

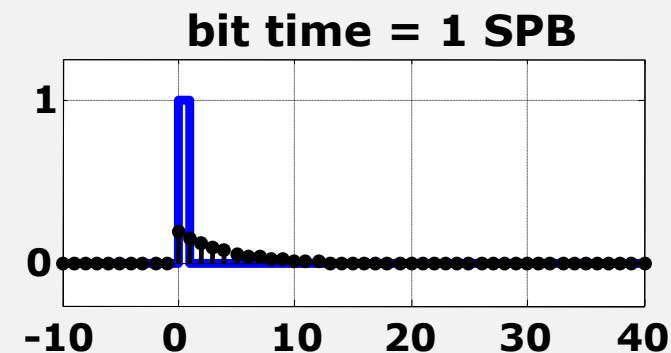
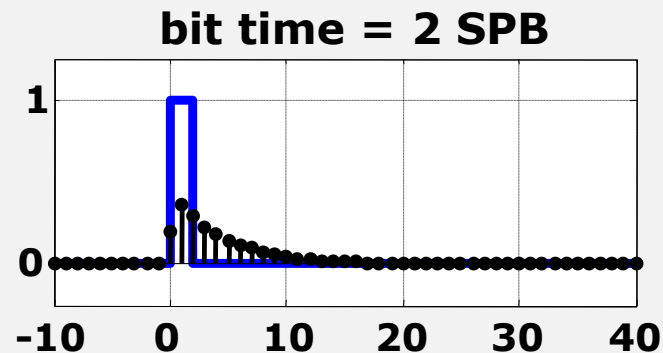
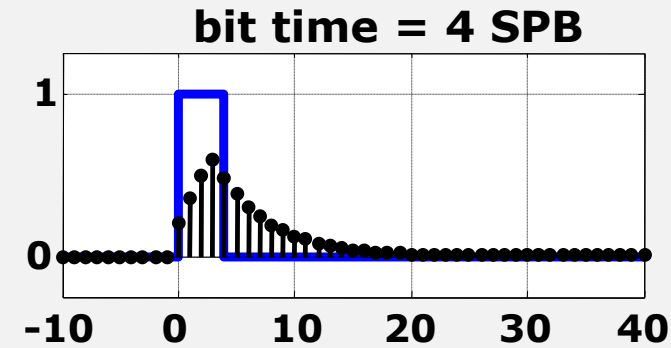
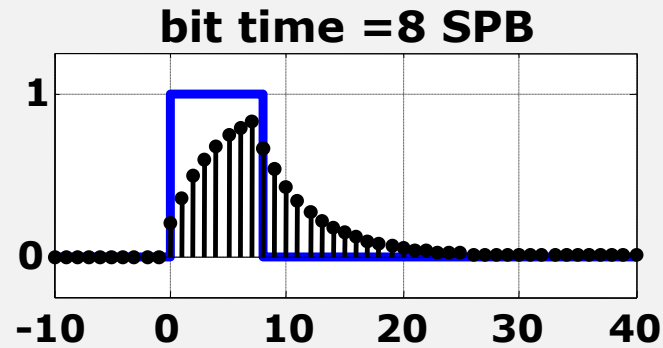
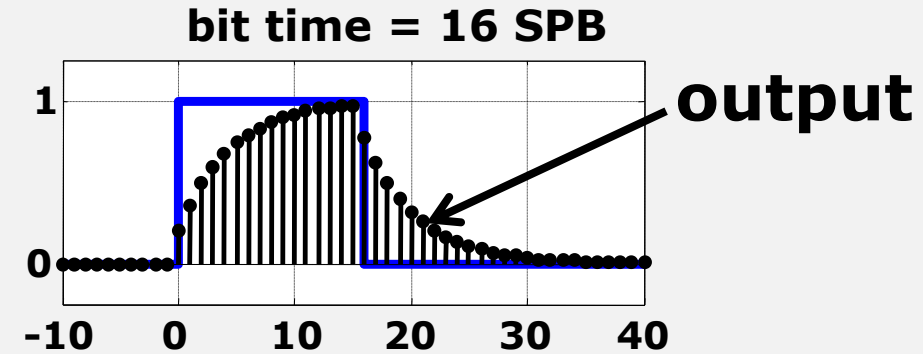
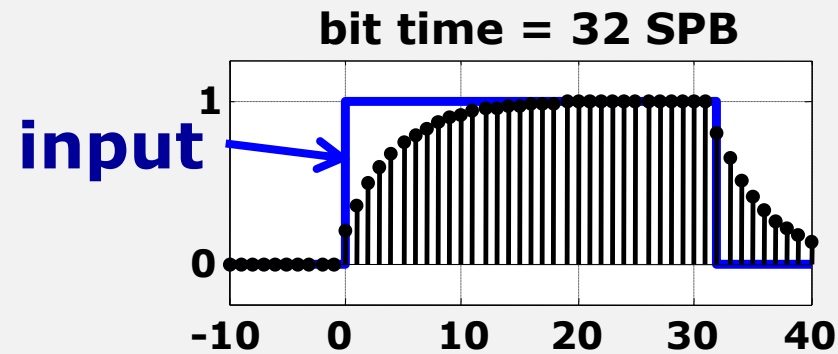
Trade-off between Bit Rate and Bit Error Rate

Trade-off between Bit Rate and BER

- Bit rate – the number of bits that can be transmitted per second.
 - We want this to be high, i.e. the bit time should be small.
- Bit error rate (BER) – the fraction of bits that are wrongly decoded by the receiver
 - We want this to be low
 - Unfortunately, the BER increases for smaller bit times

