Block Ciphers

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CUNY - Hunter College

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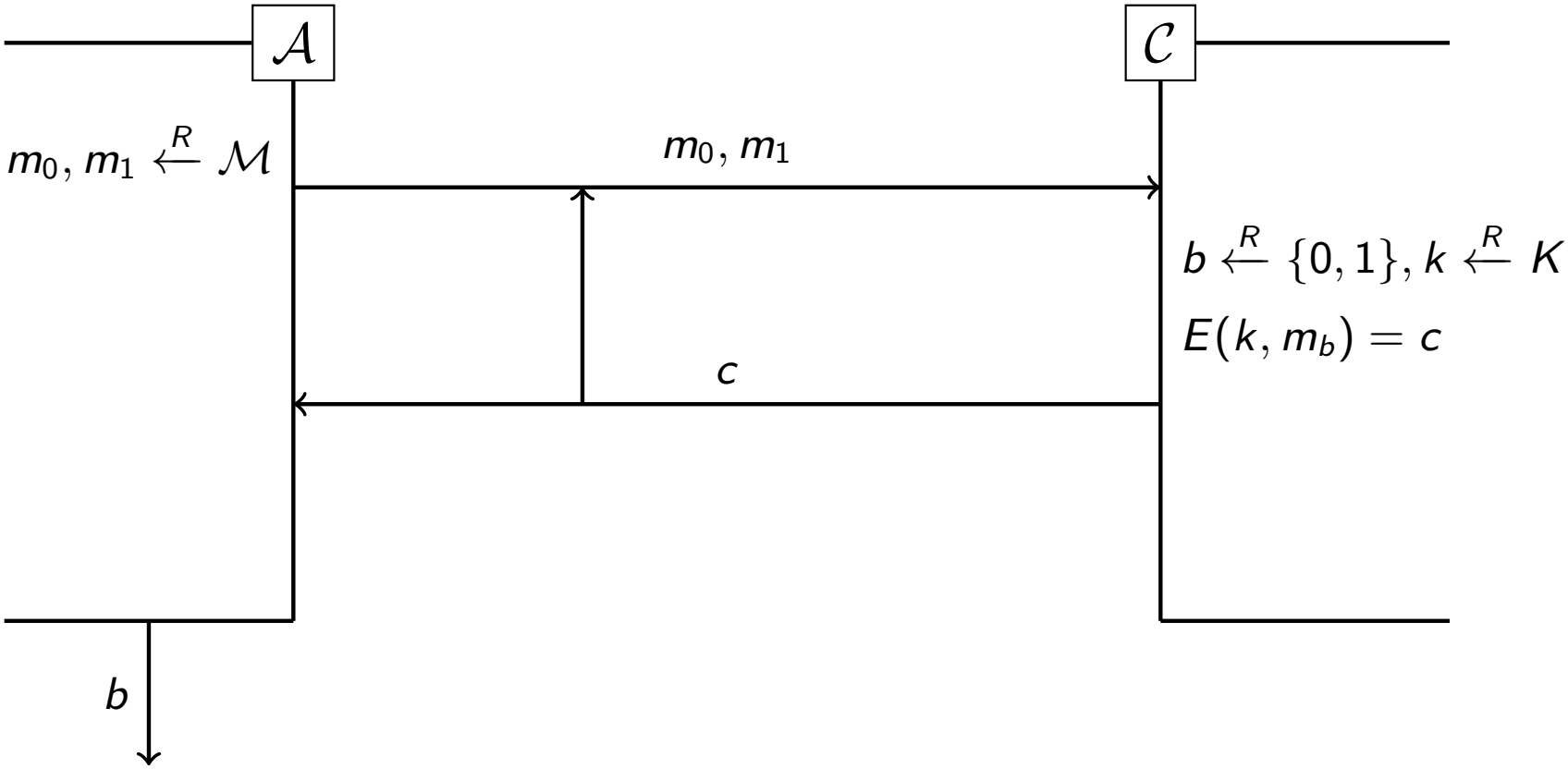
One Time Pad Security Game: Chosen Plaintext Attack



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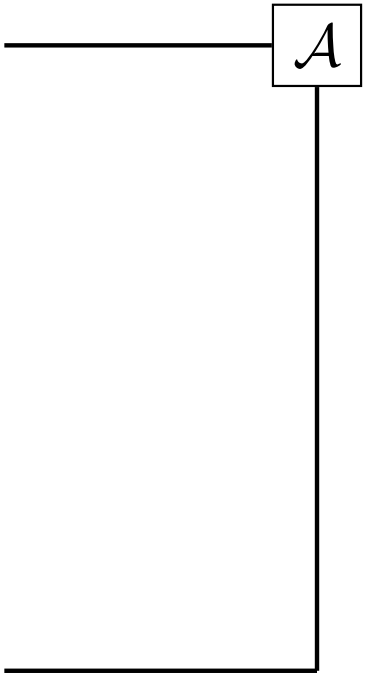

