

75.43 Introducción a los Sistemas Distribuidos

73.33 Redes y Teleprocesamientos I

TA048 Redes

Tema: Capa de Transporte (II)

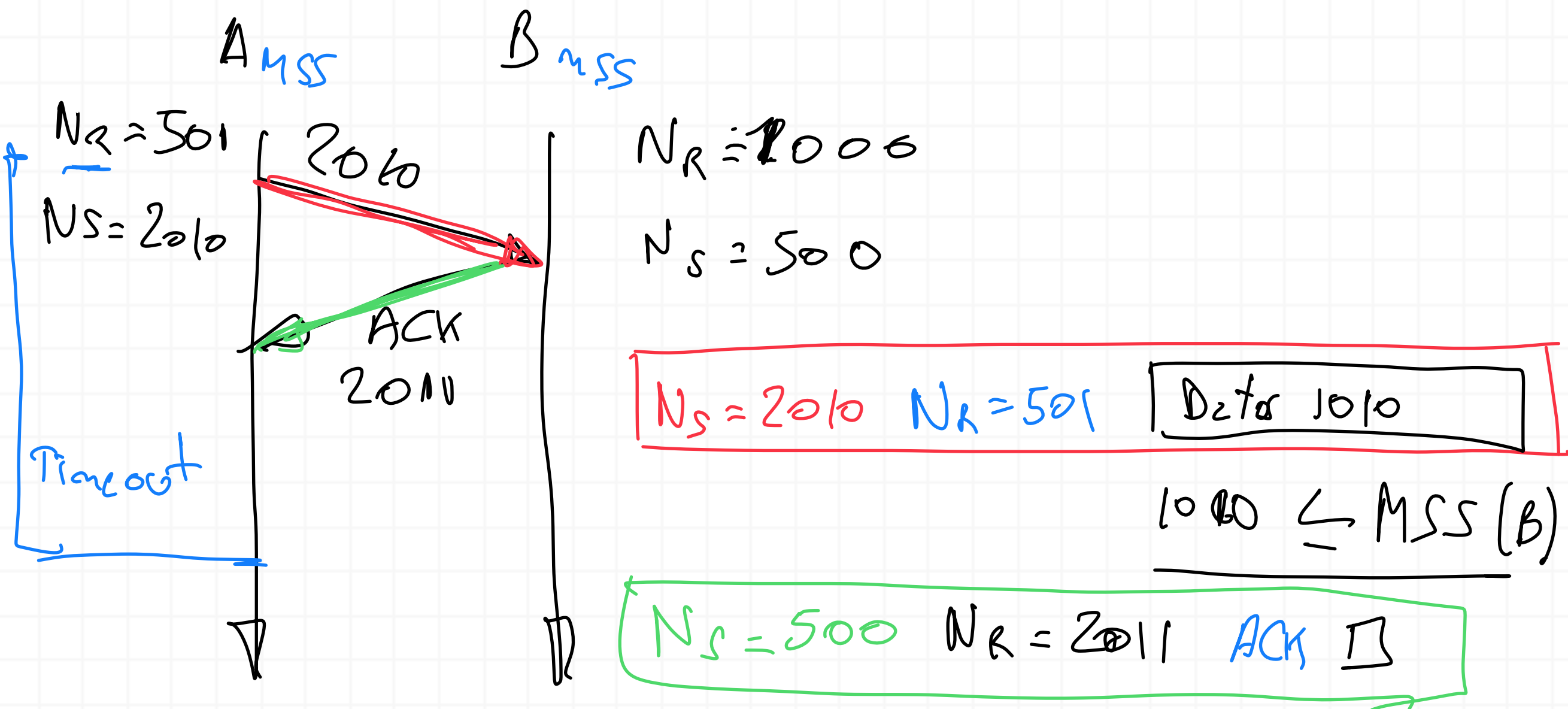
Capítulo 3 (desde 3.4 hasta el final) de *Computer Networking : A Top-Down Approach with Access . James Kurose and Keith Ross. Publisher: Pearson Edition: 7th, 2016.*

