Midterm Review

CS168 - Fall 2022

Midterm Info

- **Tomorrow**, 10/11 at 7-9PM in Wheeler 150

- Be situated and ready to go by 7:10 (Don’t be late)

- One **double-sided, hand-written** cheat sheet

Recap

- Links
- Routers (what's inside)
- Topologies
- Intra-domain Routing
  - Distance Vector
  - Link State
  - Learning switches & STP
- Inter-domain Routing
- Addressing
- Architecture (layering, E2E principle, circuit vs packet switching, etc)

Agenda

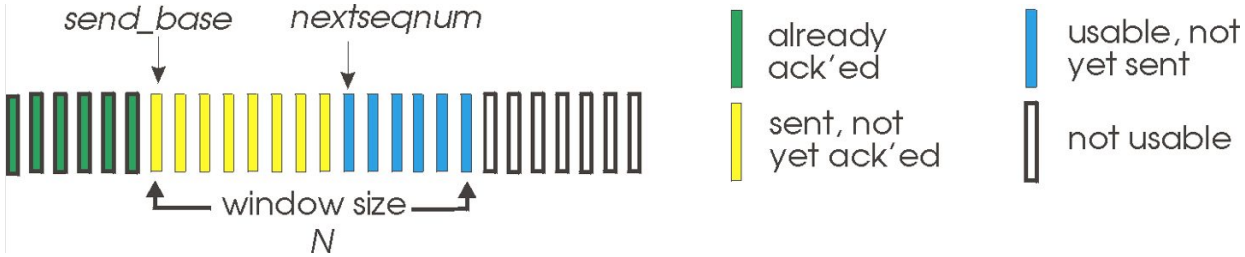
- Worksheet
- Q&A

Reliability

- Best-effort network
  - Need to handle packet loss, corruption, reordering, delays, duplications, etc.
- Building blocks
  - Checksums: detect corruption
  - Feedback: positive/negative feedback from receiver
  - Retransmissions: sender resend packets
  - Timeouts: when to resend a packet
  - Sequence numbers: indicate which packets have been received
- Design considerations
  - Window size, nature of feedback, detection of loss, response to loss