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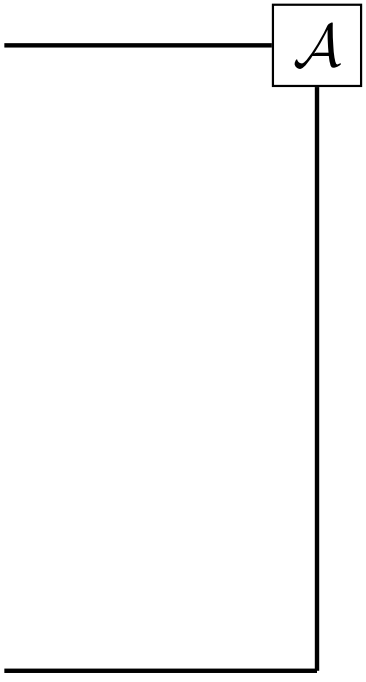

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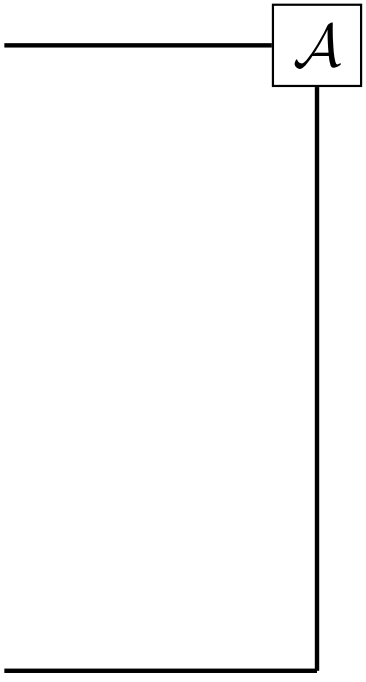

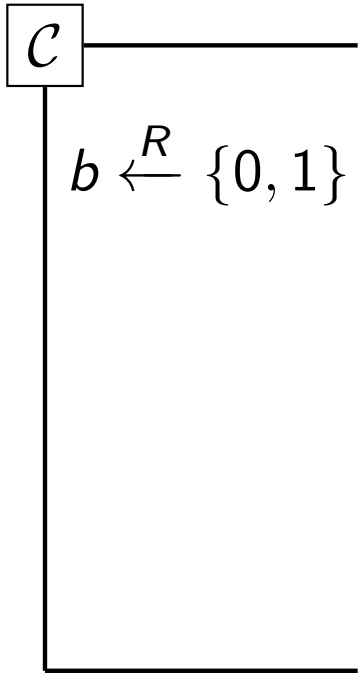

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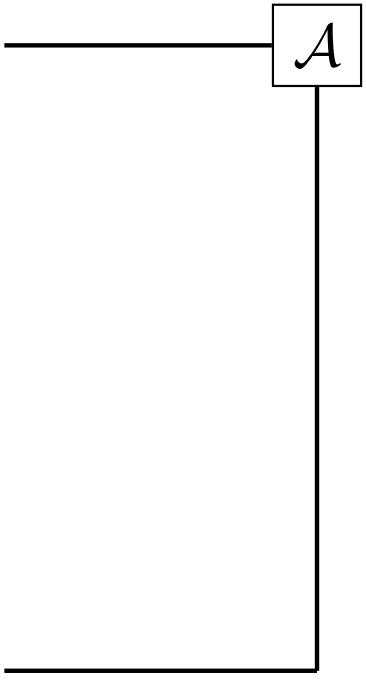

