



Číslicové spracovanie signálov II

Analýza a syntéza obrazu (2D SBC)



Gregor Rozinaj

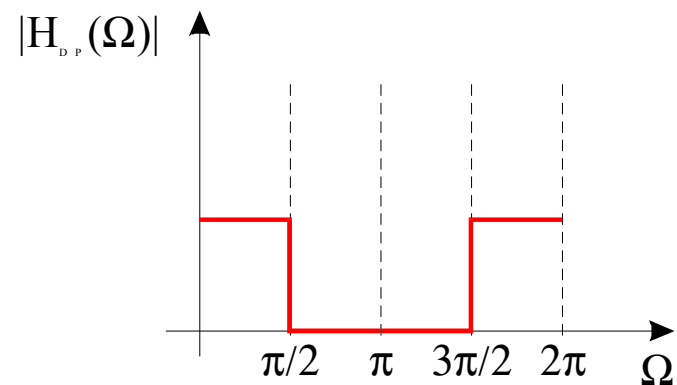
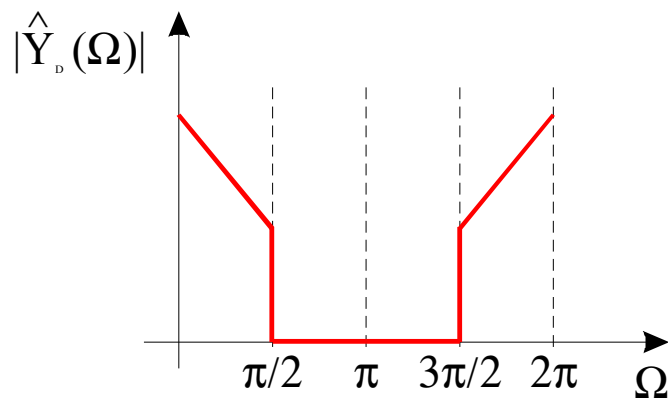
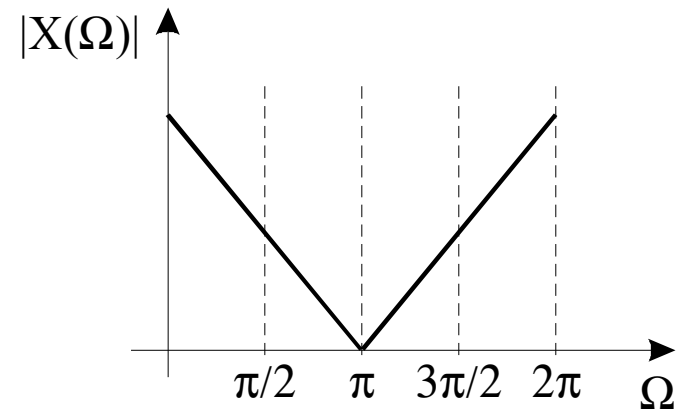
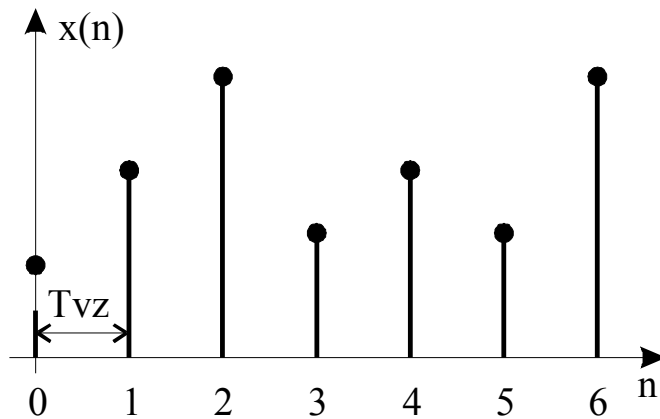
Katedra telekomunikácií

FEI STU Bratislava

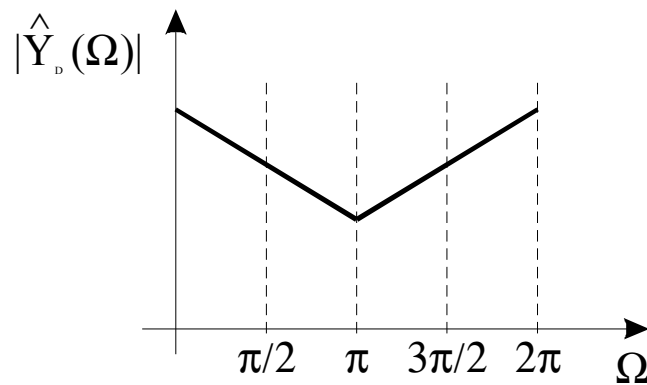
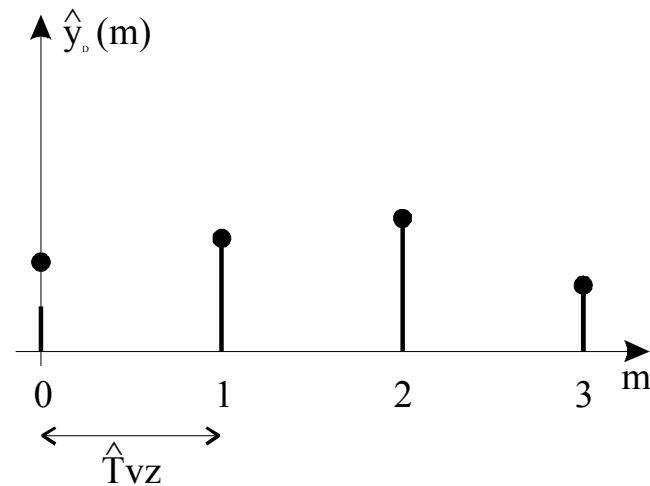
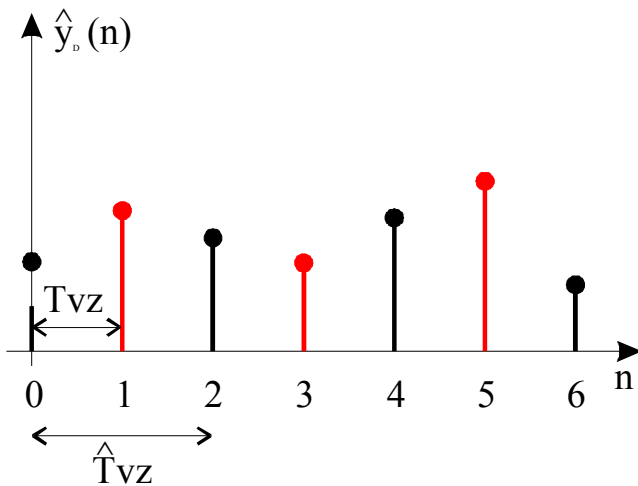
Príprava fólií: Anton Marček