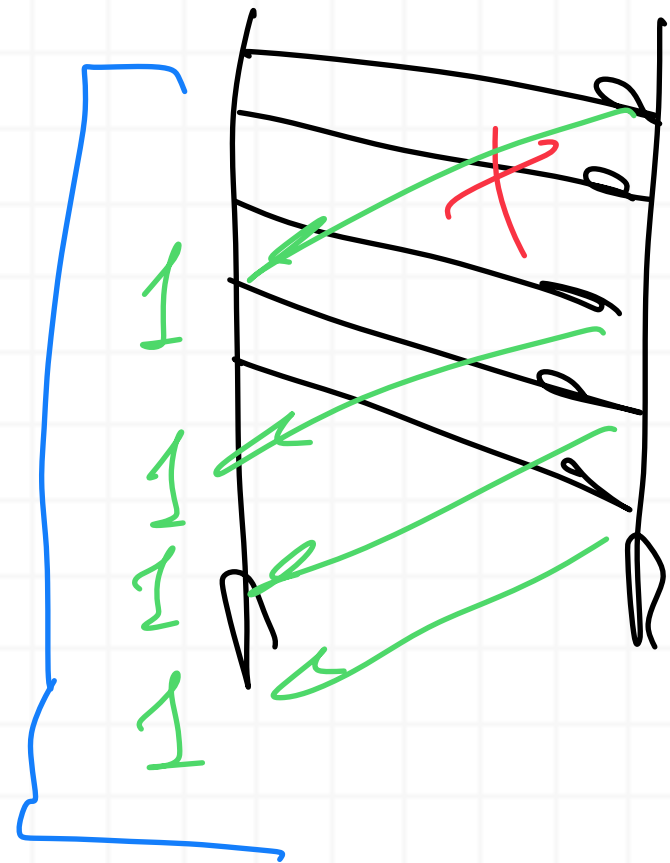
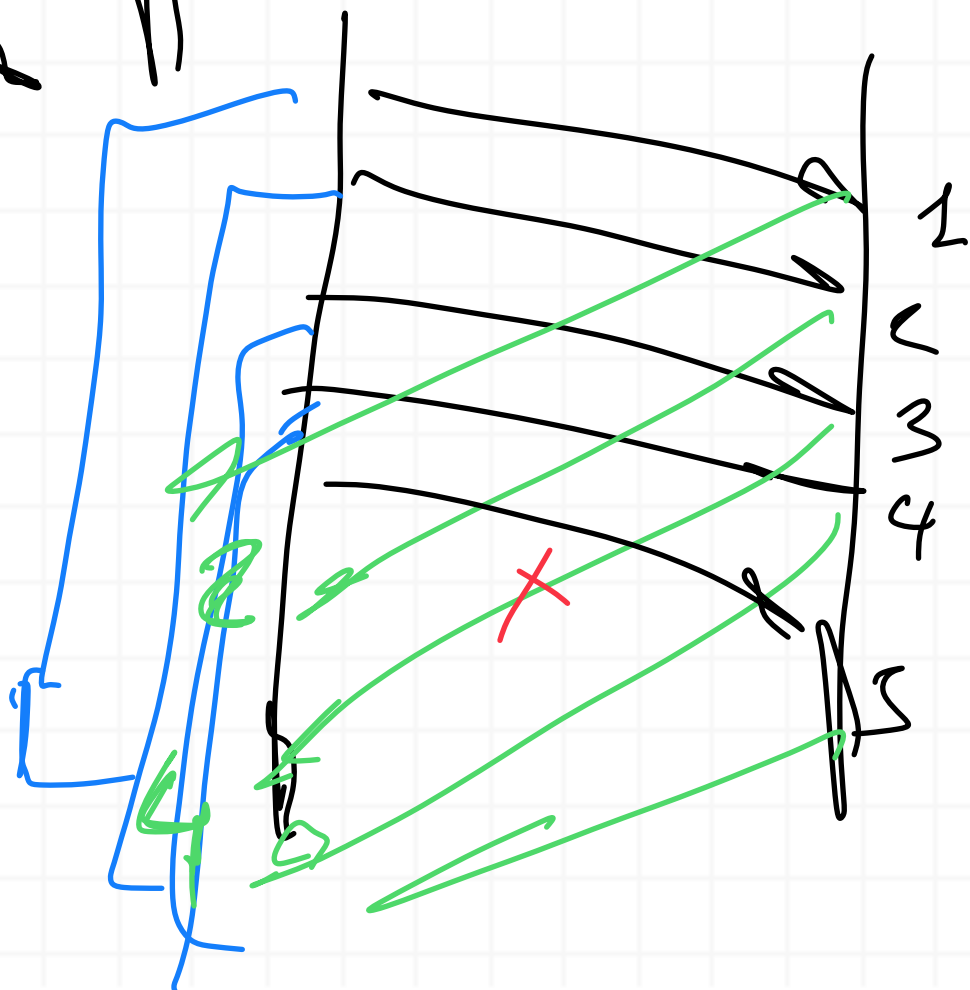
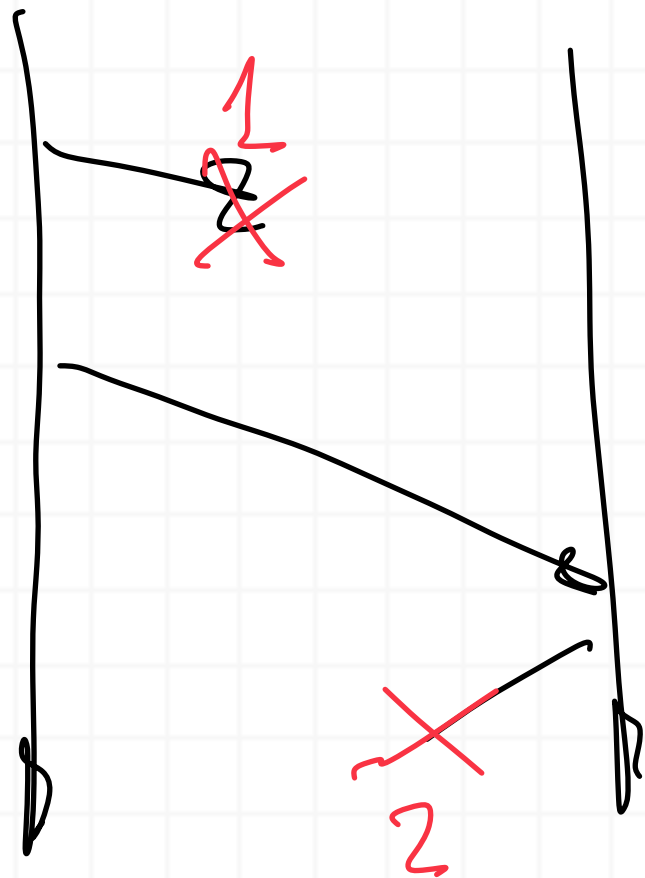
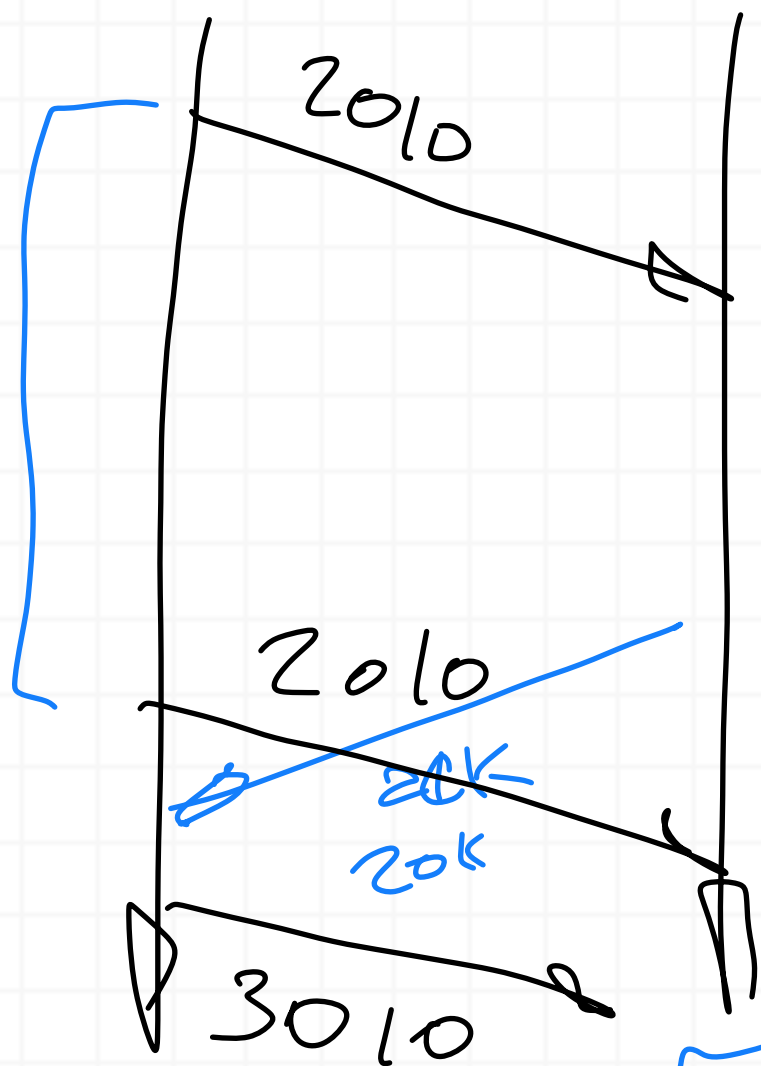
Dr. Ing. J. Ignacio Alvarez-Hamelin

