CS698T
Wireless Networks: Principles and Practice

Topic 07
Multiplexing Techniques
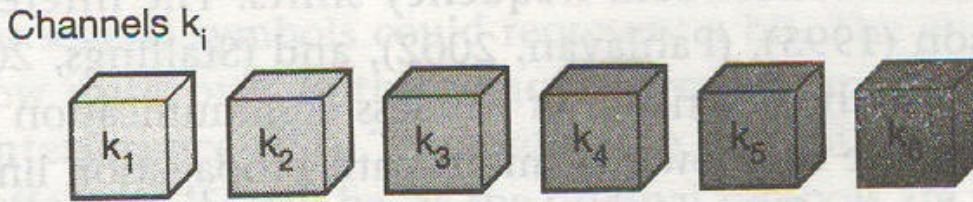
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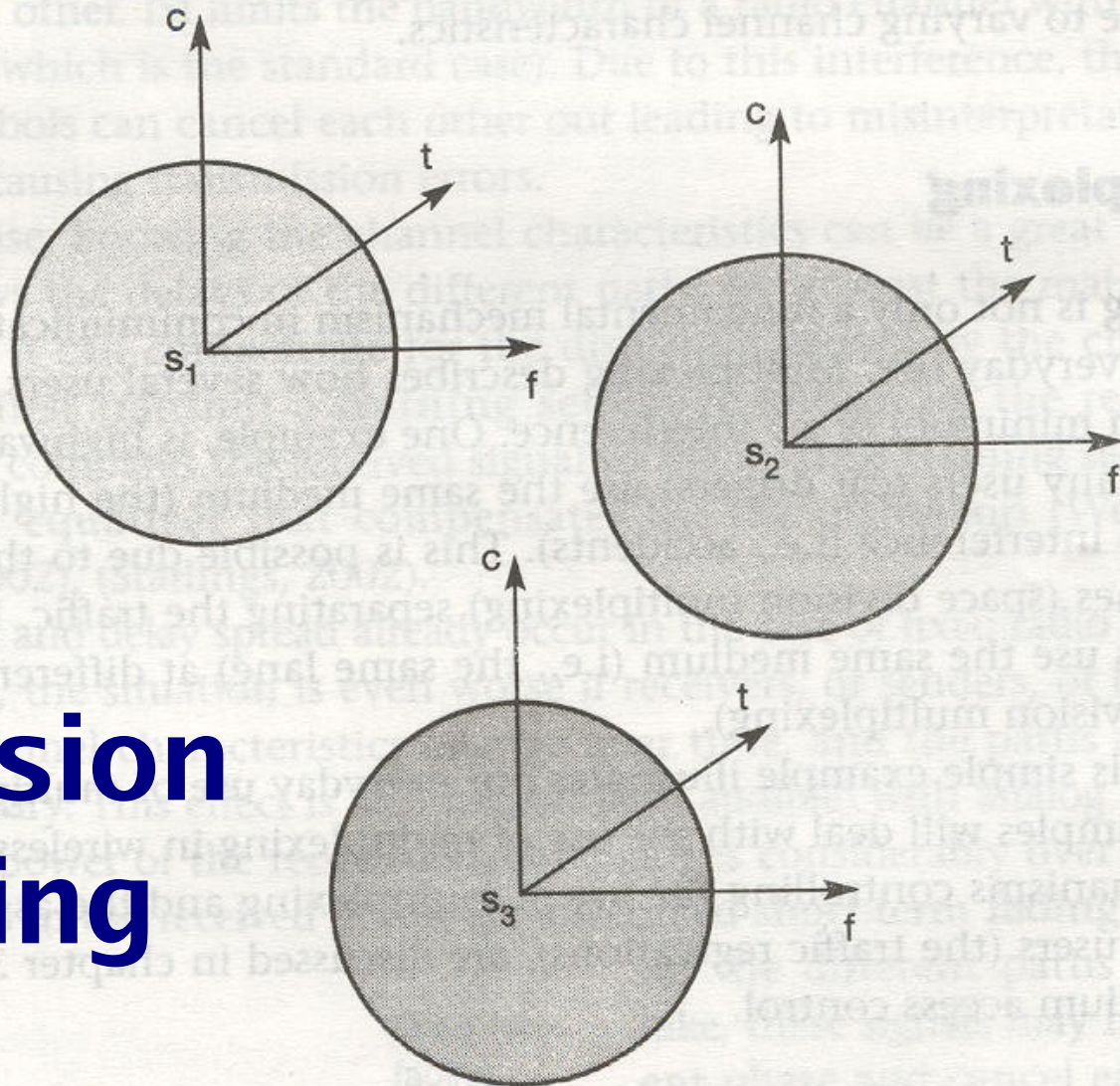http://www.cse.iitk.ac.in/users/braman/courses/wless-spring2007/

