IEE 2103 Señales y Sistemas

Clase 6E: Transformada de Fourier Discreta

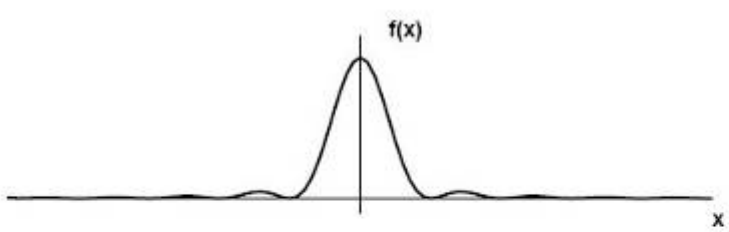
Consideraciones prácticas

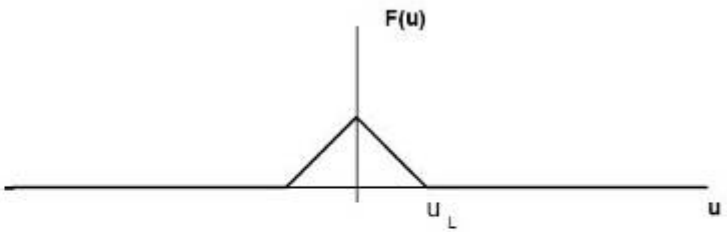
Consideraciones prácticas

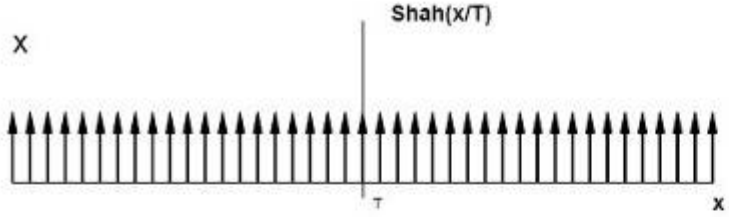
- Aliasión
- Apodización
- Derrame
- Aproximación de la FT
- La Transformada Rápida de Fourier

