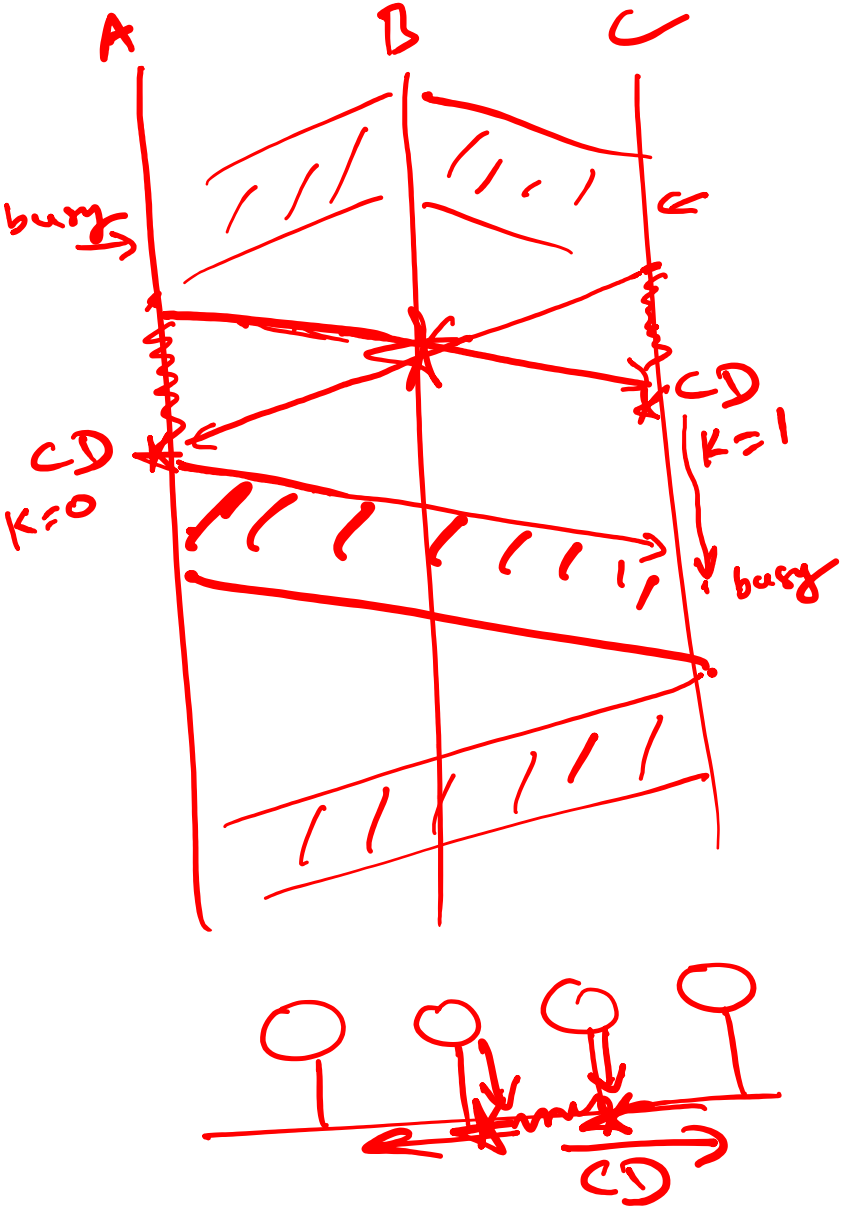
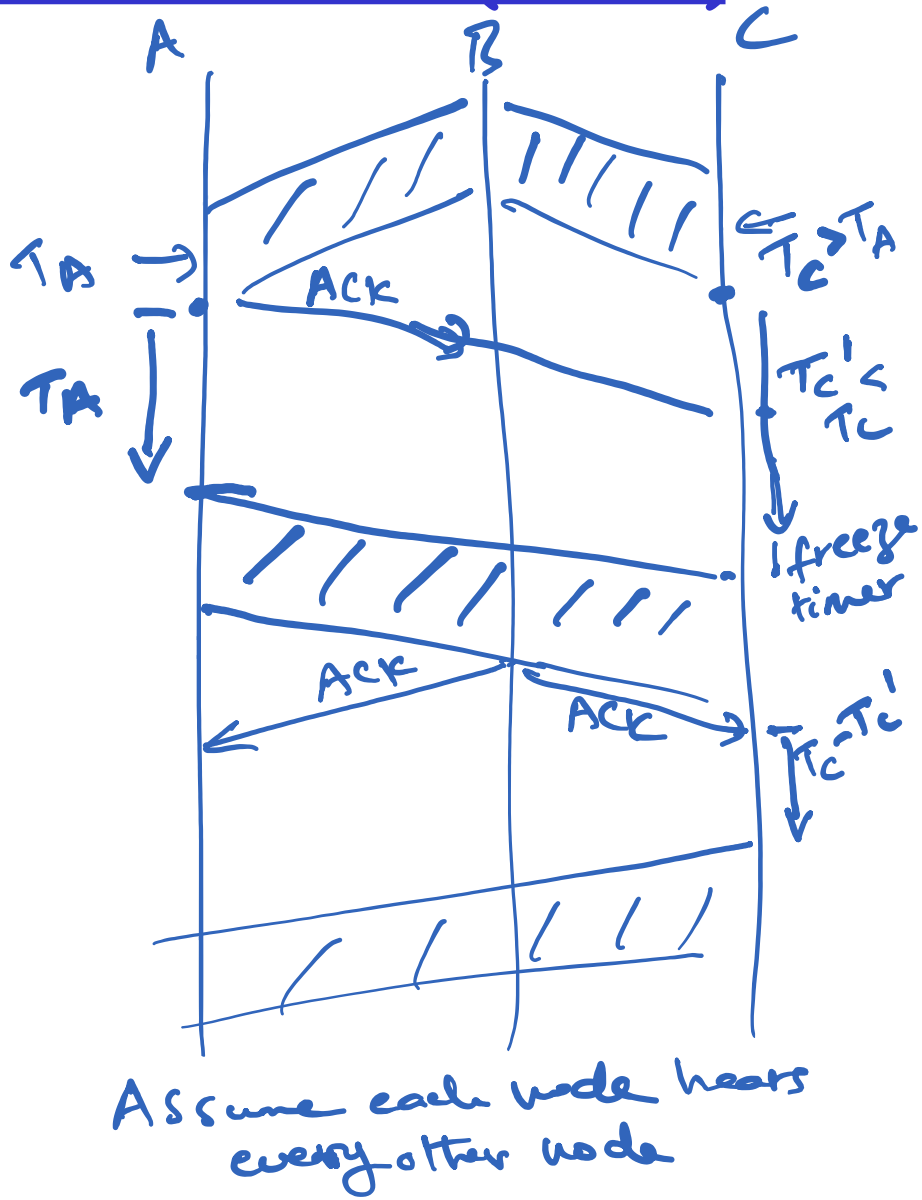
CSMA/CD (Ethernet) vs. CSMA/CA (WiFi)