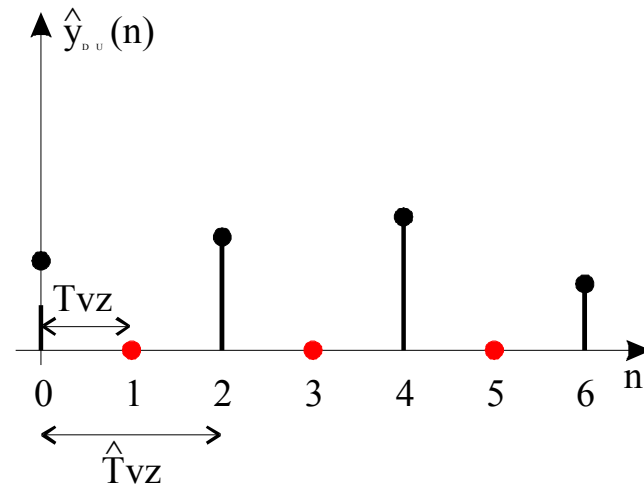
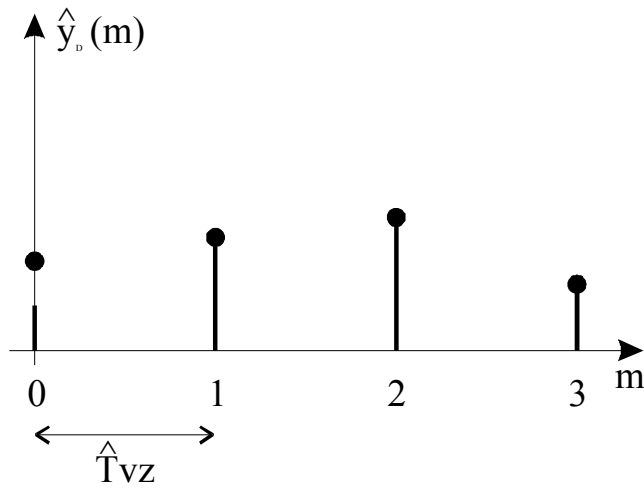
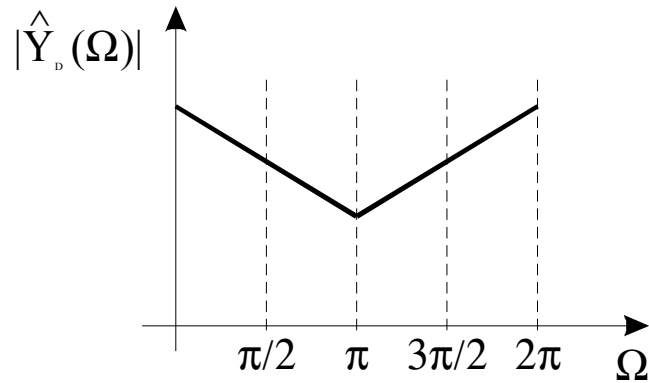
Downsampling (1/2)



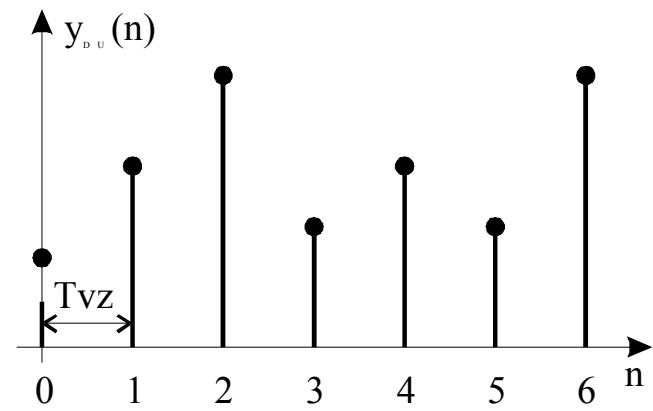
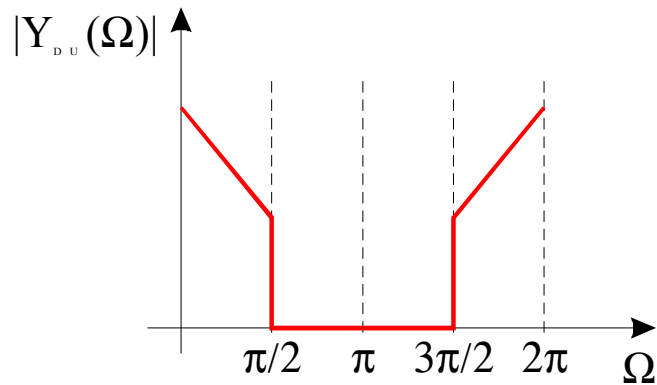
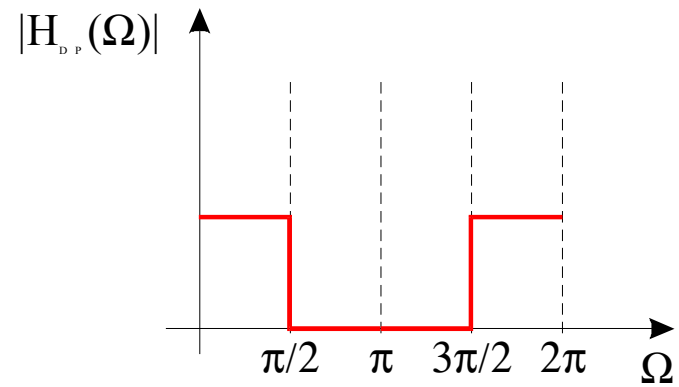
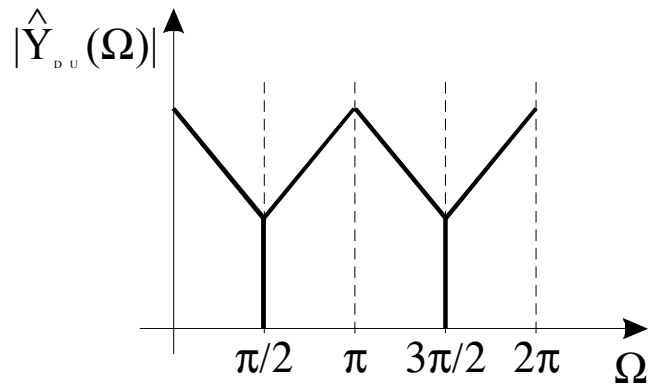
Downsampling (2/2)