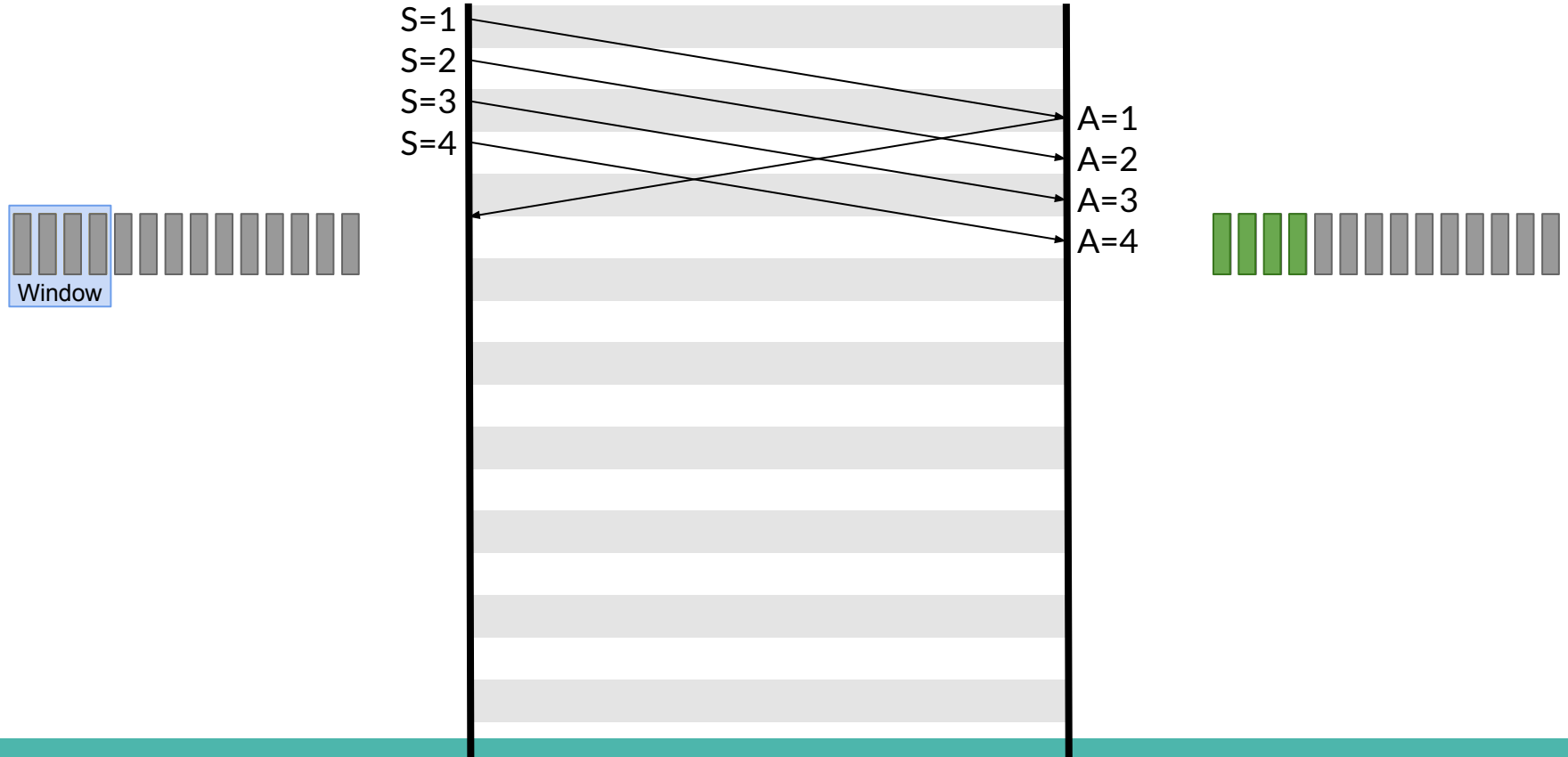
Go-Back-N

- Simple (though not advisable algorithm)
- “Sliding window” protocol: sender keeps a window of **up to W transmitted but unACKed** packets

