



The vulnerable version of the protocol (1978)









A, B, N<sub>A</sub>



$$\{N_A, K_{ab}, B, \{K_{ab}, A\}_{K_{bs}}\}_{K_{as}}$$









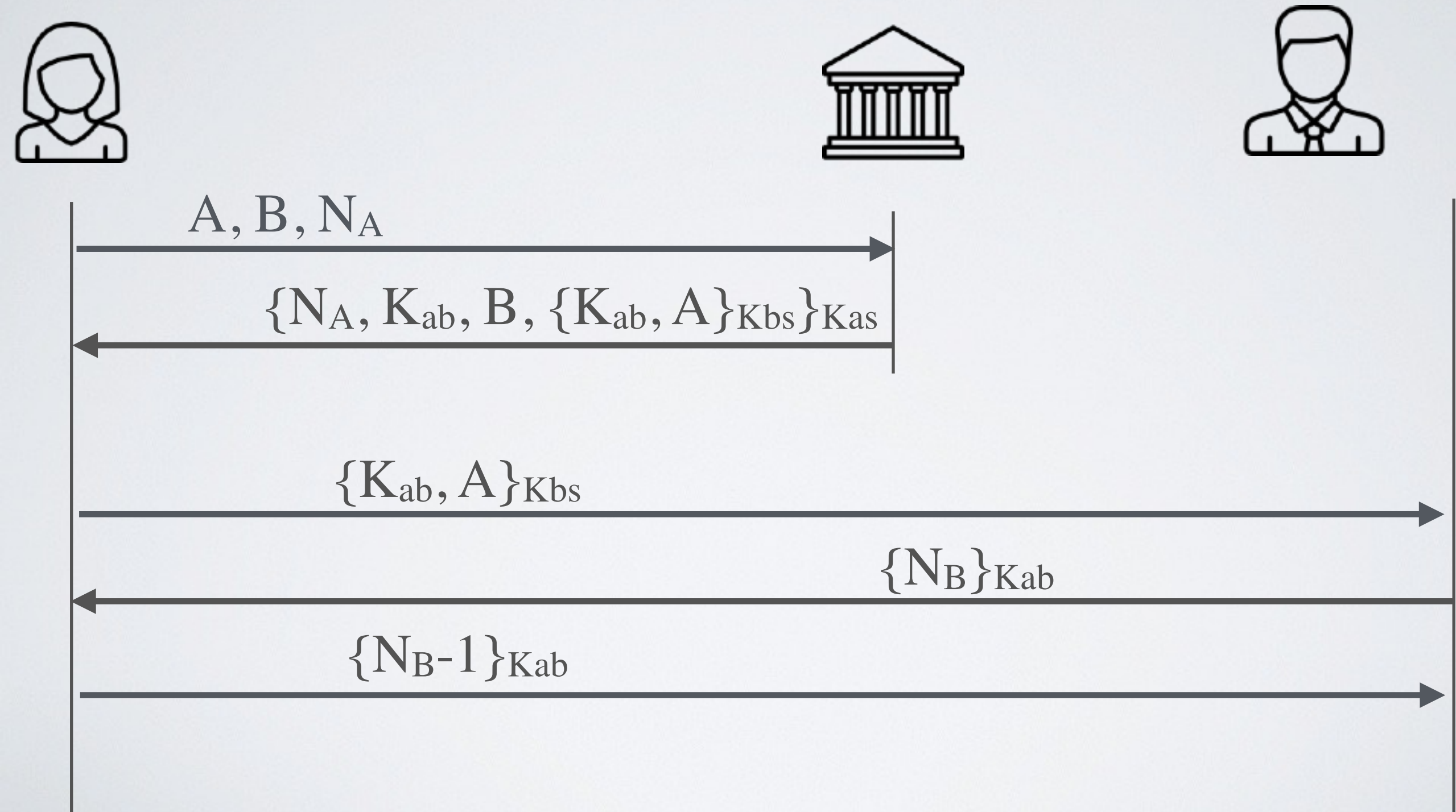
$$\{K_{ab}, A\}_{Kbs}$$




$$\{N_B\} K_{ab}$$

$$\{N_B-1\}_{Kab}$$


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# Replay attack (1981)



Assuming  $K_{ab}$  has been compromised somehow, it can be reused