Multiplexing Techniques

- Wireless channel is shared
  - May need to multiplex multiple users

- Four possibilities:
  - Space Division Multiplexing (SDM)
  - Time Division Multiplexing (TDM)
  - Frequency Division Multiplexing (FDM)
  - Code Division Multiplexing (CDM)
    - Advanced, not necessary to know how it works for this course

Figure 2.16
Space division multiplexing (SDM)
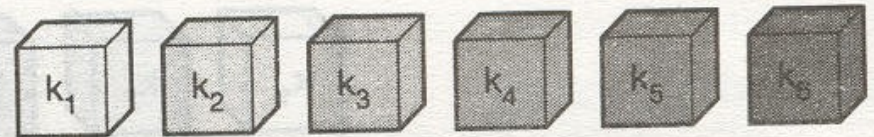
Source: Mobile Communications, Jochen Schiller
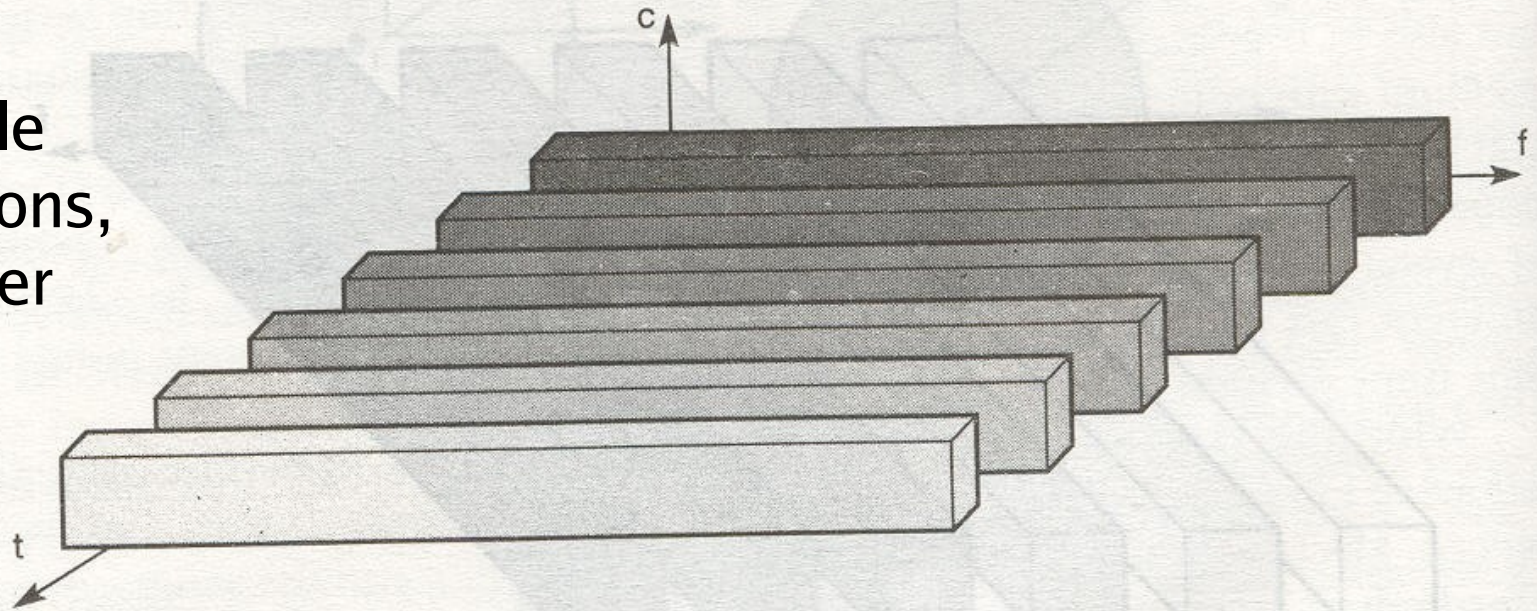
Space Division Multiplexing