TCP (Transport Control Protocol)

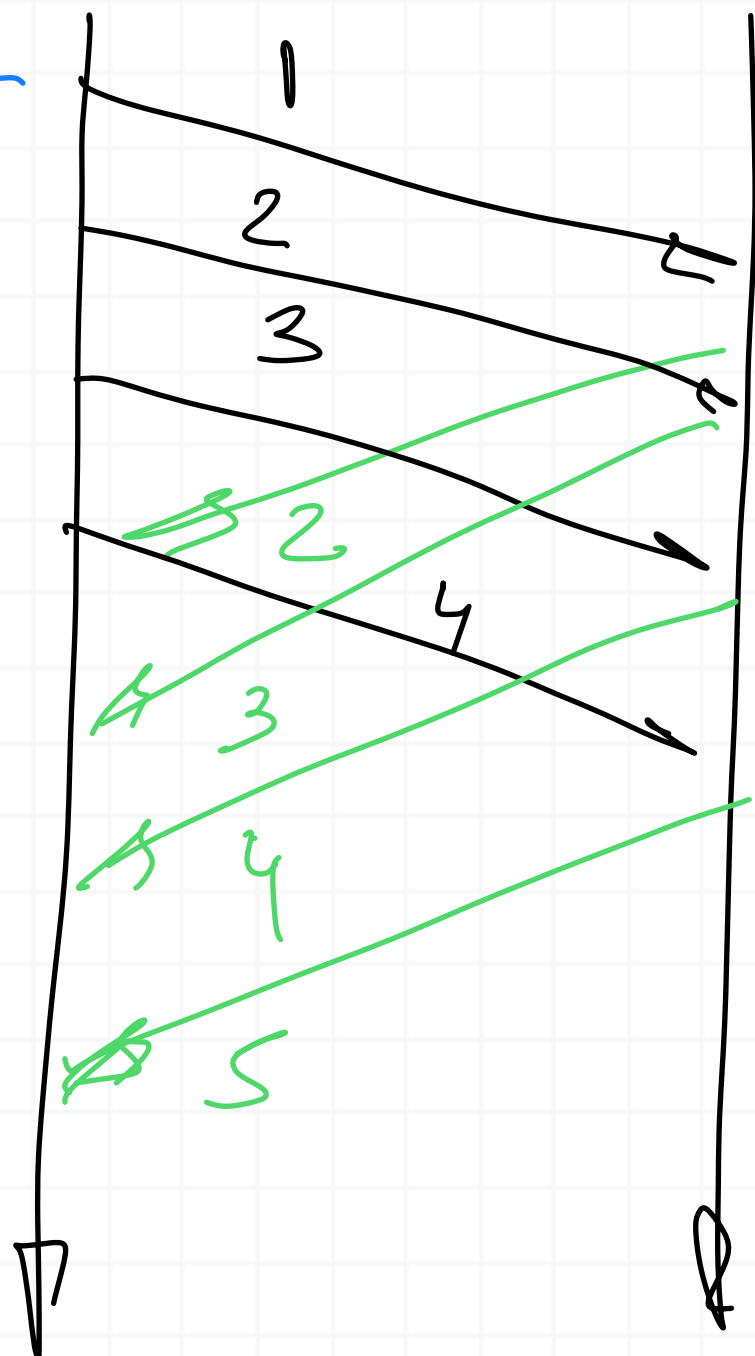
- Segmentos: ¿cómo se numeran?
- *Timeout*: ¿cómo se calcula?
- Transmisión confiable: ¿cómo se logra?

MSS

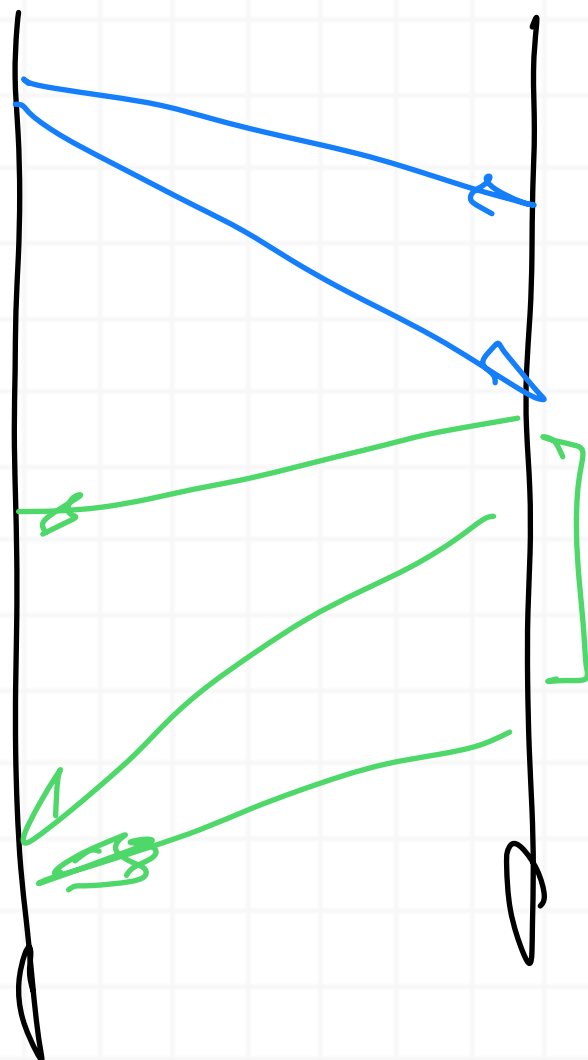




RTT
 ~~j~~ $j=4$
 $j=4$



?