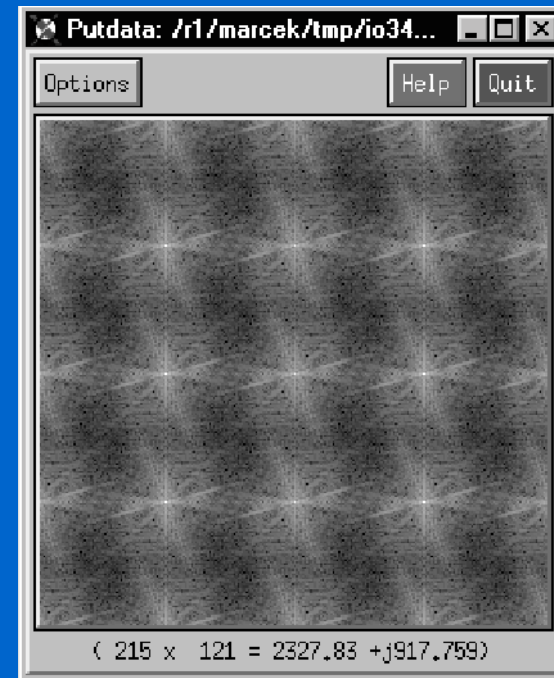
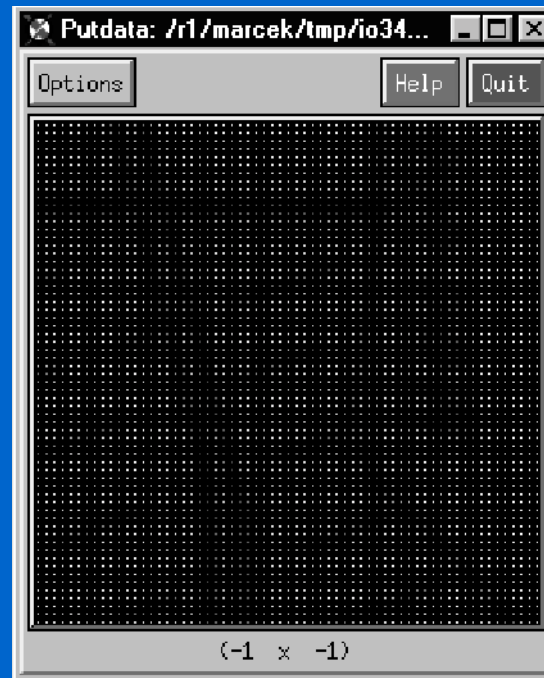
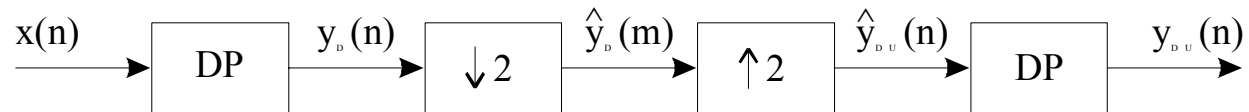
Upsampling (1/5)



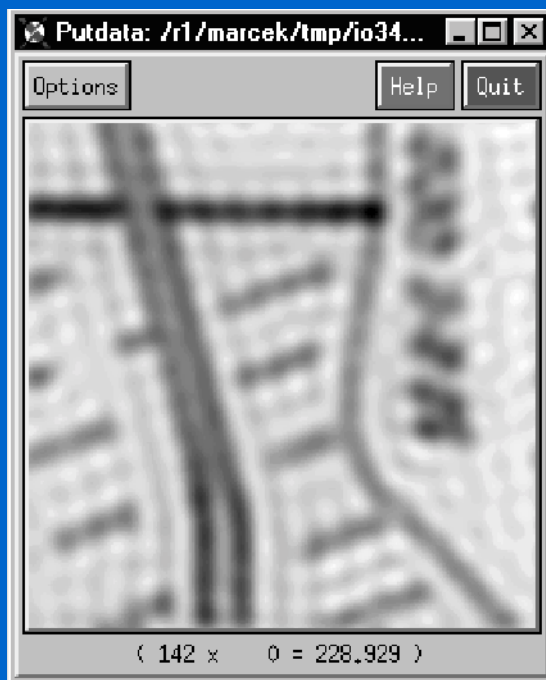
Upsampling (2/5)



