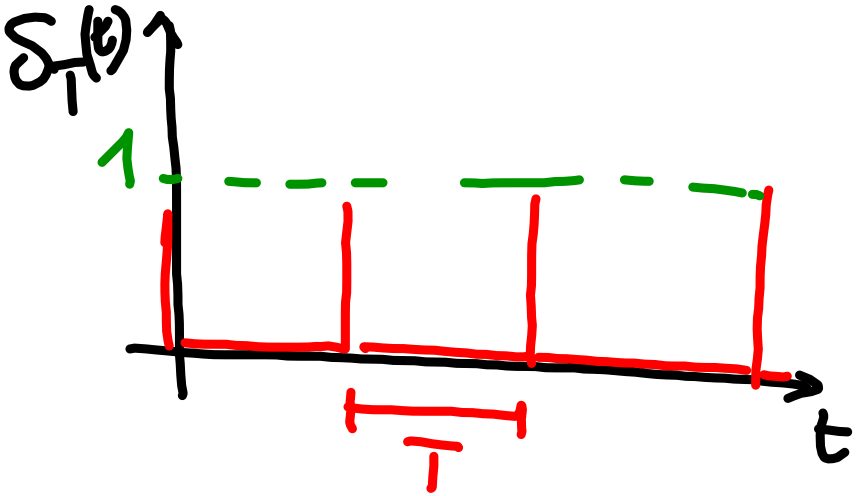
Ogni funzione periodica di periodo T, è sviluppabile in serie di Fourier