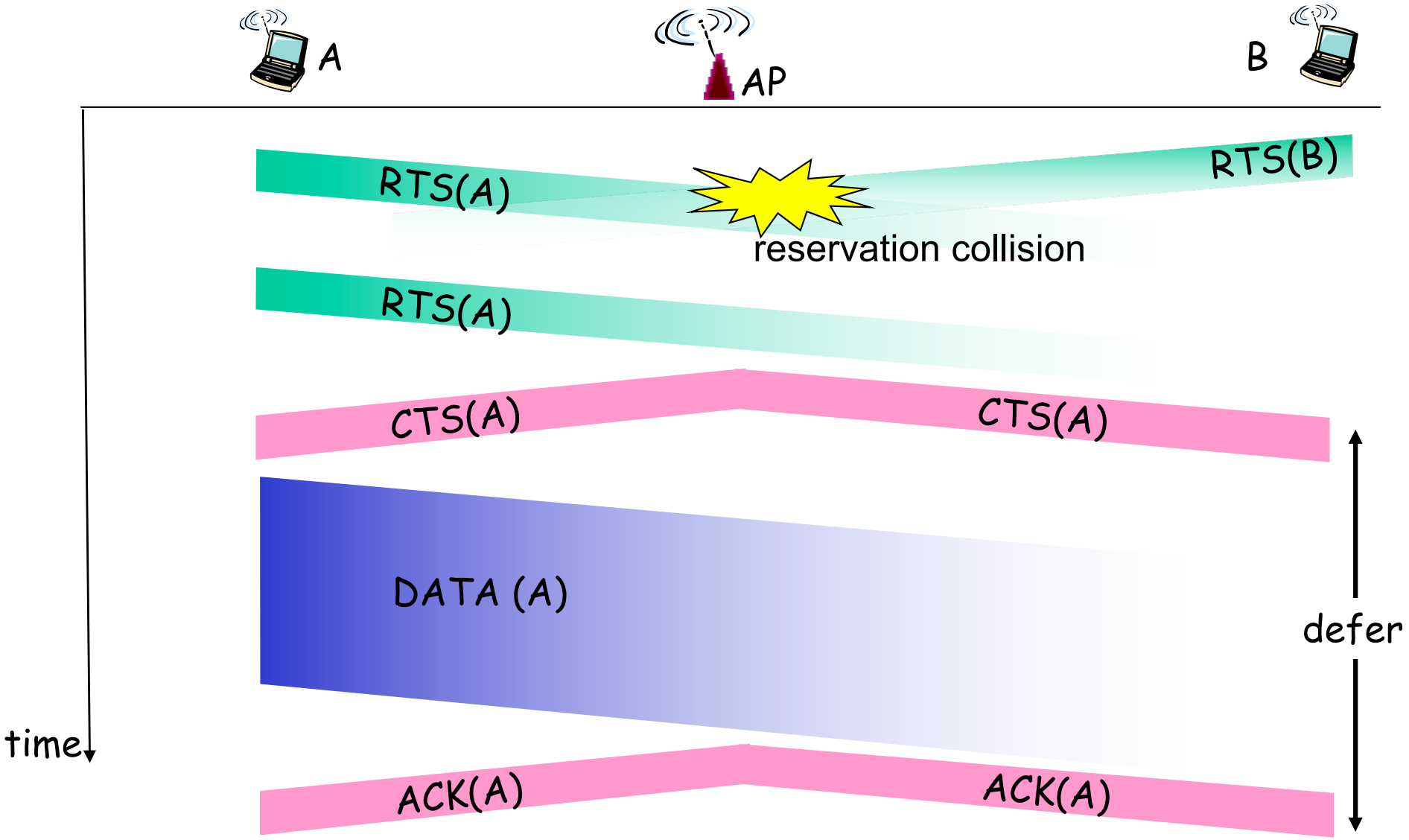
Avoiding collisions (more)

