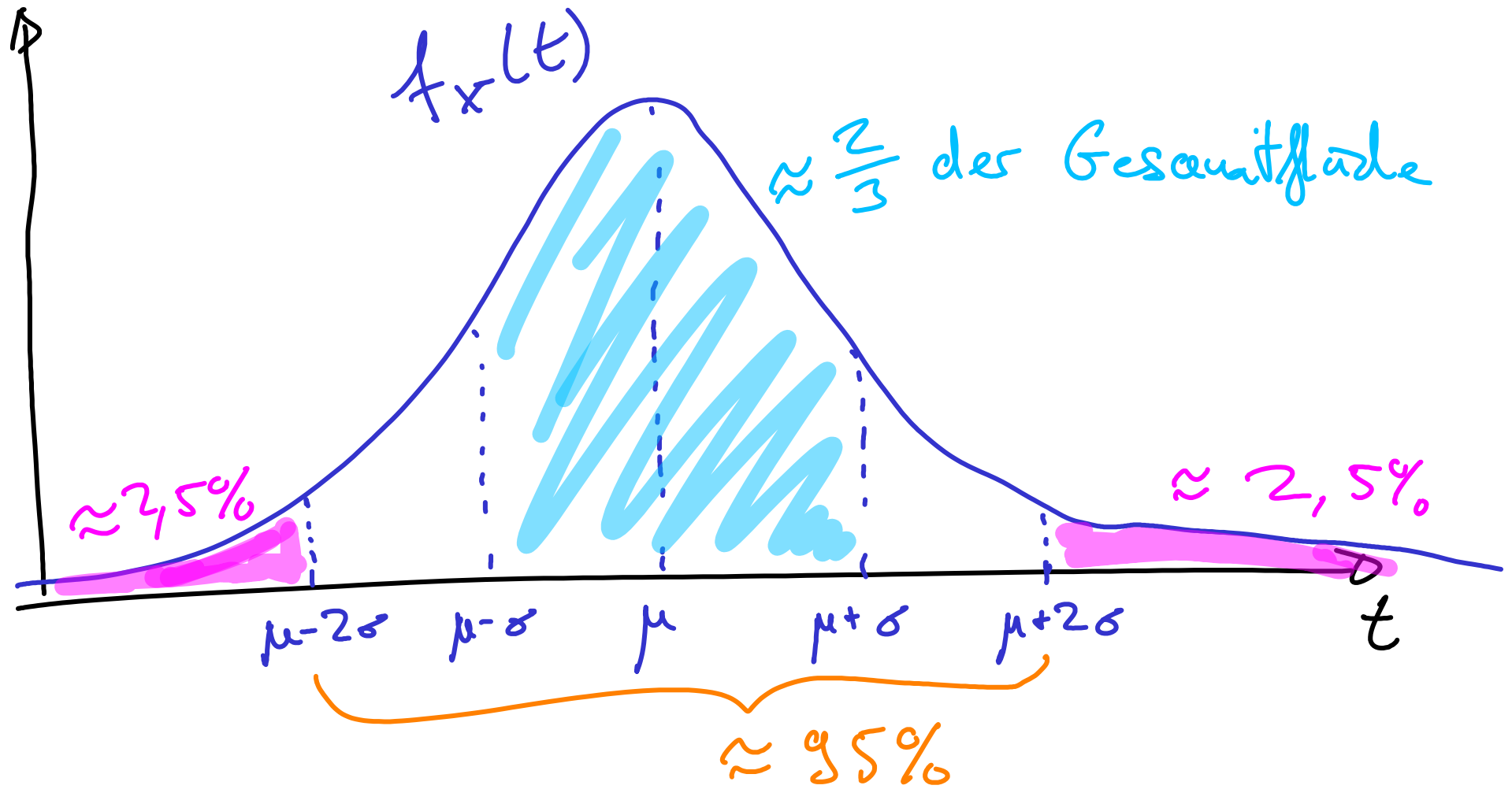


Normalverteilung:



