- Take the inverse Fourier transform $\mathcal{F}^{-1}f$ and ask what happens if the sign of the argument is reversed

$$\mathcal{F}^{-1}f(t) \equiv \int_{-\infty}^{\infty} f(s)\, e^{2\pi i s t}\, ds$$

$$\mathcal{F}^{-1}f(-t) = \int_{-\infty}^{\infty} f(s)\, e^{2\pi i s(-t)}\, ds$$

$$= \int_{-\infty}^{\infty} f(s)\, e^{-2\pi i s t}\, ds$$

$$= \mathcal{F}f(t)$$

or removing the explicit statement of the independent variable

$$\mathcal{F}^{-1}f^{-} = \mathcal{F}f$$

- Because this holds for $f(t)$ and tempered distributions can be obtained from f by

T_f and $\lim_{\alpha \to 0} T_{f_\alpha}$ it holds for distributions

$$(\mathcal{F}^{-1}T)^{-} = \mathcal{F}T \quad \checkmark$$

[see Osgood p 82-85 & 179-182]