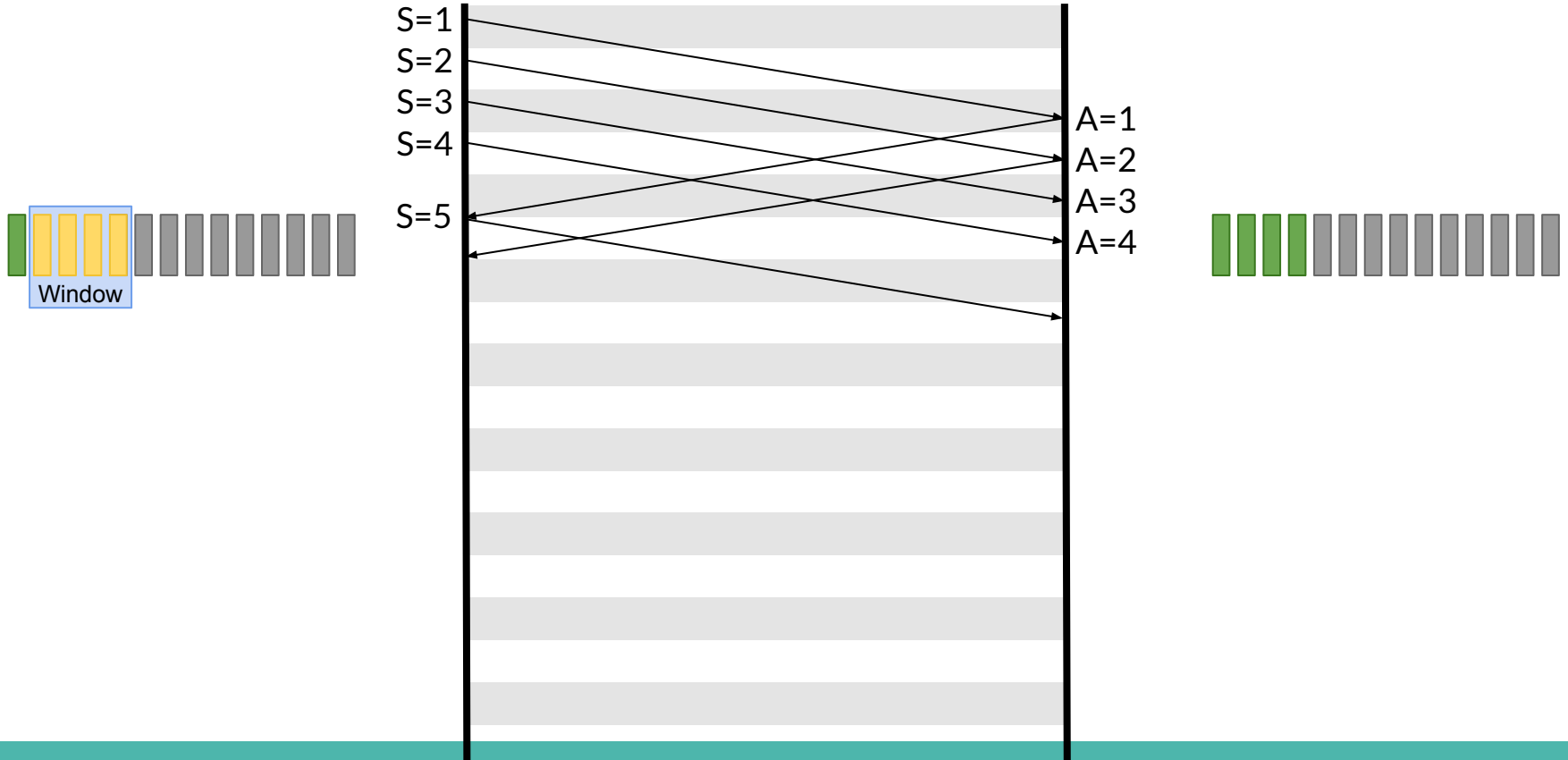


- Timer for oldest in-flight packet
- On timeout, resend all W packets (starting with the lost one)