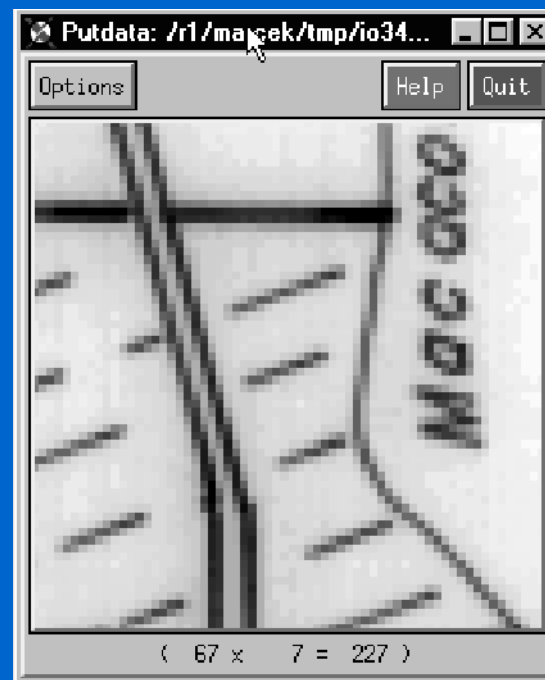
Upsampling (3/5)



Upsampling (4/5)

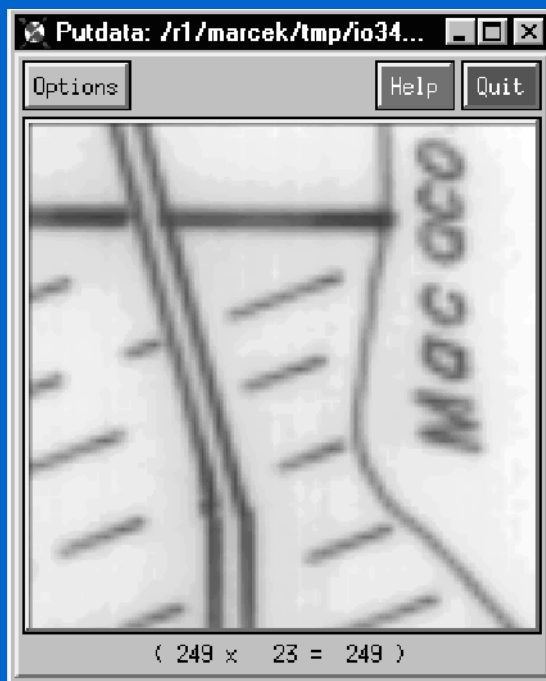


Ideálny filter

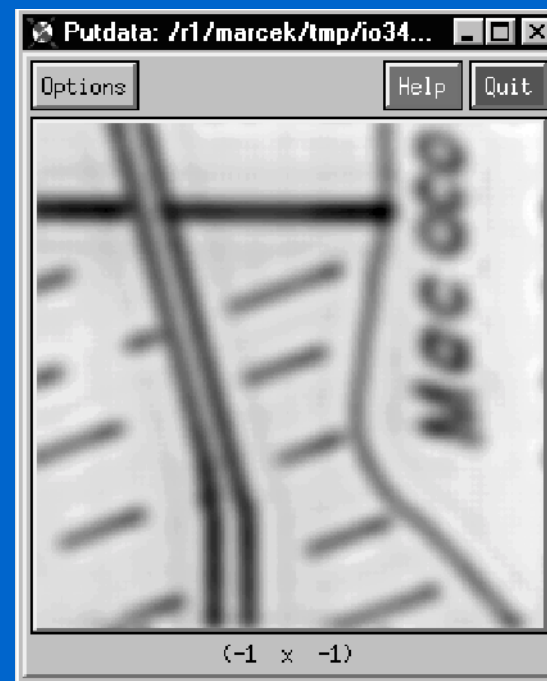


Priemer 4x4

Upsampling (5/5)

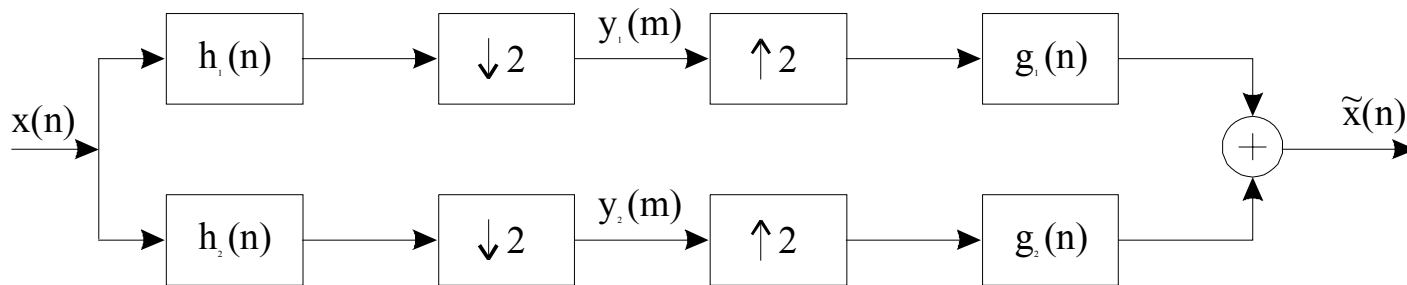


Lineárna interp.



