Tratamiento de Señales
Version 2022-1
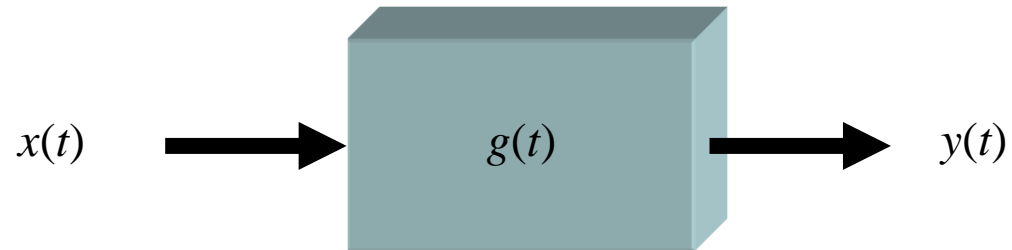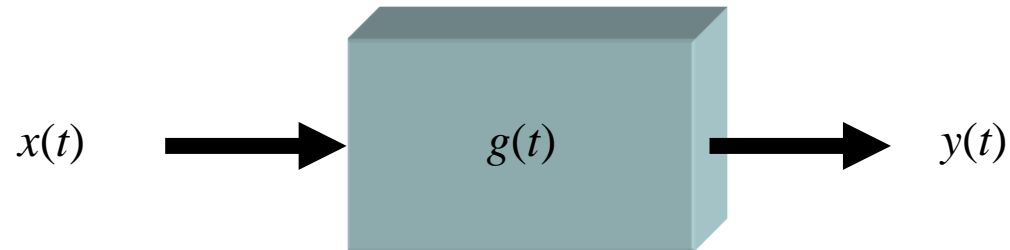
Convolución 1D

[Capítulo 4]

Dr. José Ramón Iglesias

DSP-ASIC BUILDER GROUP
Director Semillero TRIAC
Ingenieria Electronica
Universidad Popular del Cesar

[Convolución 1D]

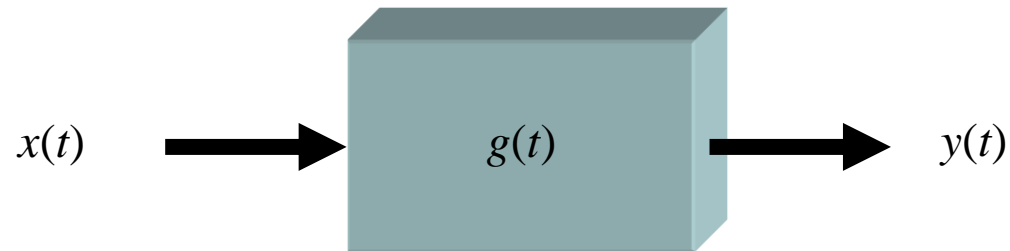$$x(t) \longrightarrow \boxed{g(t)} \longrightarrow y(t)$$

[Convolución 1D]

$$y(t) = \int_{-\infty}^{+\infty} g(t-\tau)x(\tau)d\tau$$

[Convolución 1D]

