We definieren: $s = i\omega$

laplace — fourier

$$\rightsquigarrow \mathcal{F}\left(\frac{e^{-bt} \cdot \sin(at) \cdot \Theta(t)}{a} \right)(\omega)$$

$$= \mathcal{L}\left(\frac{e^{-bt} \cdot \sin(at) \cdot}{a} \right)(s)$$

$$= \frac{1}{a} \cdot \mathcal{L}\left(\left(e^{-bt} \sin(at)\right) \right)(s)$$

shift

$$= \frac{1}{a} \cdot \mathcal{L}\left(\sin(at) \right)(s+b)$$

$$= \frac{1}{a} \cdot \frac{a}{a^2 + (s+b)^2} = \frac{1}{a^2 + (i\omega + b)^2}$$ ■