Cálculo de timeout

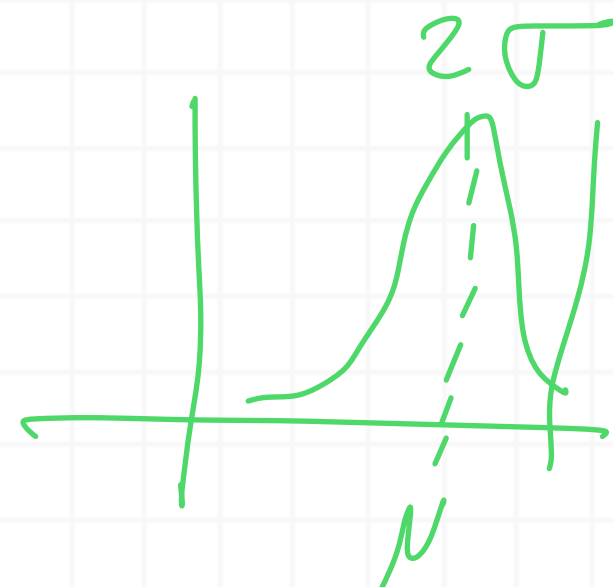
$$T(i) = RTT(i) \cdot \alpha + T(i-1) (1-\alpha)$$

$$\alpha = \frac{1}{8}$$

$$DT(i) = |RTT(i) - T(i)| \cdot \beta + DT(i-1) (\beta-1) \quad \beta = \frac{1}{4}$$