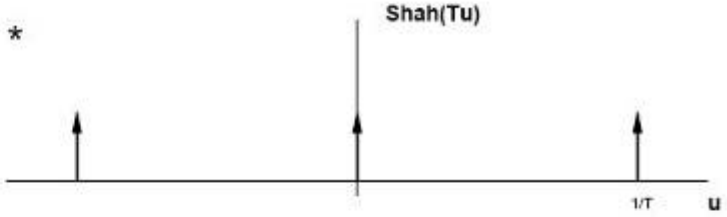
6.6 Consideraciones prácticas: aliasión

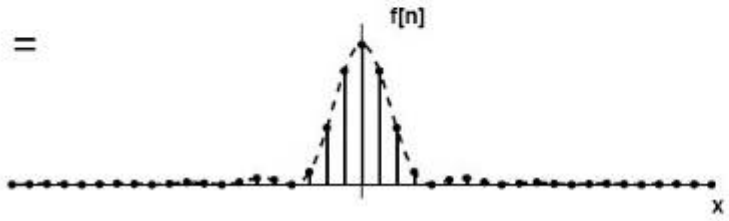
Frecuencia de muestreo mayor a Nyquist

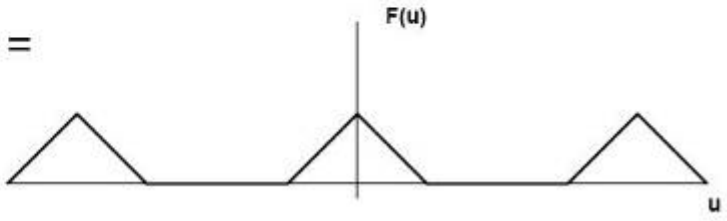






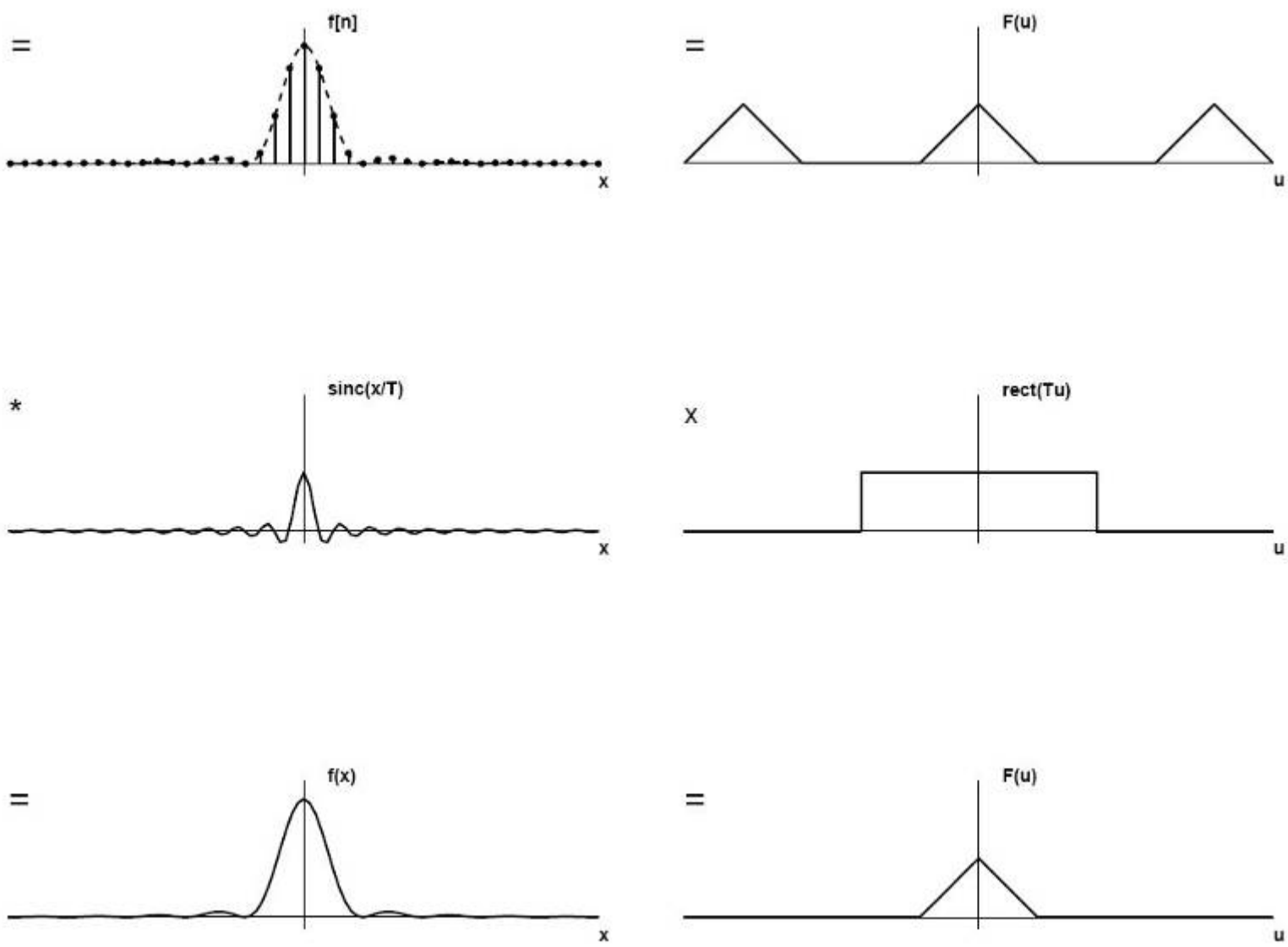






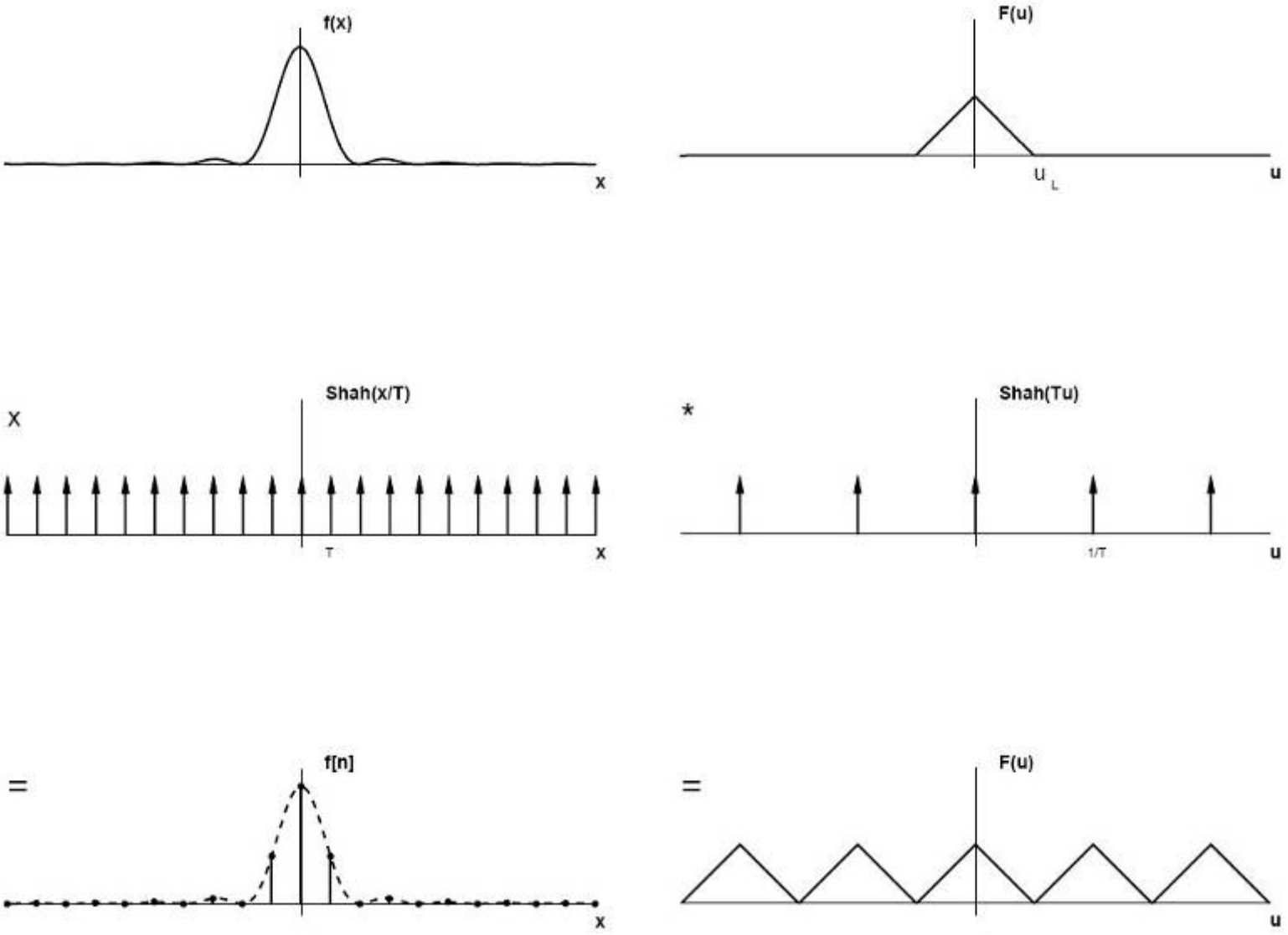
6.6 Consideraciones prácticas: aliasión

Frecuencia de muestreo mayor a Nyquist: recuperación de la señal