idea: allow sender to "reserve" channel rather than random access: avoid collisions of long data frames

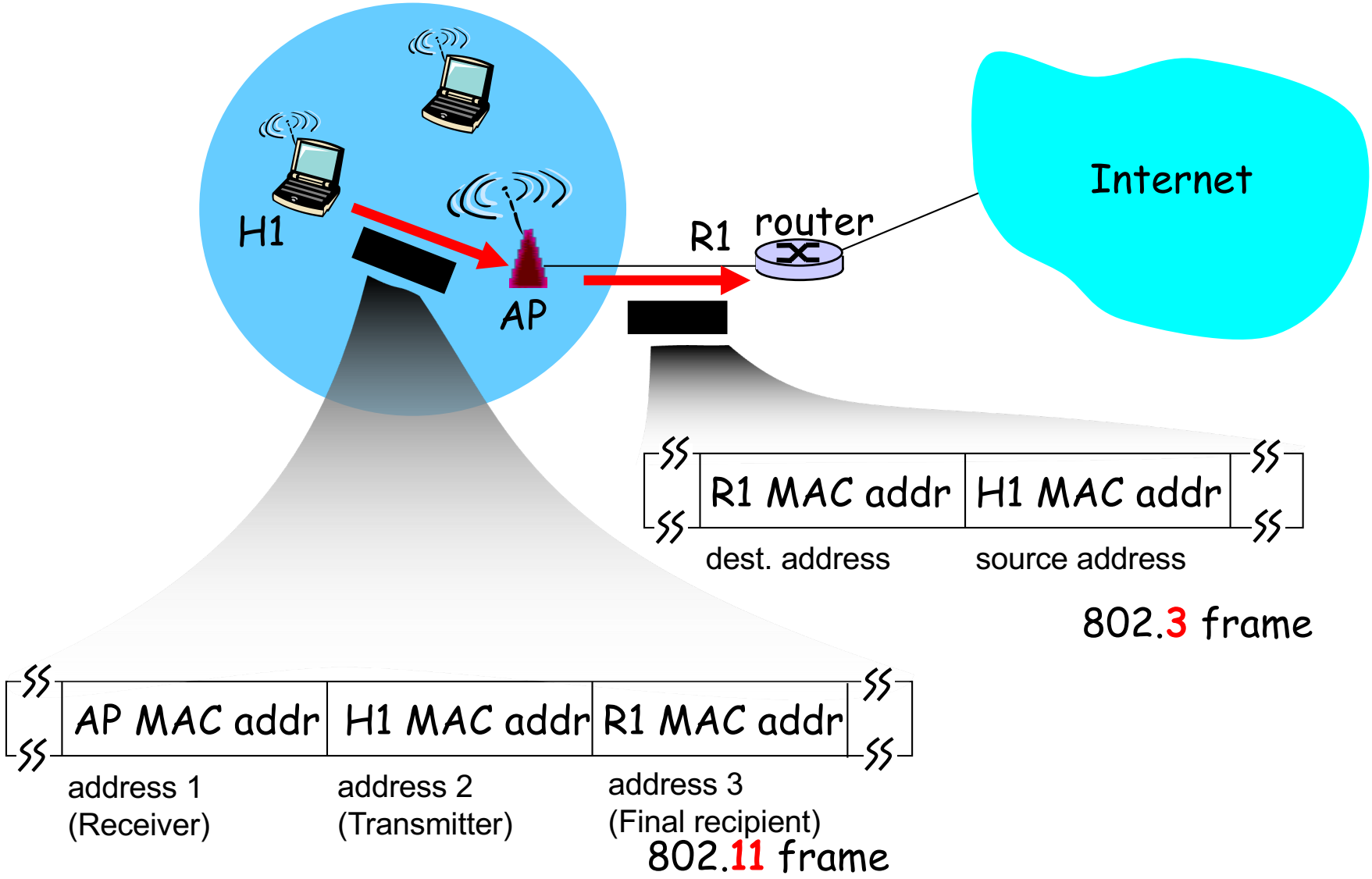
- sender first transmits *small* request-to-send (RTS) packets to AP using CSMA
  - RTSs may still collide with each other (but they're short)
- BS broadcasts clear-to-send CTS in response to RTS
- CTS heard by all nodes
  - sender transmits data frame
  - other stations defer transmissions

Avoid data frame collisions completely using small reservation packets!

Collision Avoidance: RTS-CTS exchange



802.11 frame: addressing



802.11: mobility within same subnet

- H1 remains in same IP subnet: IP address can remain same
- switch: which AP is associated with H1?
  - self-learning (Ch. 6): switch will see frame from H1 and "remember" which switch port can be used to reach H1
- During handoff, some frames might get lost