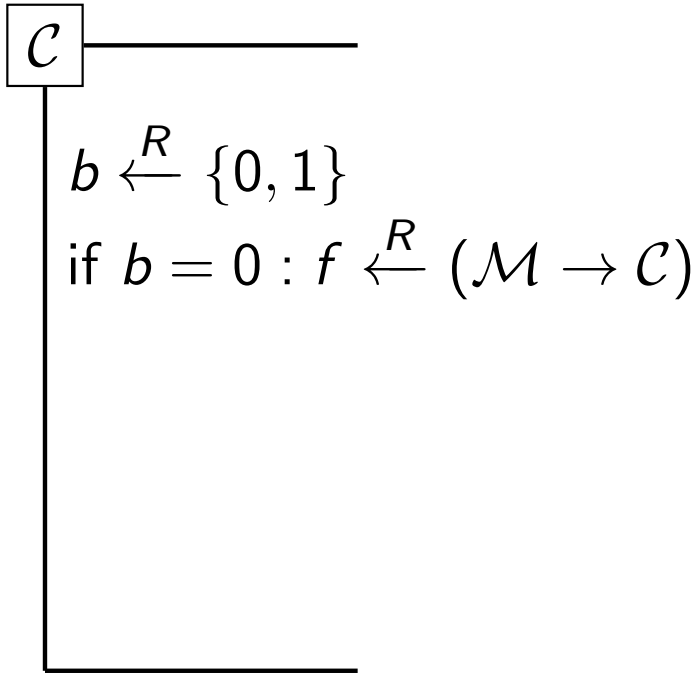

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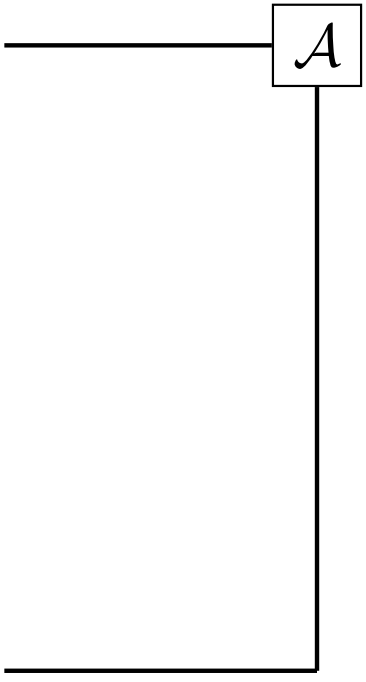

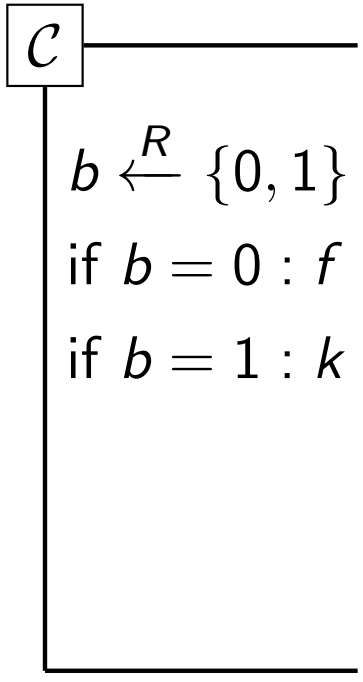

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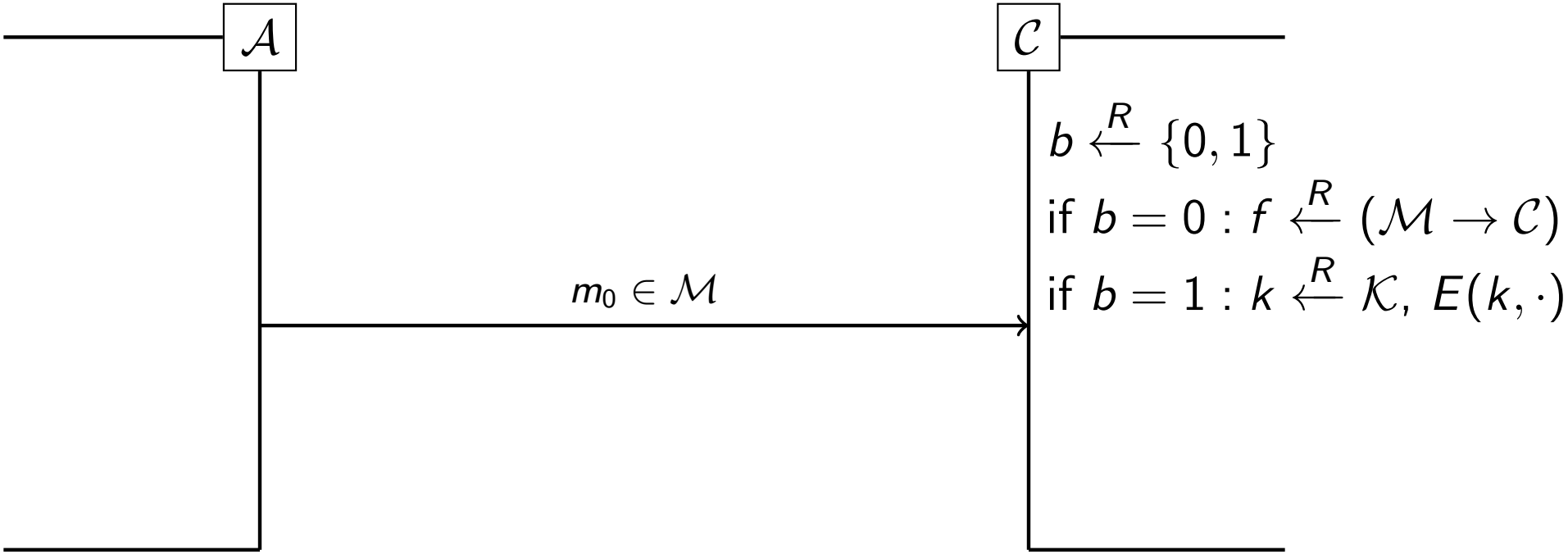