$$X \sim \mathcal{N}(2, 5) \quad , \quad P[X \geq 5] = ?$$

$\mu \uparrow$ $\sigma^2 \uparrow$

$$Z := \frac{X-2}{\sqrt{5}} \sim \mathcal{N}(0, 1)$$

$$P[X \geq 5] = 1 - P[X \leq 5]$$

$$X = 2 + \sqrt{5} Z$$

$$= 1 - P[2 + \sqrt{5} Z \leq 5]$$

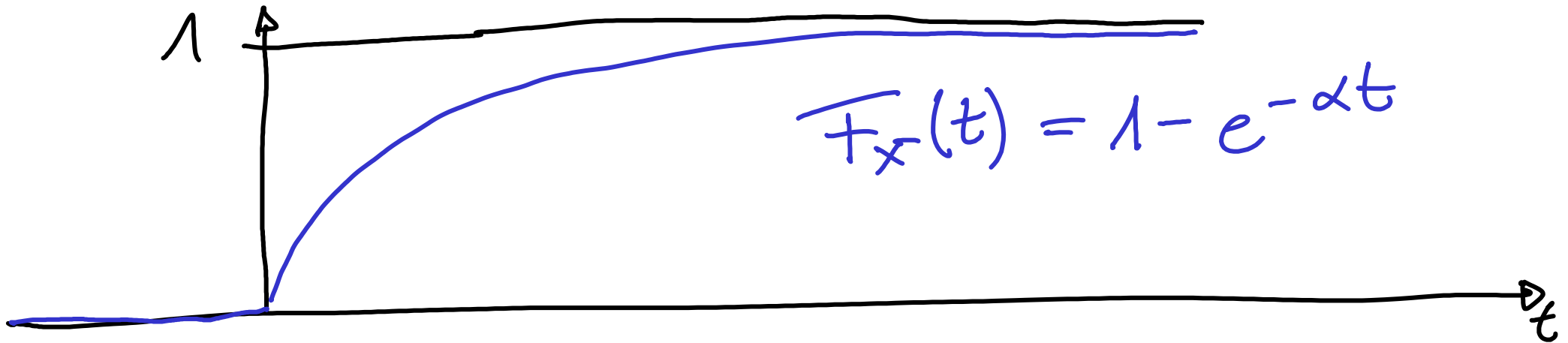
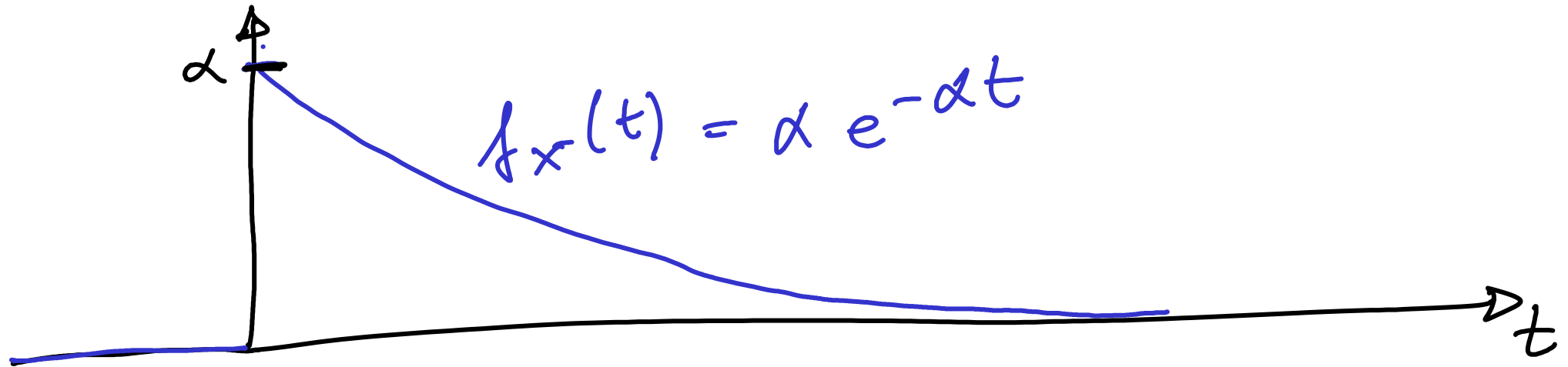
$$= 1 - P\left[Z \leq \frac{3}{\sqrt{5}}\right]$$

