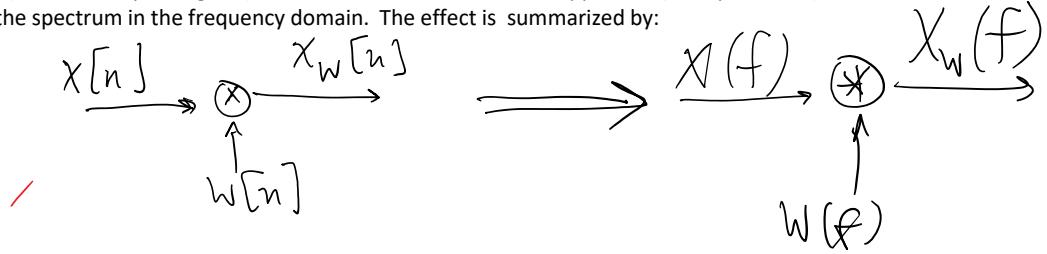


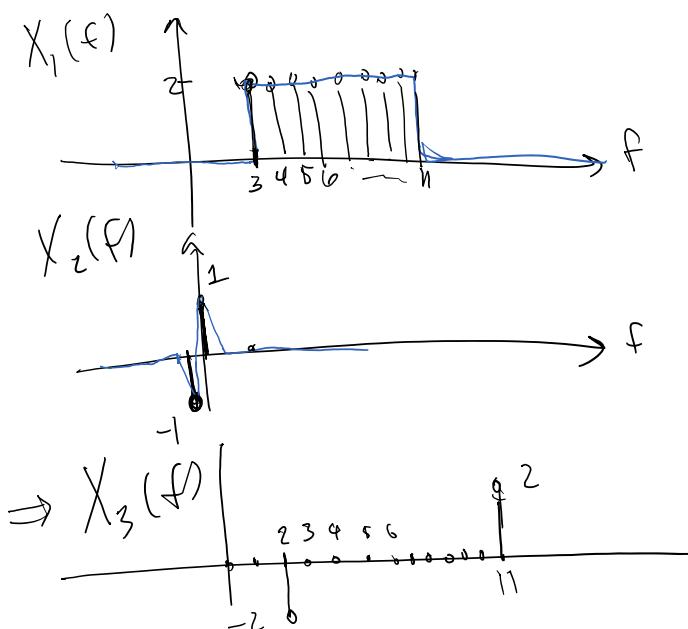
Windowing effect

Tuesday, May 10, 2022 10:08 AM

When we do Welch's PSD (or STFT, or Spectrogram), b/c of the time window that is applied to (multiplied with) the original signal, we affect the spectrum in the frequency domain. The effect is summarized by:



So, if we want to know the effect on the spectrum in the frequency domain, we have to remember how to do convolution. Here's a convolution practice problem:



$$\text{What is } X_3(f) = X_1(f) * X_2(f) ?$$

So w.r.t. Common windows we use :

$|W(f)|^2$ generally has

