

# Chapter 7

## Wireless and Mobile Networks

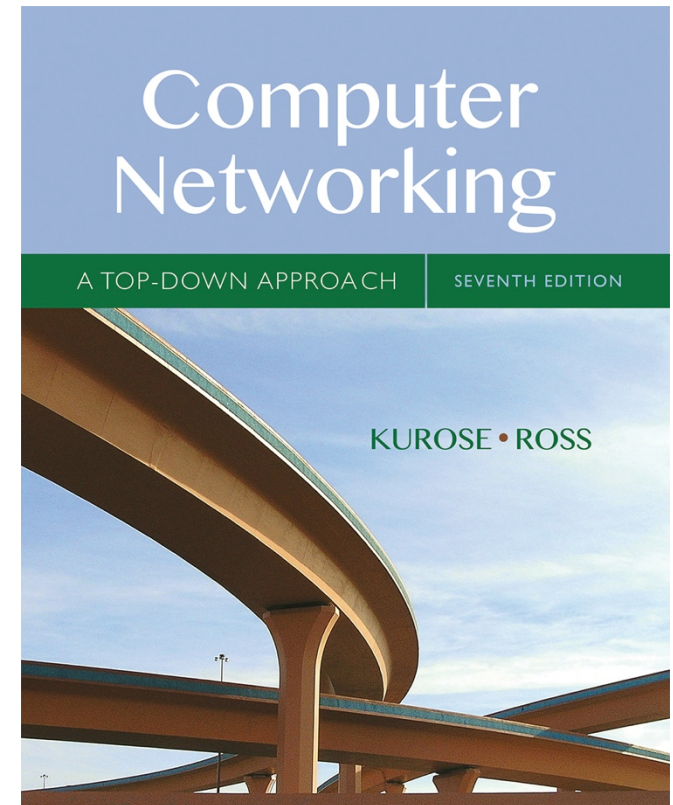
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## Computer Networking: A Top Down Approach

7<sup>th</sup> edition

Jim Kurose, Keith Ross

Pearson/Addison Wesley

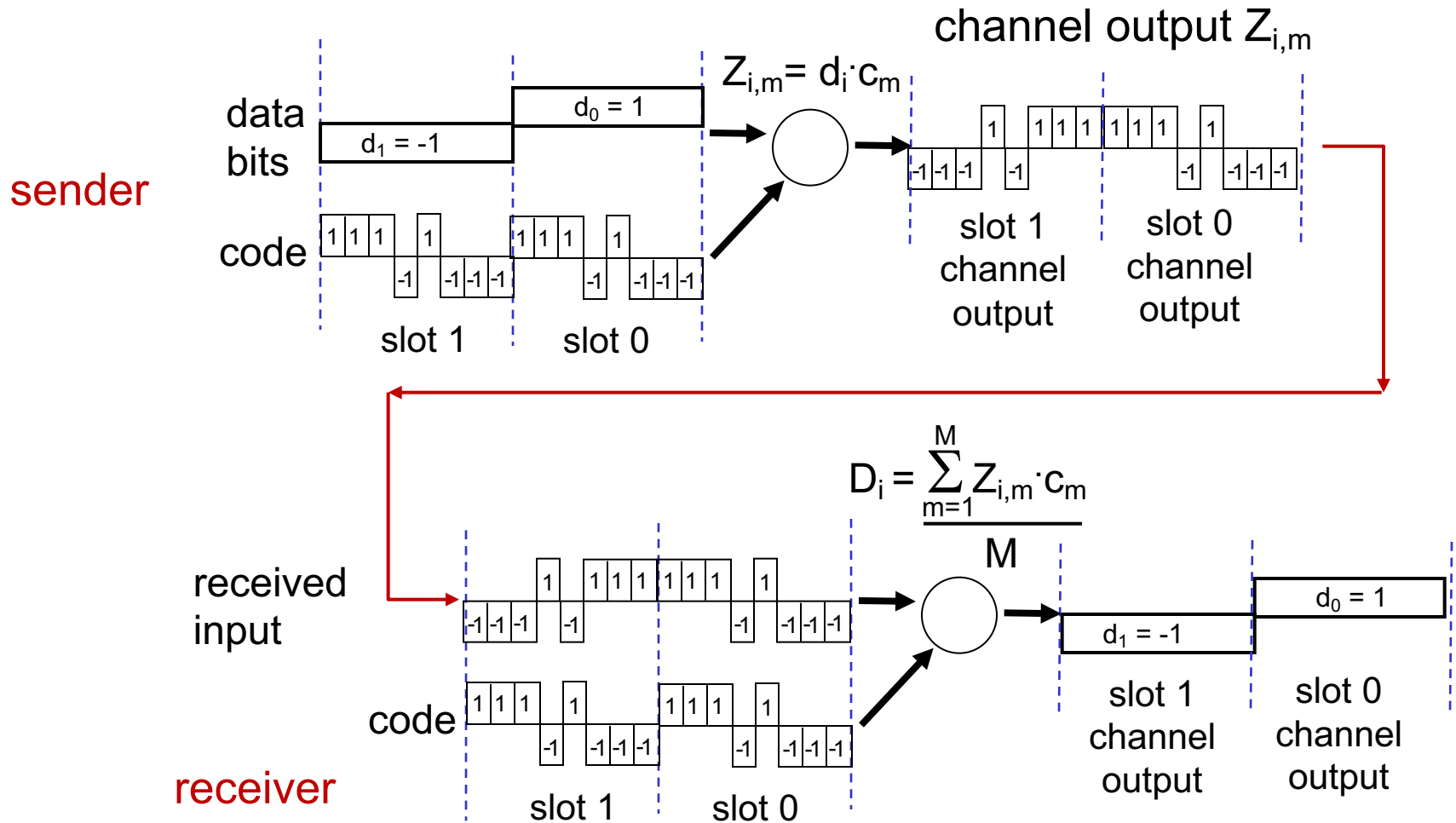
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Minor modifications made to original slides by Nathan Bowman

# Code Division Multiple Access (CDMA)

- unique “code” assigned to each user; i.e., code set partitioning
  - all users share same frequency, but each user has own “chipping” sequence (i.e., code) to encode data
  - allows multiple users to “coexist” and transmit simultaneously with minimal interference (if codes are “orthogonal”)
- *encoded signal* = (original data)  $\times$  (chipping sequence)
- *decoding*: inner-product of encoded signal and chipping sequence

# CDMA encode/decode



# CDMA: two-sender interference

