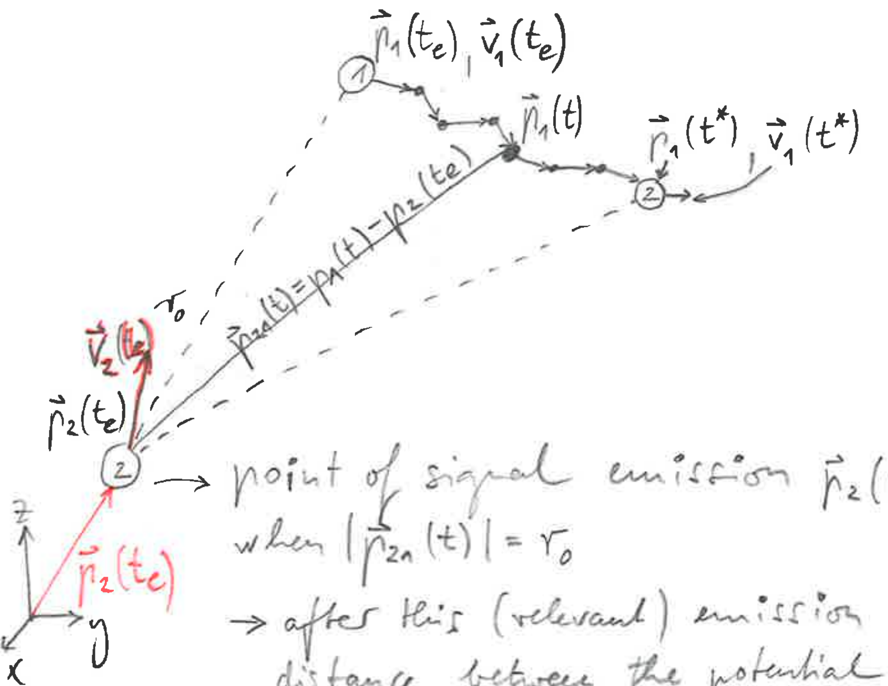


→ point of signal emission $\vec{r}_2(t_e)$ when $|\vec{r}_{21}(t)| = r_0$

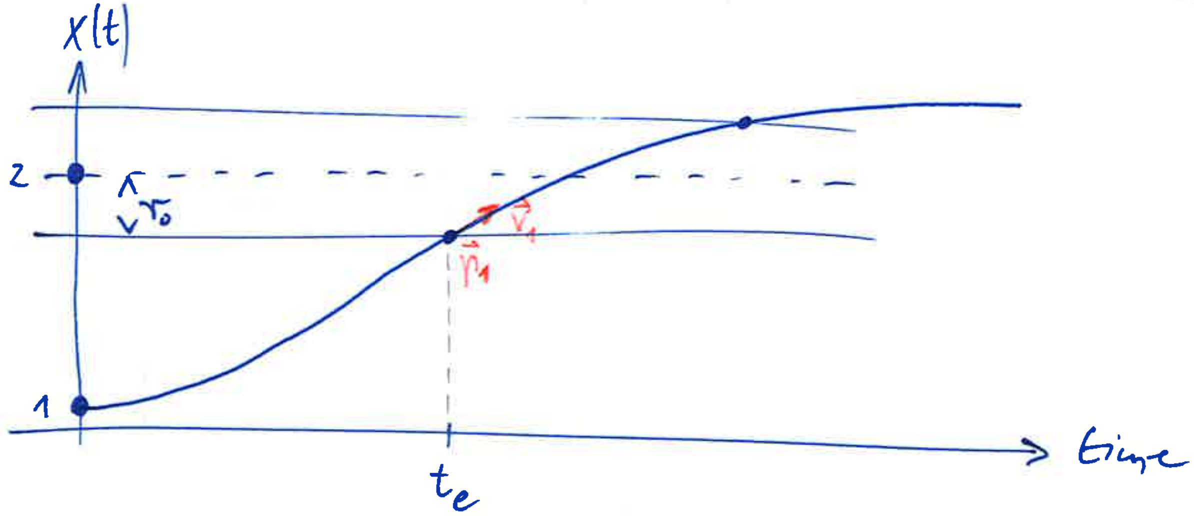
→ after this (relevant) emission event the distance between the potential receivers is given by

$$\boxed{d(t) = |\vec{r}_1(t) - \vec{r}_2(t_e)| - v_s^{21}(t)(t-t_e)}$$

where $\boxed{v_s^{21}(t) = v_p + \vec{v}_2(t_e)\cdot\vec{r}_{21}(t)}$

v_p signal propagation speed

$v_s^{21}(t)$ effective signal propagation speed according to the superposition of the propagation speed and that of the emitter $\vec{v}_2(t_e)$ projected onto the current vector $\vec{r}_{21}(t)$



a) save positions of all oscillators over time $\vec{r}_k(t)$ from this we know $\vec{v}_k(t) = \frac{d\vec{r}_k(t)}{dt}$ the velocity

b) when a signal has traveled a distance equal to the reception radius r_0 → it is decayed and the emission event does not need to be tracked anymore