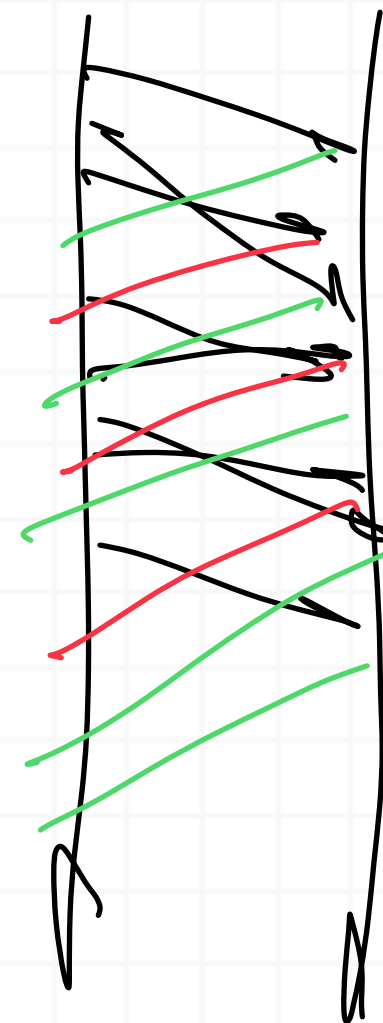
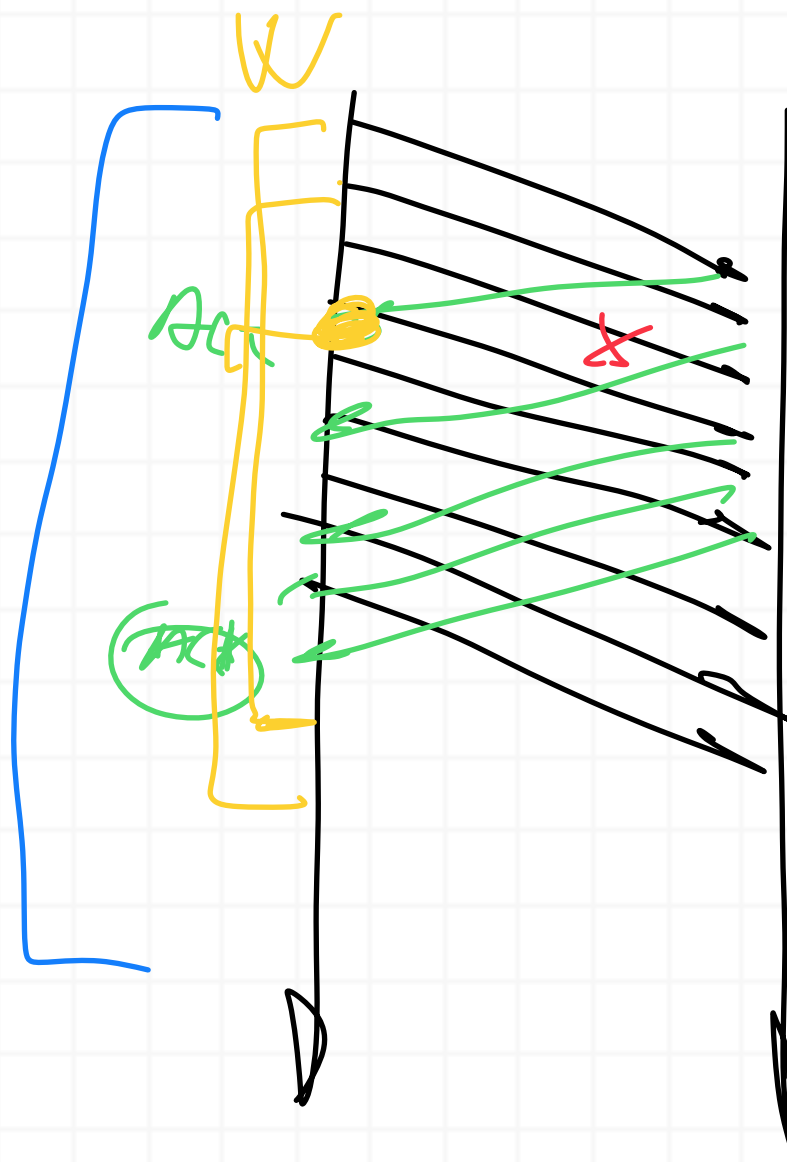
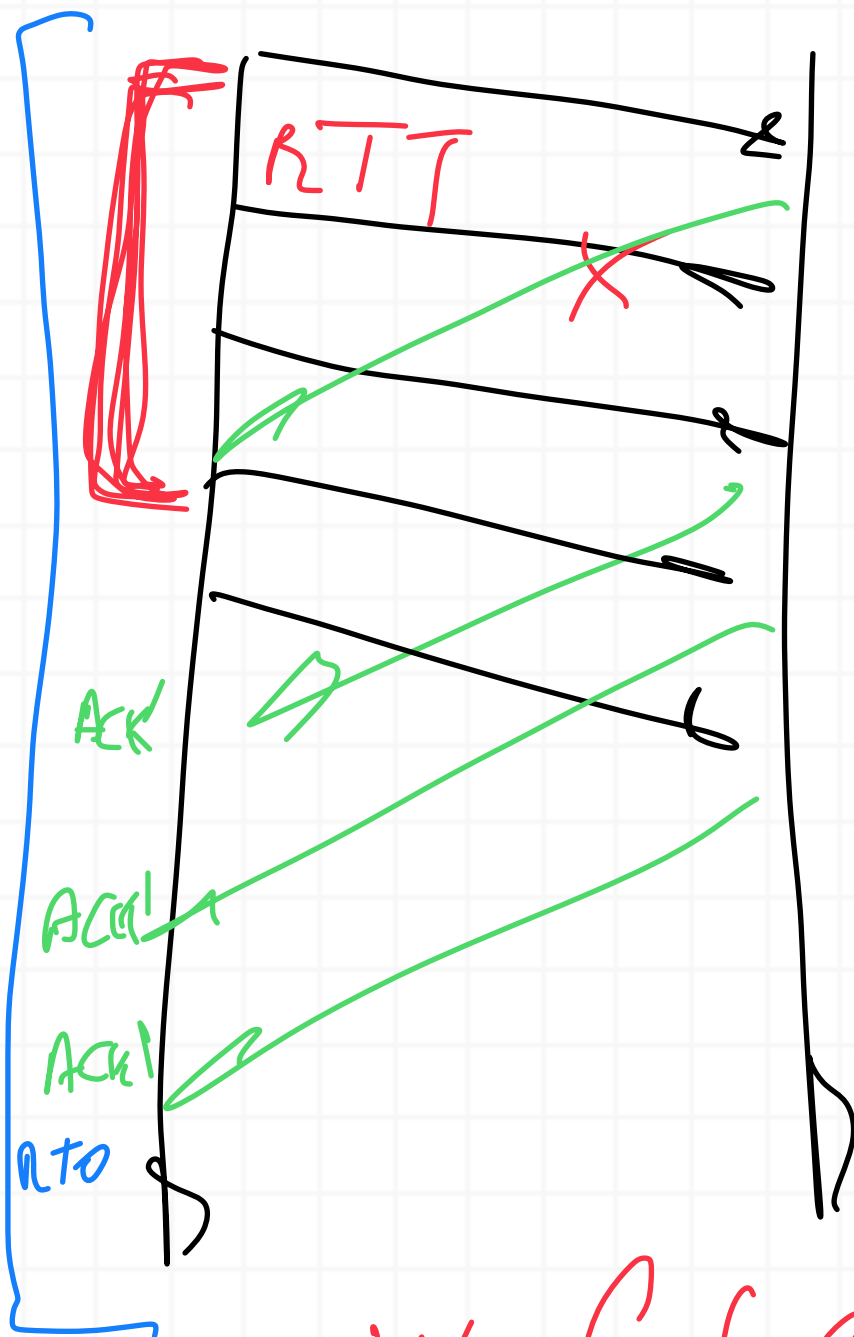
$$RTO(i) = T(i) + 4 DT(i)$$

