

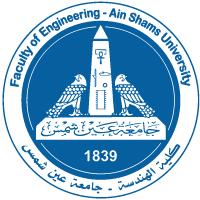
Networks project

Transport Layer

January 29, 2022

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18P1185



**Functions Implemented:**

A\_output (parameters: message), where message is a structure of type msg, containing data to be sent to B. this routine is called when the higher layer on the sending side is approached. This function was implemented with the purpose of making sure that payload section (data) in the message is delivered to the receiving side higher layer in the correct order

A\_input (params: packet), where packet is a structure of type pkt. This function will be called whenever a packet sent from B arrives at A. packet, which is possibly corrupted packet, is sent from the B-side.

A\_timerinterrupt (), this function will be called when A's timer expires. We need this function to control the retransmission of packets.

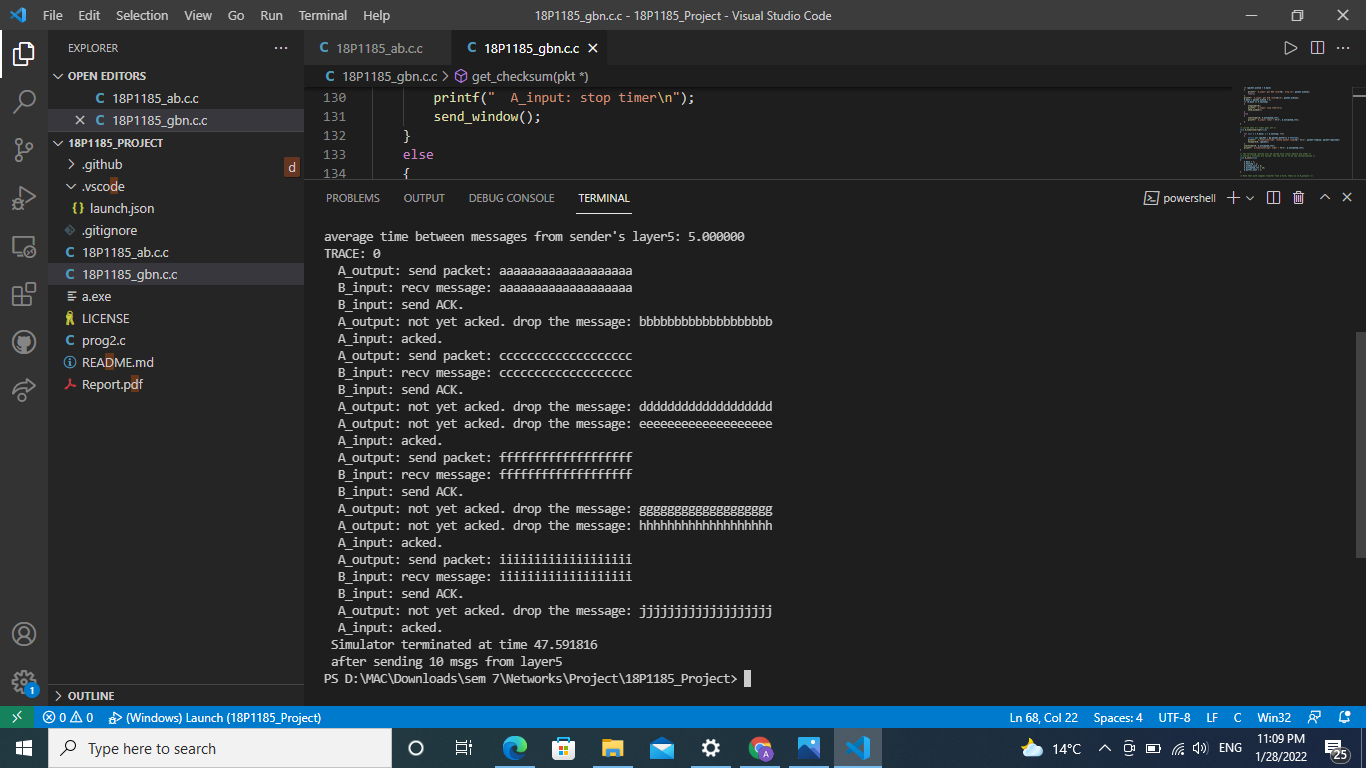
A\_init () this function will be called before any of your other A-side functions are called. It can be used to do any required initialization and it is called one time only

B\_input (params: packet), where packet is a structure of type pkt. This function will be called whenever a packet sent from A (because of a tolayer3 () being done by a A-side procedure) arrives at the B. packet is the (possibly corrupted) packet sent from the A-side.

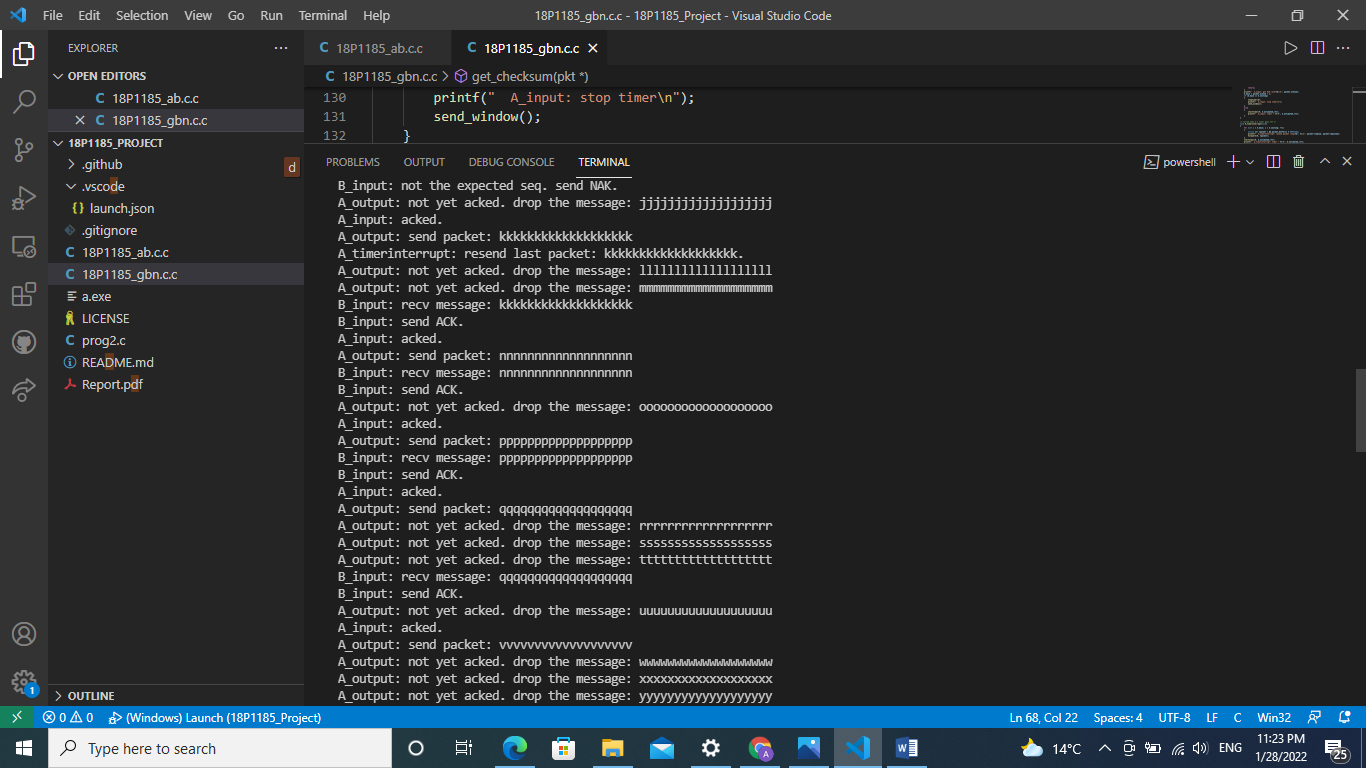
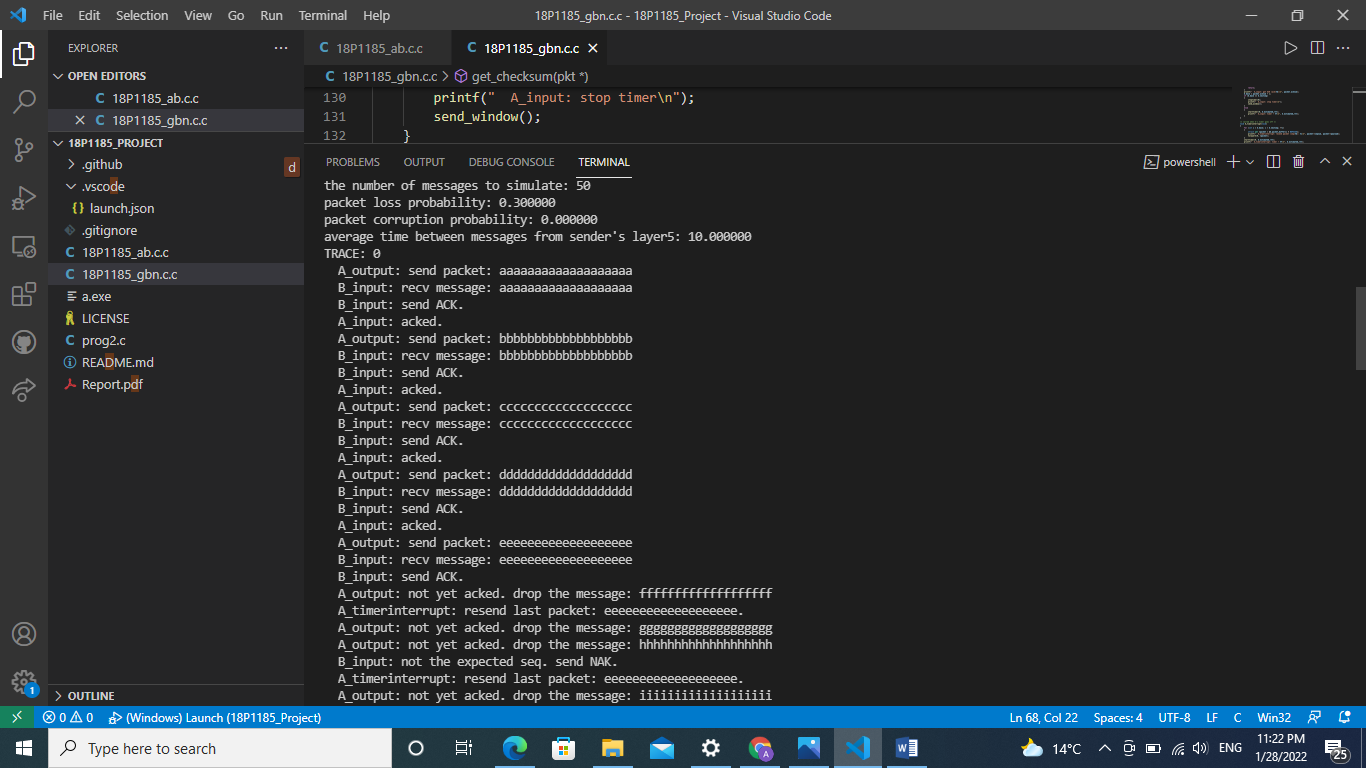
B\_init (), this function will be called before any of your other B-side functions are called. It can be used to do any required initialization and it is called one time only.