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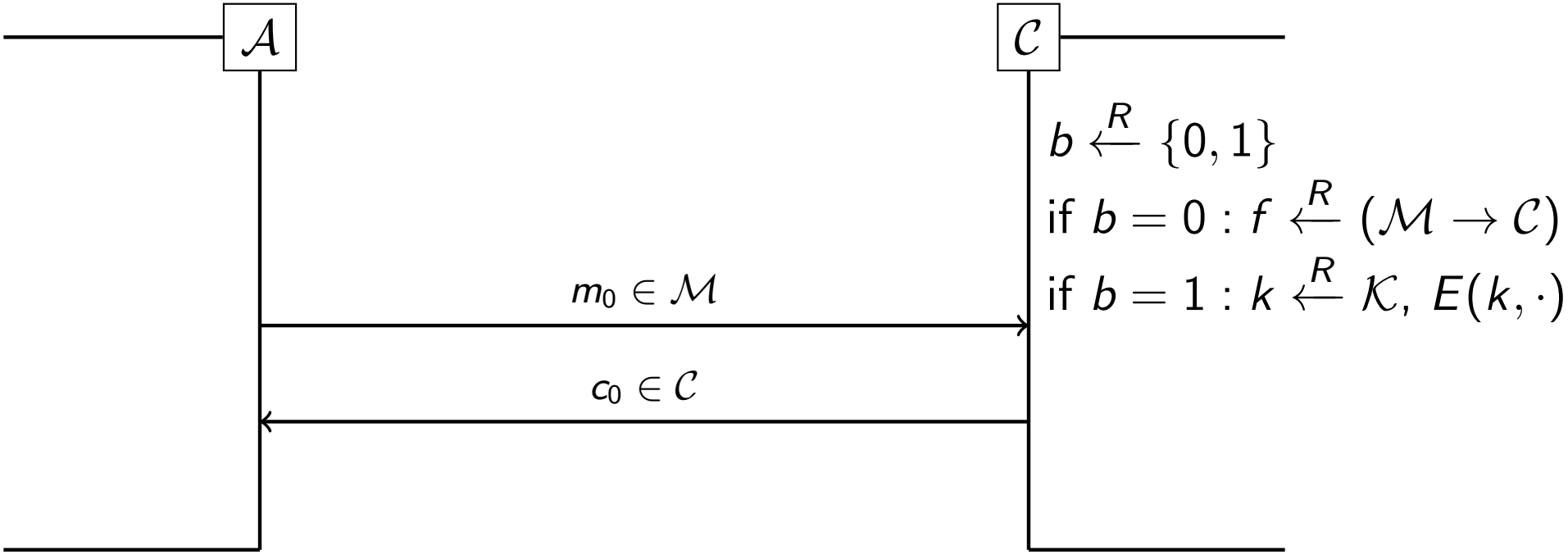

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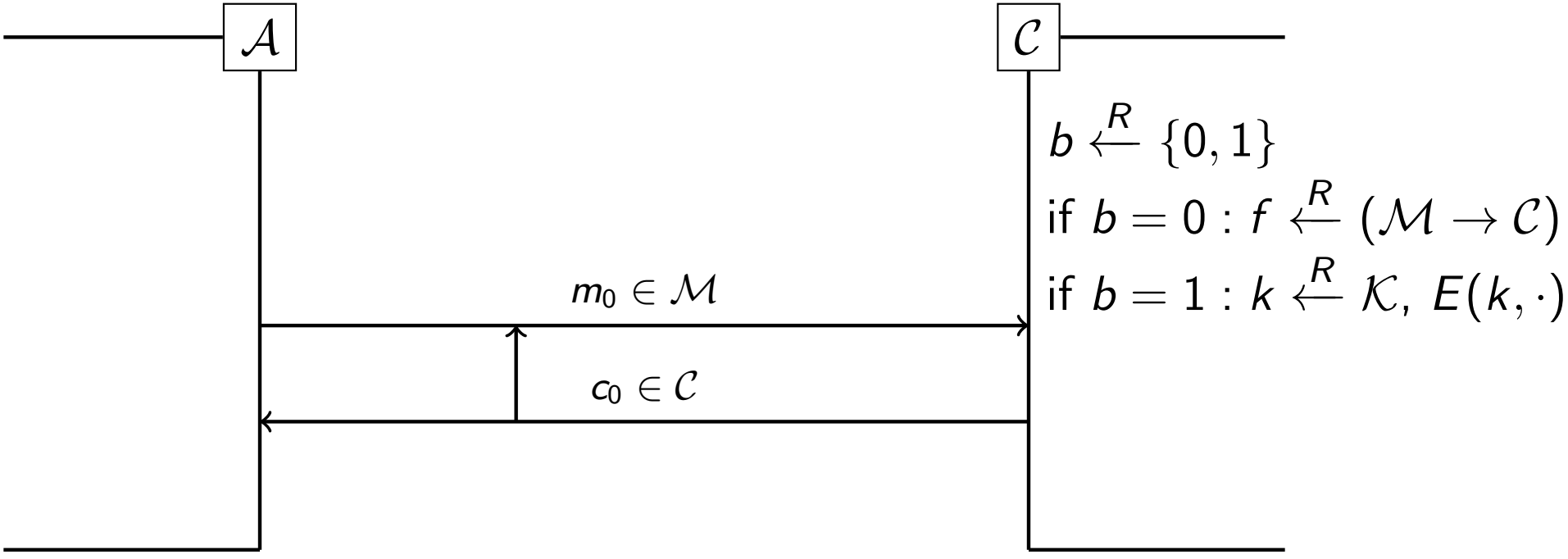