Filter Butterworth

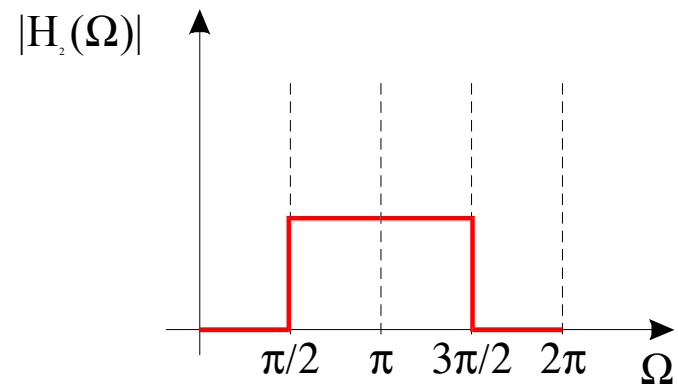
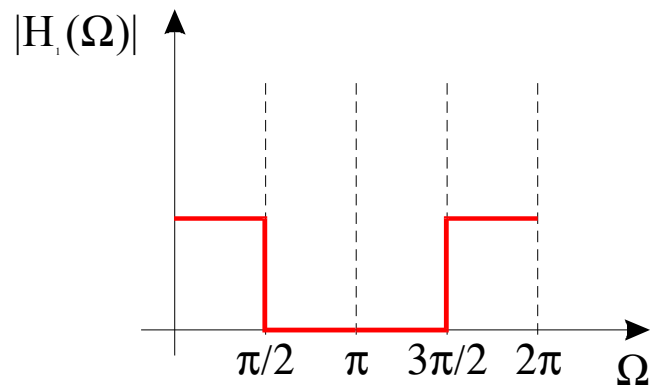
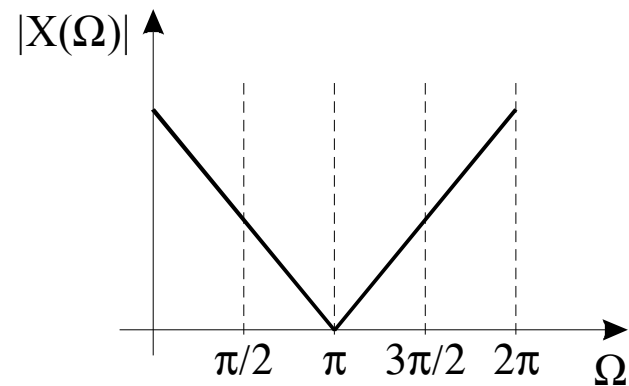
Analýza a syntéza (1/10)



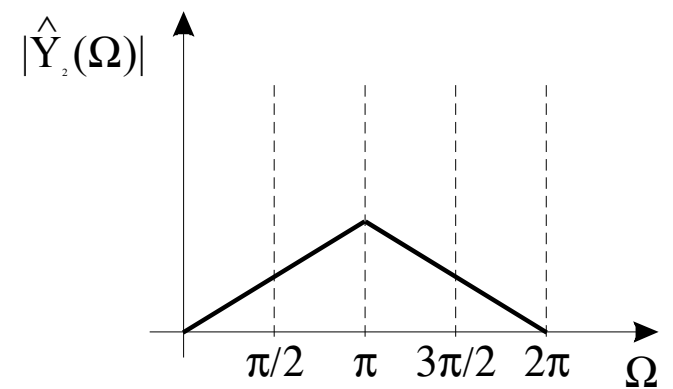
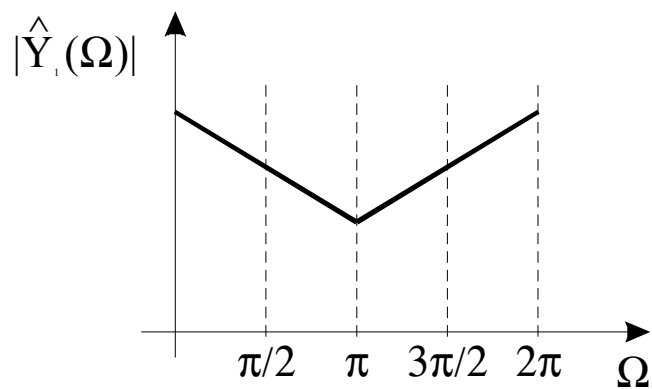
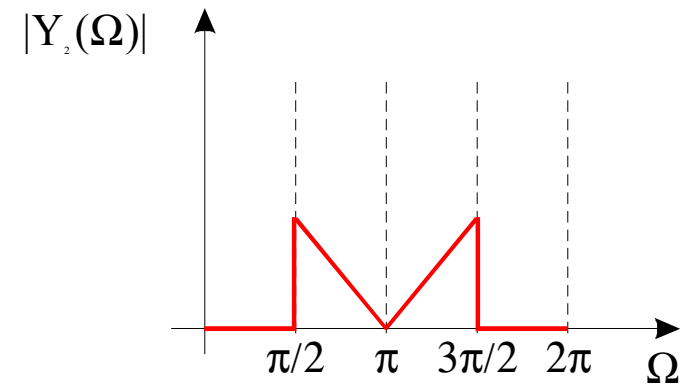
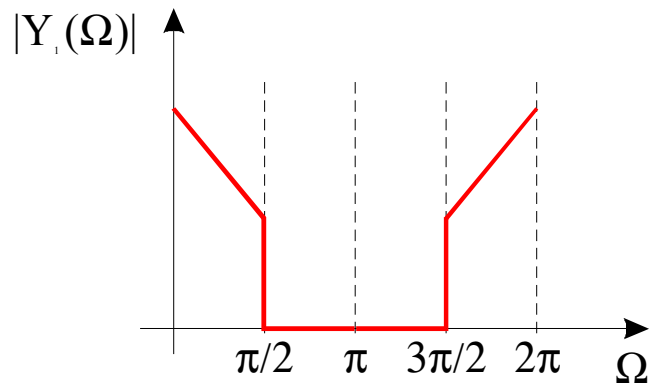
$$\begin{aligned}x(n) &\leftrightarrow X(z) \\h_1(n) &\leftrightarrow H_1(z) \\h_2(n) &\leftrightarrow H_2(z) \\y_1(n) &\leftrightarrow Y_1(z)\end{aligned}$$

$$\begin{aligned}\tilde{x}(n) &\leftrightarrow \tilde{X}(z) \\g_1(n) &\leftrightarrow G_1(z) \\g_2(n) &\leftrightarrow G_2(z) \\y_2(n) &\leftrightarrow Y_2(z)\end{aligned}$$