Time Division Multiplexing
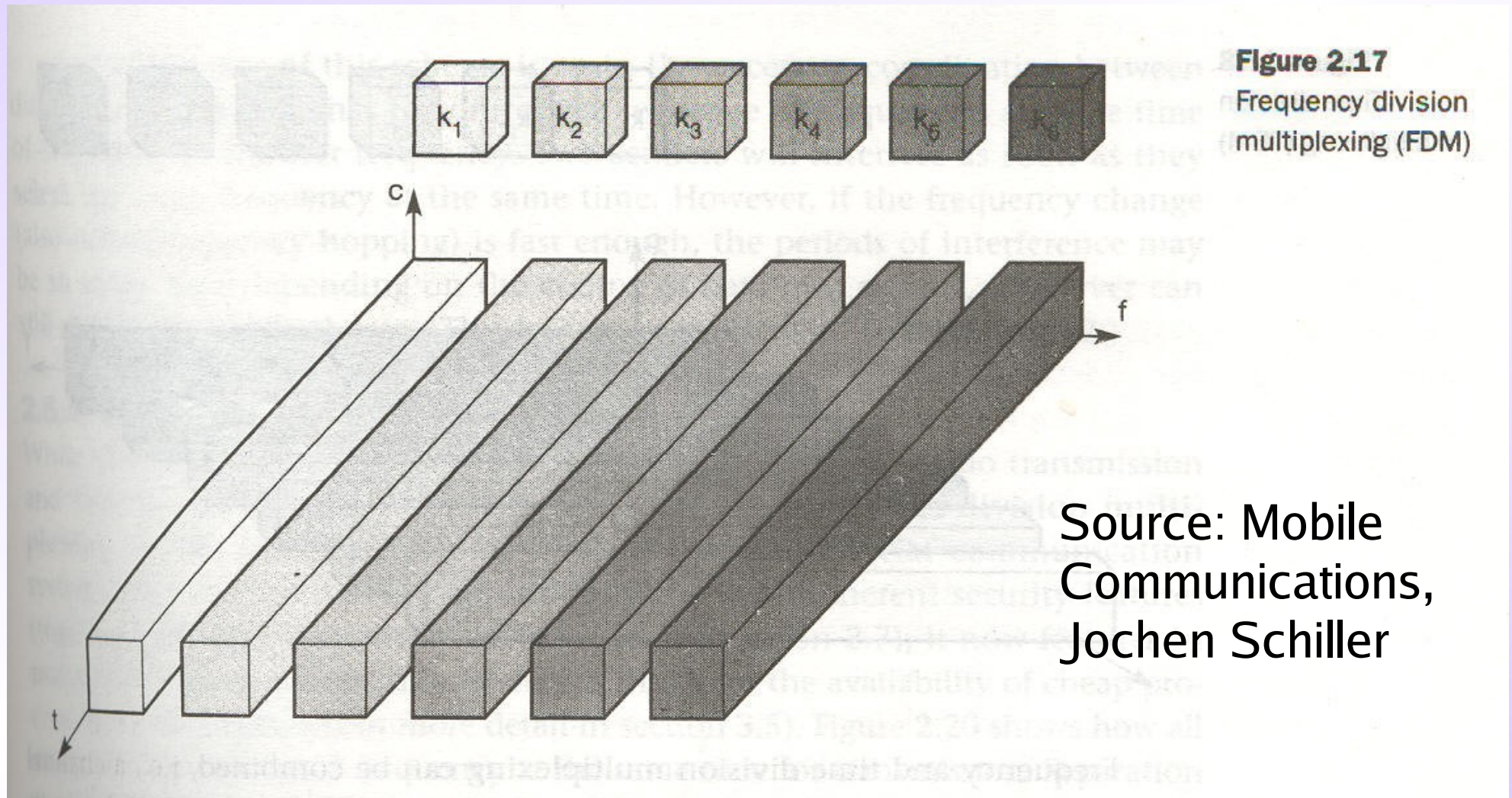
- Example: satellite links