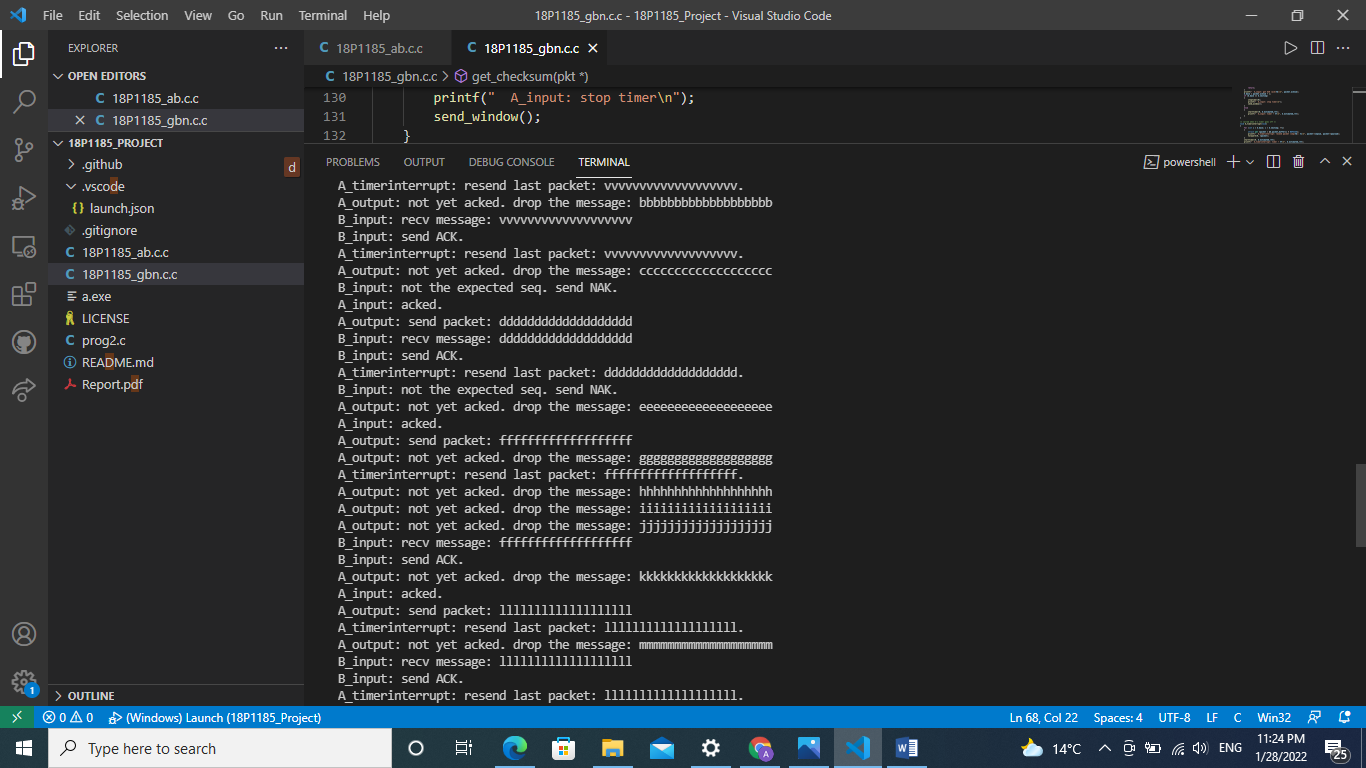
**Alternating Bit Protocol**

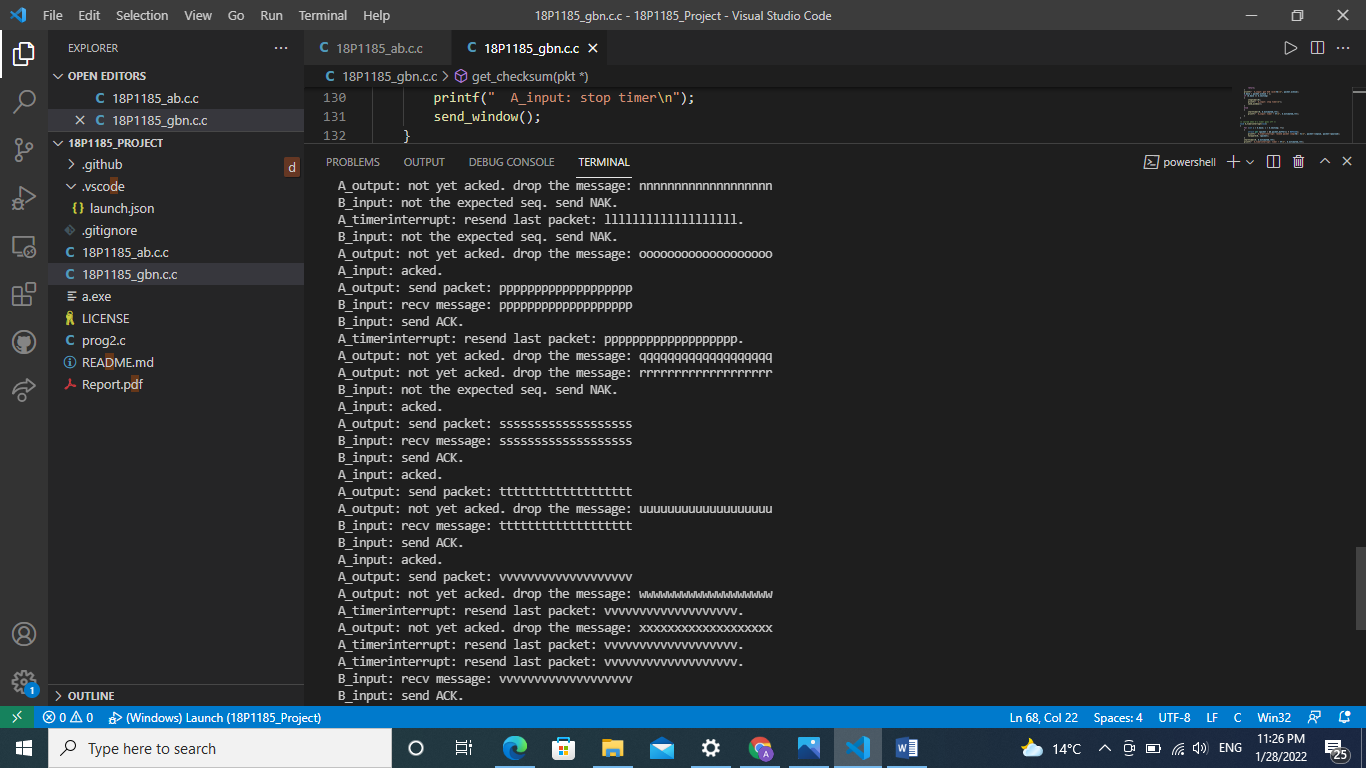
**A) No loss and no error scenario to demonstrate that the code works under no error case:**