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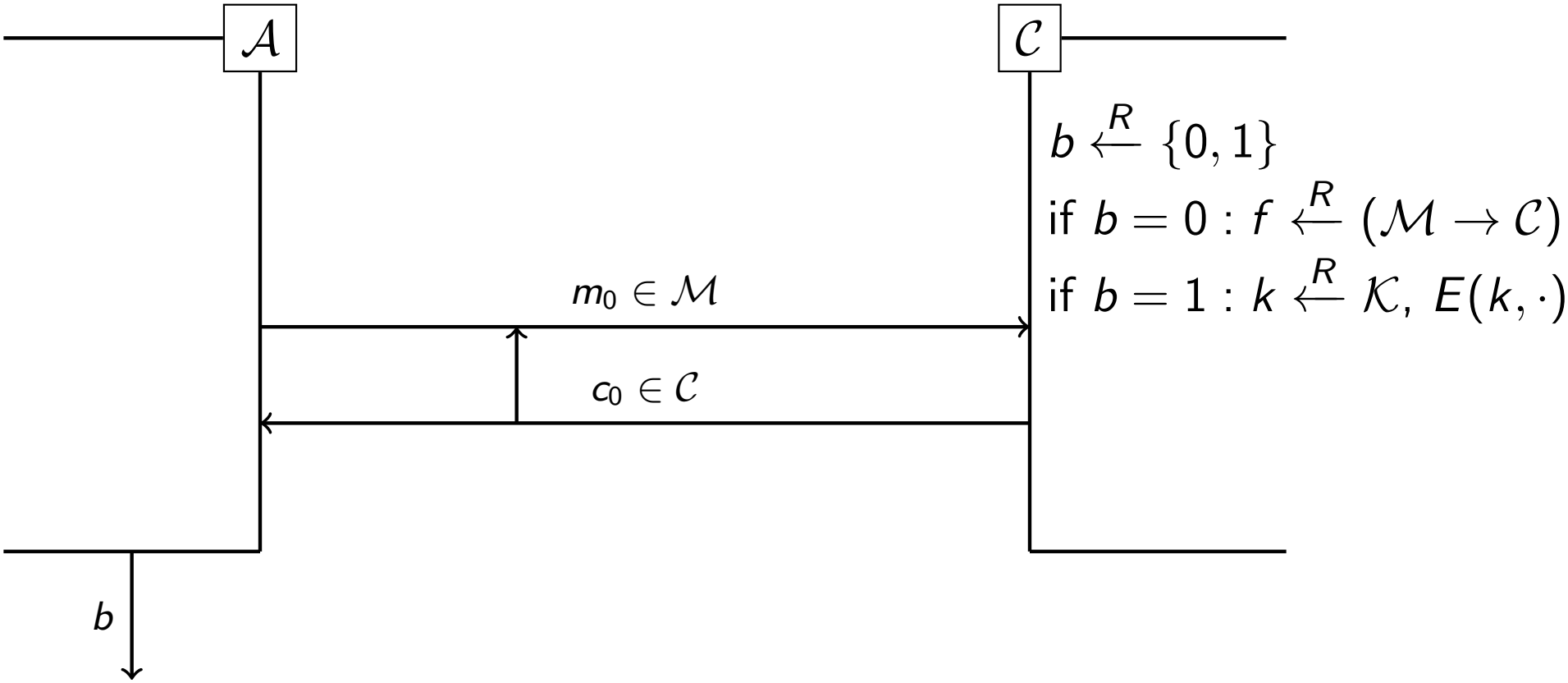