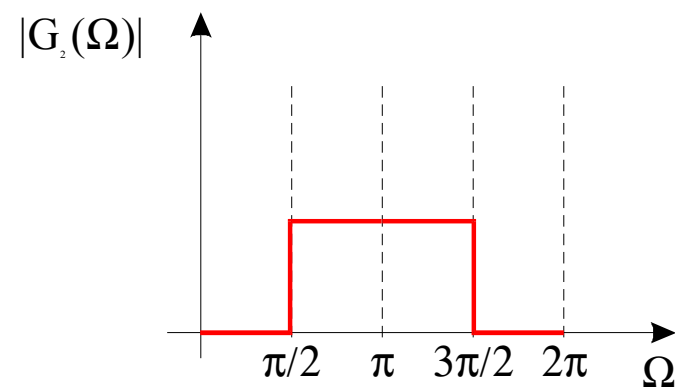
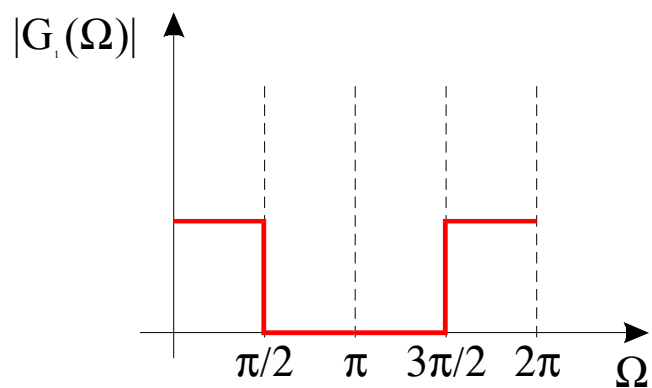
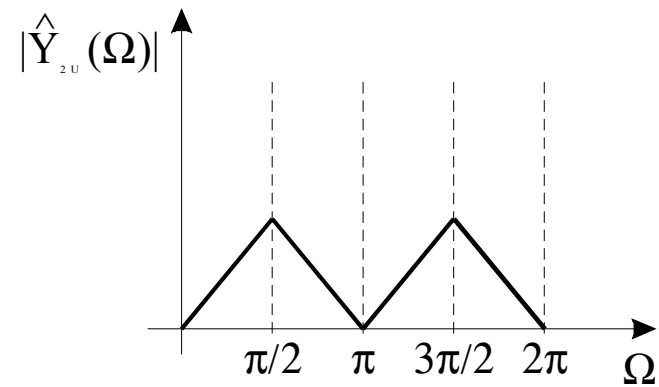
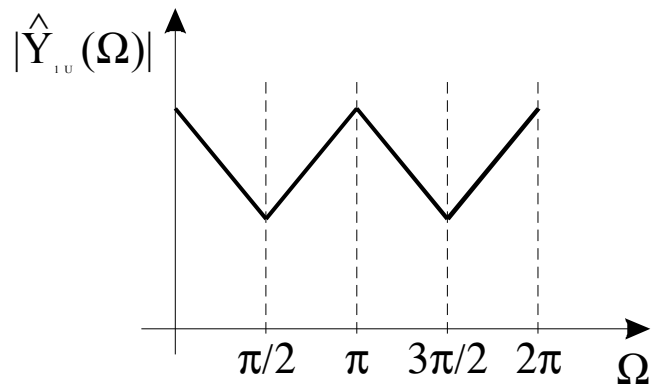
Analýza a syntéza (2/10)



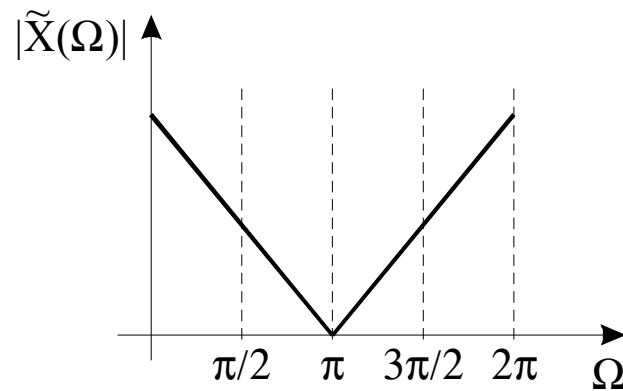
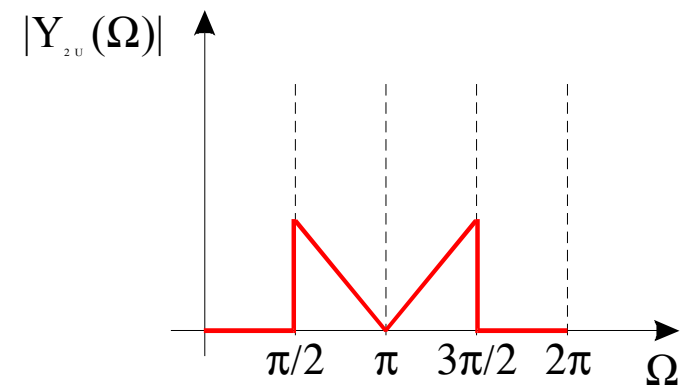
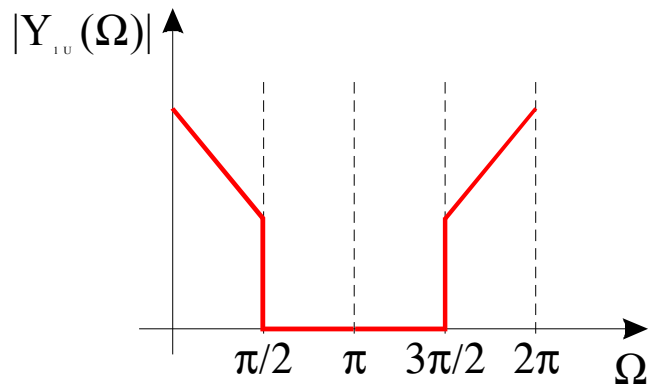
Analýza a syntéza (3/10)



