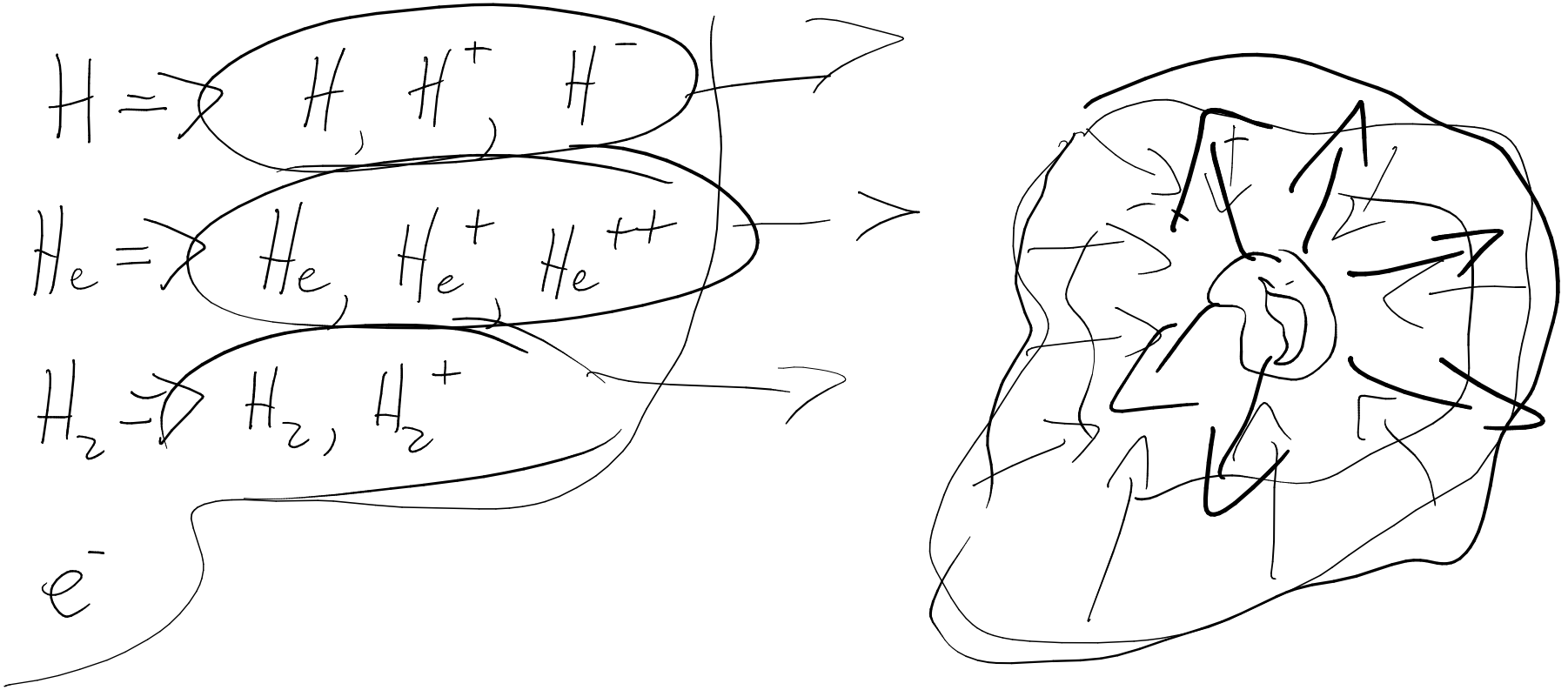
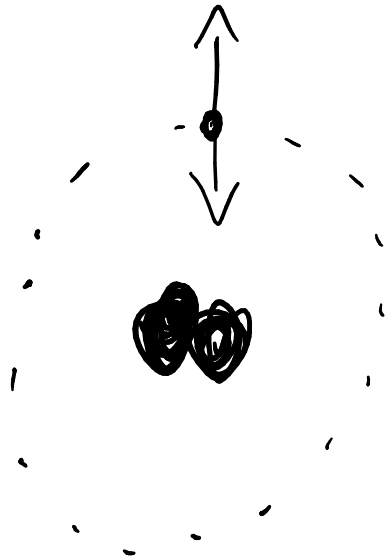
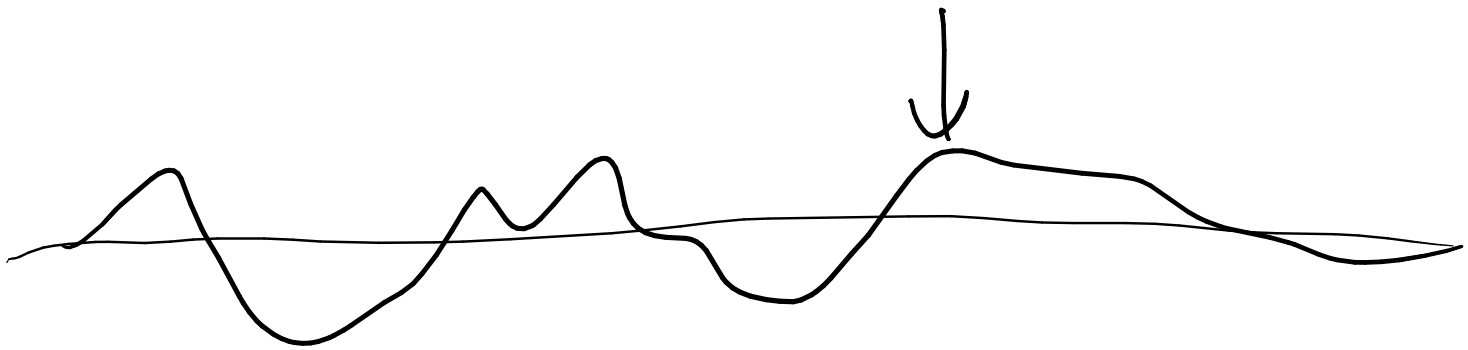