- Receiver discards out-of-order packets

Go-Back-N w/o Errors



Go-Back-N w/o Errors



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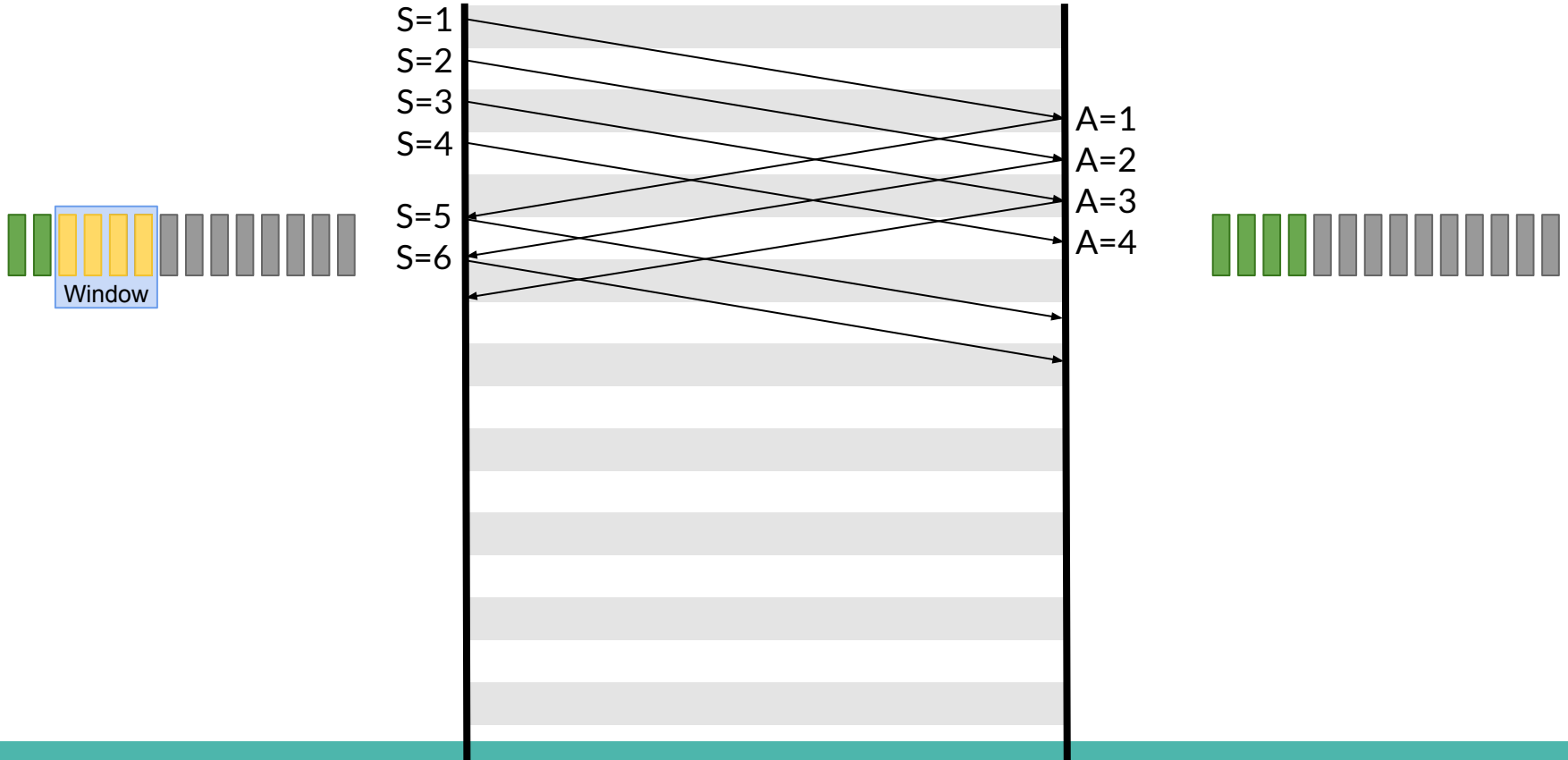

