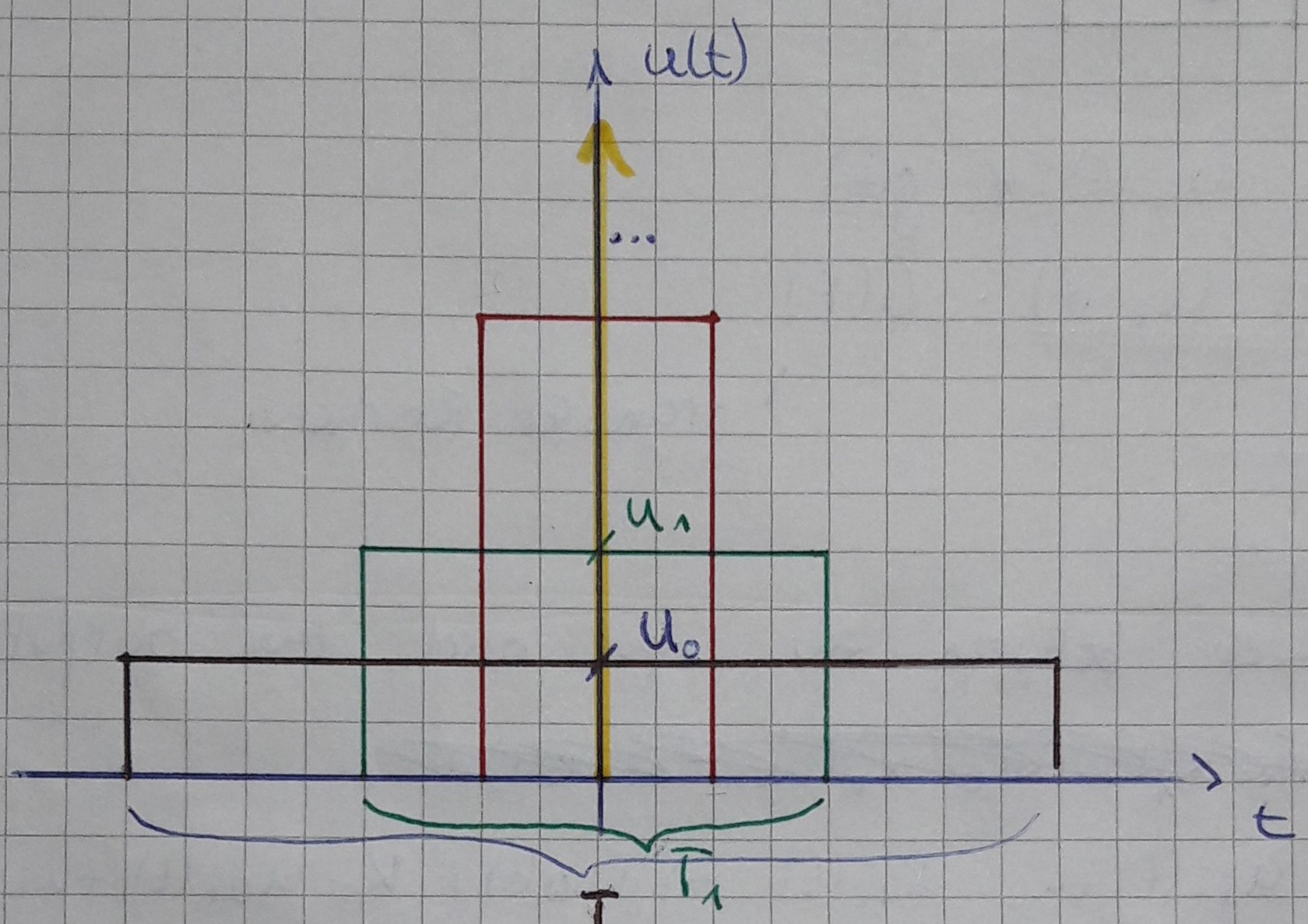
Dirac Impulse

- is a distribution

→ distributions make it possible to differentiate functions whose derivatives dont exist.

How does it accrues ?



$$\int_{\varepsilon} u(t)\,dt = \text{const.}$$

$$T \sim u$$

(width is proportional to the hight)

$$T \to 0 \Rightarrow u \to \infty$$

Definition

$$\delta(t) = \begin{cases} 0 & , t \neq 0 \\ \to \infty & , t = 0 \end{cases}$$ } even funktion ($u(t) = u(-t)$)

$$\int_{-\infty}^{+\infty} \delta(t)\,dt = 1$$

Fourier transform : $\delta(t) \circ\!\!-\!\!\bullet\; 1$

$\to \mathrm{RE}\{u(f)\} = 1$

$\to \mathrm{Im}\{u(f)\} = 0$