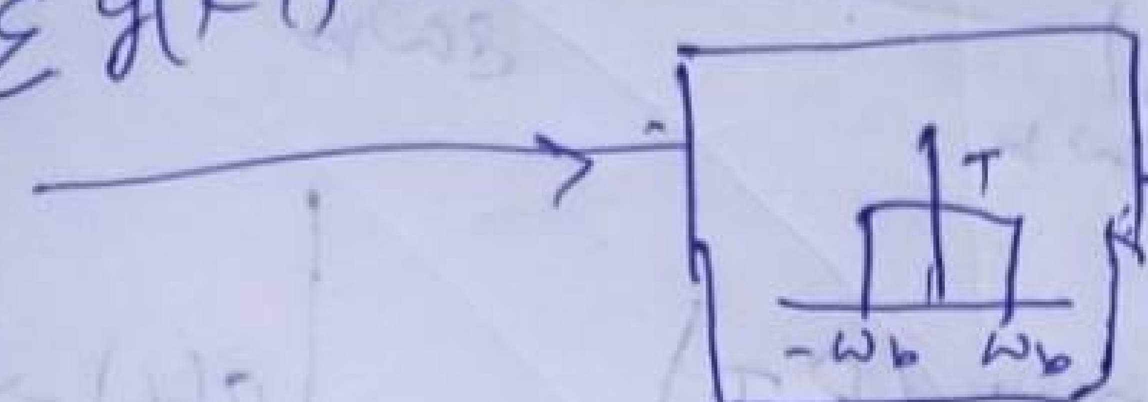
Assuming no aliasing is the right choice for getting rid of intersymbol interference.

2. **Nyquist criterion:-**

$$\omega_b = \frac{1}{2T}$$

$\Sigma g(KT)\,\delta(t-KT)$ $\qquad$ $\sum_{K=-\infty}^{\infty} g(KT)\sin\left(\frac{t}{T}-K\right) = s(t)$



$h(t) = \mathrm{sinc}\left(\frac{t}{T}\right)$

$\hat{H}(f) = T\,\mathrm{rect}(Tf)$

if $g(t)$ is ideal Nyquist,

$g(0) = 1$

$g(KT) = 0 \quad \forall K \neq 0,\ K \in \mathbb{Z}$

$s(t) = \mathrm{sinc}(t/T)$

Eq^n $\sum_{K=-\infty}^{\infty} g(KT)\,\mathrm{sinc}\left(\frac{t}{T}-K\right) = \mathrm{sinc}(t/T)$

$\Downarrow \mathcal{F}$ Aliasing Theorem

f.i.m $\sum_{m=-\infty}^{\infty} \hat{g}\left(f+\frac{m}{T}\right) T\,\mathrm{rect}(fT) = T\,\mathrm{rect}(fT)$

