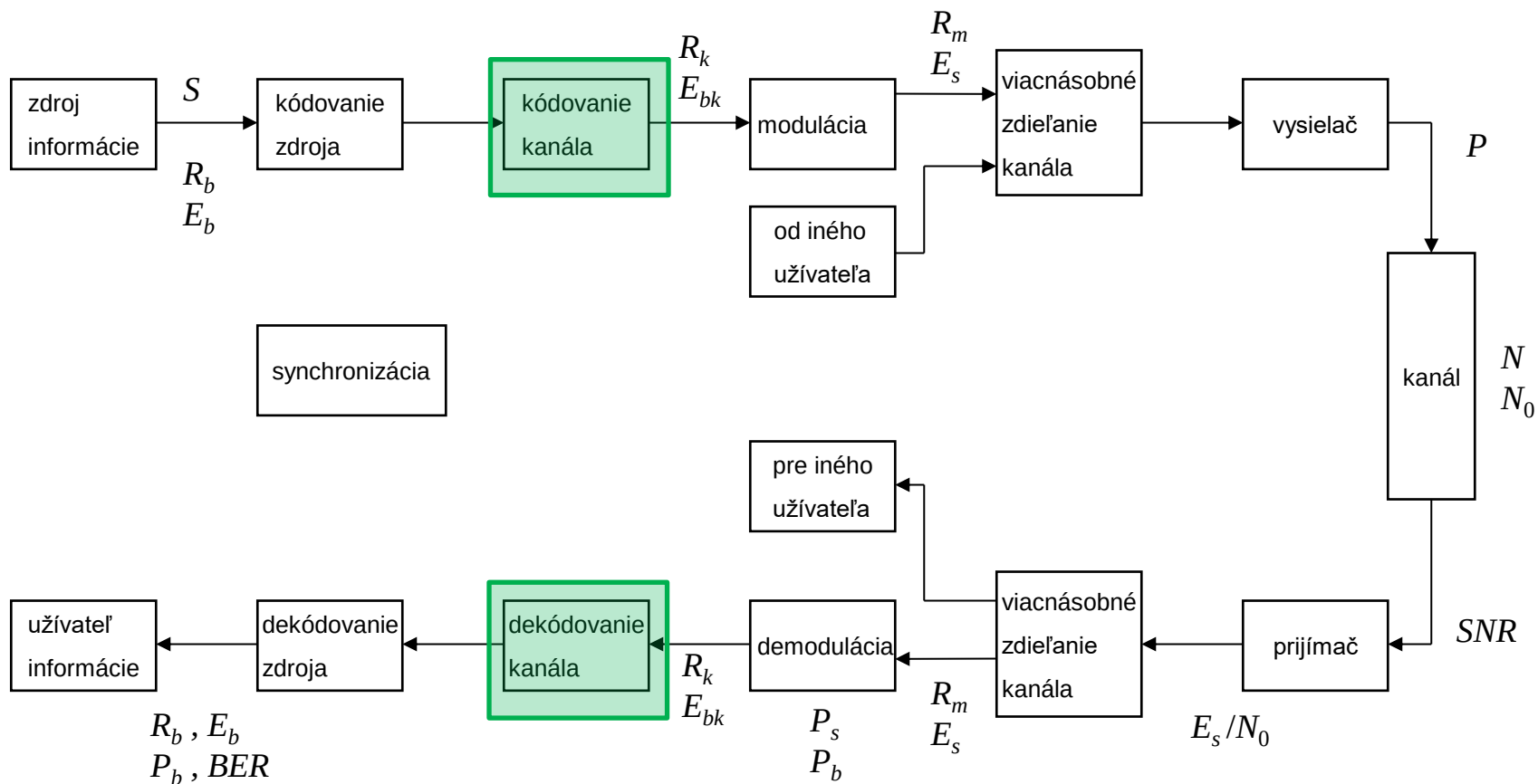
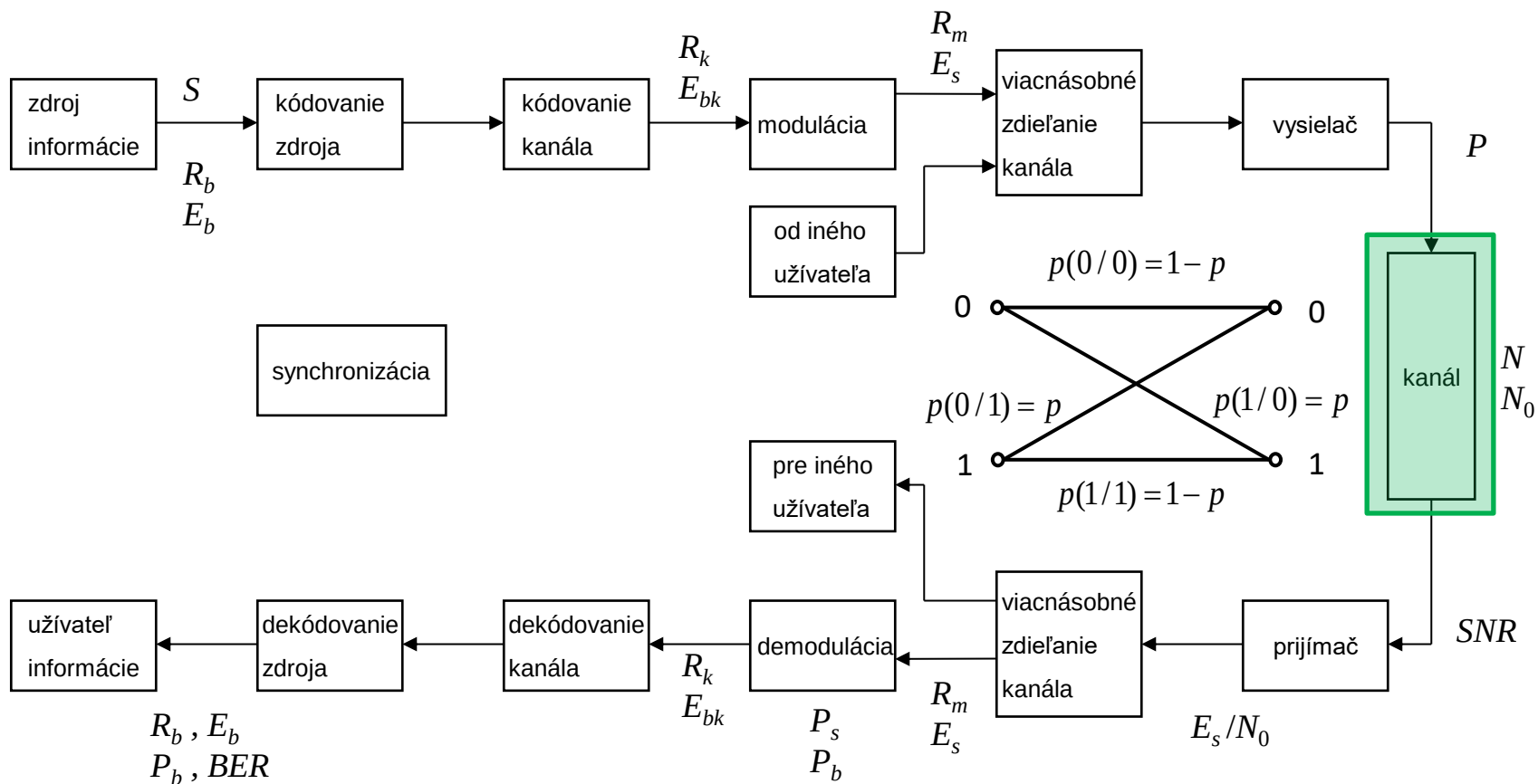