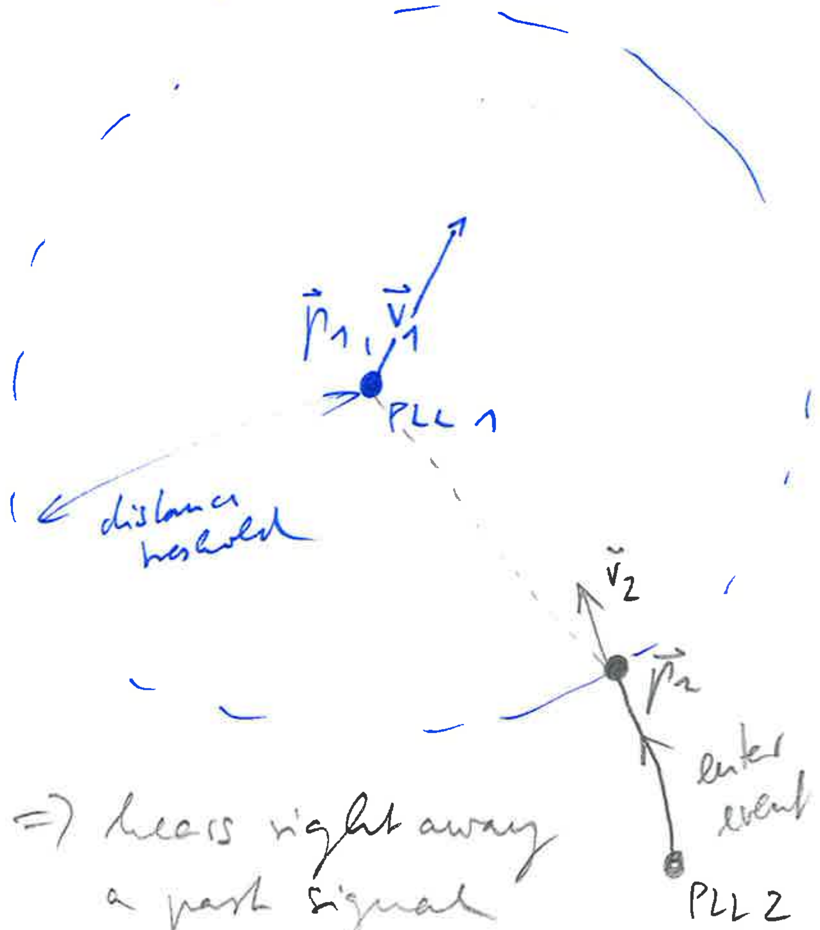
c) $I(t, k, v_e, v_t)$ container that holds all currently active potential interactions v_e of osci k at time t that started at emission time v_t

or better: use matrix that shows all current potential connections.

→ iterate from t back to t_e and check for each time in between whether $d(t)=0$, note that at each time the emission position $\vec{r}_2(t)$ has to be taken from the sender