H
H, H+, H−
He
He, He+, He++
H2
H2, H2+
e−



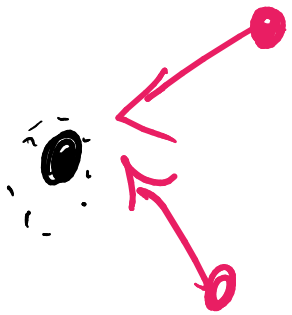


$H^0 \Rightarrow \quad \nu_1, \nu_2, \nu_3 \ldots$

$H_2 \Rightarrow \quad \nu_4, \nu_5, \nu_6 \ldots$

$$H + H + H \Rightarrow H_2 + H$$

$$H + \gamma \Rightarrow H^+ + e^-$$



$$\frac{dS}{dt} = \downarrow - \downarrow$$

$$H + \gamma \xrightarrow{k_1} H^+ + e^-$$

$$H^+ + e^- \xrightarrow{k_2} H + \gamma$$

$$\frac{dH}{dt} = k \cdot C_1 - k_2 \cdot C_2$$

$H \Rightarrow H^+ + e^-$ k_1

$H^+ + e^- \Rightarrow H$ k_2

$k_1 \cdot nH$

$k_2 \cdot nH \cdot ne^-$

$$\frac{dn_H}{dt} = k_2 n_{H^+} n_{e^-} - k_1 n_H$$

$$\frac{dn_{H^+}}{dt} = k_1 \cdot n_H - k_2 n_{H^+} n_{e^-}$$

$$\frac{dn_{e^-}}{dt} = k_1 \cdot n_H - k_2 n_{H^+} n_{e^-}$$

$$\frac{dn_H}{dt} = k_2 n_{H^+} n_{e^-} - k_1 n_H = 0$$

$$\frac{dn_{H^+}}{dt} = k_1 n_H - k_2 n_{H^+} n_{e^-} = 0$$

$$\frac{dS_i}{dt} = \sum_{jl} k_{lj} S_l S_j \Rightarrow$$

$$\begin{pmatrix} S_i \\ S_{i+1} \\ S_{i+2} \\ S_{i+3} \\ \ddots \end{pmatrix} \Leftarrow \begin{pmatrix} dS \\ \cdot \\ \cdot \\ \cdot \\ \cdot \end{pmatrix} t$$