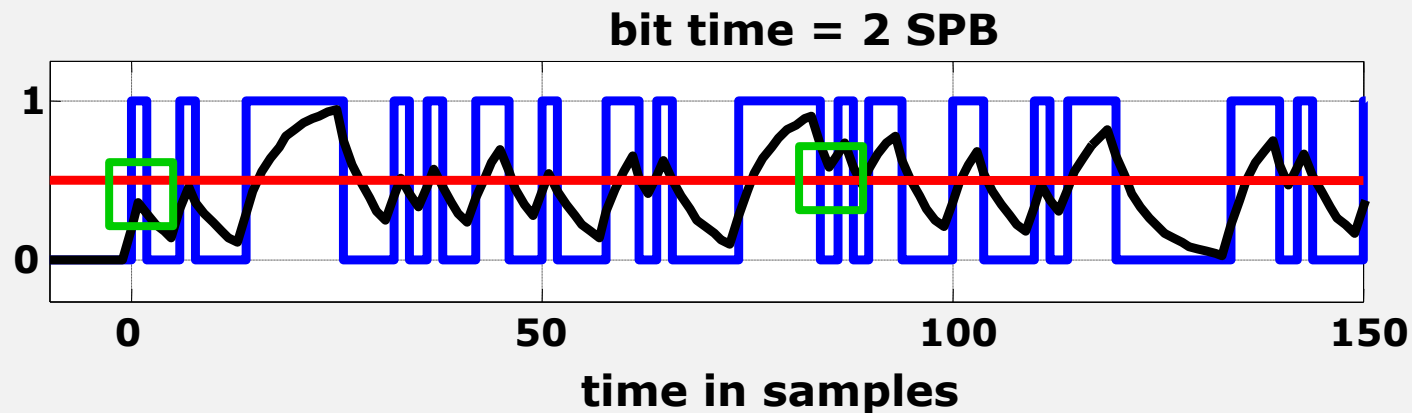
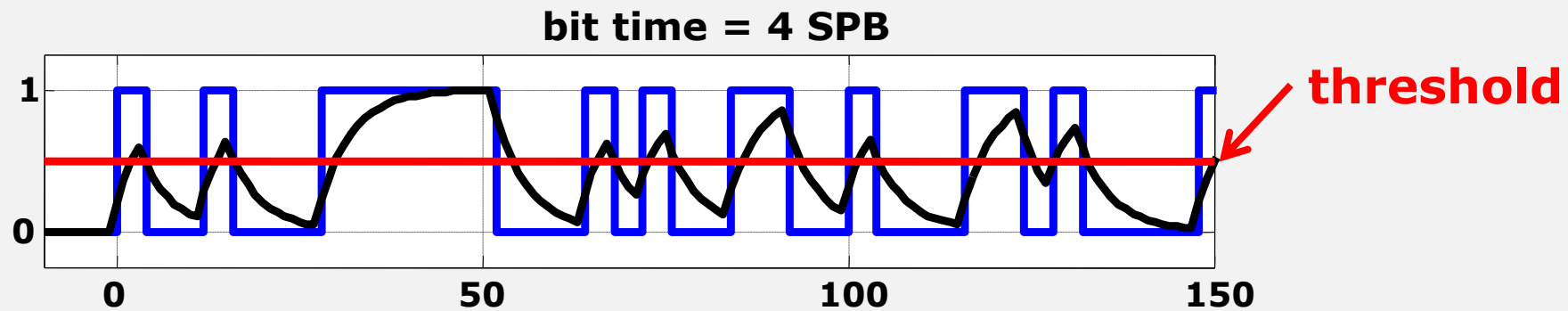
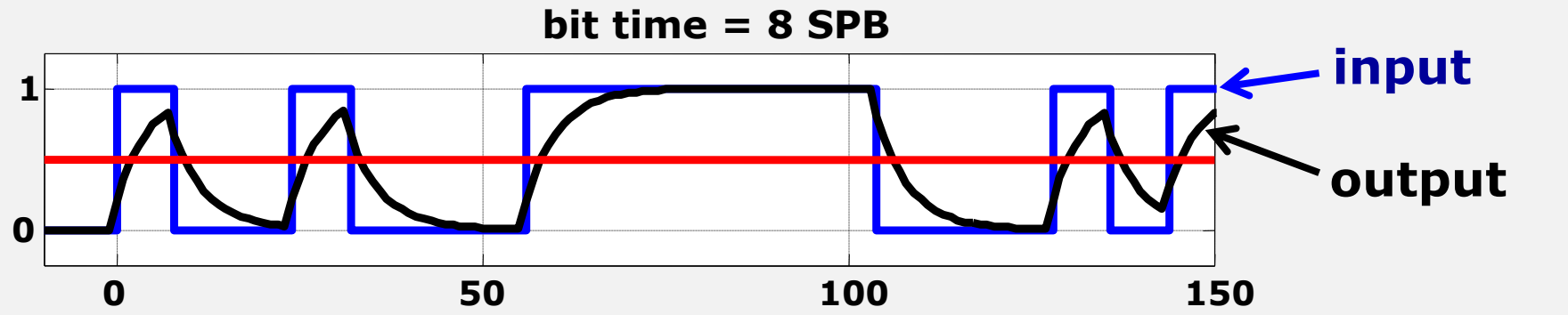


Effect of Smaller Bit Time



Channel Parameters:
 $c=0$, $k=1$, $a=0.8$

Bit Sequences with Varying Bit Time



Channel
Parameters:
 $c=0$, $k=1$, $a=0.8$