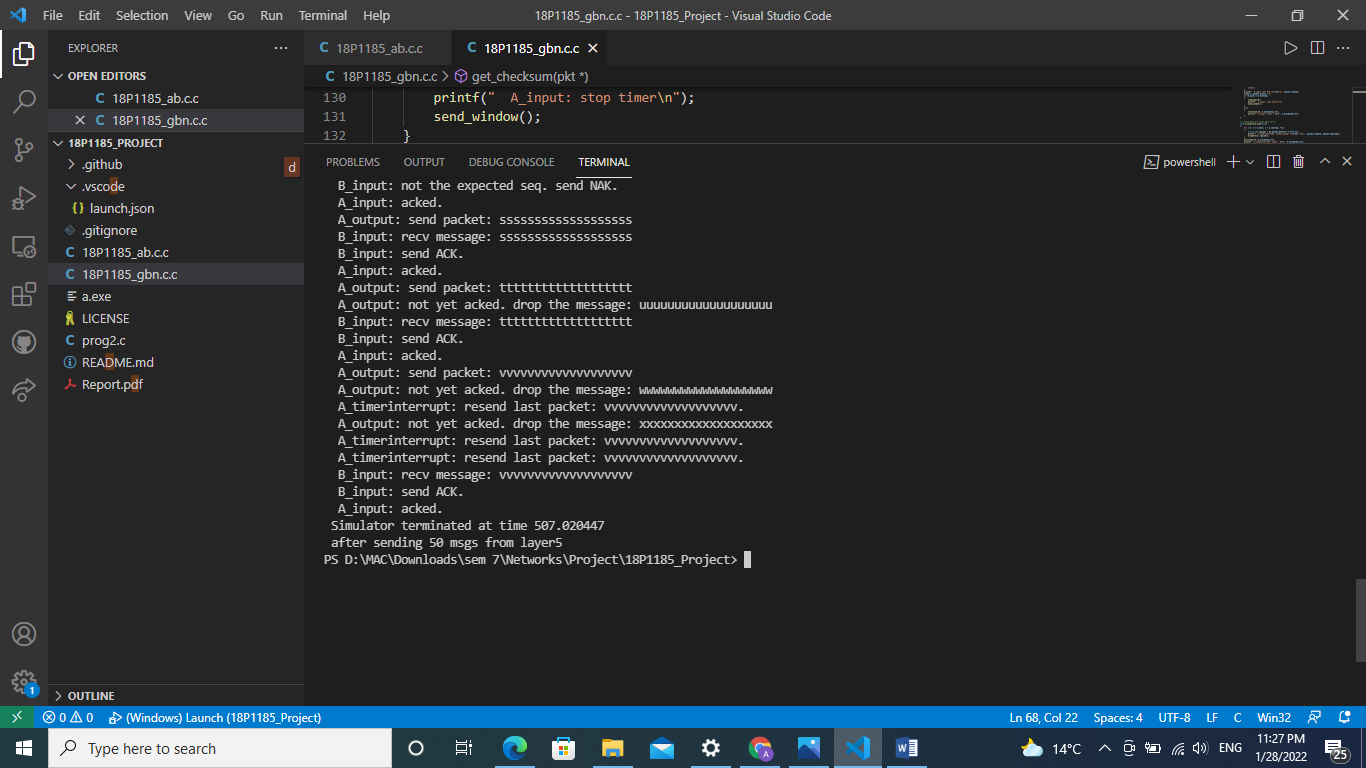


**B) 30 percent loss and no error scenario to demonstrate the code can recover the lossed packets:**

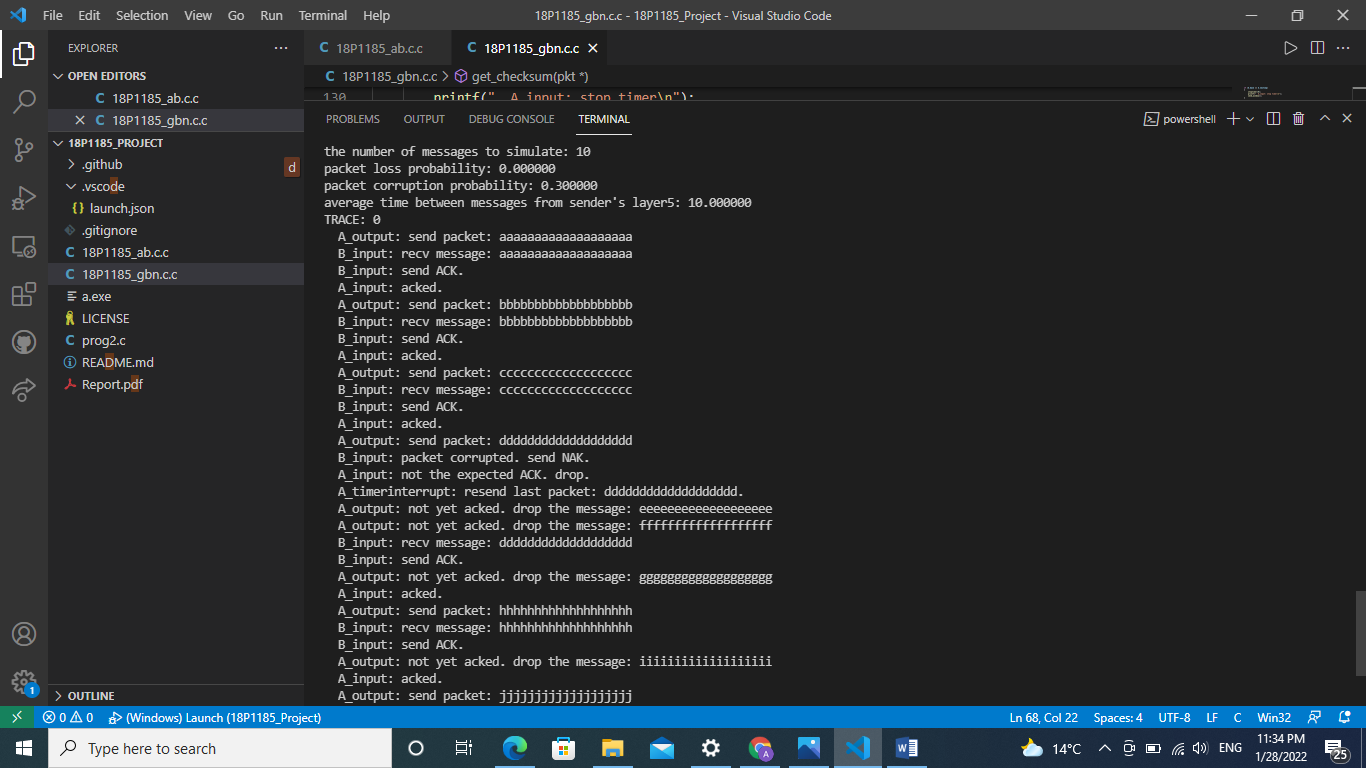


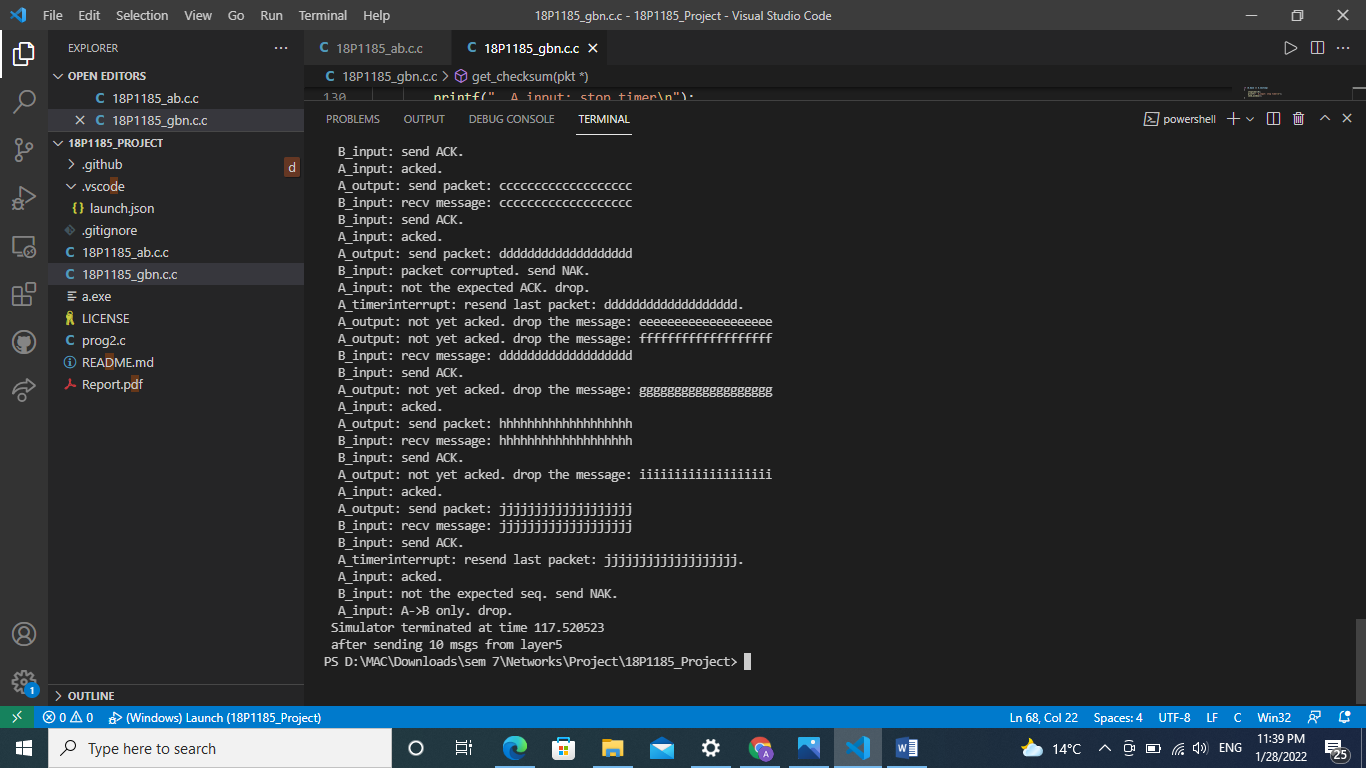






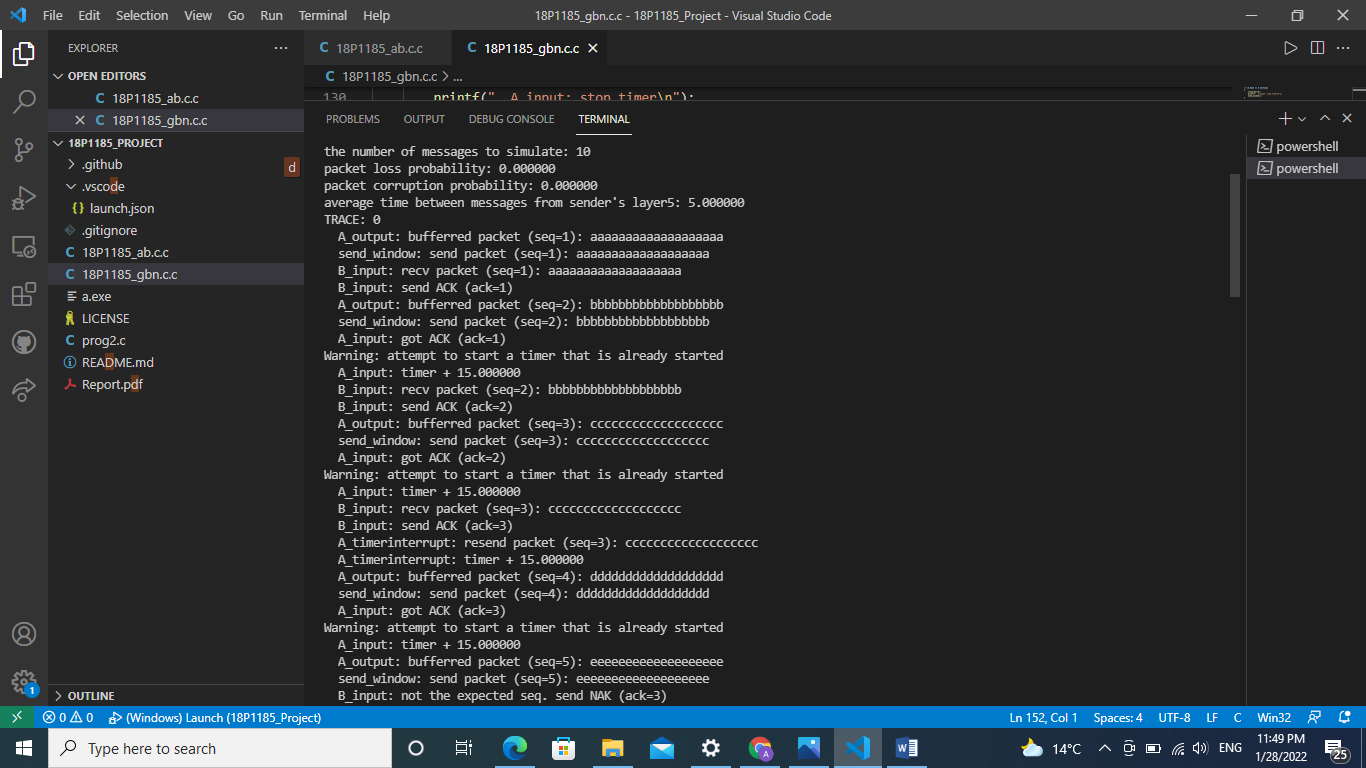
**C) No loss and 30 percent corruption scenario to demonstrate the code can recover the erroneously received packets**