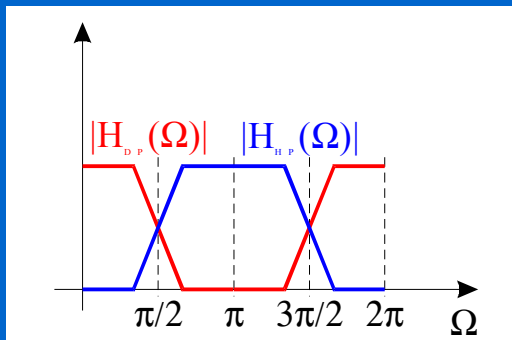
Analýza a syntéza (4/10)



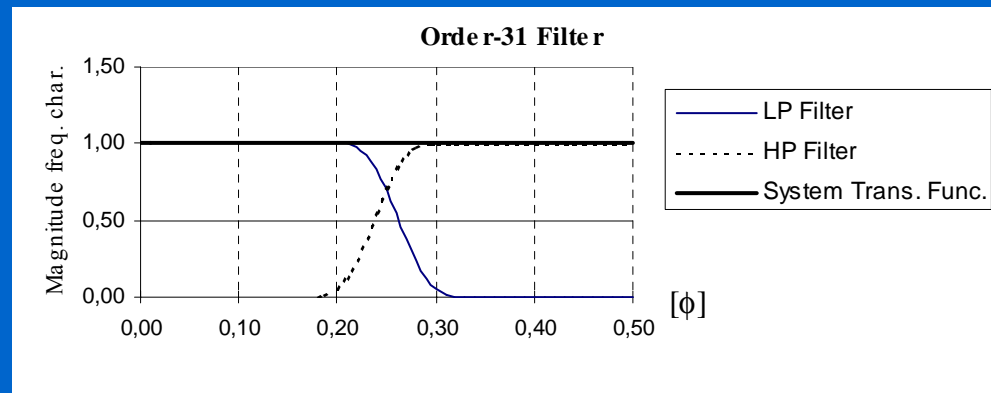
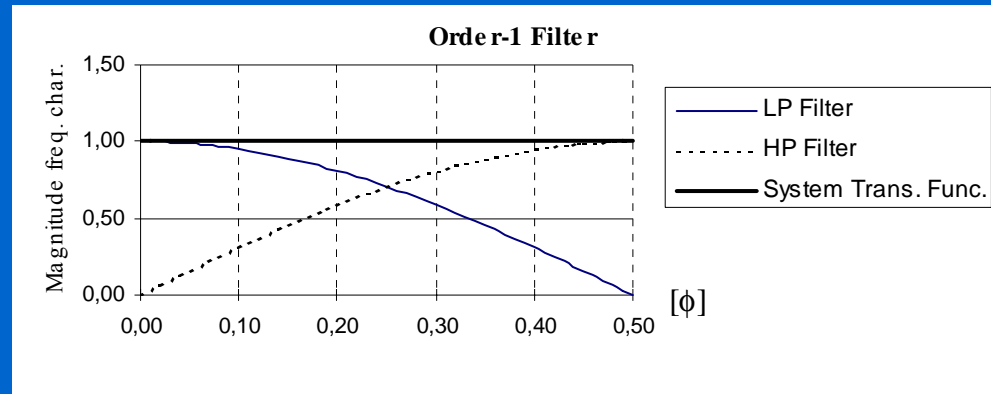
Analýza a syntéza (5/10)



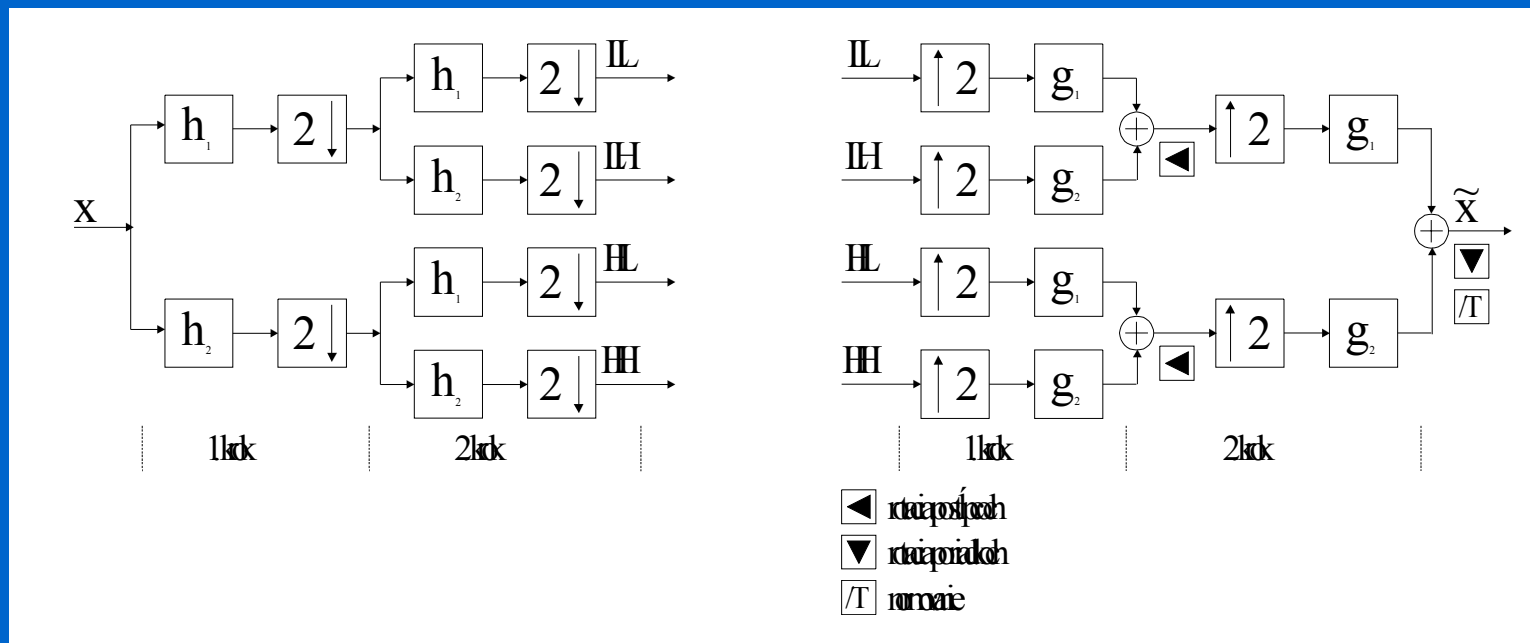
Analýza a syntéza (6/10)