$$\omega_s = \frac{2\pi}{T}$$

$$f_T(t) = \sum_{n=-\infty}^{+\infty} c_n \, e^{nj\omega_s t}$$

$$c_n = \frac{1}{T}\int_0^T f_T(t)\, e^{-jn\omega_s T} \, dt$$

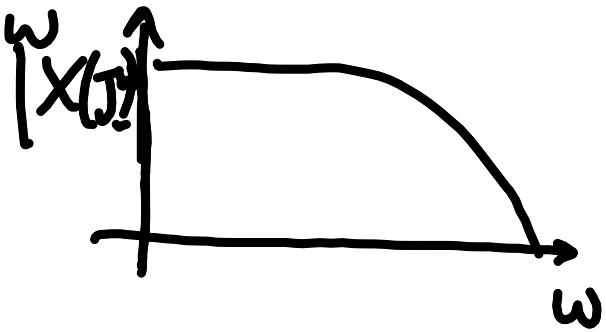

$\delta_T(t)$
1
T
t

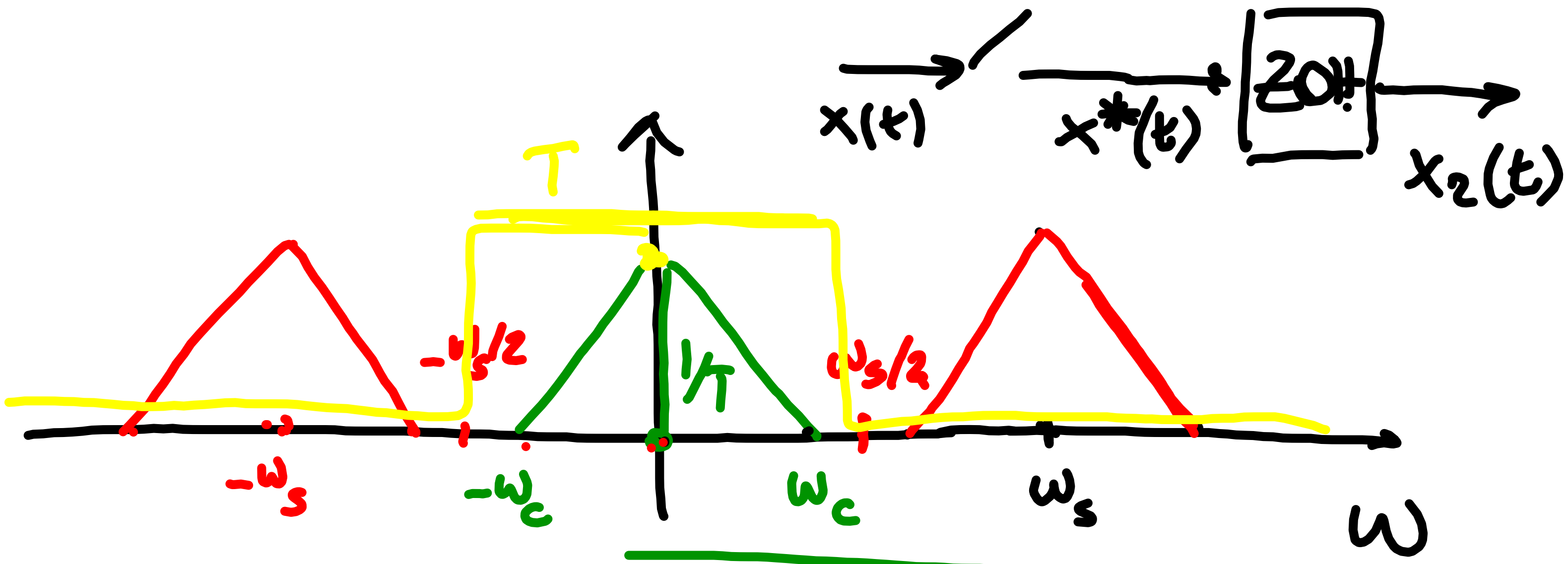
$$\mathcal{L}\left[x^*(t)\right] = \mathcal{L}\left[\frac{1}{T}\sum_{n=-\infty}^{+\infty} x(t)\, e^{jn\omega_s t}\right]$$