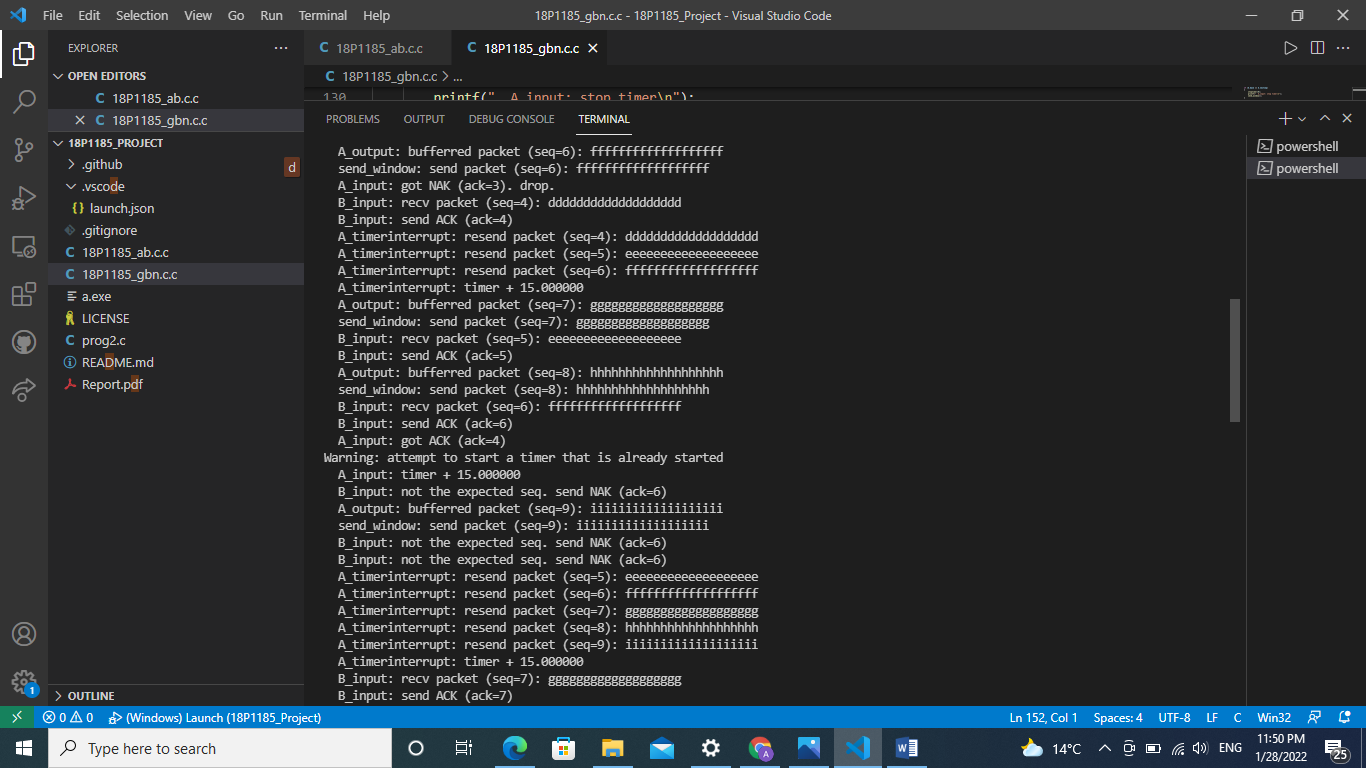


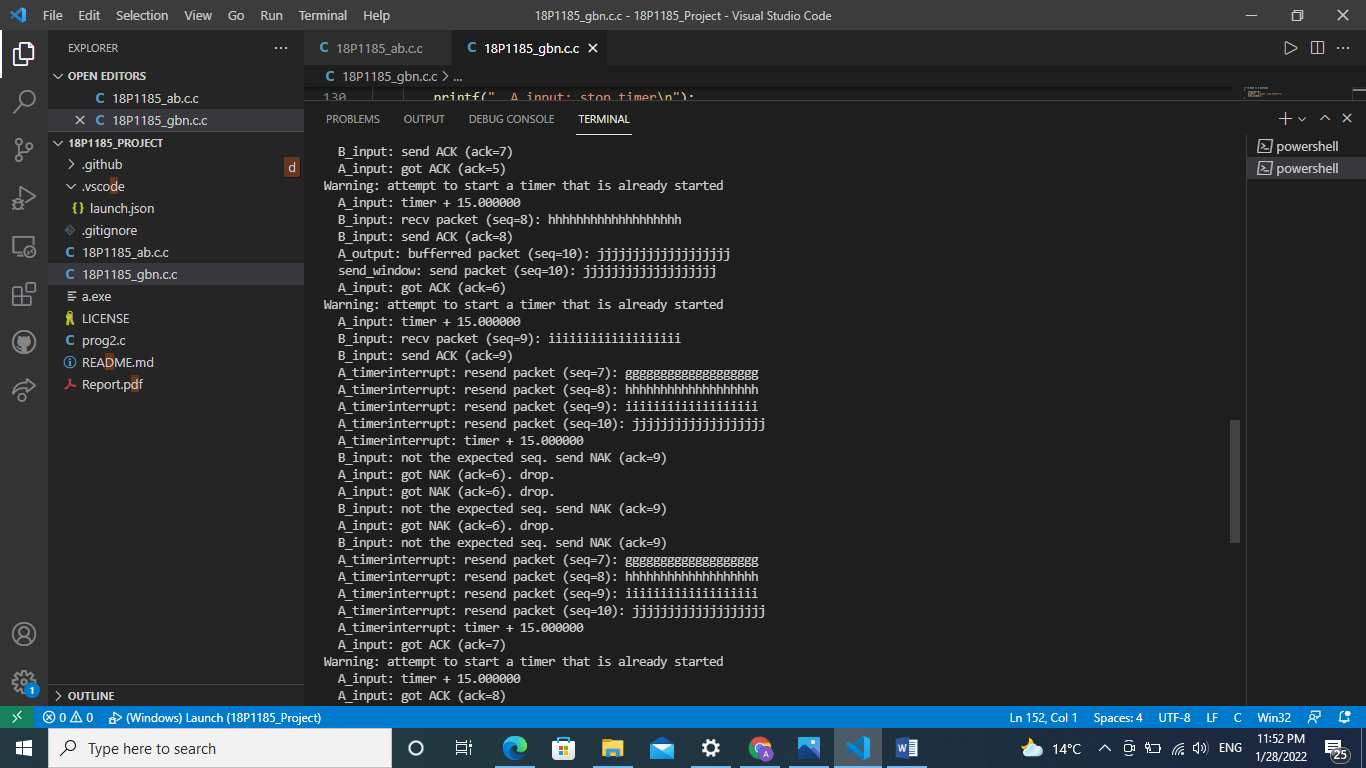


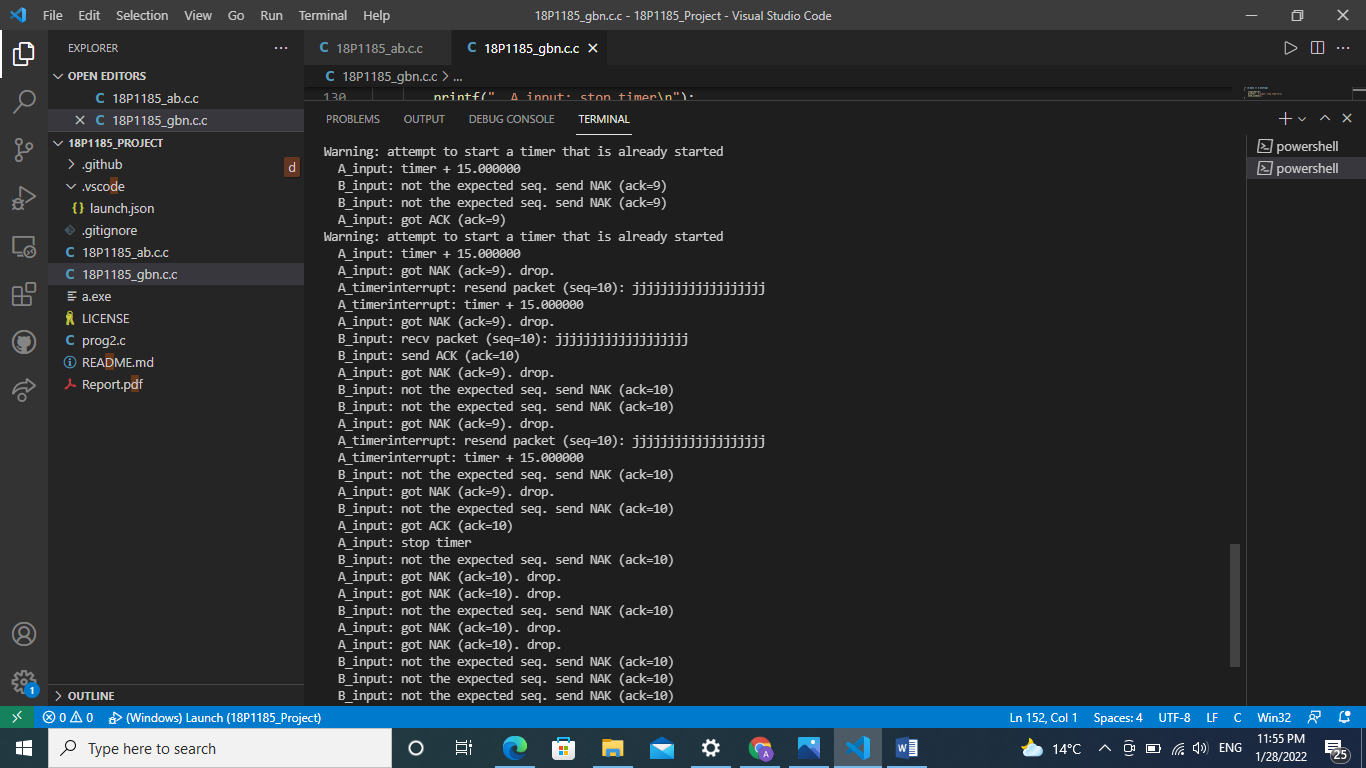
**Go Back N**

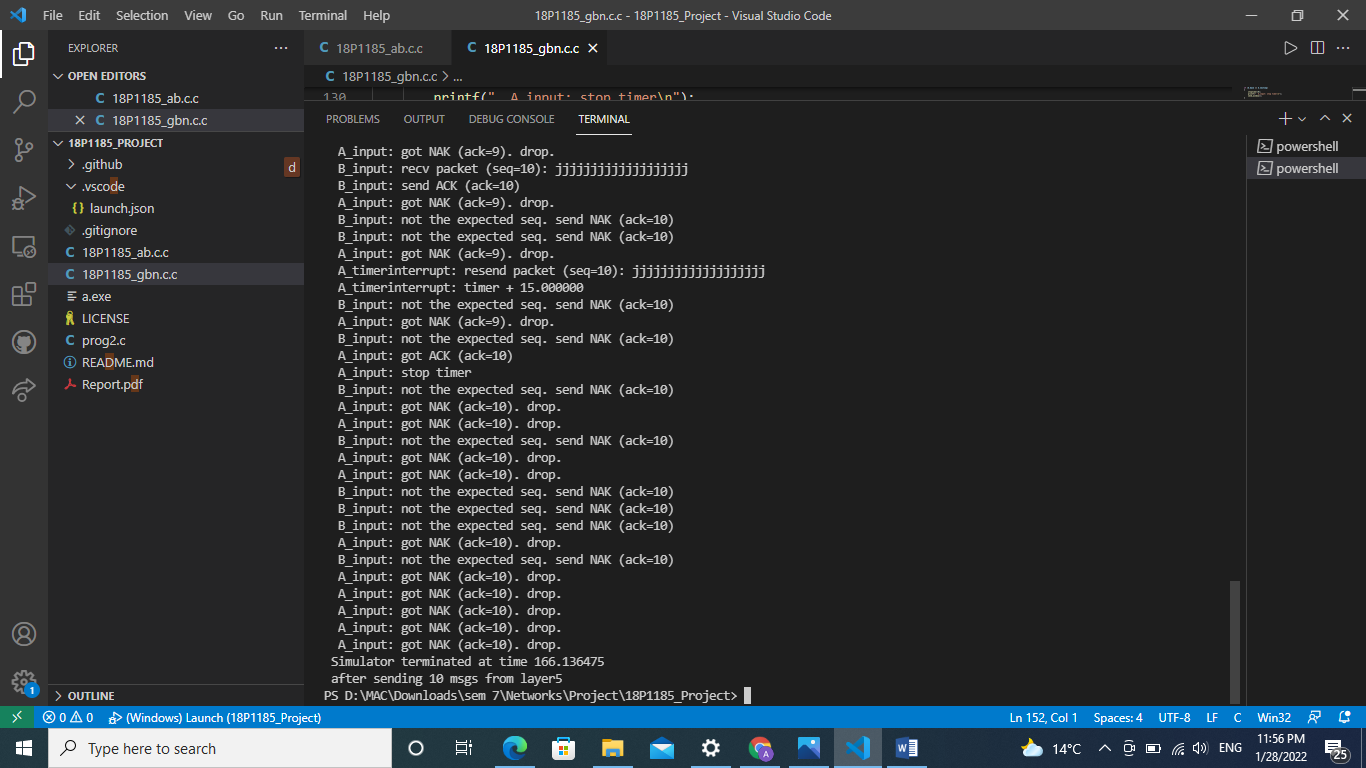
**A) No loss and no error scenario to demonstrate that the code works under no error case:**