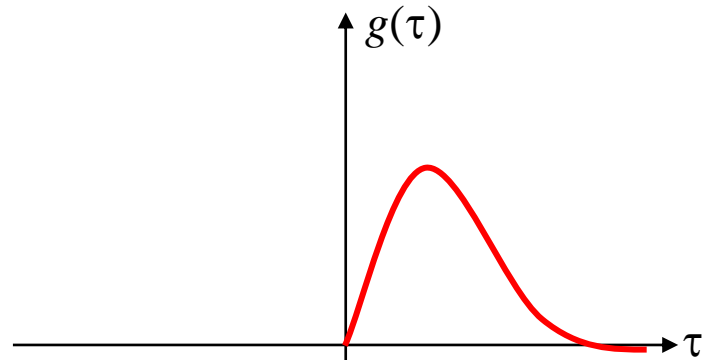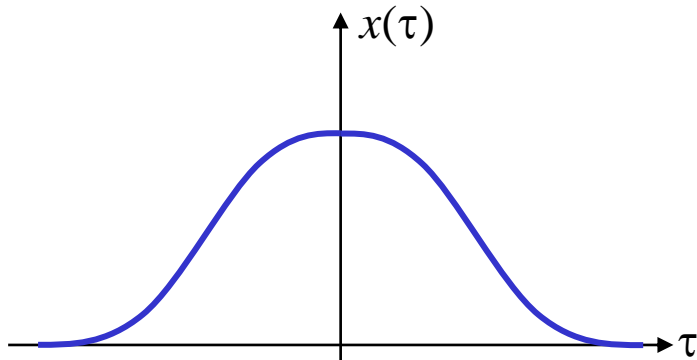
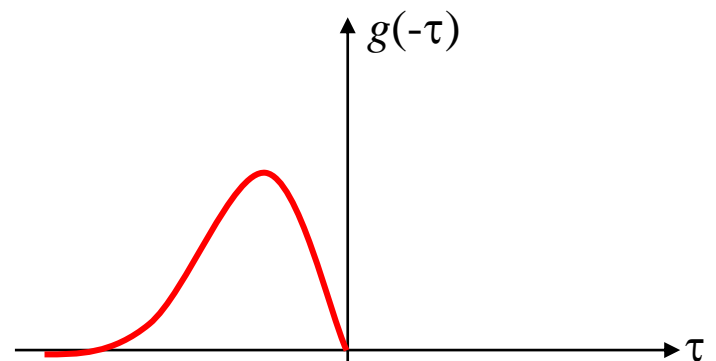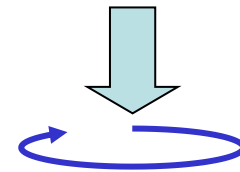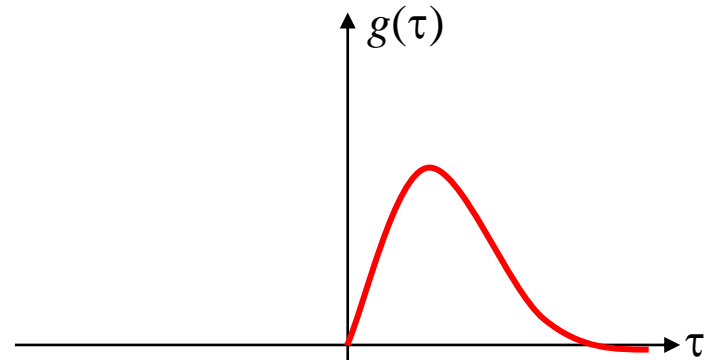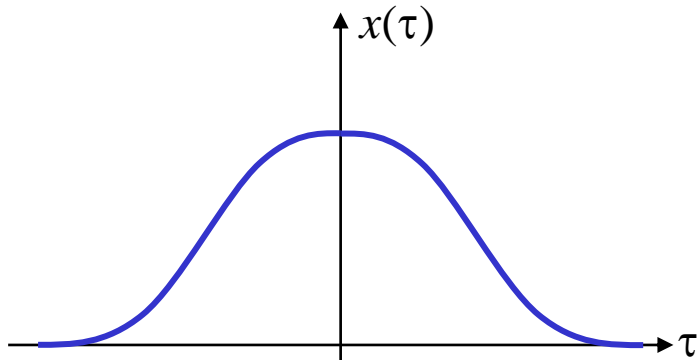$$y(t) = \int_{-\infty}^{+\infty} g(t-\tau)x(\tau)d\tau$$

$$y(t) = x(t) * g(t)$$

[Convolución 1D]

$$y(t) = \int\limits_{-\infty}^{+\infty} g(t-\tau)x(\tau)\,d\tau$$

$x(\tau)$

$g(\tau)$

τ

τ

[Convolución 1D]

$$y(t) = \int\limits_{-\infty}^{+\infty} g(t-\tau)x(\tau)d\tau$$

[Convolución 1D]

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[Convolución 1D]

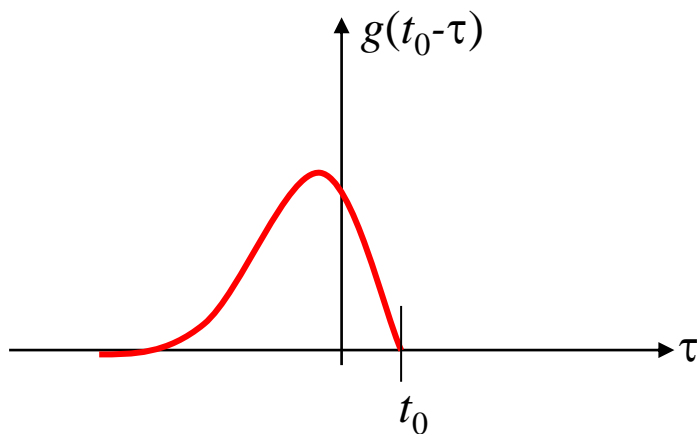$$y(t) = \int_{-\infty}^{+\infty} g(t-\tau)x(\tau)d\tau$$