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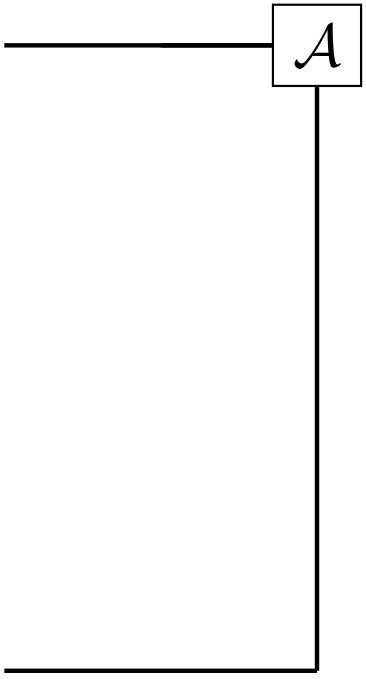

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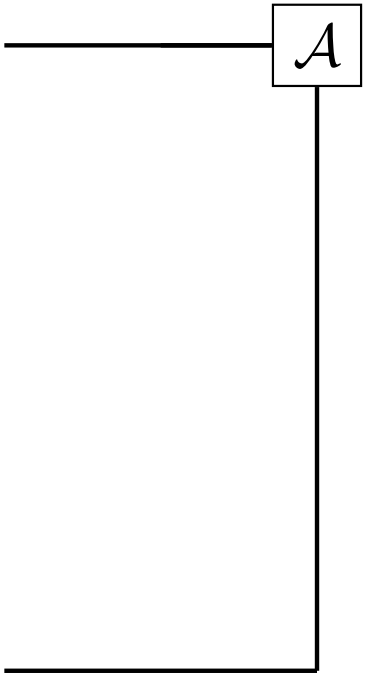

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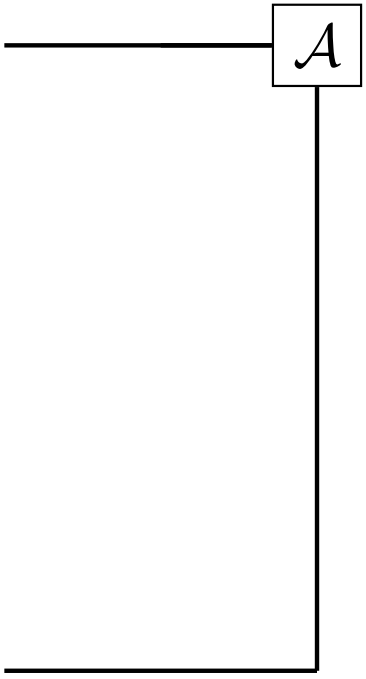

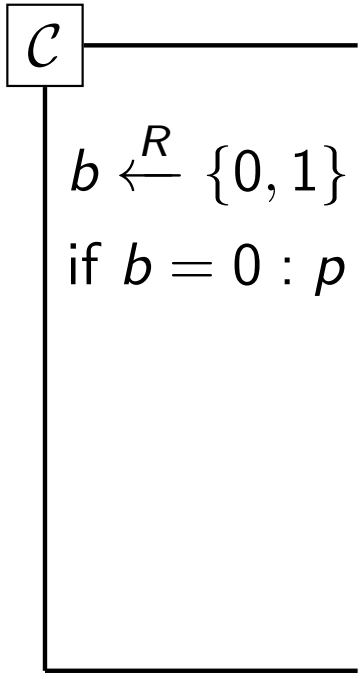

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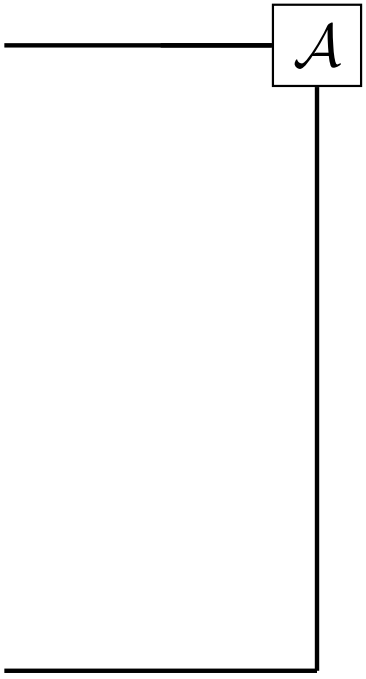