Figure 2.18
Time division
multiplexing (TDM)

Source: Mobile
Communications,
Jochen Schiller

Frequency Division Multiplexing

Figure 2.17
Frequency division multiplexing (FDM)

Source: Mobile
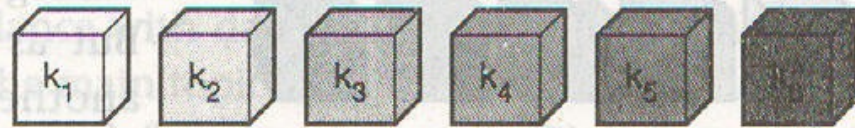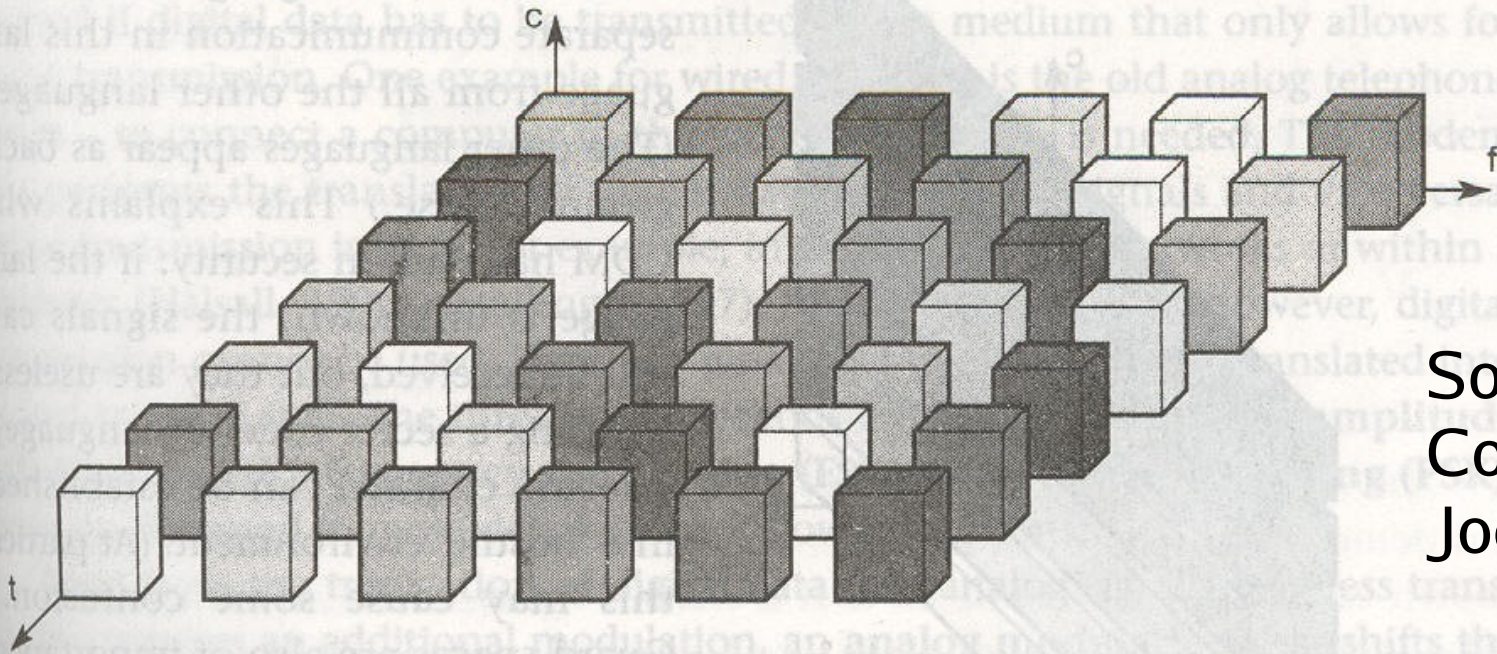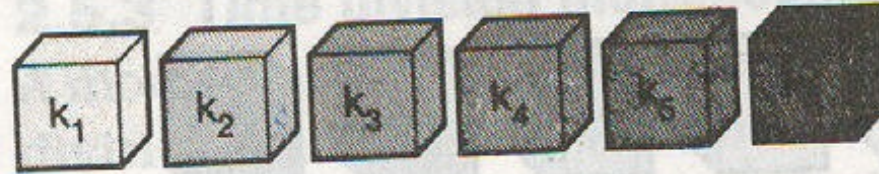Communications,
Jochen Schiller