$$X^*(s) = \frac{1}{T}\sum_{n=-\infty}^{+\infty} X\left(s - jn\omega_s\right)$$

$$\omega_s = \frac{2\pi}{T}$$

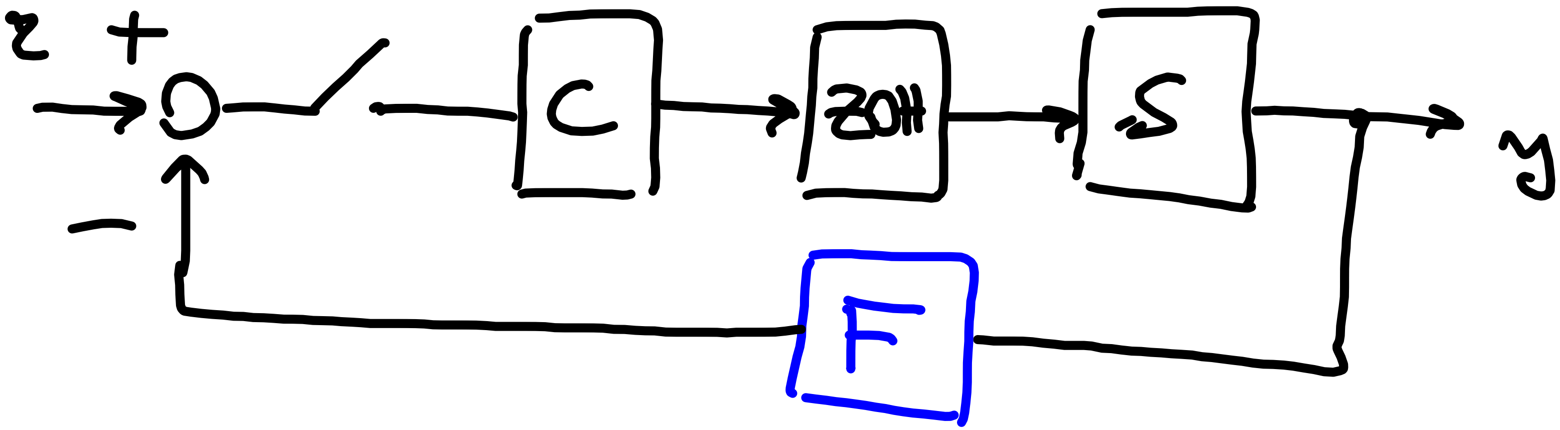
$$X(s)\Big|_{s=j\omega} = X(j\omega)$$



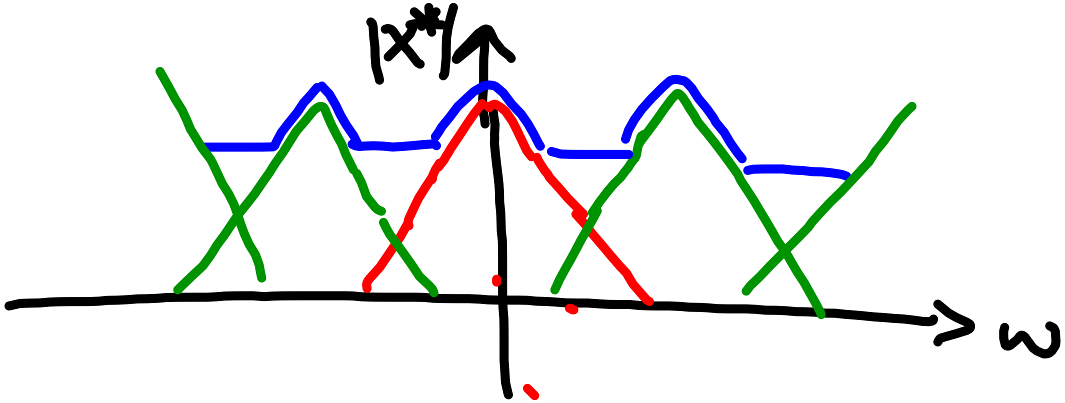


$$\boxed{\omega_s/2 > \omega_c}$$

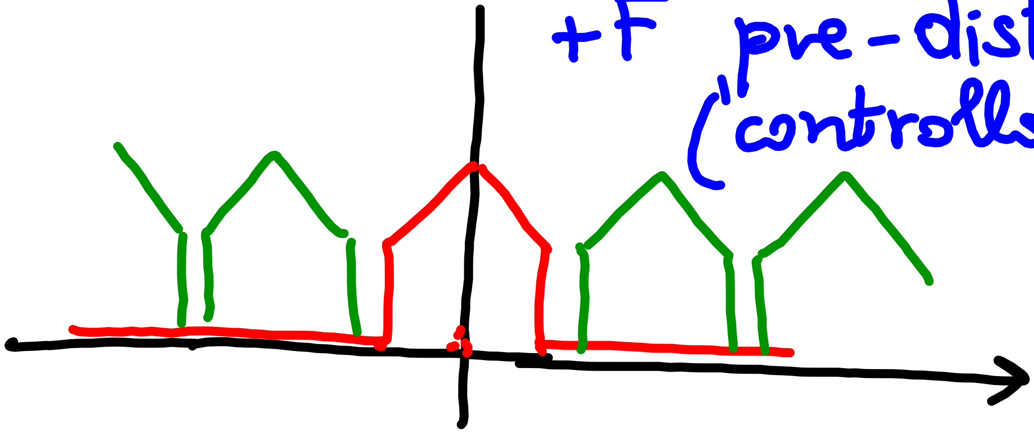
$$\omega_s > 2\,\omega_c$$



r
+
−
C
ZOH
S
F
y



+F pre-distorsione
('controllata')