$$S^t + \Delta t \cdot \frac{dS^t}{dt} \Rightarrow S^{t+\Delta t}$$

$He \rightarrow He^{+} + e^{-}$ k_3

$He^{+} \rightarrow He^{++} + e^{-}$ k_4

$He^{++} + e^{-} \rightarrow He^{+}$ k_5

$He^{+} + e^{-} \Rightarrow He$ k_6

$$\frac{dS_i}{dt} = C - D$$

$\uparrow S_i$

$$\frac{dS_i}{dt} = C - S_i D$$

S_i^{t+dt}

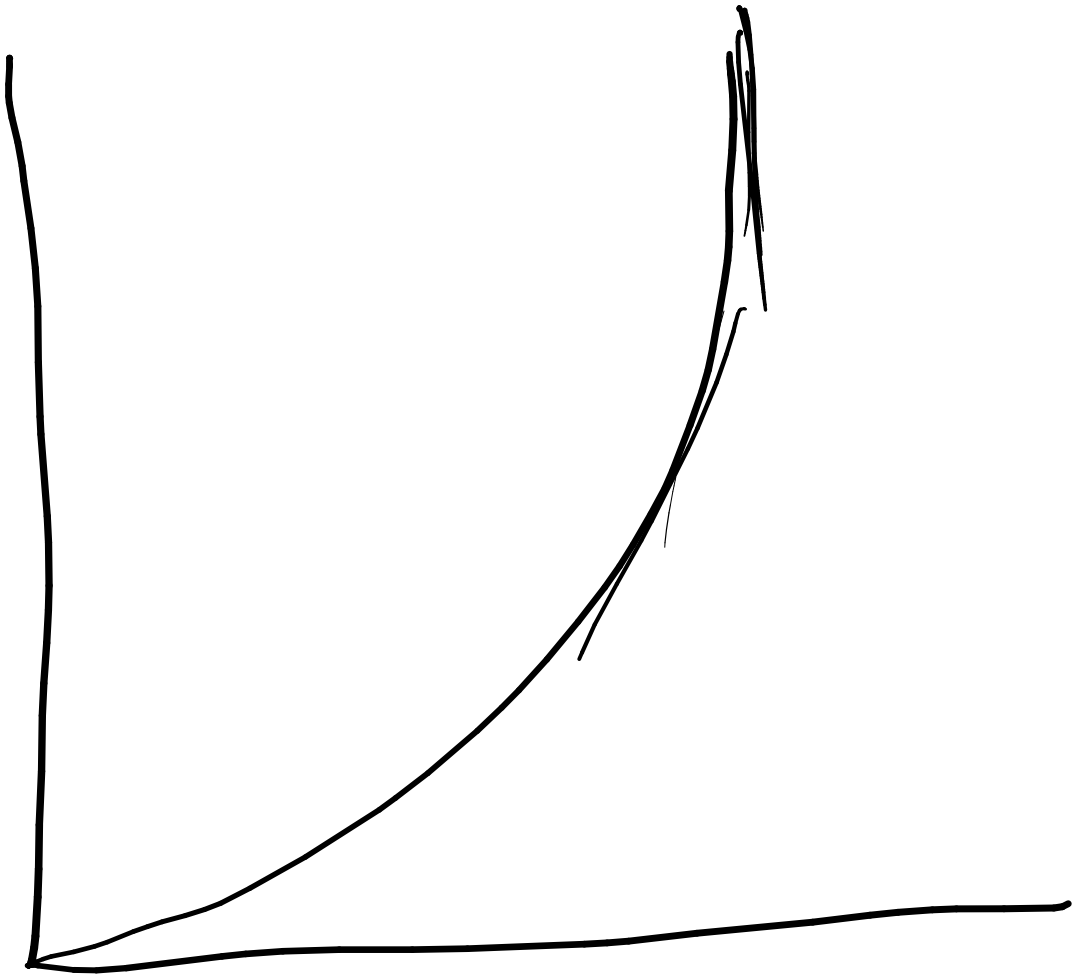
$$S_i^{t+dt} \leq S_i^t + C^t dt - S_i^t D^t dt$$