~~Modelo Poissoniano~~



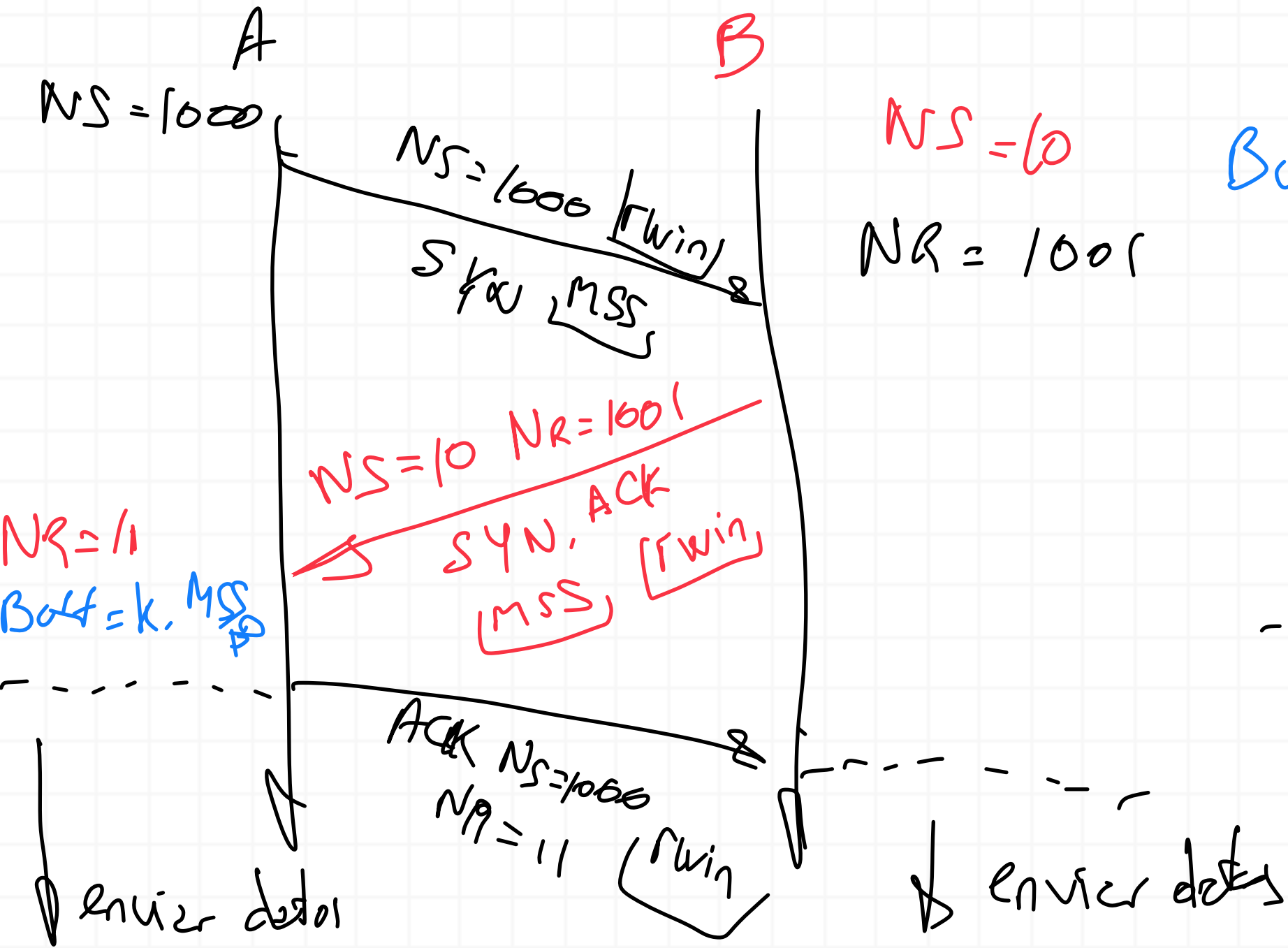
Análisis de escenarios:

- Timeout
- Fast Retransmit y Fast-Recovery
- Control de flujo

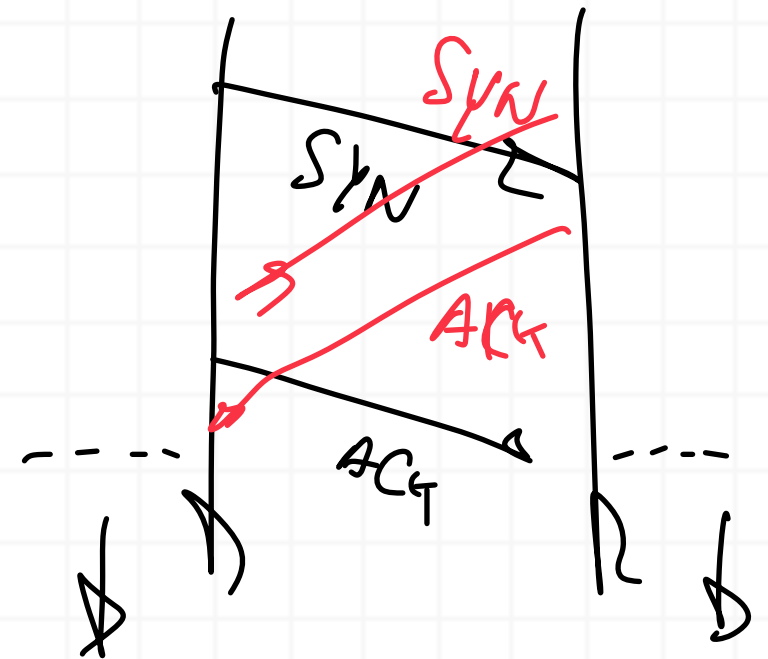


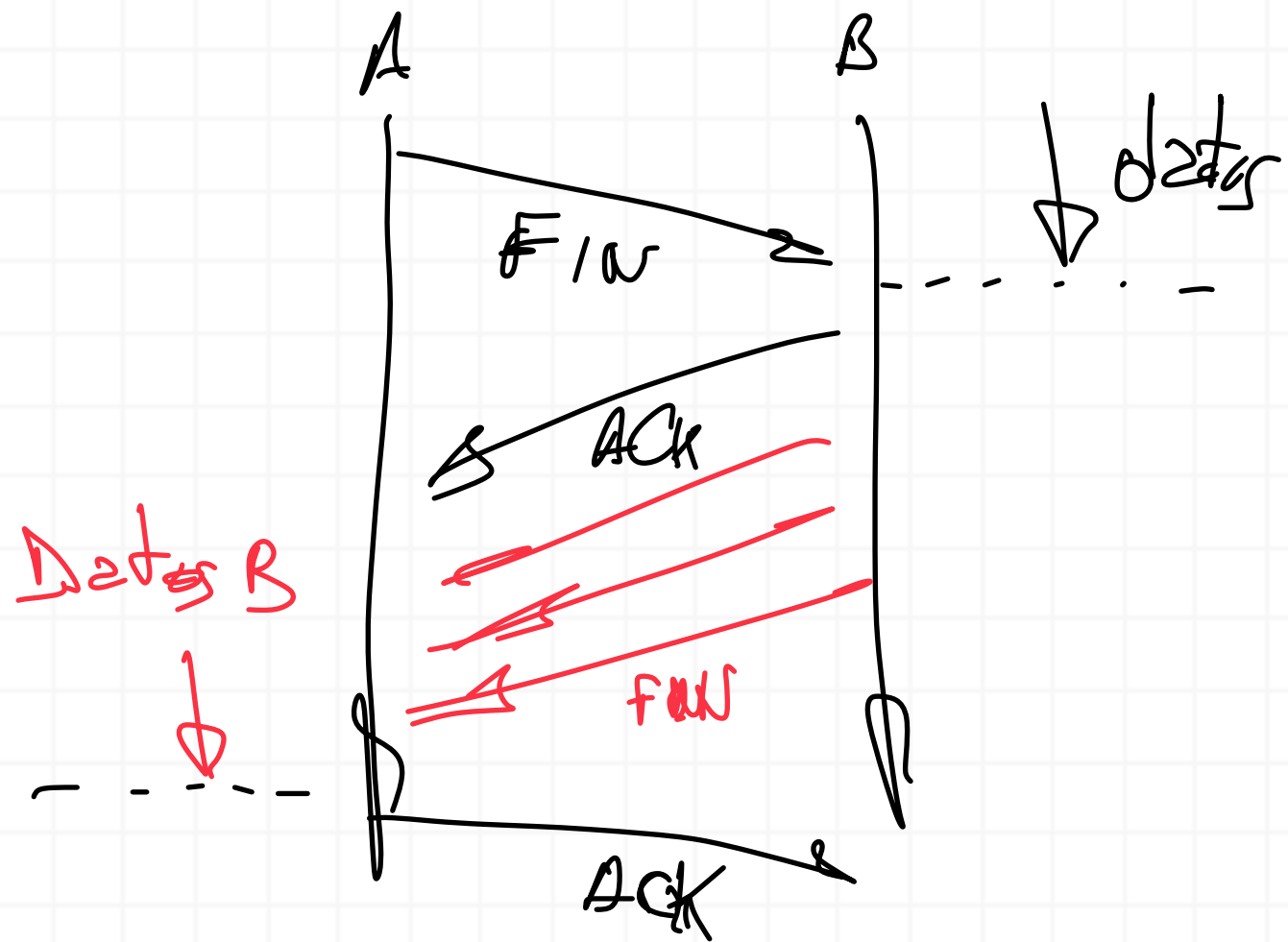
$$W = f(RTT, \text{throughput}, MSS, \text{win})$$