$\Rightarrow$ **Band-Edge symmetry:-**

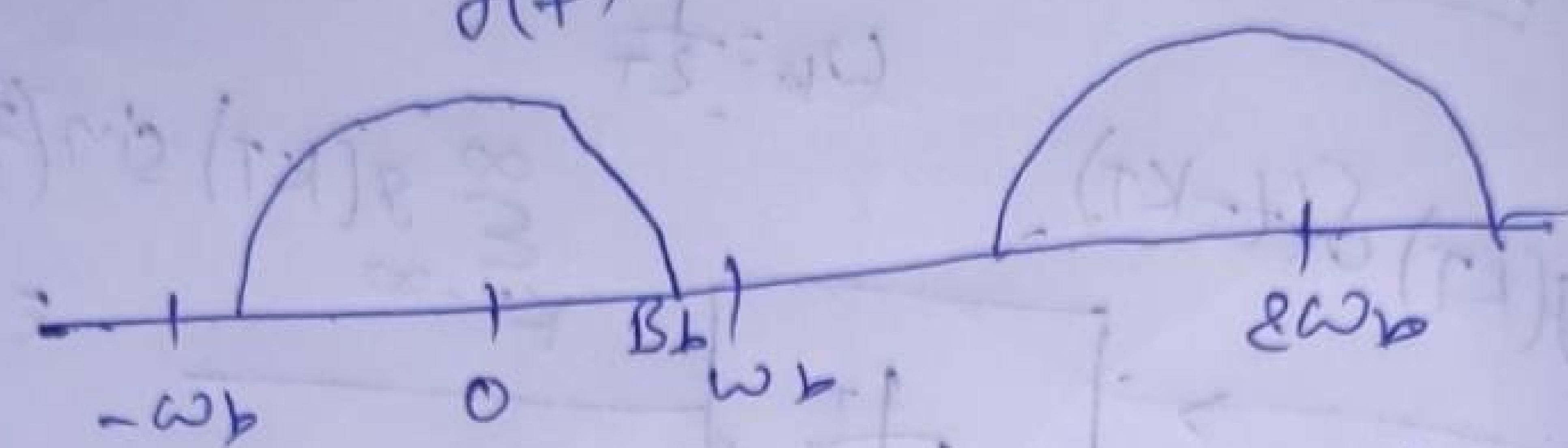
$\omega_b = \frac{1}{2T}$

$B_b \leftarrow$ bandwidth of $g(t)$

$B_b < \omega_b$

No aliasing it is not the right choice

$\Downarrow$



$\hat{g}(f) = rect(fT)$

$\Downarrow$

$g(t) = \text{sinc}(t/T)$ $\times$

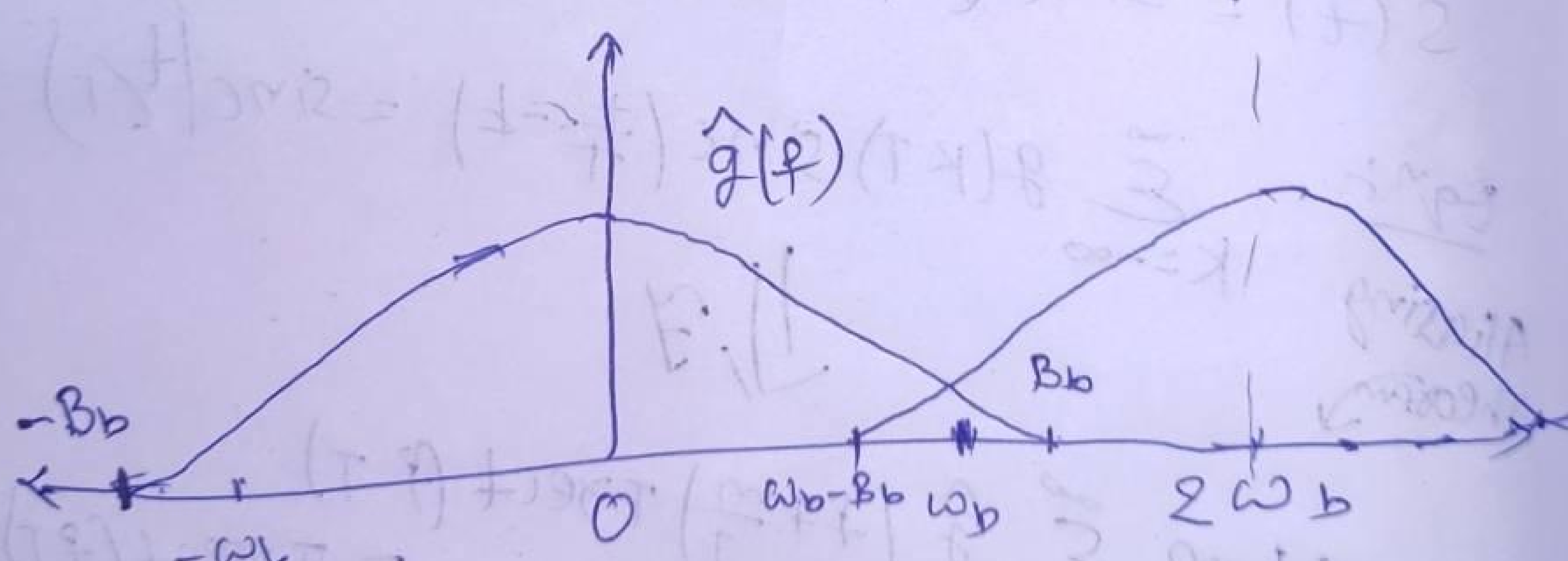
$g(t) \rightarrow$ real, even

$\Downarrow$

$\hat{g}(f) \rightarrow$ real, even

Aliasing is desirable

$2\omega_b > B_b > \omega_b$



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