**B) 30 percent loss and no error scenario to demonstrate the code can recover the lossed packets:**

The number of messages to simulate: 50

Packet loss probability: 0.300000

Packet corruption probability: 0.000000

Average time between messages from sender's layer5: 10.000000

TRACE: 0

A\_output: bufferred packet (seq=1): aaaaaaaaaaaaaaaaaaa

send\_window: send packet (seq=1): aaaaaaaaaaaaaaaaaaa

B\_input: recv packet (seq=1): aaaaaaaaaaaaaaaaaaa

B\_input: send ACK (ack=1)

A\_input: got ACK (ack=1)

A\_input: stop timer

A\_output: bufferred packet (seq=2): bbbbbbbbbbbbbbbbbbb

send\_window: send packet (seq=2): bbbbbbbbbbbbbbbbbbb

B\_input: recv packet (seq=2): bbbbbbbbbbbbbbbbbbb

B\_input: send ACK (ack=2)

A\_input: got ACK (ack=2)

A\_input: stop timer

A\_output: bufferred packet (seq=3): ccccccccccccccccccc

send\_window: send packet (seq=3): ccccccccccccccccccc

B\_input: recv packet (seq=3): ccccccccccccccccccc

B\_input: send ACK (ack=3)

A\_input: got ACK (ack=3)

A\_input: stop timer

A\_output: bufferred packet (seq=4): ddddddddddddddddddd

send\_window: send packet (seq=4): ddddddddddddddddddd

B\_input: recv packet (seq=4): ddddddddddddddddddd

B\_input: send ACK (ack=4)

A\_input: got ACK (ack=4)

A\_input: stop timer

A\_output: bufferred packet (seq=5): eeeeeeeeeeeeeeeeeee

send\_window: send packet (seq=5): eeeeeeeeeeeeeeeeeee

B\_input: recv packet (seq=5): eeeeeeeeeeeeeeeeeee

B\_input: send ACK (ack=5)

A\_output: bufferred packet (seq=6): fffffffffffffffffff

send\_window: send packet (seq=6): fffffffffffffffffff

A\_timerinterrupt: resend packet (seq=5): eeeeeeeeeeeeeeeeeee

A\_timerinterrupt: resend packet (seq=6): fffffffffffffffffff

A\_timerinterrupt: timer + 15.000000

B\_input: recv packet (seq=6): fffffffffffffffffff

B\_input: send ACK (ack=6)

B\_input: not the expected seq. send NAK (ack=6)

A\_output: bufferred packet (seq=7): ggggggggggggggggggg

send\_window: send packet (seq=7): ggggggggggggggggggg

A\_input: got ACK (ack=6)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: recv packet (seq=7): ggggggggggggggggggg

B\_input: send ACK (ack=7)

A\_input: got NAK (ack=6). drop.

A\_timerinterrupt: resend packet (seq=7): ggggggggggggggggggg

A\_timerinterrupt: timer + 15.000000

A\_output: bufferred packet (seq=8): hhhhhhhhhhhhhhhhhhh

send\_window: send packet (seq=8): hhhhhhhhhhhhhhhhhhh

B\_input: not the expected seq. send NAK (ack=7)

A\_input: got ACK (ack=7)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: recv packet (seq=8): hhhhhhhhhhhhhhhhhhh

B\_input: send ACK (ack=8)

A\_timerinterrupt: resend packet (seq=8): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: timer + 15.000000

A\_output: bufferred packet (seq=9): iiiiiiiiiiiiiiiiiii

send\_window: send packet (seq=9): iiiiiiiiiiiiiiiiiii

A\_input: got ACK (ack=8)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=8)

A\_input: got NAK (ack=8). drop.

A\_timerinterrupt: resend packet (seq=9): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: timer + 15.000000

B\_input: recv packet (seq=9): iiiiiiiiiiiiiiiiiii

B\_input: send ACK (ack=9)

A\_output: bufferred packet (seq=10): jjjjjjjjjjjjjjjjjjj

send\_window: send packet (seq=10): jjjjjjjjjjjjjjjjjjj

B\_input: not the expected seq. send NAK (ack=9)

B\_input: recv packet (seq=10): jjjjjjjjjjjjjjjjjjj

B\_input: send ACK (ack=10)

A\_output: bufferred packet (seq=11): kkkkkkkkkkkkkkkkkkk

send\_window: send packet (seq=11): kkkkkkkkkkkkkkkkkkk

B\_input: recv packet (seq=11): kkkkkkkkkkkkkkkkkkk

B\_input: send ACK (ack=11)

A\_output: bufferred packet (seq=12): lllllllllllllllllll

send\_window: send packet (seq=12): lllllllllllllllllll

A\_input: got ACK (ack=9)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_output: bufferred packet (seq=13): mmmmmmmmmmmmmmmmmmm

send\_window: send packet (seq=13): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=10): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=11): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=12): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=13): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: timer + 15.000000

B\_input: recv packet (seq=12): lllllllllllllllllll

B\_input: send ACK (ack=12)

B\_input: not the expected seq. send NAK (ack=12)

A\_input: got ACK (ack=12)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=12)

A\_output: bufferred packet (seq=14): nnnnnnnnnnnnnnnnnnn

send\_window: send packet (seq=14): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=13): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=14): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: timer + 15.000000

B\_input: recv packet (seq=13): mmmmmmmmmmmmmmmmmmm

B\_input: send ACK (ack=13)

A\_input: got NAK (ack=12). drop.

B\_input: recv packet (seq=14): nnnnnnnnnnnnnnnnnnn

B\_input: send ACK (ack=14)

B\_input: not the expected seq. send NAK (ack=14)

A\_output: bufferred packet (seq=15): ooooooooooooooooooo

send\_window: send packet (seq=15): ooooooooooooooooooo

A\_output: bufferred packet (seq=16): ppppppppppppppppppp

send\_window: send packet (seq=16): ppppppppppppppppppp

A\_input: got ACK (ack=14)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_timerinterrupt: resend packet (seq=15): ooooooooooooooooooo

A\_timerinterrupt: resend packet (seq=16): ppppppppppppppppppp

A\_timerinterrupt: timer + 15.000000

B\_input: recv packet (seq=15): ooooooooooooooooooo

B\_input: send ACK (ack=15)

A\_input: got ACK (ack=15)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: recv packet (seq=16): ppppppppppppppppppp

B\_input: send ACK (ack=16)

A\_input: got ACK (ack=16)

A\_input: stop timer

B\_input: not the expected seq. send NAK (ack=16)

A\_output: bufferred packet (seq=17): qqqqqqqqqqqqqqqqqqq

send\_window: send packet (seq=17): qqqqqqqqqqqqqqqqqqq

A\_input: got NAK (ack=16). drop.

B\_input: recv packet (seq=17): qqqqqqqqqqqqqqqqqqq

B\_input: send ACK (ack=17)

A\_timerinterrupt: resend packet (seq=17): qqqqqqqqqqqqqqqqqqq

A\_timerinterrupt: timer + 15.000000

A\_output: bufferred packet (seq=18): rrrrrrrrrrrrrrrrrrr

send\_window: send packet (seq=18): rrrrrrrrrrrrrrrrrrr

A\_output: bufferred packet (seq=19): sssssssssssssssssss

send\_window: send packet (seq=19): sssssssssssssssssss

B\_input: not the expected seq. send NAK (ack=17)

A\_output: bufferred packet (seq=20): ttttttttttttttttttt

send\_window: send packet (seq=20): ttttttttttttttttttt

B\_input: recv packet (seq=18): rrrrrrrrrrrrrrrrrrr

B\_input: send ACK (ack=18)

A\_timerinterrupt: resend packet (seq=17): qqqqqqqqqqqqqqqqqqq

A\_timerinterrupt: resend packet (seq=18): rrrrrrrrrrrrrrrrrrr

A\_timerinterrupt: resend packet (seq=19): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=20): ttttttttttttttttttt

A\_timerinterrupt: timer + 15.000000

A\_output: bufferred packet (seq=21): uuuuuuuuuuuuuuuuuuu

send\_window: send packet (seq=21): uuuuuuuuuuuuuuuuuuu

B\_input: recv packet (seq=19): sssssssssssssssssss

B\_input: send ACK (ack=19)

A\_input: got ACK (ack=17)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=19)

A\_input: got ACK (ack=18)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_output: bufferred packet (seq=22): vvvvvvvvvvvvvvvvvvv

send\_window: send packet (seq=22): vvvvvvvvvvvvvvvvvvv

B\_input: not the expected seq. send NAK (ack=19)

A\_timerinterrupt: resend packet (seq=19): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=20): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=21): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=22): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=19)

A\_input: got ACK (ack=19)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: recv packet (seq=20): ttttttttttttttttttt

B\_input: send ACK (ack=20)

A\_output: bufferred packet (seq=23): wwwwwwwwwwwwwwwwwww

send\_window: send packet (seq=23): wwwwwwwwwwwwwwwwwww

B\_input: recv packet (seq=21): uuuuuuuuuuuuuuuuuuu

B\_input: send ACK (ack=21)

A\_input: got ACK (ack=20)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_output: bufferred packet (seq=24): xxxxxxxxxxxxxxxxxxx

send\_window: send packet (seq=24): xxxxxxxxxxxxxxxxxxx

B\_input: recv packet (seq=22): vvvvvvvvvvvvvvvvvvv

B\_input: send ACK (ack=22)

A\_output: bufferred packet (seq=25): yyyyyyyyyyyyyyyyyyy

send\_window: send packet (seq=25): yyyyyyyyyyyyyyyyyyy

A\_timerinterrupt: resend packet (seq=21): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=22): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=23): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: resend packet (seq=24): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: resend packet (seq=25): yyyyyyyyyyyyyyyyyyy

A\_timerinterrupt: timer + 15.000000

A\_input: got ACK (ack=21)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_input: got ACK (ack=22)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=22)

A\_input: got NAK (ack=22). drop.

A\_output: bufferred packet (seq=26): zzzzzzzzzzzzzzzzzzz

send\_window: send packet (seq=26): zzzzzzzzzzzzzzzzzzz

A\_timerinterrupt: resend packet (seq=23): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: resend packet (seq=24): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: resend packet (seq=25): yyyyyyyyyyyyyyyyyyy

A\_timerinterrupt: resend packet (seq=26): zzzzzzzzzzzzzzzzzzz

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=22)

B\_input: not the expected seq. send NAK (ack=22)

A\_output: bufferred packet (seq=27): aaaaaaaaaaaaaaaaaaa

send\_window: send packet (seq=27): aaaaaaaaaaaaaaaaaaa

A\_input: got NAK (ack=22). drop.