Establecimiento de la conexión y desconexión



$$Buff = k \cdot MSS$$





$$W = \min (r_{wind}, c_{wind})$$

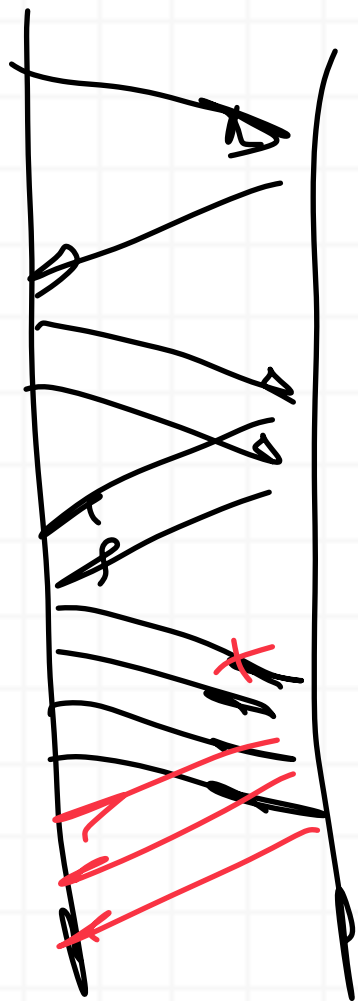
$$c_{wind} = 1 \text{ MSS} \quad ssthresh = 65535 \text{ [bytes]}$$

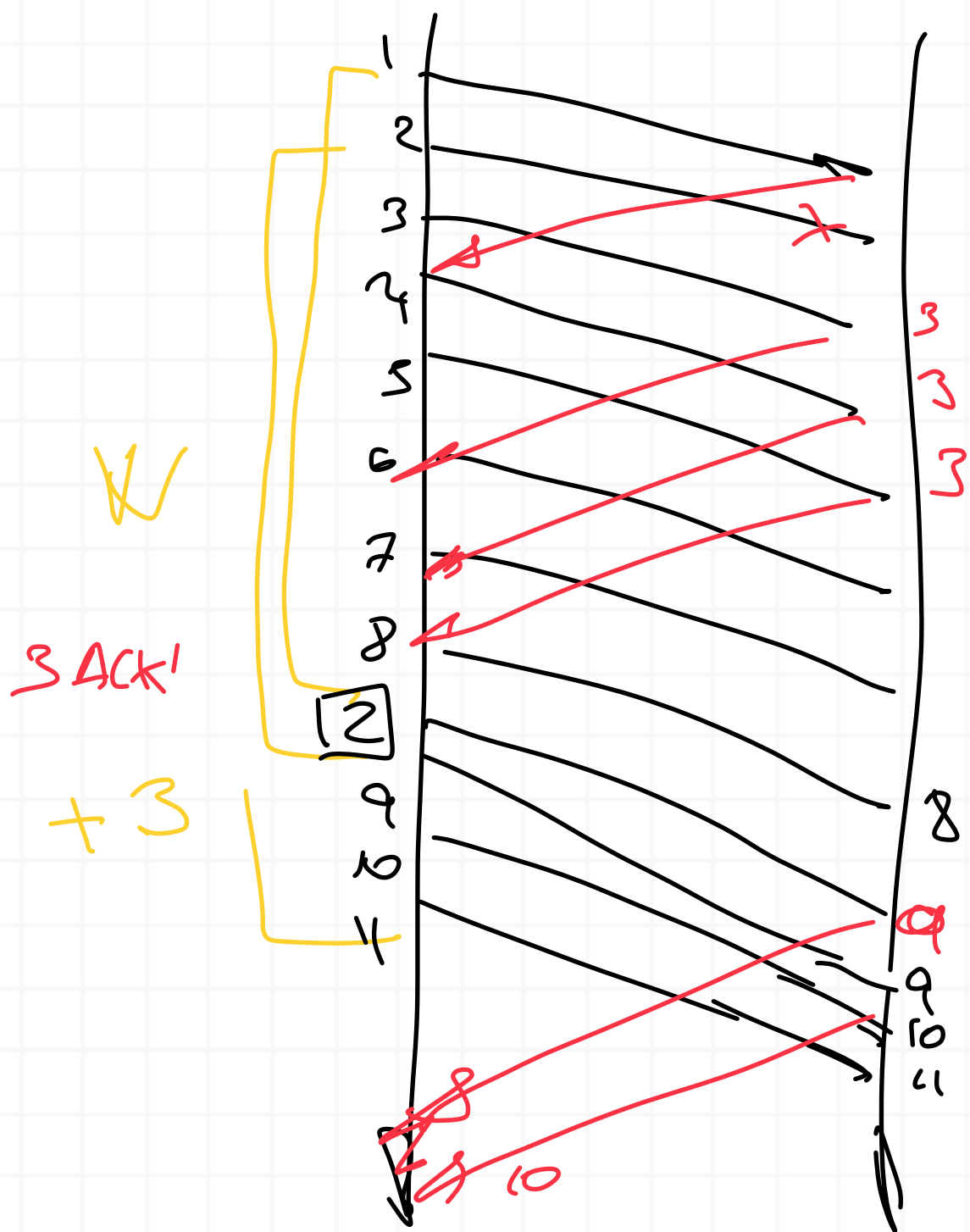
[bytes]