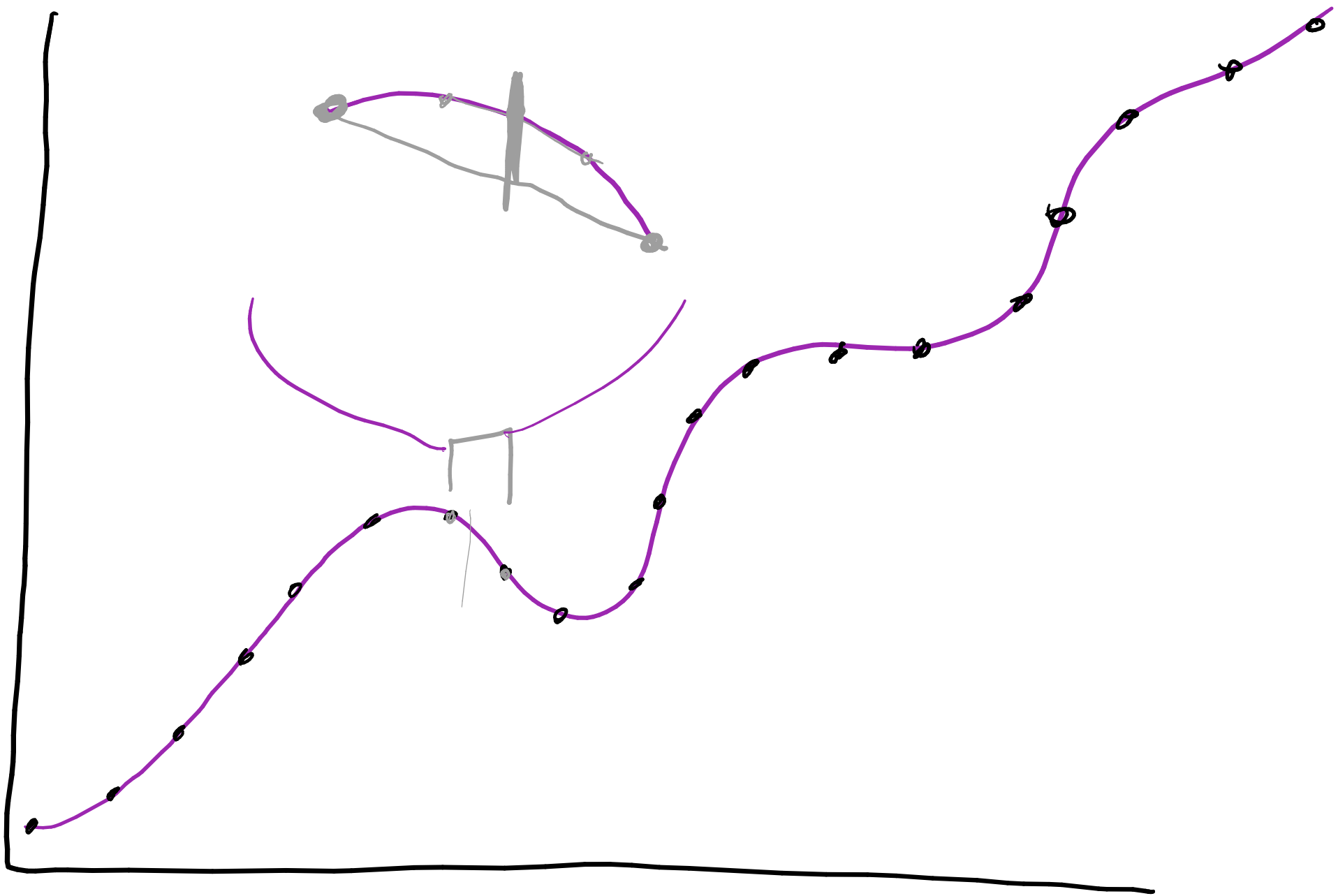
$$S_i^{t+dt} + S_i^{t+dt} D^t dt = S_i^t + C^t dt$$