B\_input: not the expected seq. send NAK (ack=22)

B\_input: recv packet (seq=23): wwwwwwwwwwwwwwwwwww

B\_input: send ACK (ack=23)

B\_input: not the expected seq. send NAK (ack=23)

A\_timerinterrupt: resend packet (seq=23): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: resend packet (seq=24): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: resend packet (seq=25): yyyyyyyyyyyyyyyyyyy

A\_timerinterrupt: resend packet (seq=26): zzzzzzzzzzzzzzzzzzz

A\_timerinterrupt: resend packet (seq=27): aaaaaaaaaaaaaaaaaaa

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=23)

A\_input: got ACK (ack=23)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_output: bufferred packet (seq=28): bbbbbbbbbbbbbbbbbbb

send\_window: send packet (seq=28): bbbbbbbbbbbbbbbbbbb

B\_input: not the expected seq. send NAK (ack=23)

B\_input: not the expected seq. send NAK (ack=23)

A\_output: bufferred packet (seq=29): ccccccccccccccccccc

send\_window: send packet (seq=29): ccccccccccccccccccc

A\_input: got NAK (ack=23). drop.

A\_timerinterrupt: resend packet (seq=24): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: resend packet (seq=25): yyyyyyyyyyyyyyyyyyy

A\_timerinterrupt: resend packet (seq=26): zzzzzzzzzzzzzzzzzzz

A\_timerinterrupt: resend packet (seq=27): aaaaaaaaaaaaaaaaaaa

A\_timerinterrupt: resend packet (seq=28): bbbbbbbbbbbbbbbbbbb

A\_timerinterrupt: resend packet (seq=29): ccccccccccccccccccc

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=23)

B\_input: recv packet (seq=24): xxxxxxxxxxxxxxxxxxx

B\_input: send ACK (ack=24)

A\_input: got NAK (ack=23). drop.

B\_input: not the expected seq. send NAK (ack=24)

A\_output: bufferred packet (seq=30): ddddddddddddddddddd

send\_window: send packet (seq=30): ddddddddddddddddddd

A\_timerinterrupt: resend packet (seq=24): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: resend packet (seq=25): yyyyyyyyyyyyyyyyyyy

A\_timerinterrupt: resend packet (seq=26): zzzzzzzzzzzzzzzzzzz

A\_timerinterrupt: resend packet (seq=27): aaaaaaaaaaaaaaaaaaa

A\_timerinterrupt: resend packet (seq=28): bbbbbbbbbbbbbbbbbbb

A\_timerinterrupt: resend packet (seq=29): ccccccccccccccccccc

A\_timerinterrupt: resend packet (seq=30): ddddddddddddddddddd

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=24)

A\_input: got ACK (ack=24)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=24)

A\_input: got NAK (ack=24). drop.

A\_input: got NAK (ack=24). drop.

B\_input: recv packet (seq=25): yyyyyyyyyyyyyyyyyyy

B\_input: send ACK (ack=25)

A\_output: bufferred packet (seq=31): eeeeeeeeeeeeeeeeeee

send\_window: send packet (seq=31): eeeeeeeeeeeeeeeeeee

A\_input: got NAK (ack=24). drop.

A\_timerinterrupt: resend packet (seq=25): yyyyyyyyyyyyyyyyyyy

A\_timerinterrupt: resend packet (seq=26): zzzzzzzzzzzzzzzzzzz

A\_timerinterrupt: resend packet (seq=27): aaaaaaaaaaaaaaaaaaa

A\_timerinterrupt: resend packet (seq=28): bbbbbbbbbbbbbbbbbbb

A\_timerinterrupt: resend packet (seq=29): ccccccccccccccccccc

A\_timerinterrupt: resend packet (seq=30): ddddddddddddddddddd

A\_timerinterrupt: resend packet (seq=31): eeeeeeeeeeeeeeeeeee

A\_timerinterrupt: timer + 15.000000

B\_input: recv packet (seq=26): zzzzzzzzzzzzzzzzzzz

B\_input: send ACK (ack=26)

A\_input: got ACK (ack=25)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=26)

A\_output: bufferred packet (seq=32): fffffffffffffffffff

send\_window: send packet (seq=32): fffffffffffffffffff

A\_timerinterrupt: resend packet (seq=26): zzzzzzzzzzzzzzzzzzz

A\_timerinterrupt: resend packet (seq=27): aaaaaaaaaaaaaaaaaaa

A\_timerinterrupt: resend packet (seq=28): bbbbbbbbbbbbbbbbbbb

A\_timerinterrupt: resend packet (seq=29): ccccccccccccccccccc

A\_timerinterrupt: resend packet (seq=30): ddddddddddddddddddd

A\_timerinterrupt: resend packet (seq=31): eeeeeeeeeeeeeeeeeee

A\_timerinterrupt: resend packet (seq=32): fffffffffffffffffff

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=26)

A\_input: got ACK (ack=26)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_input: got NAK (ack=26). drop.

B\_input: not the expected seq. send NAK (ack=26)

B\_input: not the expected seq. send NAK (ack=26)

A\_timerinterrupt: resend packet (seq=27): aaaaaaaaaaaaaaaaaaa

A\_timerinterrupt: resend packet (seq=28): bbbbbbbbbbbbbbbbbbb

A\_timerinterrupt: resend packet (seq=29): ccccccccccccccccccc

A\_timerinterrupt: resend packet (seq=30): ddddddddddddddddddd

A\_timerinterrupt: resend packet (seq=31): eeeeeeeeeeeeeeeeeee

A\_timerinterrupt: resend packet (seq=32): fffffffffffffffffff

A\_timerinterrupt: timer + 15.000000

A\_output: bufferred packet (seq=33): ggggggggggggggggggg

send\_window: send packet (seq=33): ggggggggggggggggggg

B\_input: not the expected seq. send NAK (ack=26)

A\_input: got NAK (ack=26). drop.

B\_input: recv packet (seq=27): aaaaaaaaaaaaaaaaaaa

B\_input: send ACK (ack=27)

A\_input: got NAK (ack=26). drop.

B\_input: not the expected seq. send NAK (ack=27)

A\_output: bufferred packet (seq=34): hhhhhhhhhhhhhhhhhhh

send\_window: send packet (seq=34): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=27): aaaaaaaaaaaaaaaaaaa

A\_timerinterrupt: resend packet (seq=28): bbbbbbbbbbbbbbbbbbb

A\_timerinterrupt: resend packet (seq=29): ccccccccccccccccccc

A\_timerinterrupt: resend packet (seq=30): ddddddddddddddddddd

A\_timerinterrupt: resend packet (seq=31): eeeeeeeeeeeeeeeeeee

A\_timerinterrupt: resend packet (seq=32): fffffffffffffffffff

A\_timerinterrupt: resend packet (seq=33): ggggggggggggggggggg

A\_timerinterrupt: resend packet (seq=34): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=27)

B\_input: not the expected seq. send NAK (ack=27)

A\_output: bufferred packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_output: bufferred packet (seq=36): jjjjjjjjjjjjjjjjjjj

B\_input: not the expected seq. send NAK (ack=27)

A\_output: bufferred packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_input: got ACK (ack=27)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_timerinterrupt: resend packet (seq=28): bbbbbbbbbbbbbbbbbbb

A\_timerinterrupt: resend packet (seq=29): ccccccccccccccccccc

A\_timerinterrupt: resend packet (seq=30): ddddddddddddddddddd

A\_timerinterrupt: resend packet (seq=31): eeeeeeeeeeeeeeeeeee

A\_timerinterrupt: resend packet (seq=32): fffffffffffffffffff

A\_timerinterrupt: resend packet (seq=33): ggggggggggggggggggg

A\_timerinterrupt: resend packet (seq=34): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: timer + 15.000000

B\_input: recv packet (seq=28): bbbbbbbbbbbbbbbbbbb

B\_input: send ACK (ack=28)

A\_output: bufferred packet (seq=38): lllllllllllllllllll

send\_window: send packet (seq=35): iiiiiiiiiiiiiiiiiii

B\_input: recv packet (seq=29): ccccccccccccccccccc

B\_input: send ACK (ack=29)

A\_input: got ACK (ack=28)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_output: bufferred packet (seq=39): mmmmmmmmmmmmmmmmmmm

send\_window: send packet (seq=36): jjjjjjjjjjjjjjjjjjj

B\_input: recv packet (seq=30): ddddddddddddddddddd

B\_input: send ACK (ack=30)

A\_input: got ACK (ack=29)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_timerinterrupt: resend packet (seq=30): ddddddddddddddddddd

A\_timerinterrupt: resend packet (seq=31): eeeeeeeeeeeeeeeeeee

A\_timerinterrupt: resend packet (seq=32): fffffffffffffffffff

A\_timerinterrupt: resend packet (seq=33): ggggggggggggggggggg

A\_timerinterrupt: resend packet (seq=34): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: timer + 15.000000

A\_input: got ACK (ack=30)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: recv packet (seq=31): eeeeeeeeeeeeeeeeeee

B\_input: send ACK (ack=31)

A\_input: got ACK (ack=31)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_output: bufferred packet (seq=40): nnnnnnnnnnnnnnnnnnn

send\_window: send packet (seq=37): kkkkkkkkkkkkkkkkkkk

send\_window: send packet (seq=38): lllllllllllllllllll

send\_window: send packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=32): fffffffffffffffffff

A\_timerinterrupt: resend packet (seq=33): ggggggggggggggggggg

A\_timerinterrupt: resend packet (seq=34): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=31)

B\_input: not the expected seq. send NAK (ack=31)

A\_input: got NAK (ack=31). drop.

A\_input: got NAK (ack=31). drop.

B\_input: not the expected seq. send NAK (ack=31)

A\_output: bufferred packet (seq=41): ooooooooooooooooooo

B\_input: not the expected seq. send NAK (ack=31)

B\_input: recv packet (seq=32): fffffffffffffffffff

B\_input: send ACK (ack=32)

A\_timerinterrupt: resend packet (seq=32): fffffffffffffffffff

A\_timerinterrupt: resend packet (seq=33): ggggggggggggggggggg

A\_timerinterrupt: resend packet (seq=34): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=31). drop.

B\_input: not the expected seq. send NAK (ack=32)

B\_input: not the expected seq. send NAK (ack=32)

A\_input: got ACK (ack=32)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_output: bufferred packet (seq=42): ppppppppppppppppppp

send\_window: send packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_input: got NAK (ack=32). drop.

A\_input: got NAK (ack=32). drop.

A\_timerinterrupt: resend packet (seq=33): ggggggggggggggggggg

A\_timerinterrupt: resend packet (seq=34): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=32)

A\_output: bufferred packet (seq=43): qqqqqqqqqqqqqqqqqqq

A\_input: got NAK (ack=32). drop.

B\_input: not the expected seq. send NAK (ack=32)

A\_timerinterrupt: resend packet (seq=33): ggggggggggggggggggg

A\_timerinterrupt: resend packet (seq=34): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=32)

A\_input: got NAK (ack=32). drop.

A\_output: bufferred packet (seq=44): rrrrrrrrrrrrrrrrrrr

A\_output: bufferred packet (seq=45): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=33): ggggggggggggggggggg

A\_timerinterrupt: resend packet (seq=34): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=32)

B\_input: not the expected seq. send NAK (ack=32)

B\_input: not the expected seq. send NAK (ack=32)

A\_input: got NAK (ack=32). drop.

B\_input: not the expected seq. send NAK (ack=32)

A\_output: bufferred packet (seq=46): ttttttttttttttttttt

A\_input: got NAK (ack=32). drop.