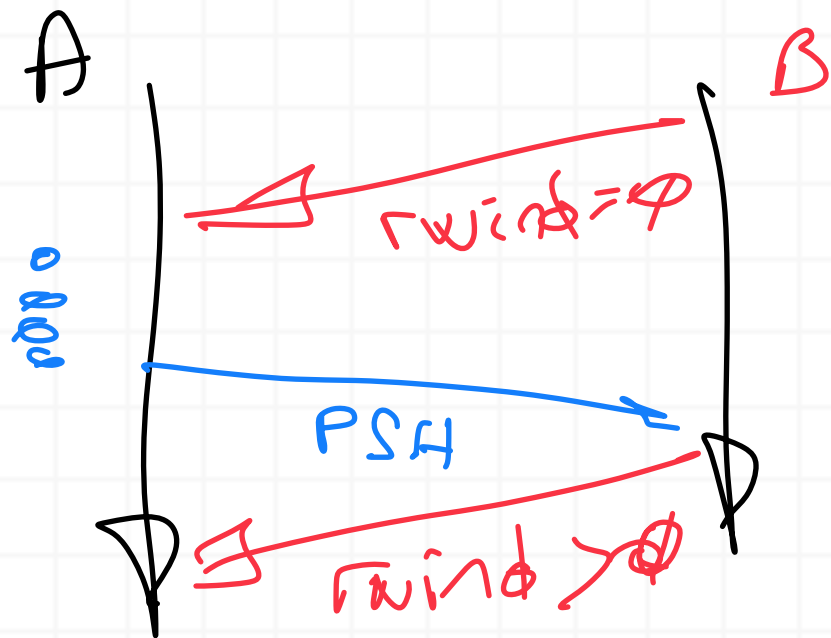
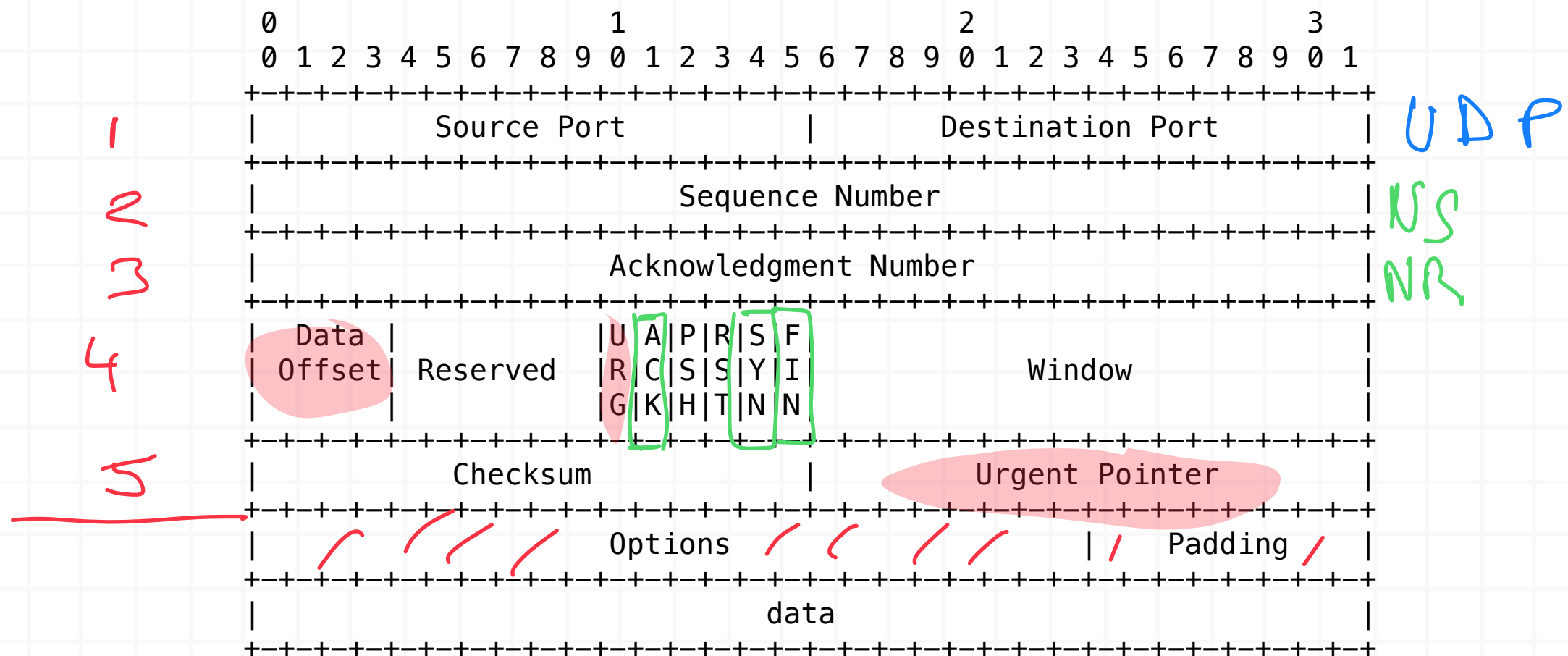
$c_{win} < ssthresh \Rightarrow$ Slow start

$c_{win} \geq ssthresh \Rightarrow$ Congestion avoidance

$$c_{wind}(i) = \frac{c_{wind}(i-1)}{2} \quad ssthresh = c_{wind}(i)$$







Próxima clase: Capítulo 4, hasta 4.3.3 *IPv4 Addressing* inclusive.