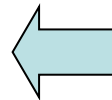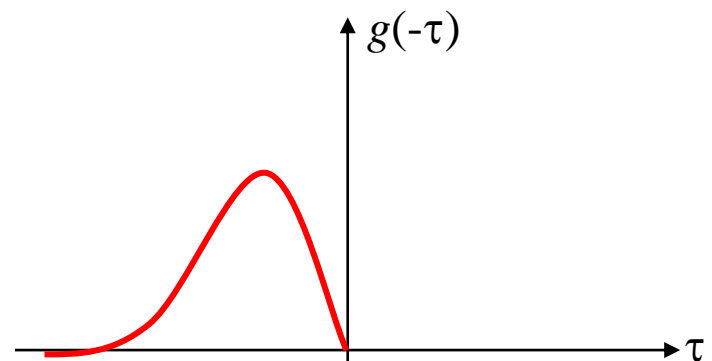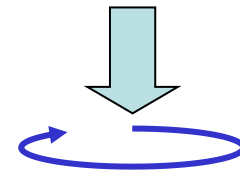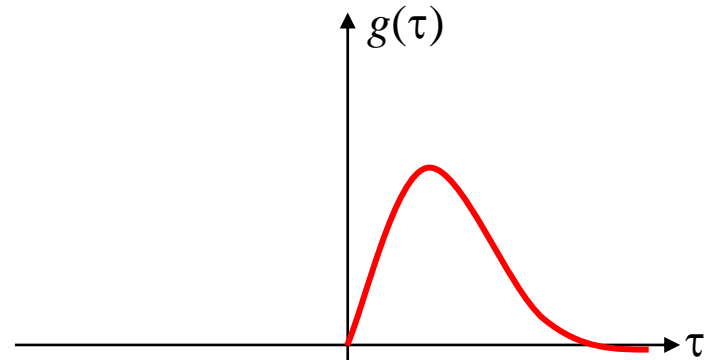