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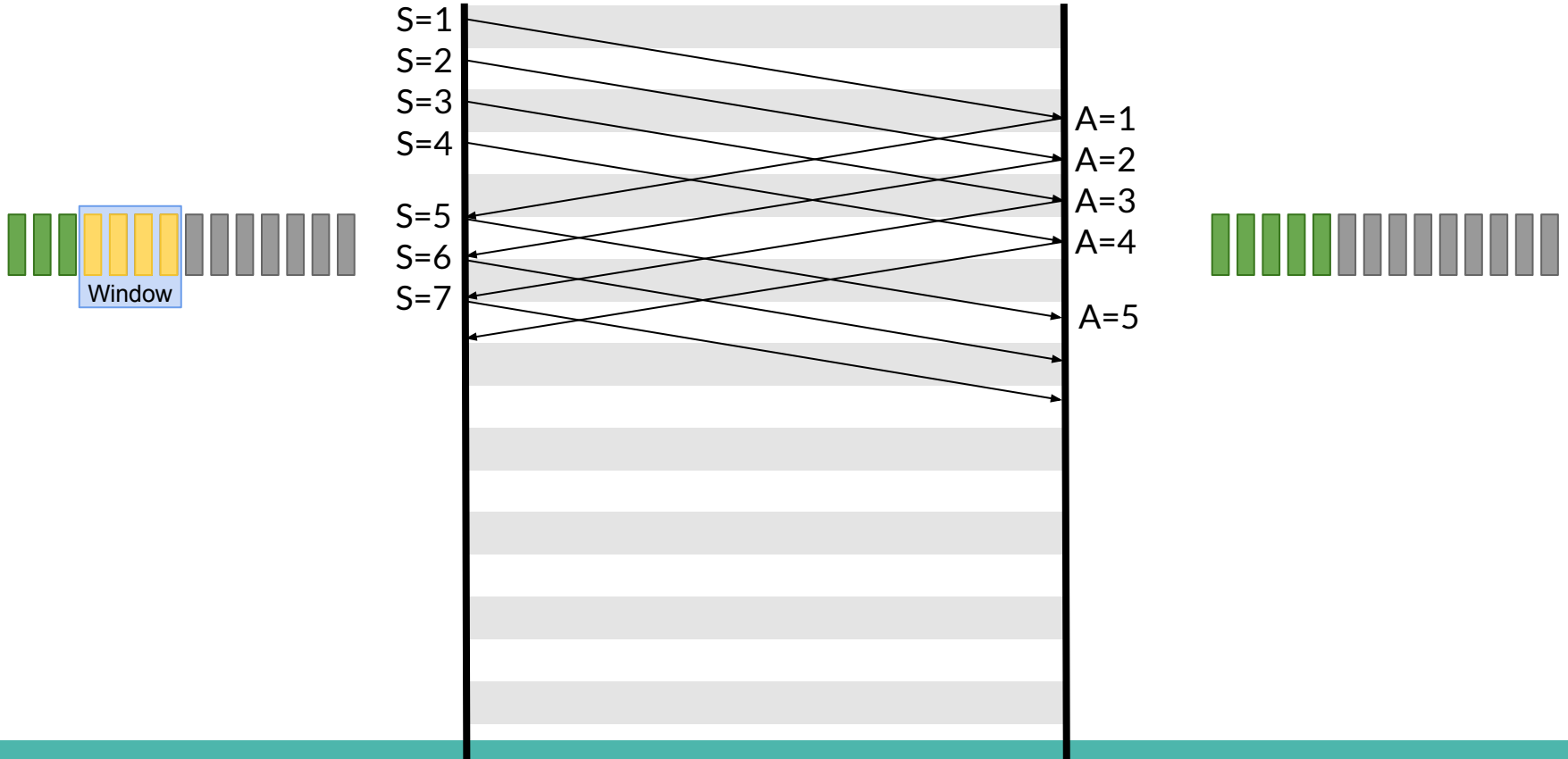