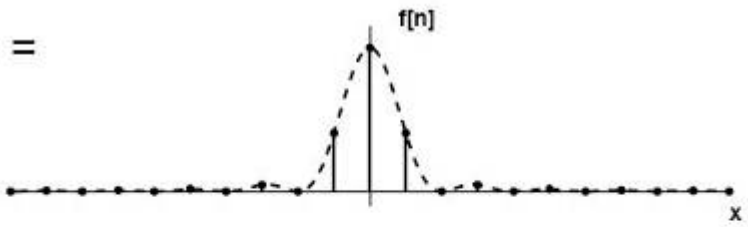
6.6 Consideraciones prácticas: aliasión

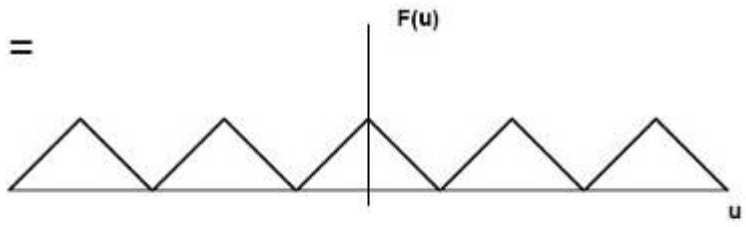
Frecuencia
de muestreo
de Nyquist

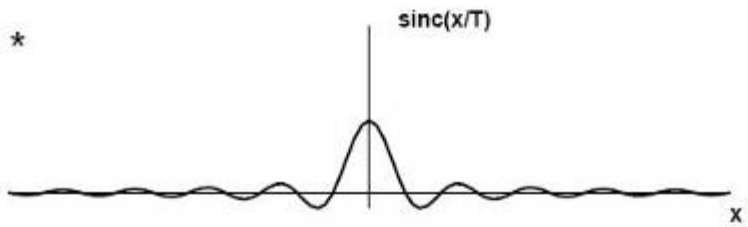


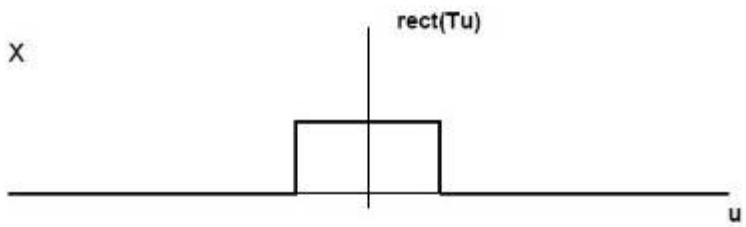
6.6 Consideraciones prácticas: aliasión

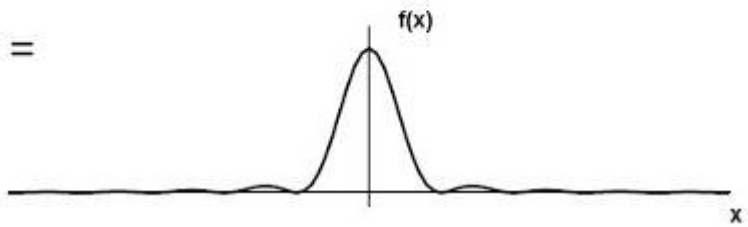
Frecuencia de muestreo de Nyquist: recuperación de la señal