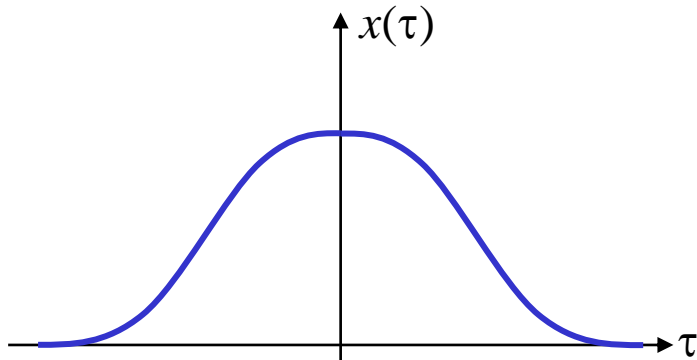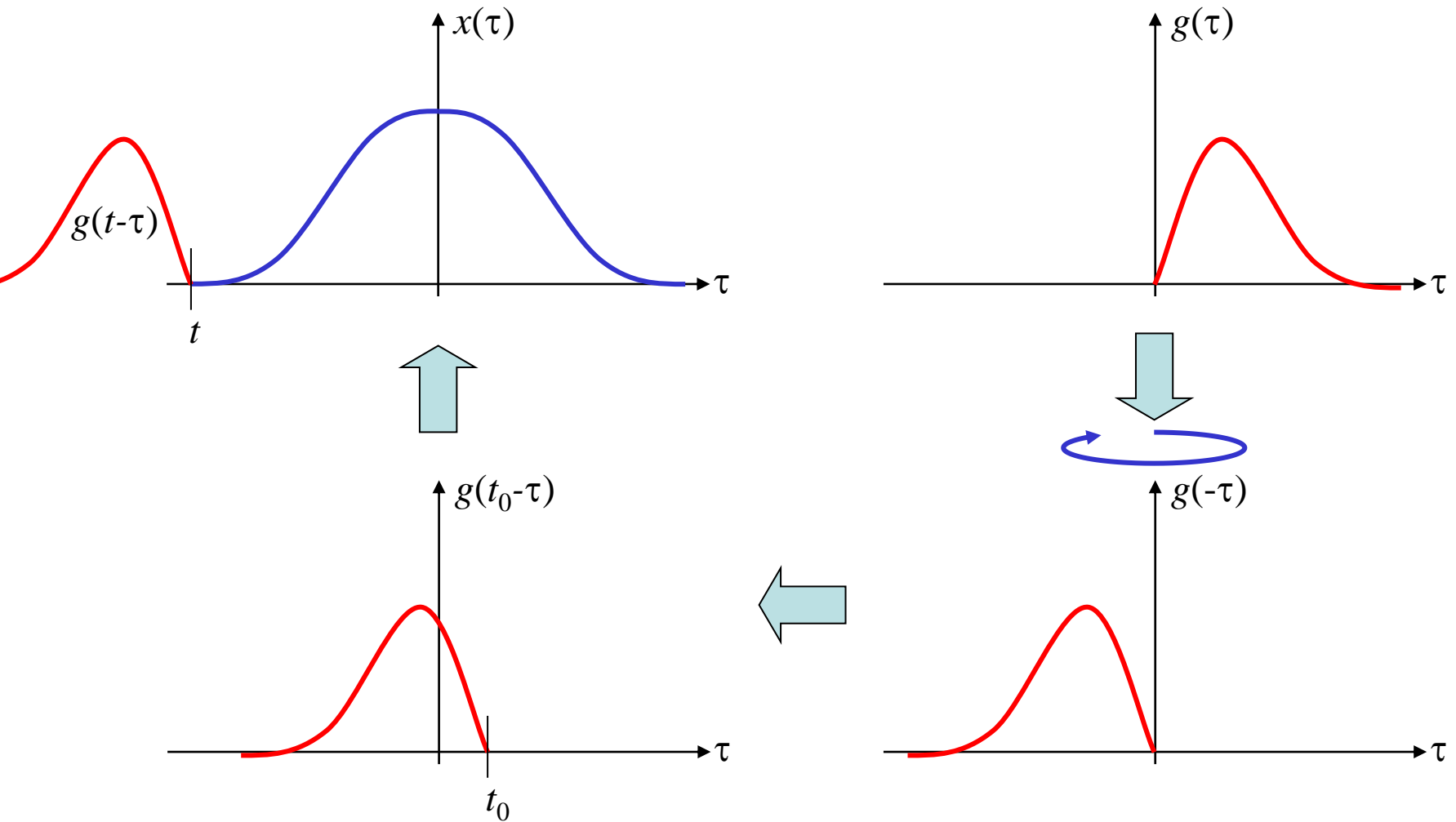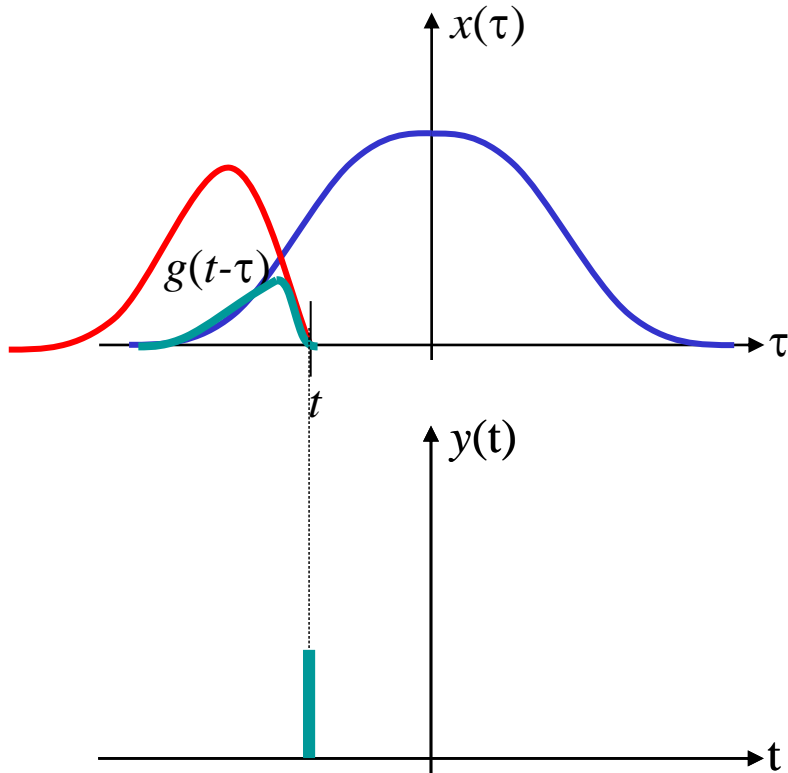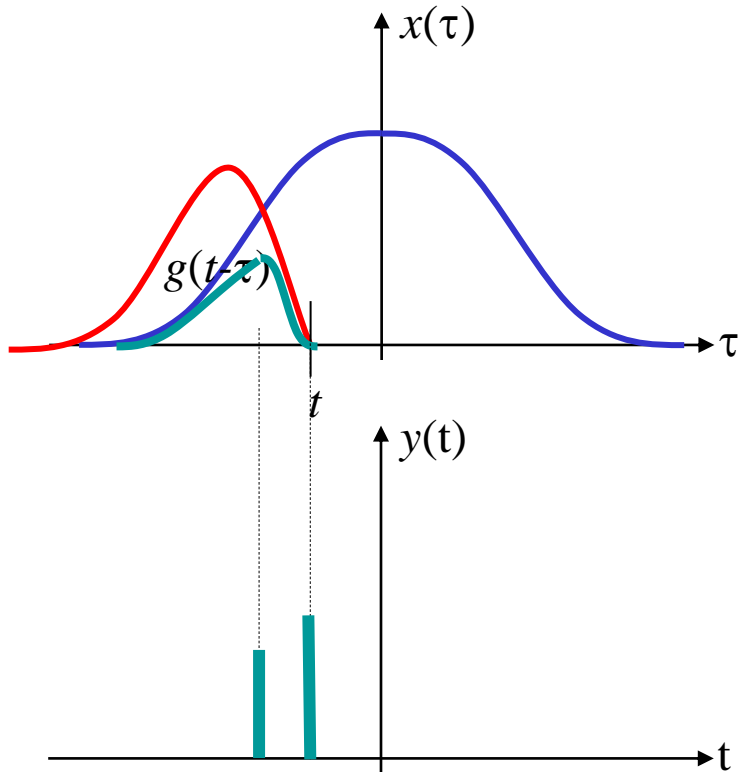# [Convolución 1D]