$$H_0(s)\Big|_{s=j\omega} = H_0(j\omega)$$

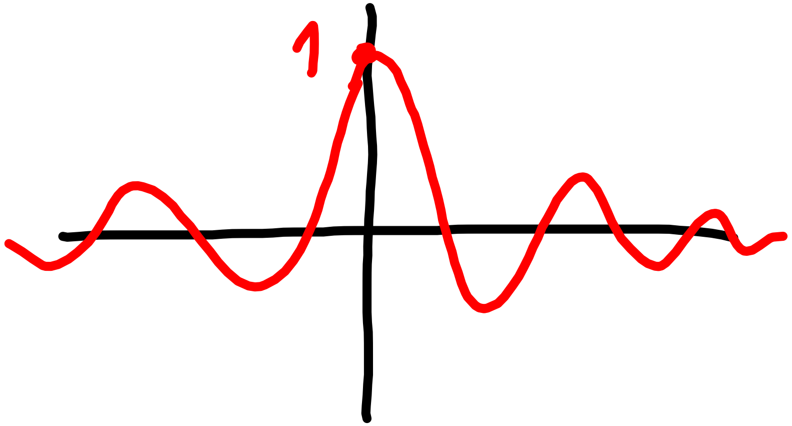
$$1 = \frac{e^{-j\omega T/2}}{e^{-j\omega T/2}} = e^{-j\omega T/2} \cdot e^{j\omega T/2}$$

$$e^{J\vartheta} = \cos\vartheta + J\sin\vartheta$$

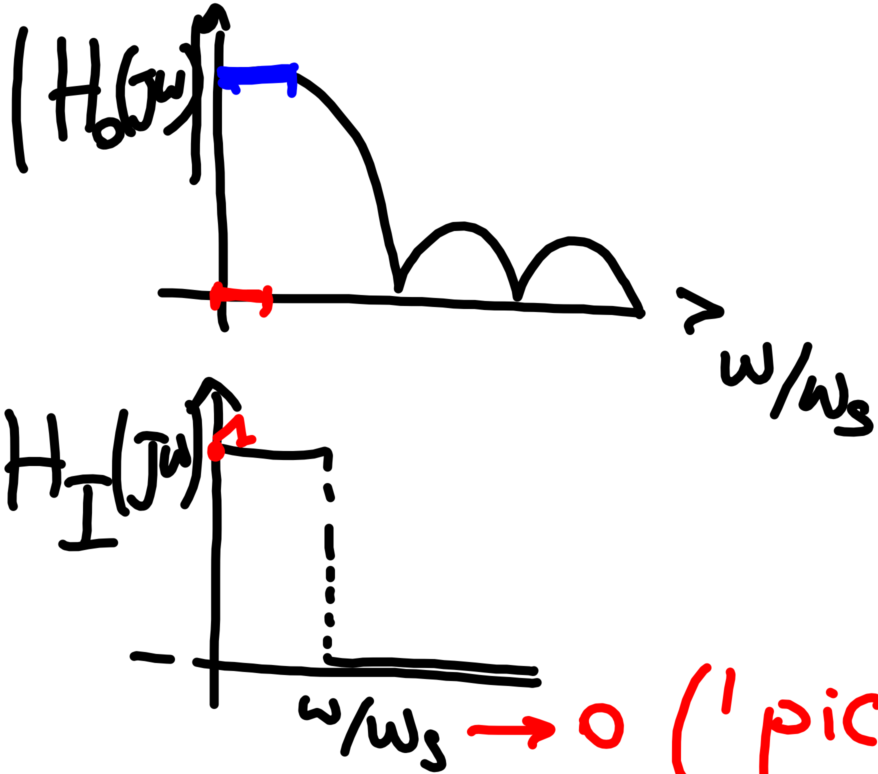
$$- \quad e^{-J\vartheta} = -\cos\vartheta + J\sin\vartheta$$

$$\sin\vartheta = \frac{e^{J\vartheta} - e^{-J\vartheta}}{2J}$$

$$\frac{\sin x}{x} = \text{sinc } x$$



$$\left| e^{-j\omega T/2} \right| = 1$$



$\omega_s >> 0$

$\rightarrow 0$ ('piccolo')

$$H_0(j\omega) \simeq T \cdot e^{-j\omega \frac{T}{2}}$$

$\left(\omega/\omega_s \text{ piccolo}\right)$

$\boxed{\text{ritardo di } T/2}$