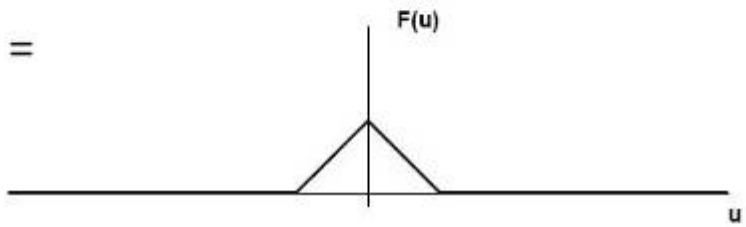






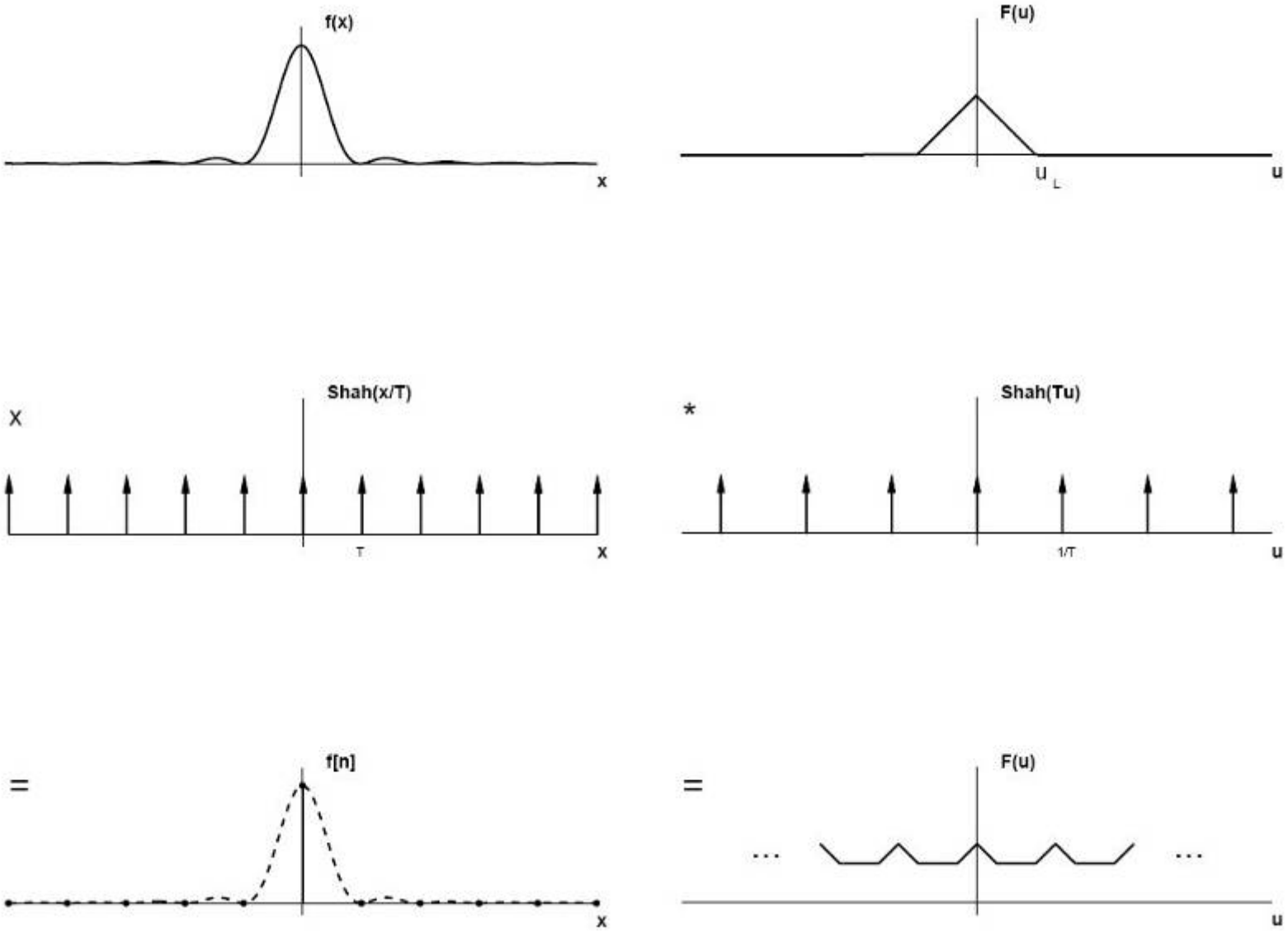






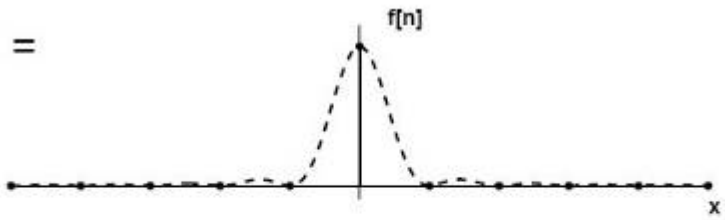
6.6 Consideraciones prácticas: aliasión

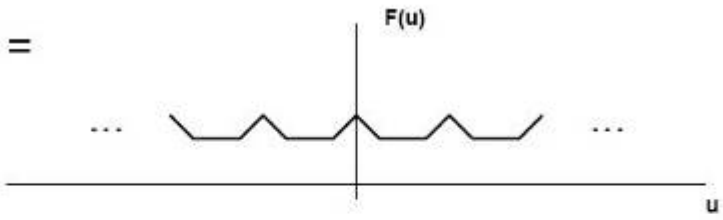
Frecuencia de muestreo menor a Nyquist

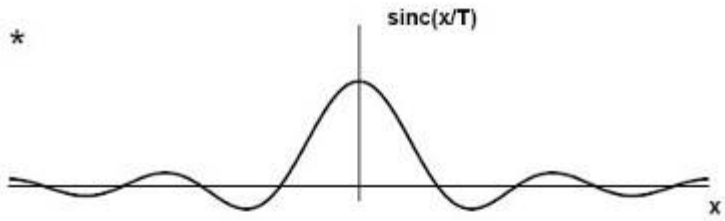


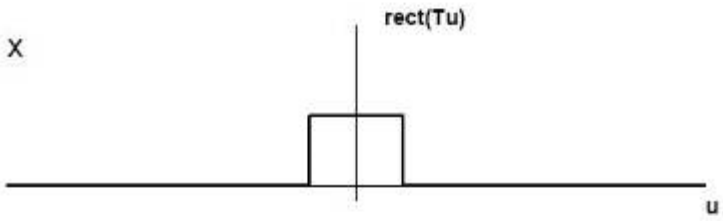
6.6 Consideraciones prácticas: aliasión

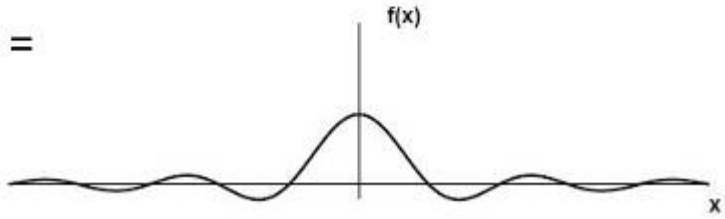
Frecuencia de muestreo menor a Nyquist: recuperación de la señal