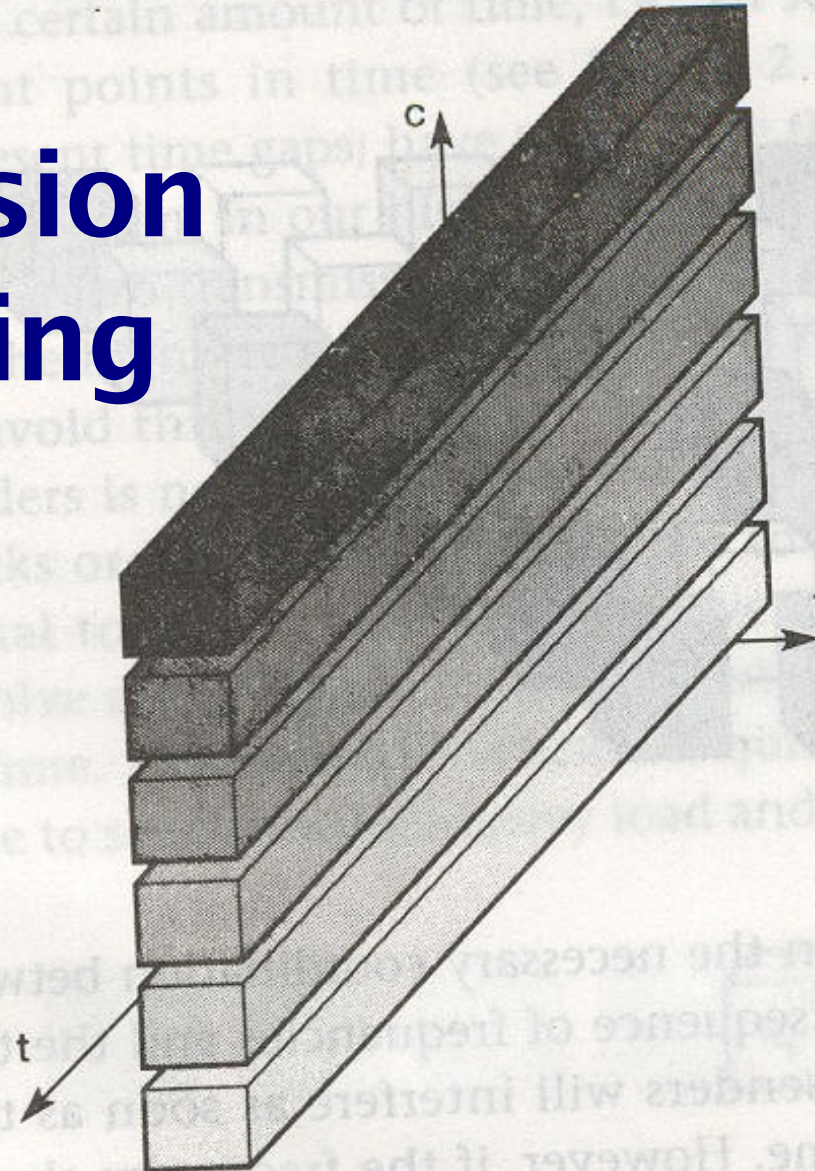# TDM + FDM

Figure 2.19
Frequency and time
division multiplexing
combined

Source: Mobile
Communications,
Jochen Schiller

Figure 2.20 Code division multiplexing (CDM)

Code Division Multiplexing

Source: Mobile Communications, Jochen Schiller

- Akin to people at a party using different "languages"

- Advanced technique, further details not necessary for this course