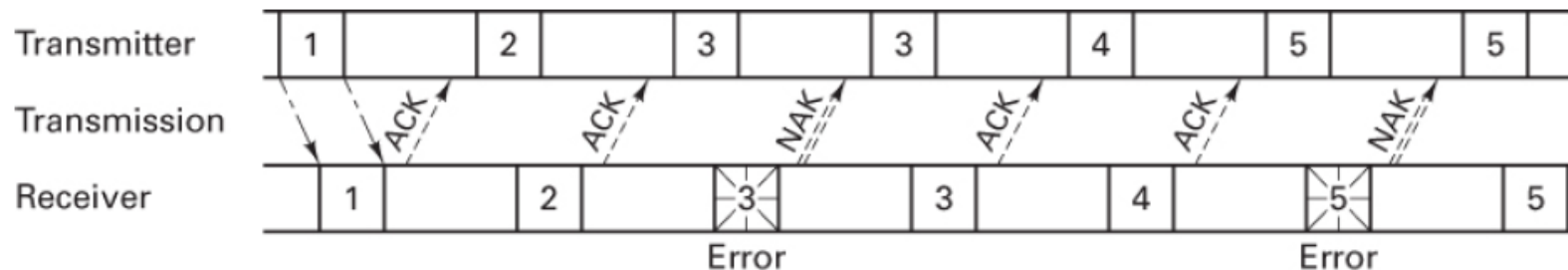