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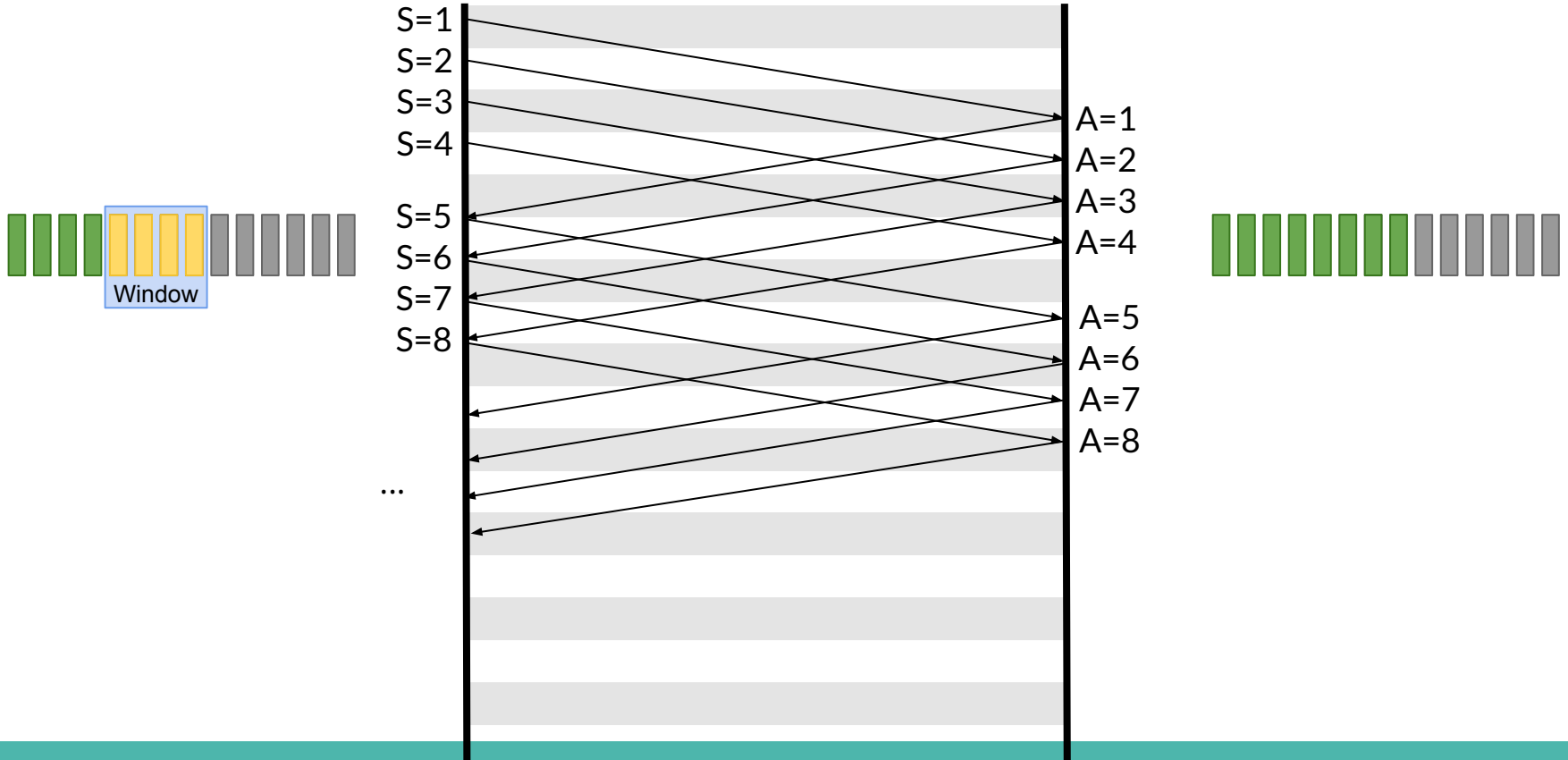
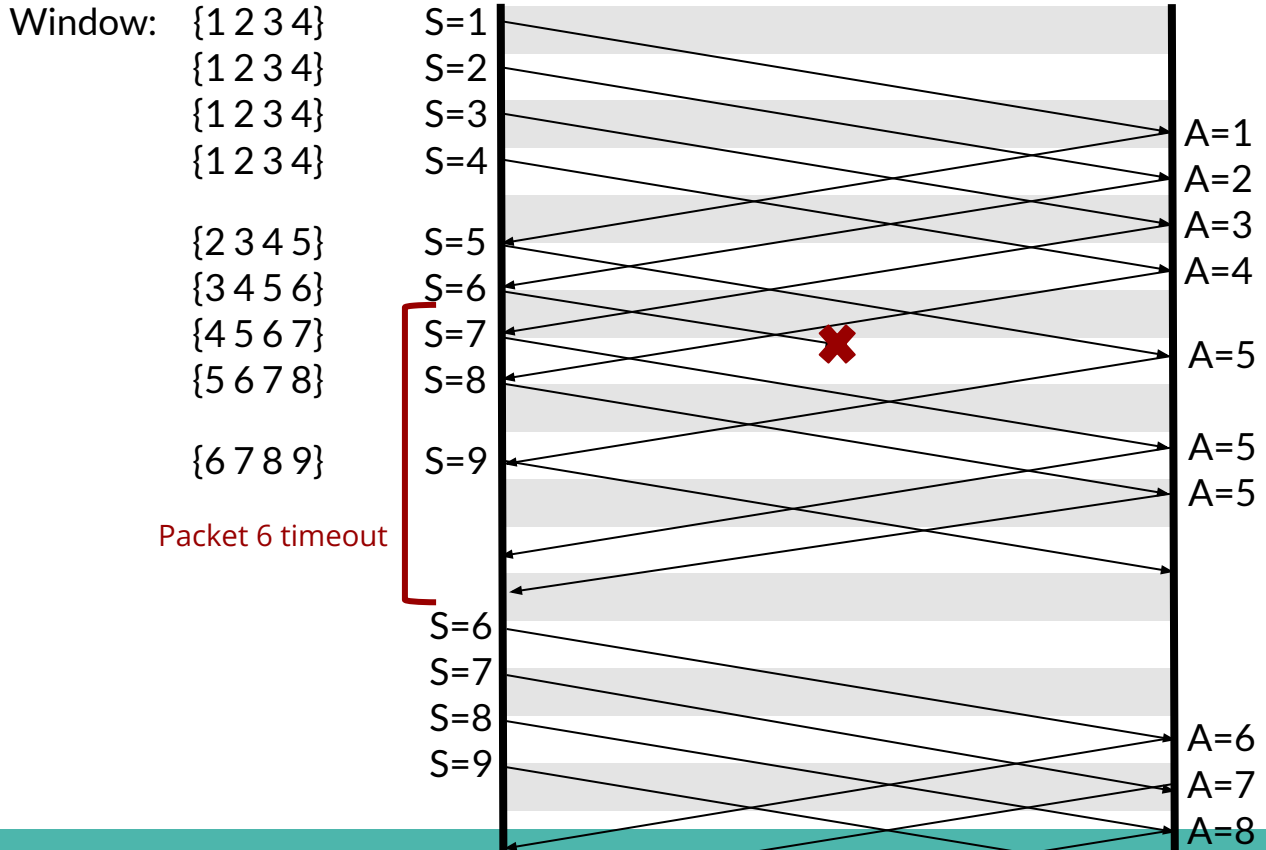