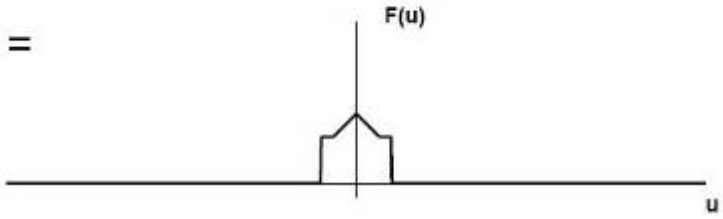






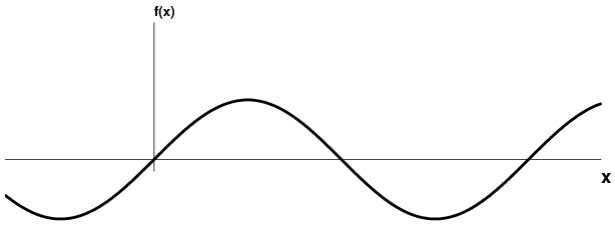


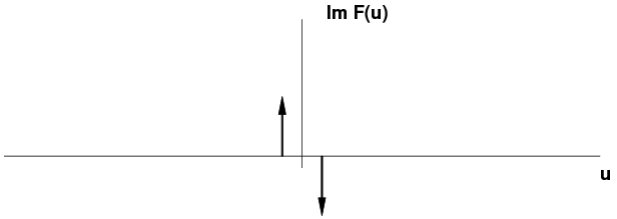


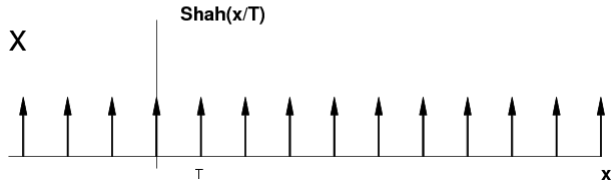


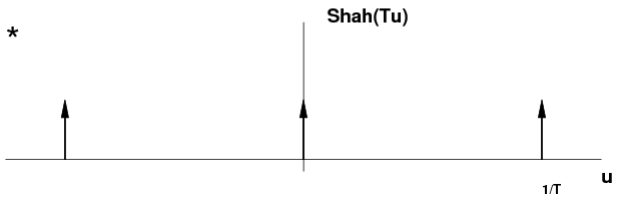
6.6 Consideraciones prácticas: aliasión

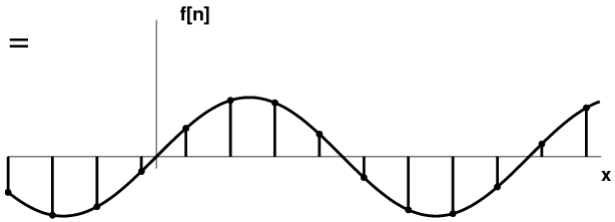
Frecuencia de muestreo mayor a Nyquist