Digitálny prenosový systém:



Digitálny prenosový systém:



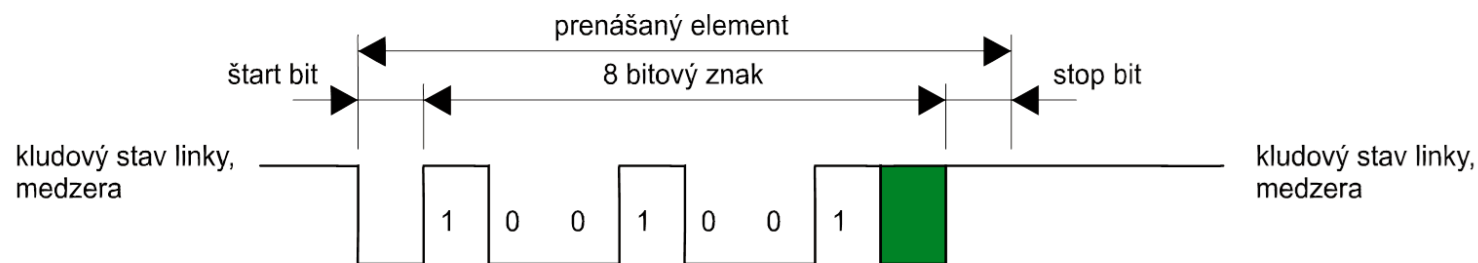


Stop-and-wait ARQ metóda

zdroj: B. Sklar, F. Harris.: Digital Communications, Pearson Education, Inc., 2021

Parita

a)



b)

	XOR	
$\oplus$	0	1
0	0	1
1	1	0

paritný bit =
1 - párna parita
0 - nepárna parita

Výpočet hodnoty paritného bitu

Blokový kontrolný súčet

riadková parita

0	0	1	1	0	0	1	1
1	1	1	1	0	0	1	1
0	0	0	1	0	1	0	0
1	1	0	0	1	1	1	1
1	0	1	0	0	0	1	1
1	0	1	1	1	0	0	0

stĺpcová parita

oprava chyby

0	0	1	1	0	0	1	1
1	1	1	1	0	0	1	1
0	0	1	1	0	1	0	0
1	1	0	0	1	1	1	1
1	0	1	0	0	0	1	1
1	0	1	1	1	0	0	0

$\Sigma = 1$

nedetekovateľné chyby

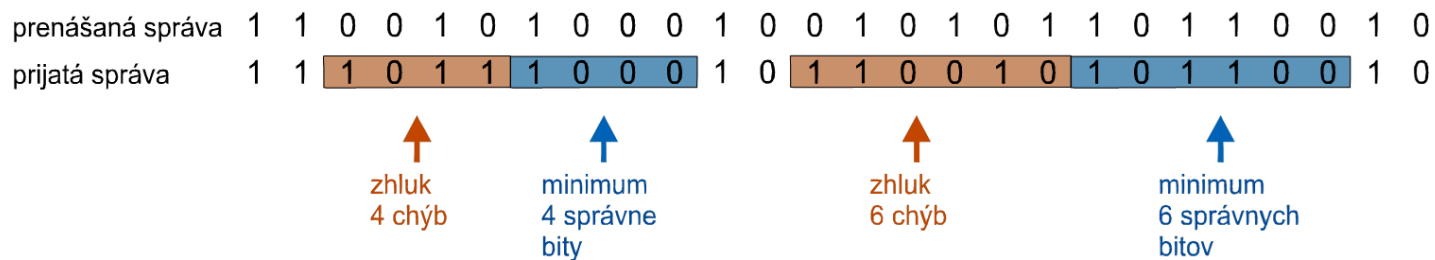
0	0	1	1	0	0	1	1
1	1	1	1	0	0	1	1
0	0	1	1	0	0	0	0
1	1	1	0	1	0	1	1
1	0	1	0	0	0	1	1
1	0	1	1	1	0	0	0