Scenario

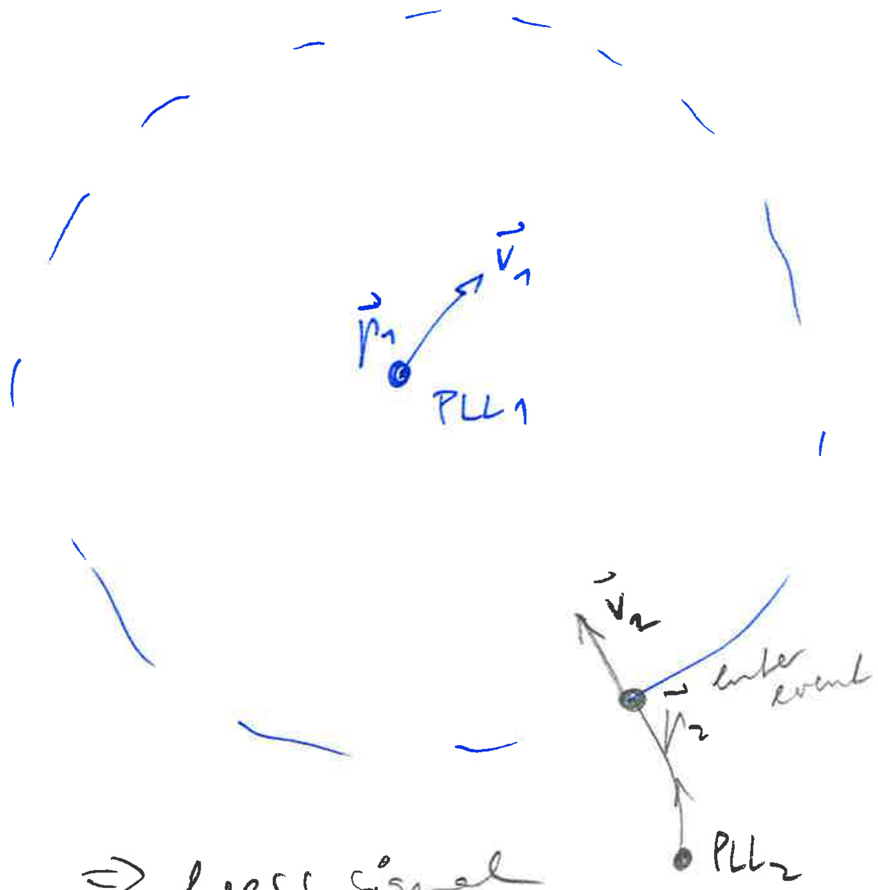
a) constantly radiating signal



⇒ hears right away a past signal emission

use $d(t)$ formula to infer which past signal is being received upon entry (angle dependent when moving)

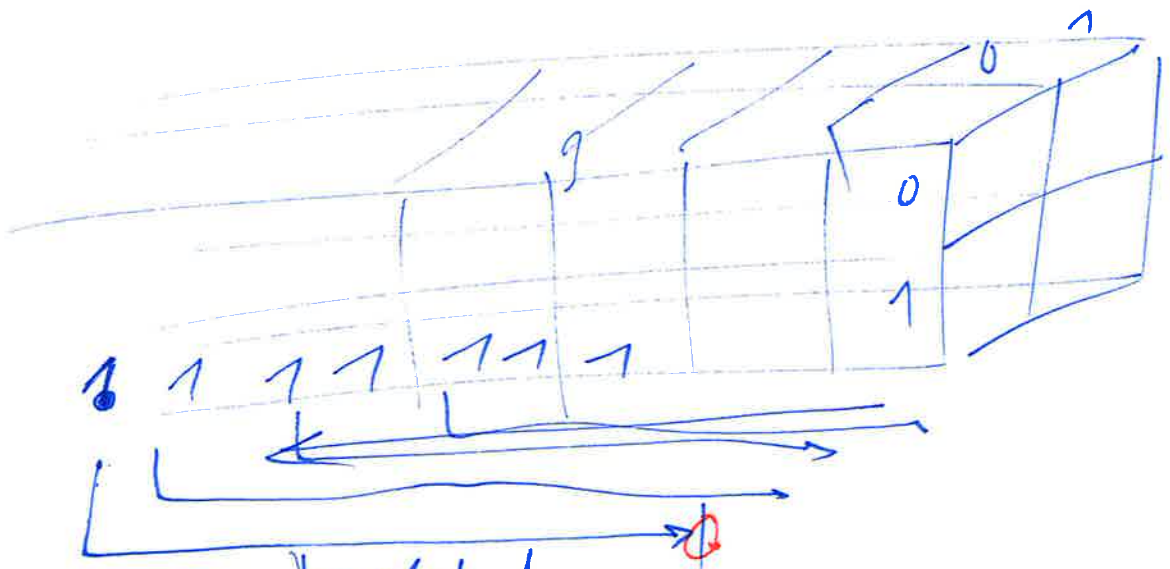
b) signal exchange starts when entering each others reception zone



⇒ hears signal later, when it has travelled from 1 → 2 and vice versa

$N = 2 \rightarrow 2 \times 2$

$v = \frac{d}{t}$



travelled duration

$\rightarrow t_{delay} = \frac{d_{threshold}}{v(t)} \rightarrow$

loop over all osci's

loop over the relevant history

if still not entirely damped

keep following ⇒ calc $d(t)$ condition

↳ if fullfilled → sent neighbor interaction + corresponding delay to delayer