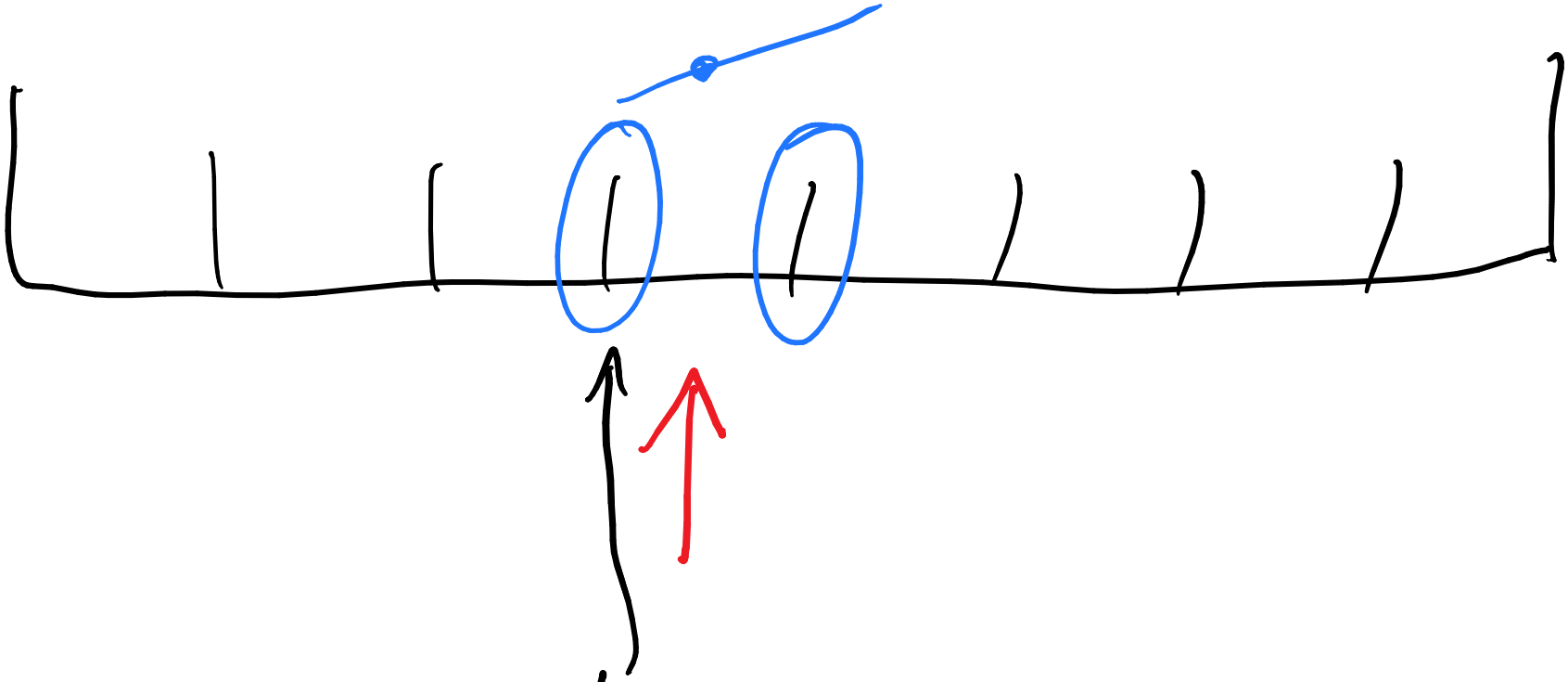
$$S_i^{t+dt} + S_i^{t+dt} D^t dt = S_i^t + C^t dt$$

$$S_i^{t+dt} (1 + D^t dt) = S_i^t + C^t dt$$

$$S_i^{t+dt} = \frac{S_i^t + C^{t+dt} dt}{1 + D^{t+dt} dt}$$







$$y = mx + b$$

$$\frac{v_{r-1} - v_l}{db} + v_l$$