Standard Polynomials

CRC-12
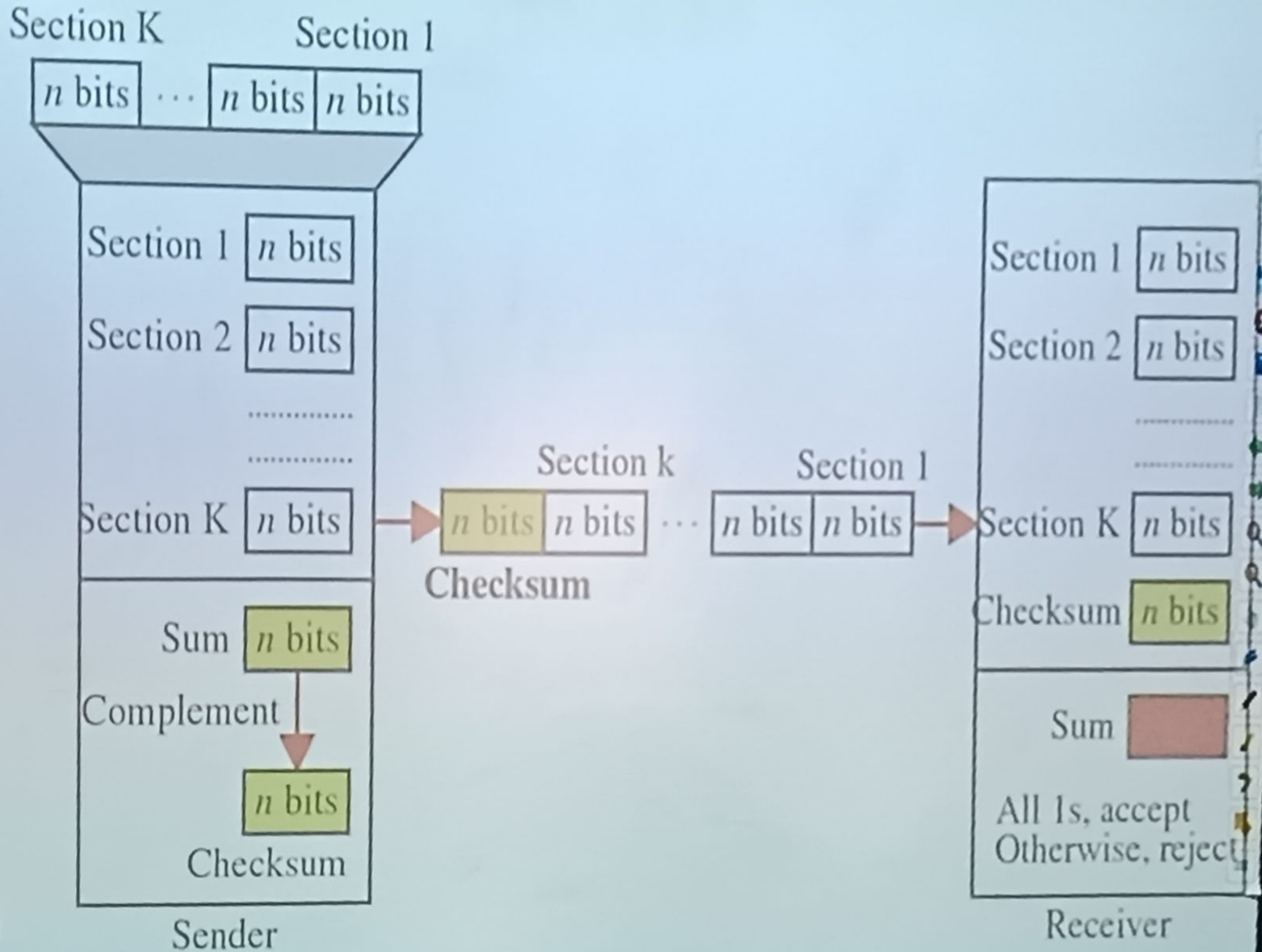
$$x^{12} + x^{11} + x^3 + x + 1$$

CRC-16

$$x^{16} + x^{15} + x^2 + 1$$

CRC-32

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

Checksum

UDP checksum example:

- Three packets of 16 bits each
  - 0110011001100110
  - 0101010101010101
  - 0000111100001111
- adding the three, calling it 'r':
  - 1100101011001010
- Send the four packets, the original three and 1's complement of 'r' to destination

- The 1's complement of 'r' is:
  - 0011010100110101
- at destination, the sum of four packets should be:
  - 1111111111111111
- If the packet is damaged:
  - 1111101111111111 (zerosll)

Why provide for error checking? *No guarantee that it is provided in all of the links between source and destination*