$$y(t) = \int\limits_{-\infty}^{+\infty} g(t-\tau)x(\tau)d\tau$$

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$$y(t) = \int\limits_{-\infty}^{+\infty} g(t-\tau)x(\tau)\,d\tau$$

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[Convolución 1D]

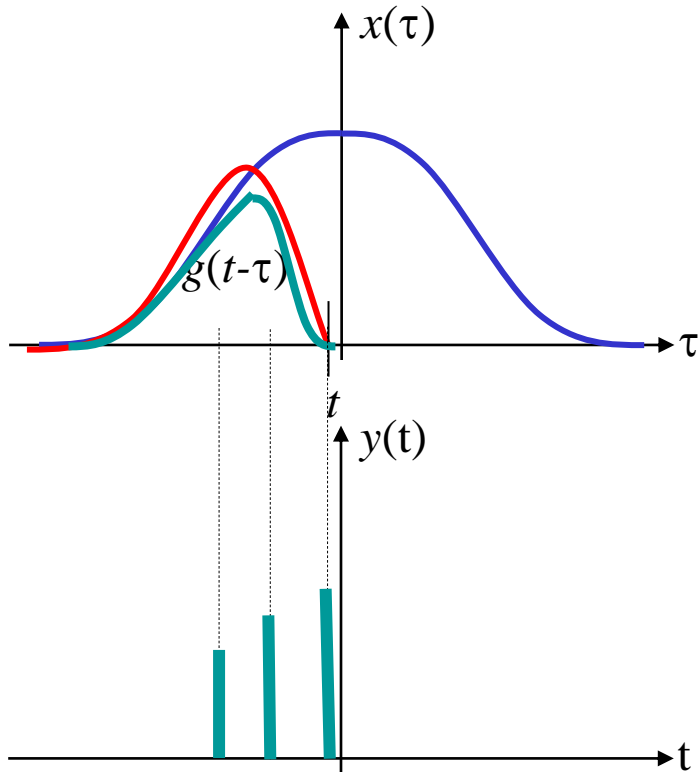$$y(t) = \int\limits_{-\infty}^{+\infty} g(t-\tau)x(\tau)d\tau$$

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$$y(t) = \int\limits_{-\infty}^{+\infty} g(t-\tau)x(\tau)d\tau$$

[Convolución 1D]

$$y(t) = \int_{-\infty}^{+\infty} g(t - \tau) x(\tau) d\tau$$

[Convolución 1D]