A\_input: got NAK (ack=32). drop.

A\_timerinterrupt: resend packet (seq=33): ggggggggggggggggggg

A\_timerinterrupt: resend packet (seq=34): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=32)

B\_input: not the expected seq. send NAK (ack=32)

A\_input: got NAK (ack=32). drop.

B\_input: not the expected seq. send NAK (ack=32)

A\_output: bufferred packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=33): ggggggggggggggggggg

A\_timerinterrupt: resend packet (seq=34): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=32). drop.

B\_input: not the expected seq. send NAK (ack=32)

B\_input: not the expected seq. send NAK (ack=32)

A\_input: got NAK (ack=32). drop.

B\_input: not the expected seq. send NAK (ack=32)

A\_input: got NAK (ack=32). drop.

A\_timerinterrupt: resend packet (seq=33): ggggggggggggggggggg

A\_timerinterrupt: resend packet (seq=34): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: timer + 15.000000

B\_input: recv packet (seq=33): ggggggggggggggggggg

B\_input: send ACK (ack=33)

A\_output: bufferred packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_input: got ACK (ack=33)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=33)

A\_output: bufferred packet (seq=49): wwwwwwwwwwwwwwwwwww

send\_window: send packet (seq=41): ooooooooooooooooooo

B\_input: not the expected seq. send NAK (ack=33)

A\_input: got NAK (ack=33). drop.

A\_timerinterrupt: resend packet (seq=34): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=33). drop.

B\_input: not the expected seq. send NAK (ack=33)

A\_output: bufferred packet (seq=50): xxxxxxxxxxxxxxxxxxx

B\_input: recv packet (seq=34): hhhhhhhhhhhhhhhhhhh

B\_input: send ACK (ack=34)

A\_timerinterrupt: resend packet (seq=34): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=34)

B\_input: not the expected seq. send NAK (ack=34)

A\_input: got ACK (ack=34)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=34)

B\_input: not the expected seq. send NAK (ack=34)

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=34)

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

A\_input: got NAK (ack=34). drop.

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=34)

B\_input: not the expected seq. send NAK (ack=34)

B\_input: not the expected seq. send NAK (ack=34)

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

A\_input: got NAK (ack=34). drop.

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=34)

B\_input: not the expected seq. send NAK (ack=34)

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

A\_input: got NAK (ack=34). drop.

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=34)

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

A\_input: got NAK (ack=34). drop.

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=34)

A\_input: got NAK (ack=34). drop.

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=34)

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

B\_input: not the expected seq. send NAK (ack=34)

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=34). drop.

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=34)

A\_input: got NAK (ack=34). drop.

B\_input: not the expected seq. send NAK (ack=34)

B\_input: not the expected seq. send NAK (ack=34)

A\_timerinterrupt: resend packet (seq=35): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=34). drop.

B\_input: recv packet (seq=35): iiiiiiiiiiiiiiiiiii

B\_input: send ACK (ack=35)

A\_input: got ACK (ack=35)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: recv packet (seq=36): jjjjjjjjjjjjjjjjjjj

B\_input: send ACK (ack=36)

B\_input: recv packet (seq=37): kkkkkkkkkkkkkkkkkkk

B\_input: send ACK (ack=37)

A\_timerinterrupt: resend packet (seq=36): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

A\_input: got ACK (ack=36)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: recv packet (seq=38): lllllllllllllllllll

B\_input: send ACK (ack=38)

B\_input: recv packet (seq=39): mmmmmmmmmmmmmmmmmmm

B\_input: send ACK (ack=39)

A\_timerinterrupt: resend packet (seq=37): kkkkkkkkkkkkkkkkkkk

A\_timerinterrupt: resend packet (seq=38): lllllllllllllllllll

A\_timerinterrupt: resend packet (seq=39): mmmmmmmmmmmmmmmmmmm

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

A\_input: got ACK (ack=37)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_input: got ACK (ack=38)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: recv packet (seq=40): nnnnnnnnnnnnnnnnnnn

B\_input: send ACK (ack=40)

A\_input: got ACK (ack=39)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=40)

A\_timerinterrupt: resend packet (seq=40): nnnnnnnnnnnnnnnnnnn

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

A\_input: got ACK (ack=40)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=40)

B\_input: not the expected seq. send NAK (ack=40)

A\_input: got NAK (ack=40). drop.

A\_input: got NAK (ack=40). drop.

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=40)

A\_input: got NAK (ack=40). drop.

B\_input: not the expected seq. send NAK (ack=40)

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=40)

A\_input: got NAK (ack=40). drop.

B\_input: not the expected seq. send NAK (ack=40)

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=40). drop.

B\_input: not the expected seq. send NAK (ack=40)

B\_input: not the expected seq. send NAK (ack=40)

A\_input: got NAK (ack=40). drop.

B\_input: not the expected seq. send NAK (ack=40)

A\_input: got NAK (ack=40). drop.

B\_input: not the expected seq. send NAK (ack=40)

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=40)

B\_input: not the expected seq. send NAK (ack=40)

A\_input: got NAK (ack=40). drop.

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=40). drop.

B\_input: not the expected seq. send NAK (ack=40)

A\_input: got NAK (ack=40). drop.

B\_input: not the expected seq. send NAK (ack=40)

A\_input: got NAK (ack=40). drop.

B\_input: not the expected seq. send NAK (ack=40)

A\_input: got NAK (ack=40). drop.

B\_input: recv packet (seq=41): ooooooooooooooooooo

B\_input: send ACK (ack=41)

A\_input: got NAK (ack=40). drop.

A\_timerinterrupt: resend packet (seq=41): ooooooooooooooooooo

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=41)

A\_input: got ACK (ack=41)

A\_input: stop timer

send\_window: send packet (seq=42): ppppppppppppppppppp

send\_window: send packet (seq=43): qqqqqqqqqqqqqqqqqqq

send\_window: send packet (seq=44): rrrrrrrrrrrrrrrrrrr

send\_window: send packet (seq=45): sssssssssssssssssss

send\_window: send packet (seq=46): ttttttttttttttttttt

send\_window: send packet (seq=47): uuuuuuuuuuuuuuuuuuu

send\_window: send packet (seq=48): vvvvvvvvvvvvvvvvvvv

send\_window: send packet (seq=49): wwwwwwwwwwwwwwwwwww

B\_input: not the expected seq. send NAK (ack=41)

B\_input: not the expected seq. send NAK (ack=41)

A\_timerinterrupt: resend packet (seq=42): ppppppppppppppppppp

A\_timerinterrupt: resend packet (seq=43): qqqqqqqqqqqqqqqqqqq

A\_timerinterrupt: resend packet (seq=44): rrrrrrrrrrrrrrrrrrr

A\_timerinterrupt: resend packet (seq=45): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=41)

B\_input: not the expected seq. send NAK (ack=41)

B\_input: not the expected seq. send NAK (ack=41)

A\_input: got NAK (ack=41). drop.

B\_input: not the expected seq. send NAK (ack=41)

B\_input: not the expected seq. send NAK (ack=41)

A\_input: got NAK (ack=41). drop.

A\_timerinterrupt: resend packet (seq=42): ppppppppppppppppppp

A\_timerinterrupt: resend packet (seq=43): qqqqqqqqqqqqqqqqqqq

A\_timerinterrupt: resend packet (seq=44): rrrrrrrrrrrrrrrrrrr

A\_timerinterrupt: resend packet (seq=45): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=41)

A\_input: got NAK (ack=41). drop.

B\_input: not the expected seq. send NAK (ack=41)

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B\_input: not the expected seq. send NAK (ack=41)

A\_timerinterrupt: resend packet (seq=42): ppppppppppppppppppp

A\_timerinterrupt: resend packet (seq=43): qqqqqqqqqqqqqqqqqqq

A\_timerinterrupt: resend packet (seq=44): rrrrrrrrrrrrrrrrrrr

A\_timerinterrupt: resend packet (seq=45): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: timer + 15.000000

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A\_timerinterrupt: resend packet (seq=45): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: timer + 15.000000

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A\_timerinterrupt: resend packet (seq=45): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

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A\_timerinterrupt: resend packet (seq=45): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

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A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

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A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

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A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

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A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

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A\_timerinterrupt: resend packet (seq=42): ppppppppppppppppppp

A\_timerinterrupt: resend packet (seq=43): qqqqqqqqqqqqqqqqqqq

A\_timerinterrupt: resend packet (seq=44): rrrrrrrrrrrrrrrrrrr

A\_timerinterrupt: resend packet (seq=45): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=41). drop.

A\_input: got NAK (ack=41). drop.

B\_input: not the expected seq. send NAK (ack=41)

A\_input: got NAK (ack=41). drop.

B\_input: not the expected seq. send NAK (ack=41)

B\_input: not the expected seq. send NAK (ack=41)

A\_timerinterrupt: resend packet (seq=42): ppppppppppppppppppp

A\_timerinterrupt: resend packet (seq=43): qqqqqqqqqqqqqqqqqqq

A\_timerinterrupt: resend packet (seq=44): rrrrrrrrrrrrrrrrrrr

A\_timerinterrupt: resend packet (seq=45): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=41). drop.

A\_input: got NAK (ack=41). drop.

B\_input: not the expected seq. send NAK (ack=41)

A\_timerinterrupt: resend packet (seq=42): ppppppppppppppppppp

A\_timerinterrupt: resend packet (seq=43): qqqqqqqqqqqqqqqqqqq

A\_timerinterrupt: resend packet (seq=44): rrrrrrrrrrrrrrrrrrr

A\_timerinterrupt: resend packet (seq=45): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=41). drop.

B\_input: not the expected seq. send NAK (ack=41)

A\_input: got NAK (ack=41). drop.

B\_input: not the expected seq. send NAK (ack=41)

B\_input: not the expected seq. send NAK (ack=41)

A\_timerinterrupt: resend packet (seq=42): ppppppppppppppppppp

A\_timerinterrupt: resend packet (seq=43): qqqqqqqqqqqqqqqqqqq

A\_timerinterrupt: resend packet (seq=44): rrrrrrrrrrrrrrrrrrr

A\_timerinterrupt: resend packet (seq=45): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=41). drop.

B\_input: recv packet (seq=42): ppppppppppppppppppp

B\_input: send ACK (ack=42)

A\_timerinterrupt: resend packet (seq=42): ppppppppppppppppppp

A\_timerinterrupt: resend packet (seq=43): qqqqqqqqqqqqqqqqqqq

A\_timerinterrupt: resend packet (seq=44): rrrrrrrrrrrrrrrrrrr

A\_timerinterrupt: resend packet (seq=45): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=42)

A\_input: got ACK (ack=42)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=42)

B\_input: not the expected seq. send NAK (ack=42)

A\_timerinterrupt: resend packet (seq=43): qqqqqqqqqqqqqqqqqqq

A\_timerinterrupt: resend packet (seq=44): rrrrrrrrrrrrrrrrrrr

A\_timerinterrupt: resend packet (seq=45): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=42)

A\_input: got NAK (ack=42). drop.

A\_input: got NAK (ack=42). drop.