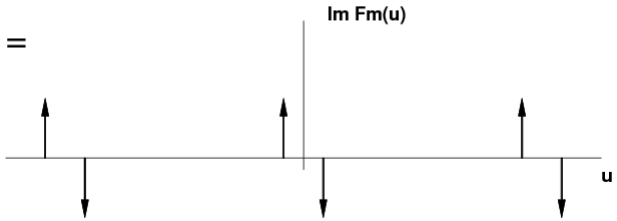






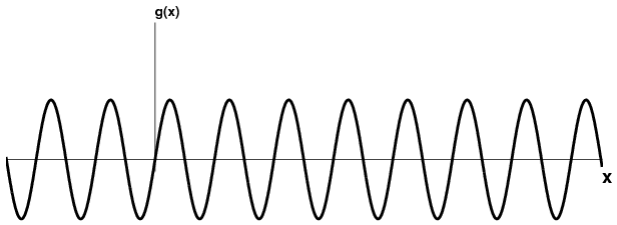


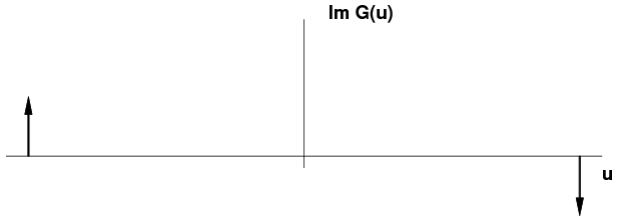


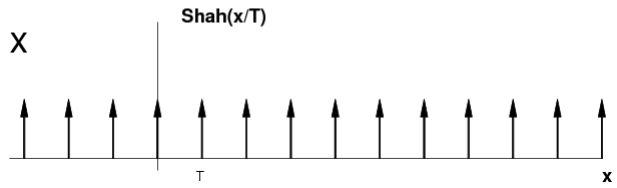


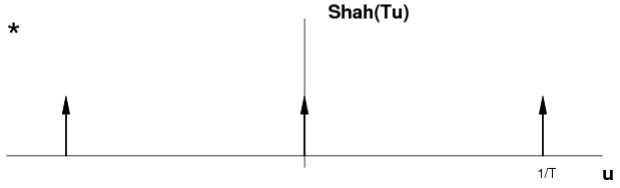
6.6 Consideraciones prácticas: aliasión

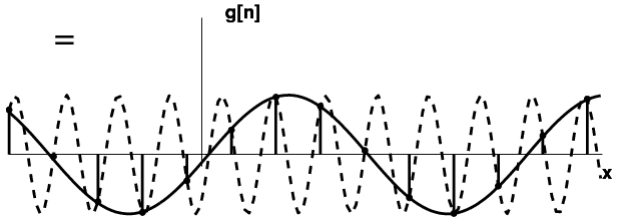
Frecuencia de muestreo menor a Nyquist