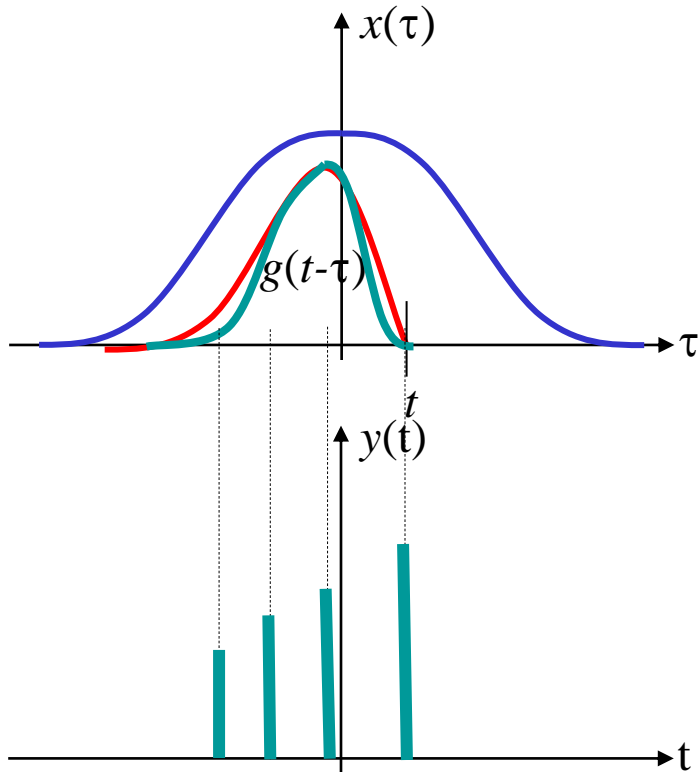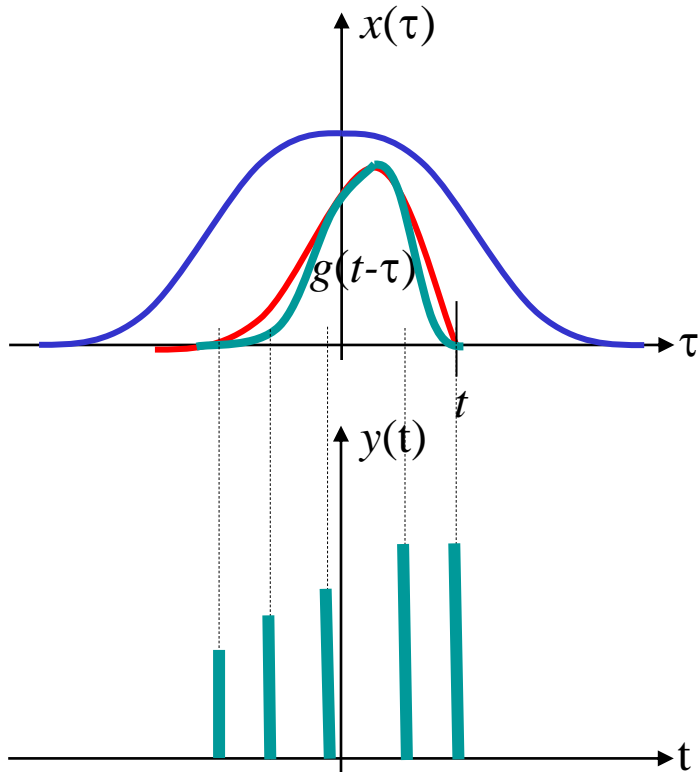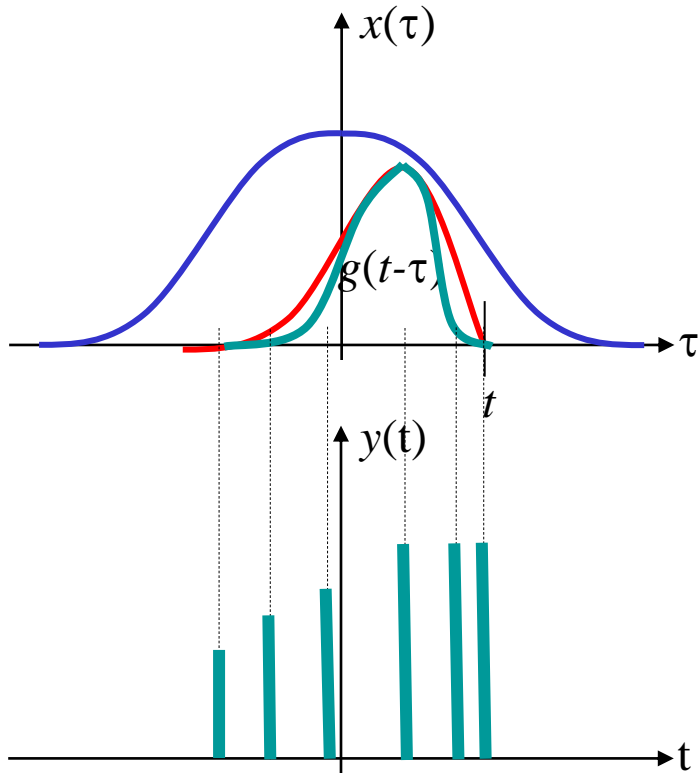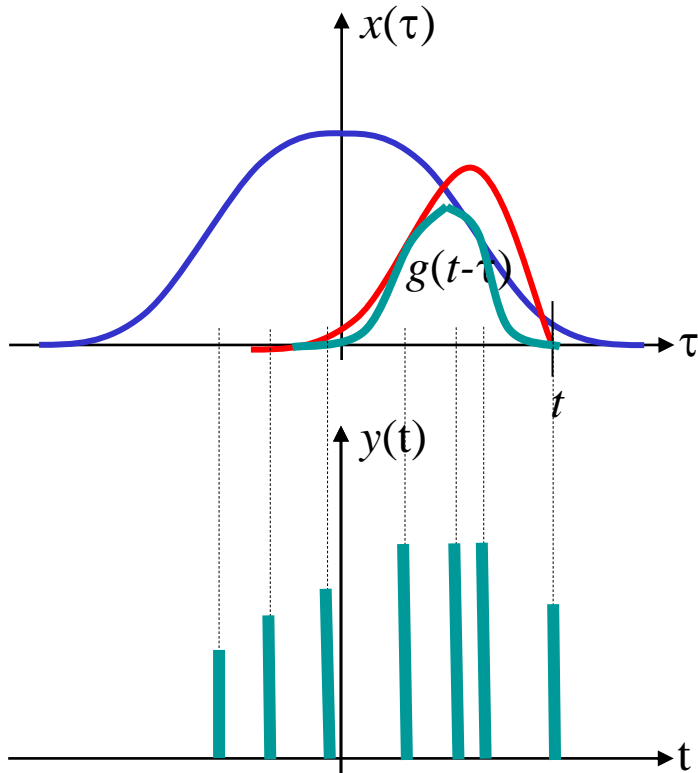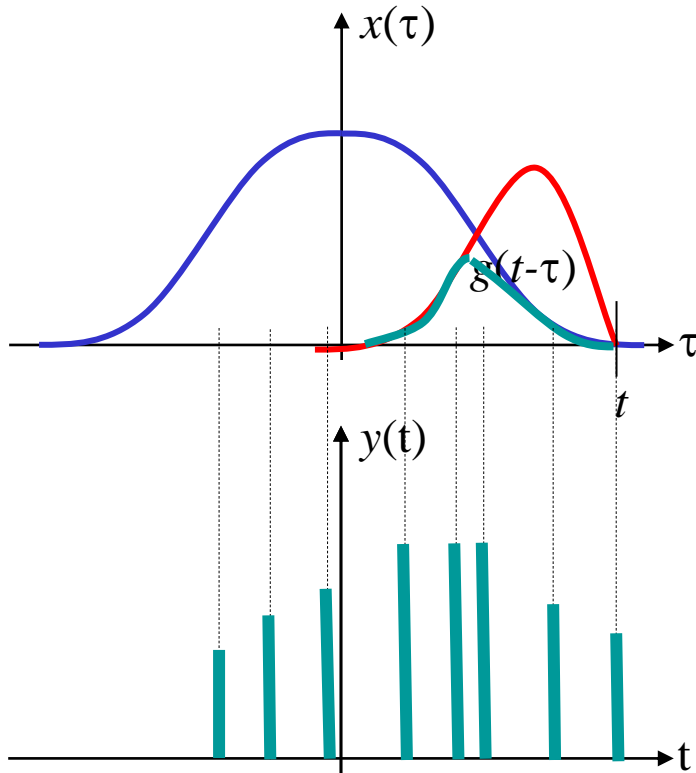