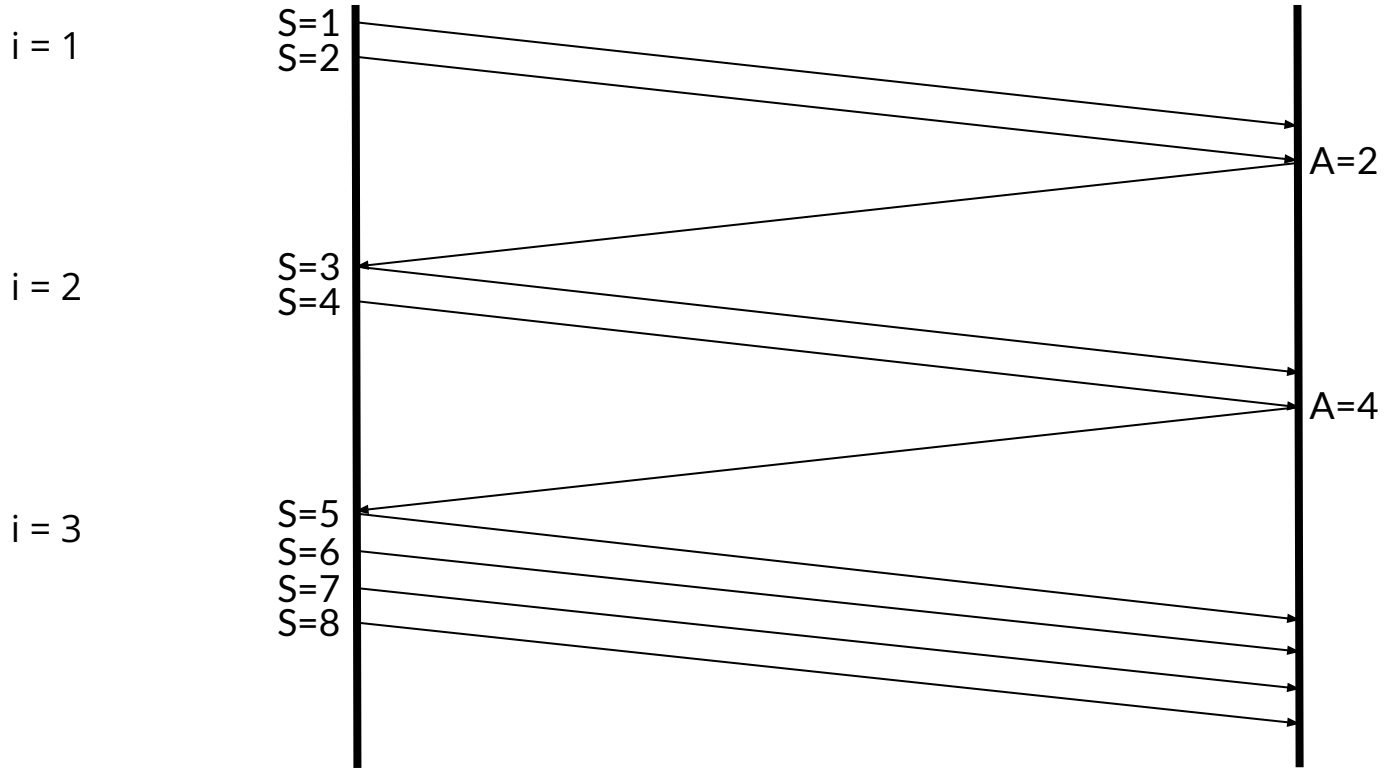


Go-Back-N w/ Errors



Worksheet

Question 3: Bob's Idea



Question 3: Alice's Idea