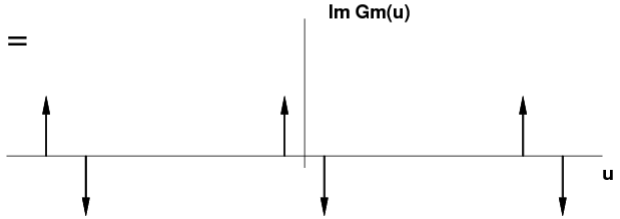




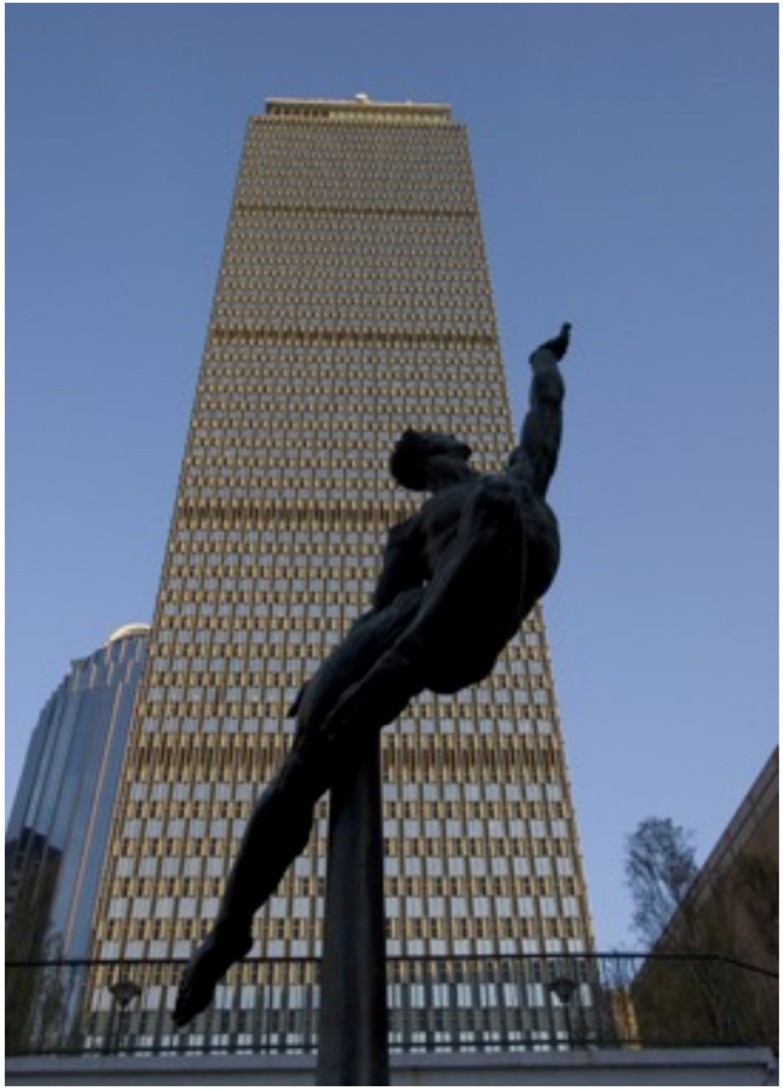








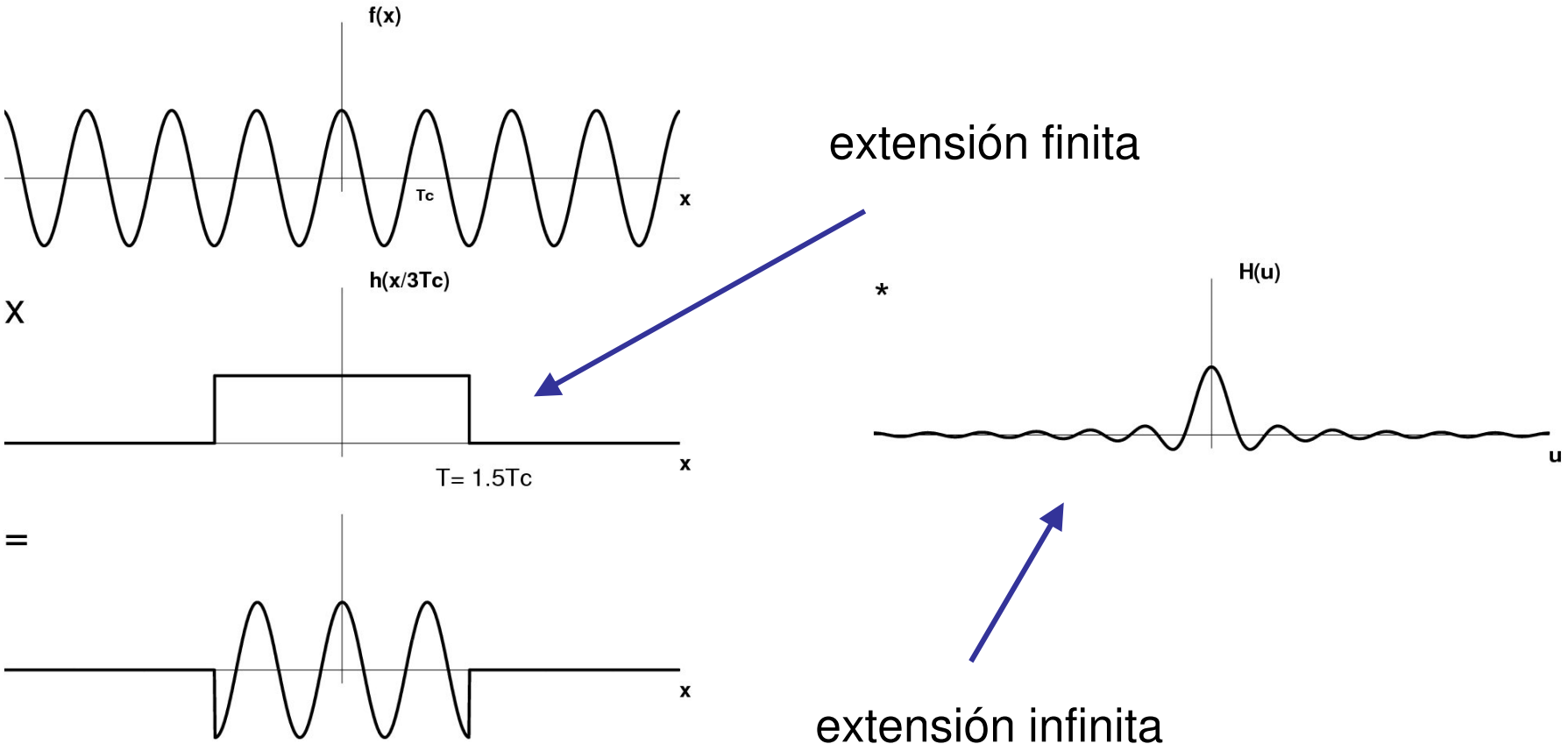
Aliasión: ejemplo en imágenes

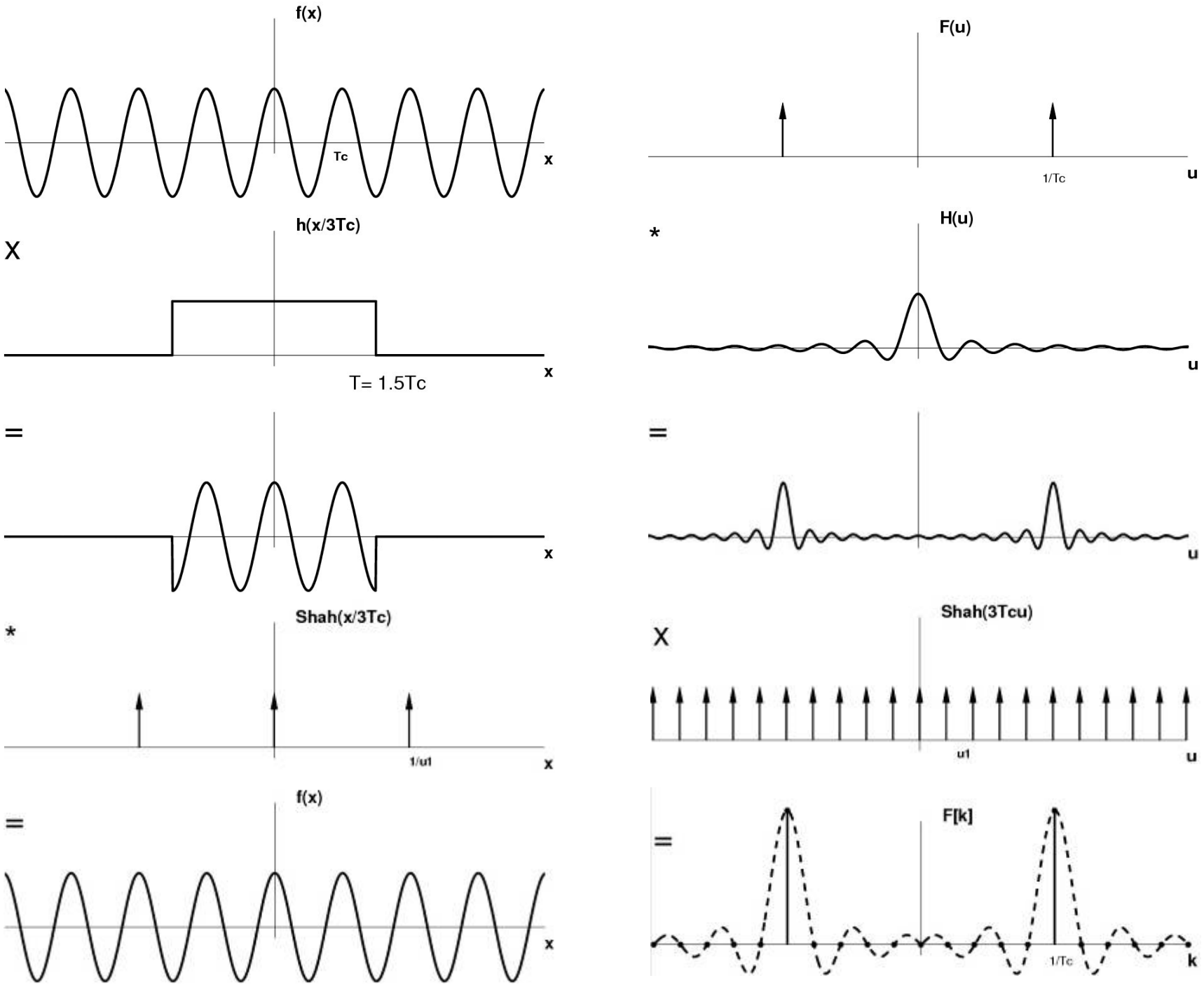




6.6 Consideraciones prácticas: apodización

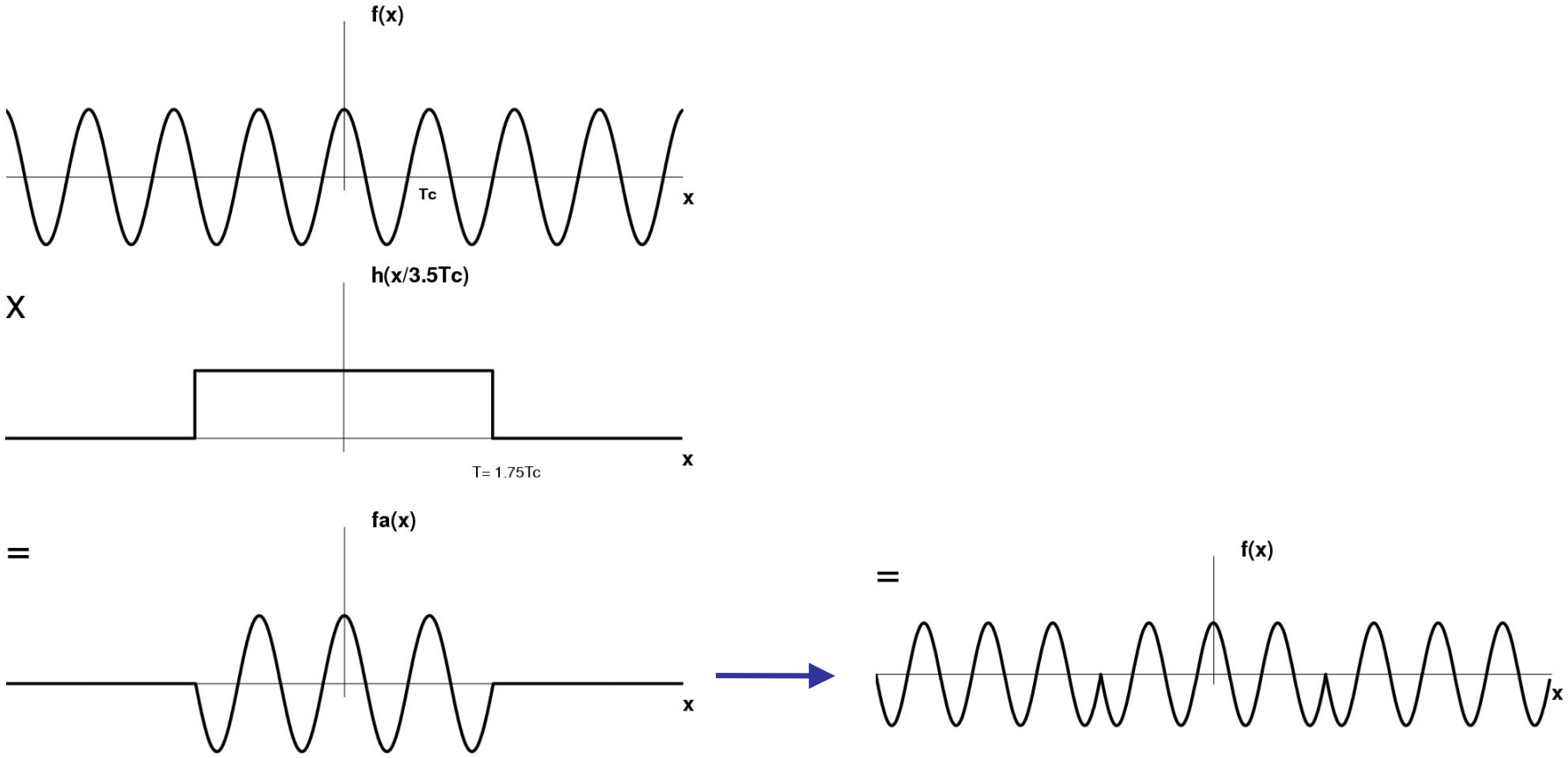
Apodizar: extraer un tramo de la señal para procesar.