$\Sigma = 0$

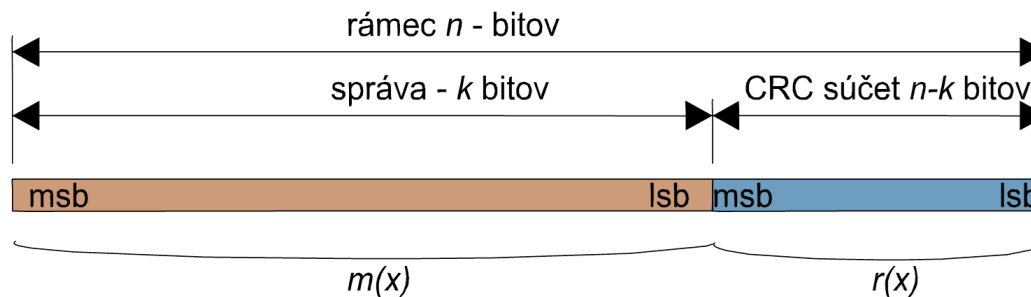
$\Sigma = 0$

$\Sigma = 0$

Príklad dvoch zhlukov chýb

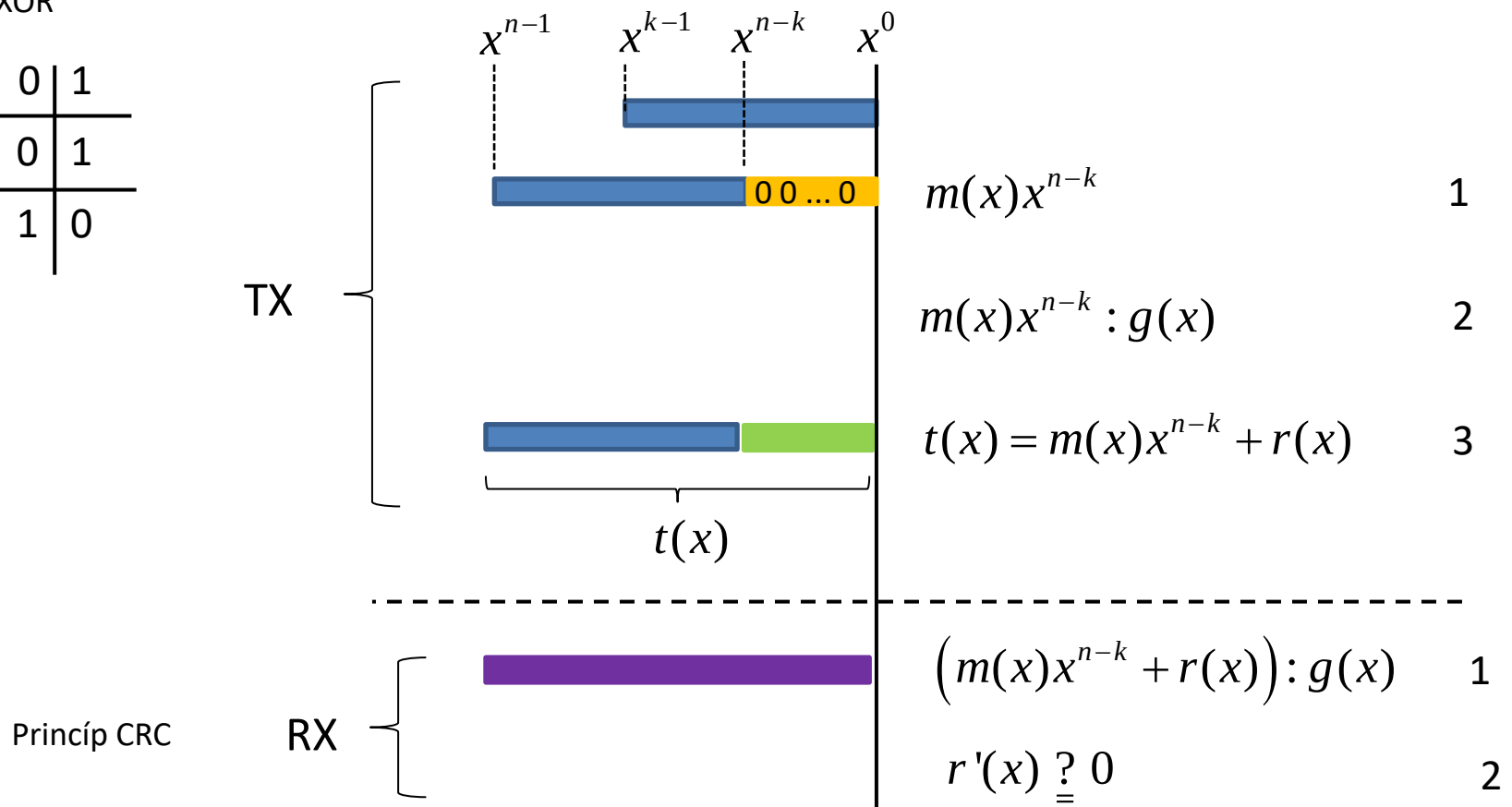


Štruktúra vysielaného rámca



XOR

$\oplus$	0	1
0	0	1
1	1	0



CRC používané v praxi:

ATM siete: CRC-8: $g(x) = x^8 + x^2 + x + 1$

Telekomunikácie: CRC-16-CCITT: $g(x) = x^{16} + x^{12} + x^5 + 1$

Ethernet ZIP a iné sieťové protokoly (pr. IEEE 802.3): CRC-32:

$$g(x) = x^{32} + x^{26} + x^{23} + x^{22} + x^{16} + x^{12} + x^{11} + x^{10} + x^8 + x^7 + x^5 + x^4 + x^2 + x + 1$$

dáta = informačné slovo



k bitov

k bitov

$$R_b = \frac{1}{T_b}$$



$n > k$

$$R = \frac{k}{n}$$

kódové slovo



n bitov

n bitov

$$R_{BC} = \frac{1}{T_{BC}}$$

Princíp LBK

Zisk kódovania

zdroj: B. Sklar, F. Harris.:
Digital Communications,
Pearson Education, Inc., 2021