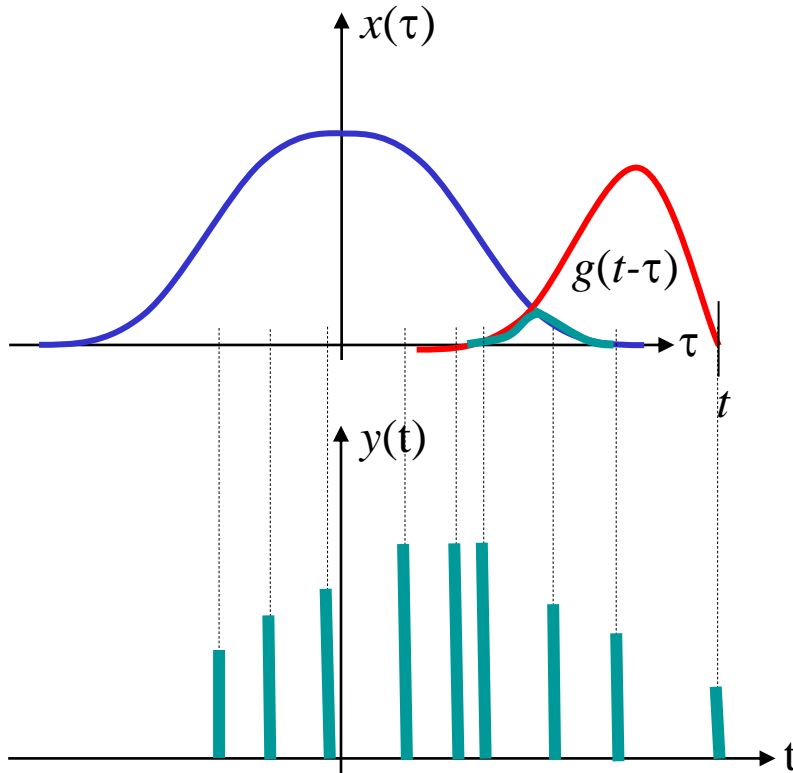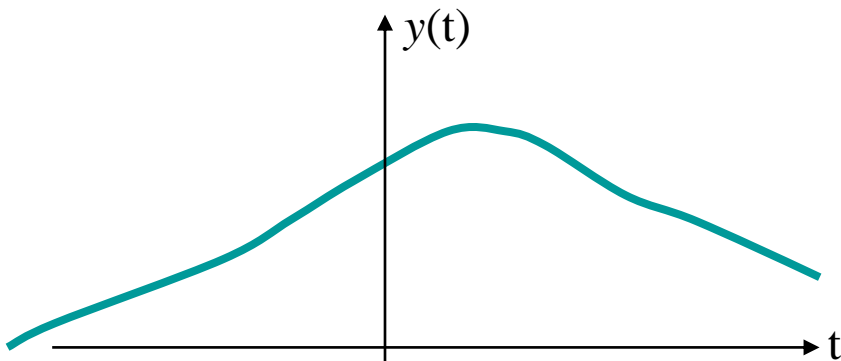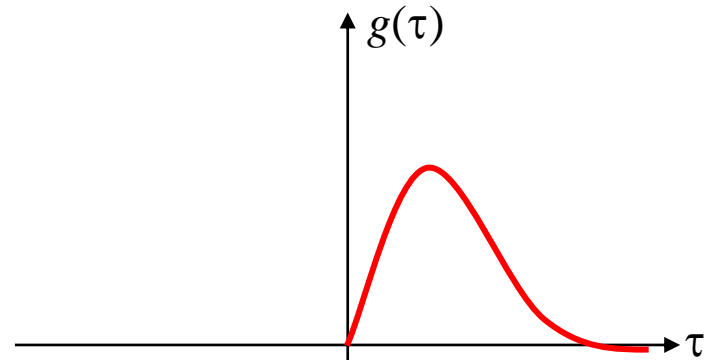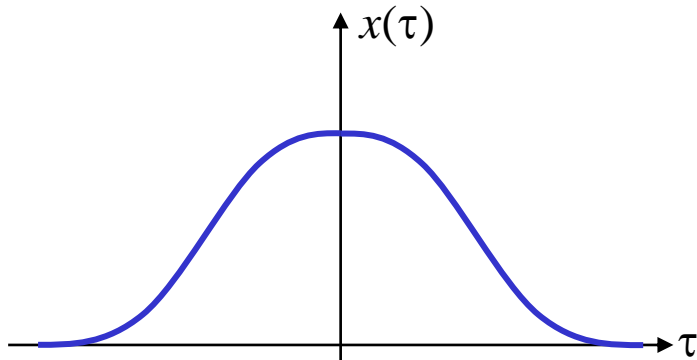$$y(t) = \int_{-\infty}^{+\infty} g(t-\tau)x(\tau)d\tau$$

[Convolución 1D]

Continua: $\quad y(t) = \displaystyle\int_{-\infty}^{+\infty} g(t-\tau)x(\tau)d\tau$

Discreta: $\quad y(k) = \displaystyle\sum_{i=-\infty}^{+\infty} g(k-i)x(i)$