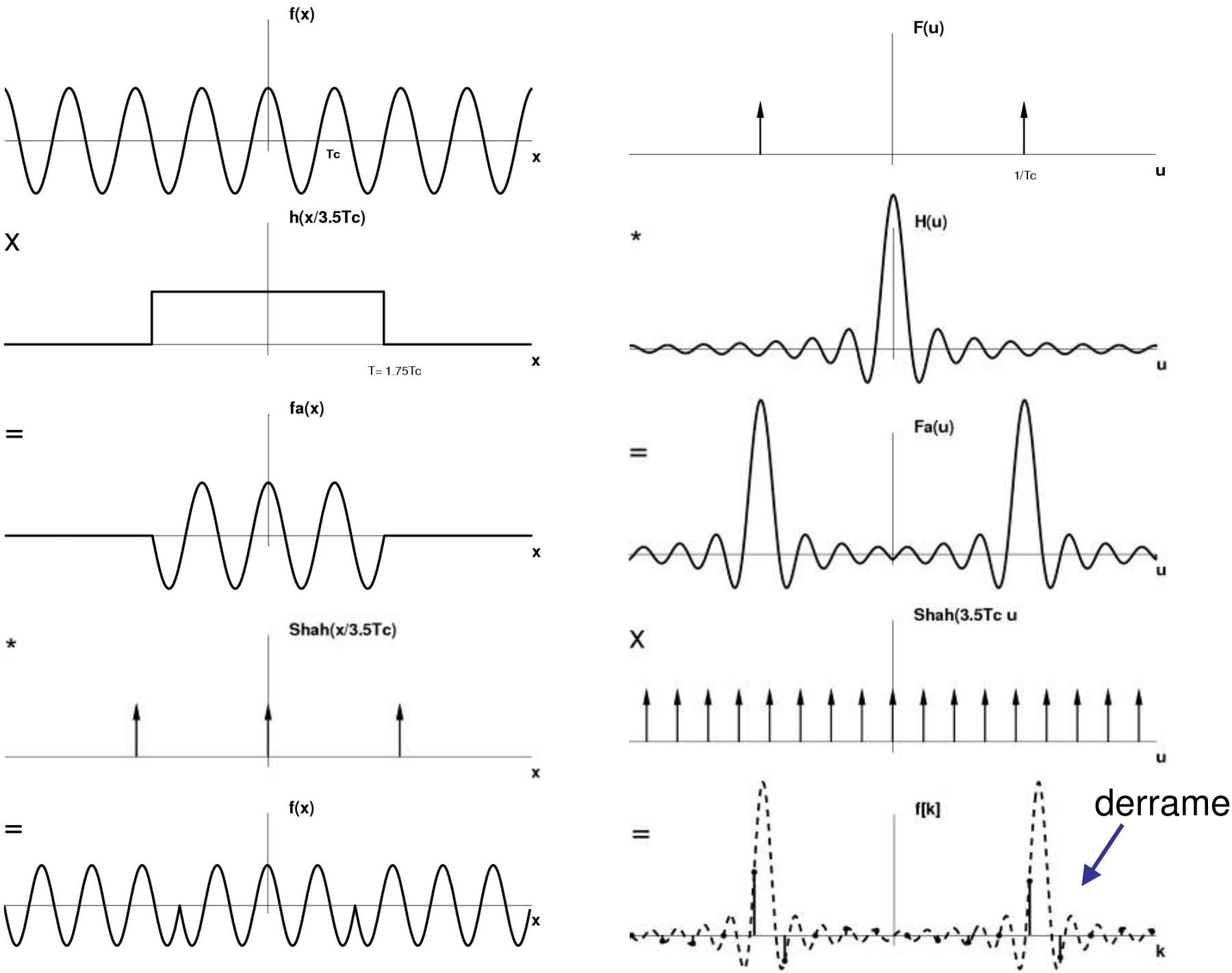



f(x)
Tc
x
F(u)
1/Tc
u
h(x/3Tc)
X
x
T= 1.5Tc
H(u)
*
u
=
x
=
u
Shah(x/3Tc)
*
1/u1
x
Shah(3Tcu)
X
u1
u
f(x)
=
x
=
F[k]
1/Tc
k

6.6 Consideraciones prácticas: derrame

La ventana de apodización hace perder periodicidad a la señal




f(x)
Tc
x
h(x/3.5Tc)
X
x
T= 1.75Tc
fa(x)
=
x
Shah(x/3.5Tc)
*
x
f(x)
=
x
F(u)
1/Tc
u
H(u)
*
u
Fa(u)
=
u
Shah(3.5Tc u
X
u
f[k]
=
k
derrame