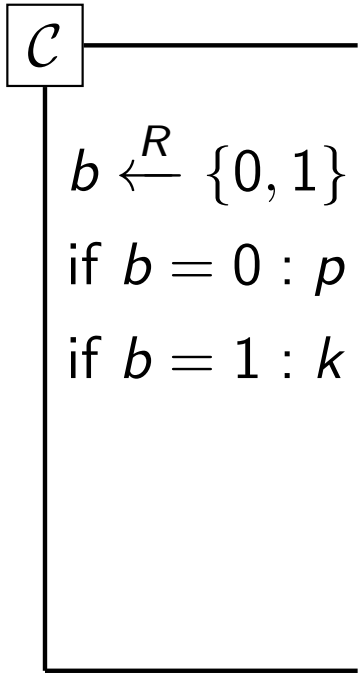

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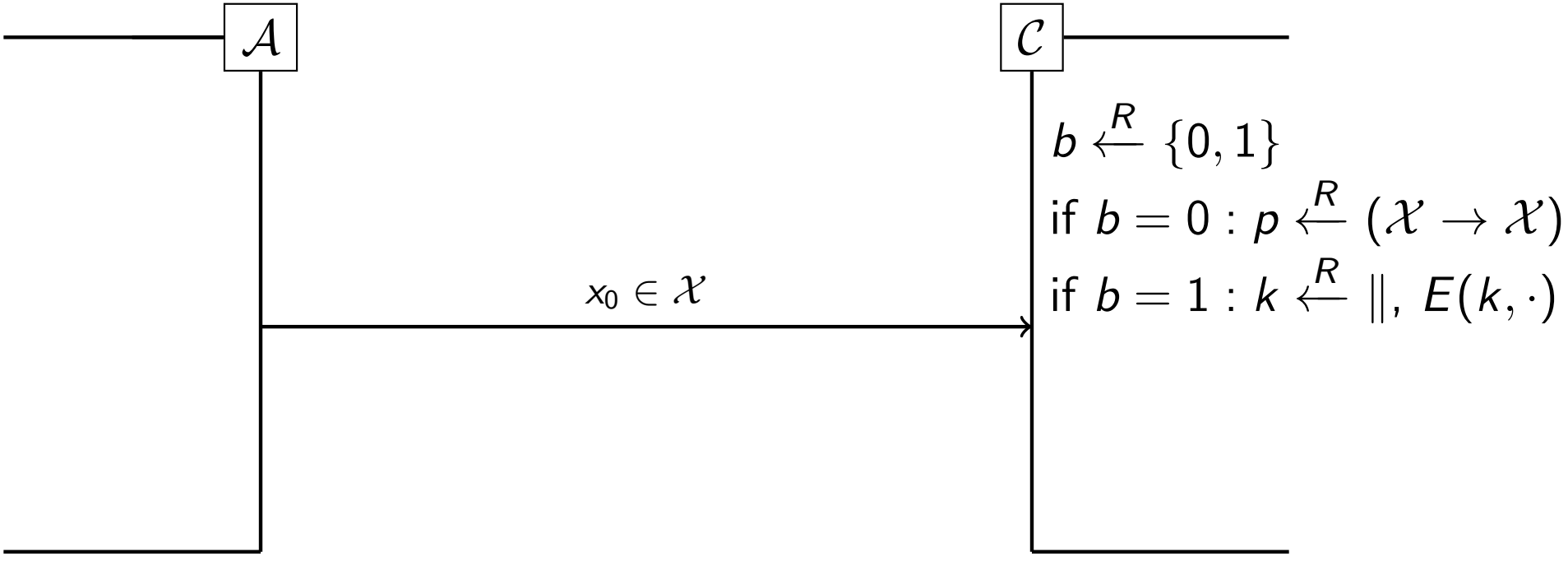