1D SBC



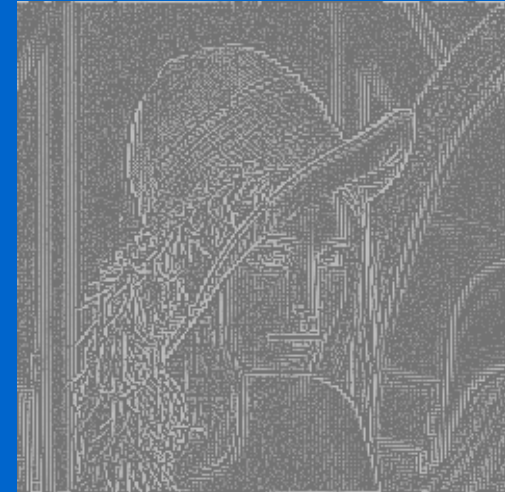
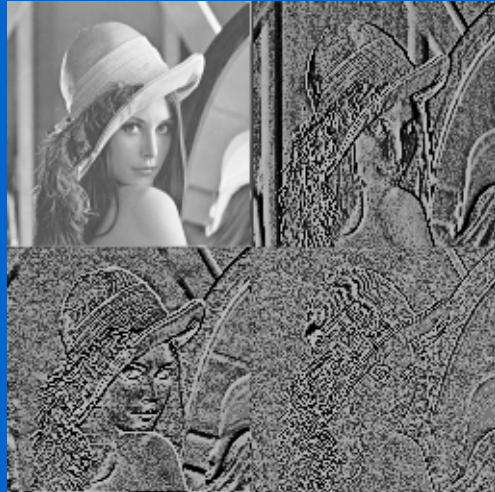
Analýza a syntéza (7/10)



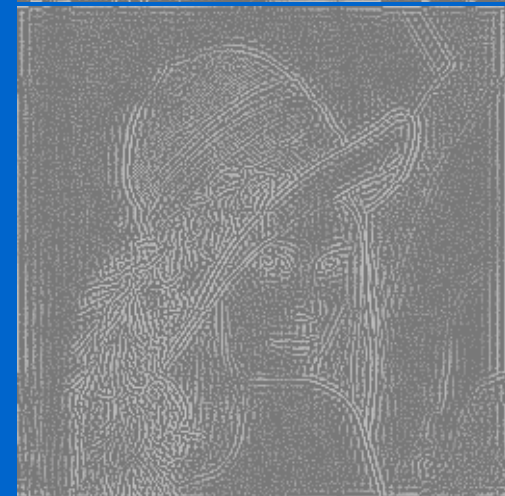
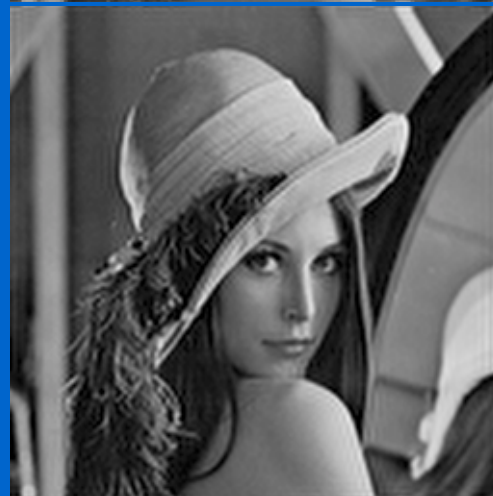
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Analýza a syntéza (8/10)

1.rád



31.rád

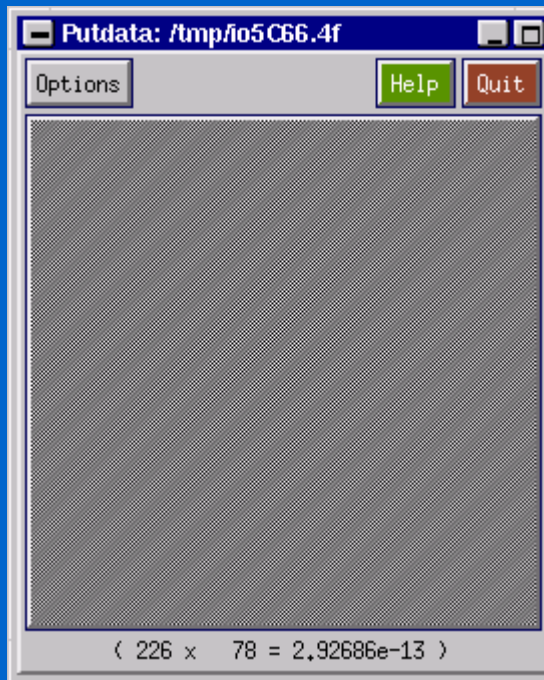


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Analýza a syntéza (9/10)



Originál 256 x 256



Sinus 256 x 256
(120 x 120)



Zašumený

Analýza a syntéza (10/10)



Originál 256 x 256



Zašumený



Rekonštruovaný