B\_input: recv packet (seq=43): qqqqqqqqqqqqqqqqqqq

B\_input: send ACK (ack=43)

B\_input: recv packet (seq=44): rrrrrrrrrrrrrrrrrrr

B\_input: send ACK (ack=44)

A\_timerinterrupt: resend packet (seq=43): qqqqqqqqqqqqqqqqqqq

A\_timerinterrupt: resend packet (seq=44): rrrrrrrrrrrrrrrrrrr

A\_timerinterrupt: resend packet (seq=45): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=44)

A\_input: got ACK (ack=43)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_input: got ACK (ack=44)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=44)

A\_timerinterrupt: resend packet (seq=45): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=44)

A\_input: got NAK (ack=44). drop.

B\_input: not the expected seq. send NAK (ack=44)

B\_input: not the expected seq. send NAK (ack=44)

A\_timerinterrupt: resend packet (seq=45): sssssssssssssssssss

A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=44). drop.

B\_input: recv packet (seq=45): sssssssssssssssssss

B\_input: send ACK (ack=45)

A\_input: got NAK (ack=44). drop.

A\_input: got ACK (ack=45)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: recv packet (seq=46): ttttttttttttttttttt

B\_input: send ACK (ack=46)

B\_input: recv packet (seq=47): uuuuuuuuuuuuuuuuuuu

B\_input: send ACK (ack=47)

A\_timerinterrupt: resend packet (seq=46): ttttttttttttttttttt

A\_timerinterrupt: resend packet (seq=47): uuuuuuuuuuuuuuuuuuu

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: timer + 15.000000

B\_input: recv packet (seq=48): vvvvvvvvvvvvvvvvvvv

B\_input: send ACK (ack=48)

A\_input: got ACK (ack=46)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_input: got ACK (ack=47)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: recv packet (seq=49): wwwwwwwwwwwwwwwwwww

B\_input: send ACK (ack=49)

A\_timerinterrupt: resend packet (seq=48): vvvvvvvvvvvvvvvvvvv

A\_timerinterrupt: resend packet (seq=49): wwwwwwwwwwwwwwwwwww

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got ACK (ack=48)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got ACK (ack=49)

A\_input: stop timer

send\_window: send packet (seq=50): xxxxxxxxxxxxxxxxxxx

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

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A\_input: got NAK (ack=49). drop.

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A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

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B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

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A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=49). drop.

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A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

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B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

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A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

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B\_input: not the expected seq. send NAK (ack=49)

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A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

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A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

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A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

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B\_input: not the expected seq. send NAK (ack=49)

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A\_input: got NAK (ack=49). drop.

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A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

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A\_input: got NAK (ack=49). drop.

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

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A\_input: got NAK (ack=49). drop.

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B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

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A\_input: got NAK (ack=49). drop.

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A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

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A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

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A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

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B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_input: got NAK (ack=49). drop.

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

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A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

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B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_input: got NAK (ack=49). drop.

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

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A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

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B\_input: not the expected seq. send NAK (ack=49)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=49)

B\_input: not the expected seq. send NAK (ack=49)

A\_input: got NAK (ack=49). drop.

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=49). drop.

B\_input: recv packet (seq=50): xxxxxxxxxxxxxxxxxxx

B\_input: send ACK (ack=50)

B\_input: not the expected seq. send NAK (ack=50)

A\_timerinterrupt: resend packet (seq=50): xxxxxxxxxxxxxxxxxxx

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=50)

B\_input: not the expected seq. send NAK (ack=50)

A\_input: got ACK (ack=50)

A\_input: stop timer

B\_input: not the expected seq. send NAK (ack=50)

A\_input: got NAK (ack=50). drop.

B\_input: not the expected seq. send NAK (ack=50)

A\_input: got NAK (ack=50). drop.

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A\_input: got NAK (ack=50). drop.

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Simulator terminated at time 2516.320557

after sending 50 msgs from layer5

**C) No loss and 30 percent corruption scenario to demonstrate the code can recover the erroneously received packets**

the number of messages to simulate: 10

packet loss probability: 0.000000

packet corruption probability: 0.300000

average time between messages from sender's layer5: 10.000000

TRACE: 0

A\_output: bufferred packet (seq=1): aaaaaaaaaaaaaaaaaaa

send\_window: send packet (seq=1): aaaaaaaaaaaaaaaaaaa

B\_input: recv packet (seq=1): aaaaaaaaaaaaaaaaaaa

B\_input: send ACK (ack=1)

A\_input: got ACK (ack=1)

A\_input: stop timer

A\_output: bufferred packet (seq=2): bbbbbbbbbbbbbbbbbbb

send\_window: send packet (seq=2): bbbbbbbbbbbbbbbbbbb

B\_input: recv packet (seq=2): bbbbbbbbbbbbbbbbbbb

B\_input: send ACK (ack=2)

A\_input: got ACK (ack=2)

A\_input: stop timer

A\_output: bufferred packet (seq=3): ccccccccccccccccccc

send\_window: send packet (seq=3): ccccccccccccccccccc

B\_input: recv packet (seq=3): ccccccccccccccccccc

B\_input: send ACK (ack=3)

A\_input: got ACK (ack=3)

A\_input: stop timer

A\_output: bufferred packet (seq=4): ddddddddddddddddddd

send\_window: send packet (seq=4): ddddddddddddddddddd

B\_input: packet corrupted. send NAK (ack=3)

A\_input: got NAK (ack=3). drop.

A\_timerinterrupt: resend packet (seq=4): ddddddddddddddddddd

A\_timerinterrupt: timer + 15.000000

A\_output: bufferred packet (seq=5): eeeeeeeeeeeeeeeeeee

send\_window: send packet (seq=5): eeeeeeeeeeeeeeeeeee

A\_output: bufferred packet (seq=6): fffffffffffffffffff

send\_window: send packet (seq=6): fffffffffffffffffff

B\_input: recv packet (seq=4): ddddddddddddddddddd

B\_input: send ACK (ack=4)

A\_input: packet corrupted. drop.

A\_output: bufferred packet (seq=7): ggggggggggggggggggg

send\_window: send packet (seq=7): ggggggggggggggggggg

B\_input: recv packet (seq=5): eeeeeeeeeeeeeeeeeee

B\_input: send ACK (ack=5)

A\_timerinterrupt: resend packet (seq=4): ddddddddddddddddddd

A\_timerinterrupt: resend packet (seq=5): eeeeeeeeeeeeeeeeeee

A\_timerinterrupt: resend packet (seq=6): fffffffffffffffffff

A\_timerinterrupt: resend packet (seq=7): ggggggggggggggggggg

A\_timerinterrupt: timer + 15.000000

B\_input: packet corrupted. send NAK (ack=5)

A\_input: got ACK (ack=5)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=5)

A\_input: got NAK (ack=5). drop.

B\_input: not the expected seq. send NAK (ack=5)

A\_output: bufferred packet (seq=8): hhhhhhhhhhhhhhhhhhh

send\_window: send packet (seq=8): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=6): fffffffffffffffffff

A\_timerinterrupt: resend packet (seq=7): ggggggggggggggggggg

A\_timerinterrupt: resend packet (seq=8): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: timer + 15.000000

A\_output: bufferred packet (seq=9): iiiiiiiiiiiiiiiiiii

send\_window: send packet (seq=9): iiiiiiiiiiiiiiiiiii

B\_input: not the expected seq. send NAK (ack=5)

A\_input: got NAK (ack=5). drop.

B\_input: recv packet (seq=6): fffffffffffffffffff

B\_input: send ACK (ack=6)

A\_input: got NAK (ack=5). drop.

B\_input: recv packet (seq=7): ggggggggggggggggggg

B\_input: send ACK (ack=7)

A\_timerinterrupt: resend packet (seq=6): fffffffffffffffffff

A\_timerinterrupt: resend packet (seq=7): ggggggggggggggggggg

A\_timerinterrupt: resend packet (seq=8): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=9): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=5). drop.

A\_input: got ACK (ack=6)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_output: bufferred packet (seq=10): jjjjjjjjjjjjjjjjjjj

send\_window: send packet (seq=10): jjjjjjjjjjjjjjjjjjj

B\_input: packet corrupted. send NAK (ack=7)

B\_input: not the expected seq. send NAK (ack=7)

A\_input: got ACK (ack=7)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

A\_timerinterrupt: resend packet (seq=8): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=9): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=10): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=7)

B\_input: packet corrupted. send NAK (ack=7)

A\_input: packet corrupted. drop.

A\_input: got NAK (ack=7). drop.

B\_input: packet corrupted. send NAK (ack=7)

B\_input: packet corrupted. send NAK (ack=7)

A\_timerinterrupt: resend packet (seq=8): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=9): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=10): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=7). drop.

B\_input: not the expected seq. send NAK (ack=7)

A\_input: packet corrupted. drop.

B\_input: packet corrupted. send NAK (ack=7)

A\_input: got NAK (ack=7). drop.

A\_timerinterrupt: resend packet (seq=8): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=9): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=10): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: timer + 15.000000

A\_input: packet corrupted. drop.

A\_input: got NAK (ack=7). drop.

B\_input: not the expected seq. send NAK (ack=7)

B\_input: packet corrupted. send NAK (ack=7)

B\_input: recv packet (seq=8): hhhhhhhhhhhhhhhhhhh

B\_input: send ACK (ack=8)

A\_input: packet corrupted. drop.

B\_input: recv packet (seq=9): iiiiiiiiiiiiiiiiiii

B\_input: send ACK (ack=9)

B\_input: recv packet (seq=10): jjjjjjjjjjjjjjjjjjj

B\_input: send ACK (ack=10)

A\_input: got NAK (ack=7). drop.

A\_timerinterrupt: resend packet (seq=8): hhhhhhhhhhhhhhhhhhh

A\_timerinterrupt: resend packet (seq=9): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=10): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: timer + 15.000000

A\_input: got NAK (ack=7). drop.

A\_input: got ACK (ack=8)

Warning: attempt to start a timer that is already started

A\_input: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=10)

A\_input: packet corrupted. drop.

B\_input: not the expected seq. send NAK (ack=10)

A\_timerinterrupt: resend packet (seq=9): iiiiiiiiiiiiiiiiiii

A\_timerinterrupt: resend packet (seq=10): jjjjjjjjjjjjjjjjjjj

A\_timerinterrupt: timer + 15.000000

B\_input: not the expected seq. send NAK (ack=10)

A\_input: got ACK (ack=10)

A\_input: stop timer

A\_input: got NAK (ack=10). drop.

B\_input: packet corrupted. send NAK (ack=10)

A\_input: got NAK (ack=10). drop.

B\_input: not the expected seq. send NAK (ack=10)

B\_input: packet corrupted. send NAK (ack=10)

A\_input: got NAK (ack=10). drop.

B\_input: not the expected seq. send NAK (ack=10)

A\_input: packet corrupted. drop.

B\_input: not the expected seq. send NAK (ack=10)

A\_input: got NAK (ack=10). drop.

B\_input: not the expected seq. send NAK (ack=10)

B\_input: packet corrupted. send NAK (ack=10)

B\_input: packet corrupted. send NAK (ack=10)

A\_input: packet corrupted. drop.

A\_input: packet corrupted. drop.

A\_input: packet corrupted. drop.

A\_input: got NAK (ack=10). drop.

A\_input: got NAK (ack=10). drop.

A\_input: got NAK (ack=10). drop.

Simulator terminated at time 227.009552

after sending 10 msgs from layer5

**Screenshot from the terminal window for part c**