$$= 1 - \underbrace{\Phi\left(\frac{3}{\sqrt{5}}\right)}_{\approx 0,91}$$

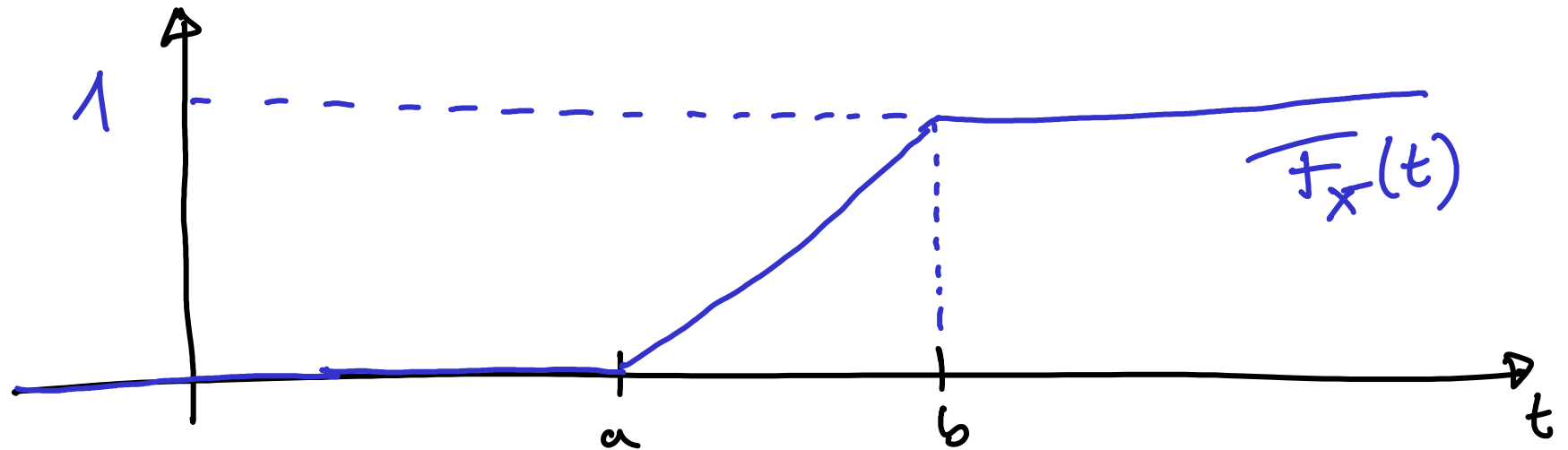
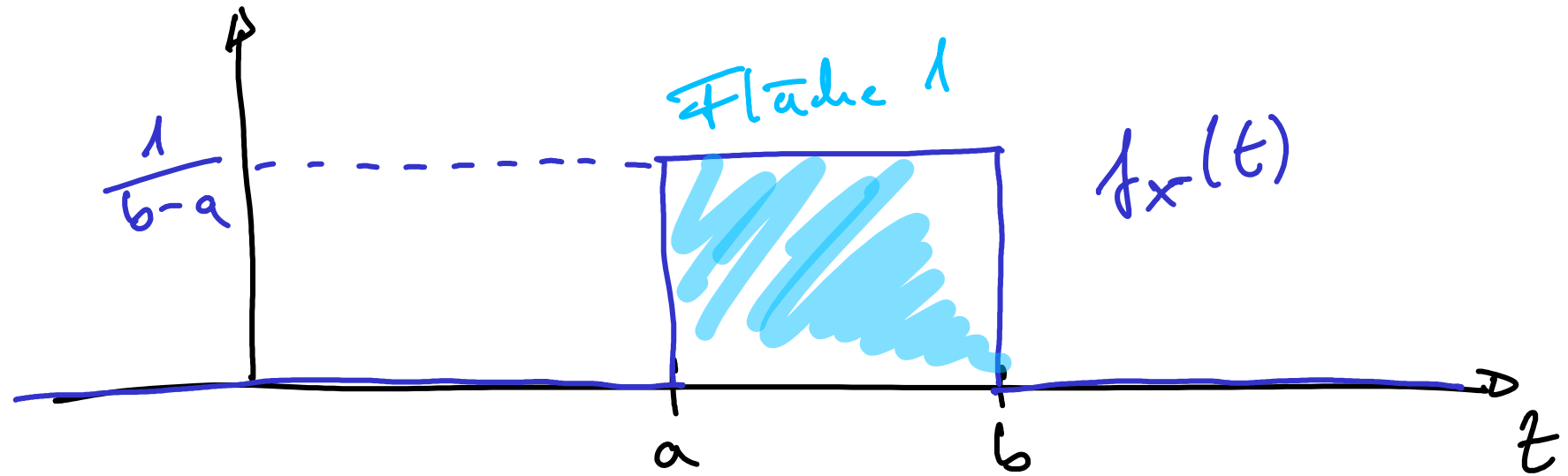
$$\approx 0,09 = 9\%$$

(Tabelle, Matlab, octave)

Exponentialverteilung



Gleichverteilung



Nachtrag: Verteilungsfkt d. Normalverteilung

$$X \sim N(0,1)$$