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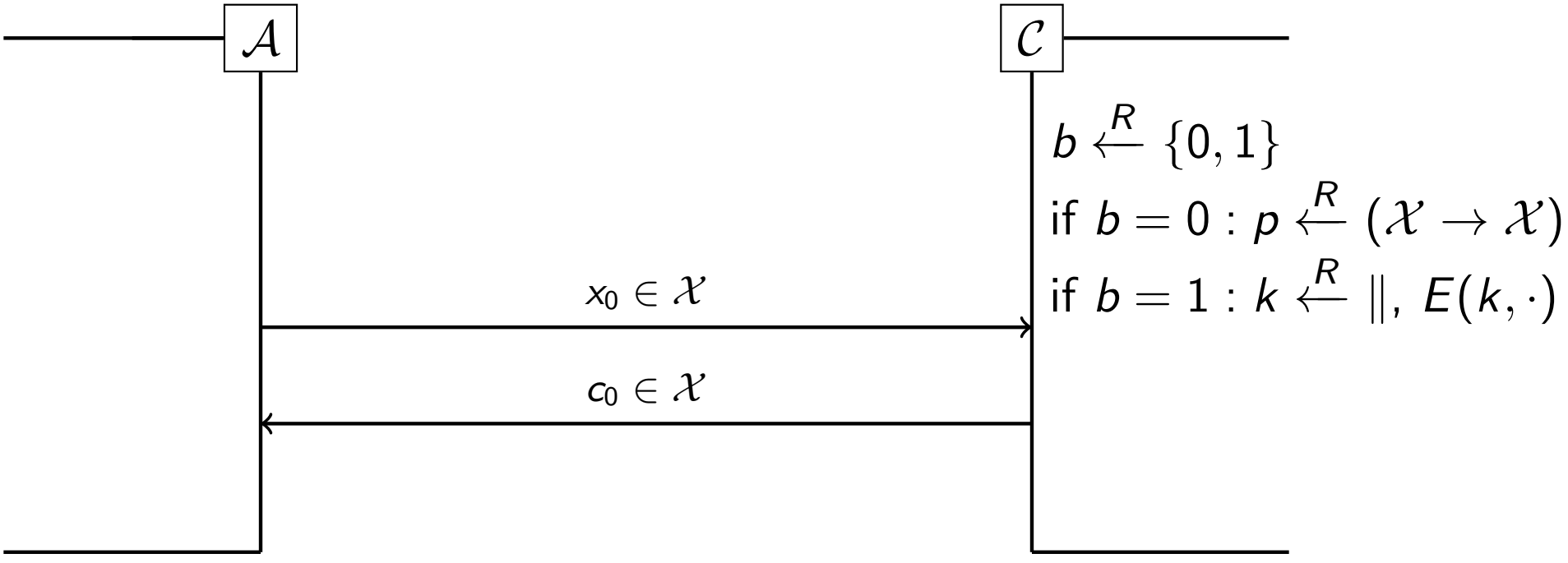

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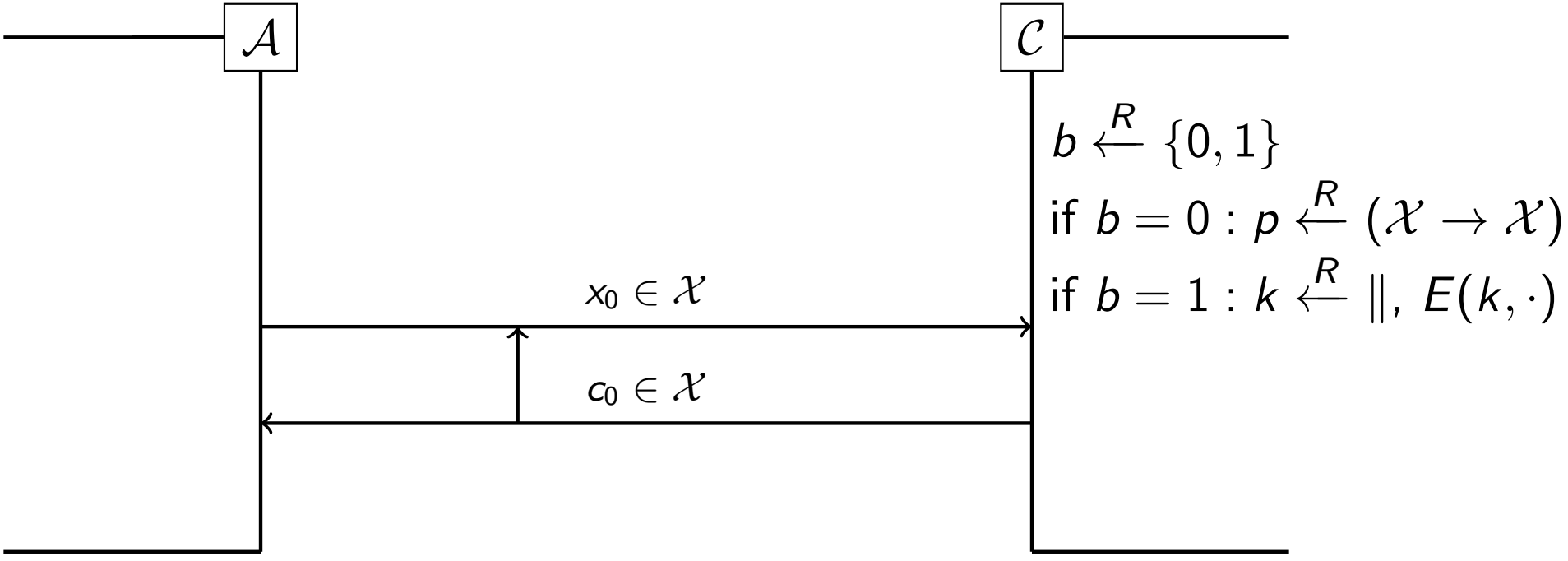

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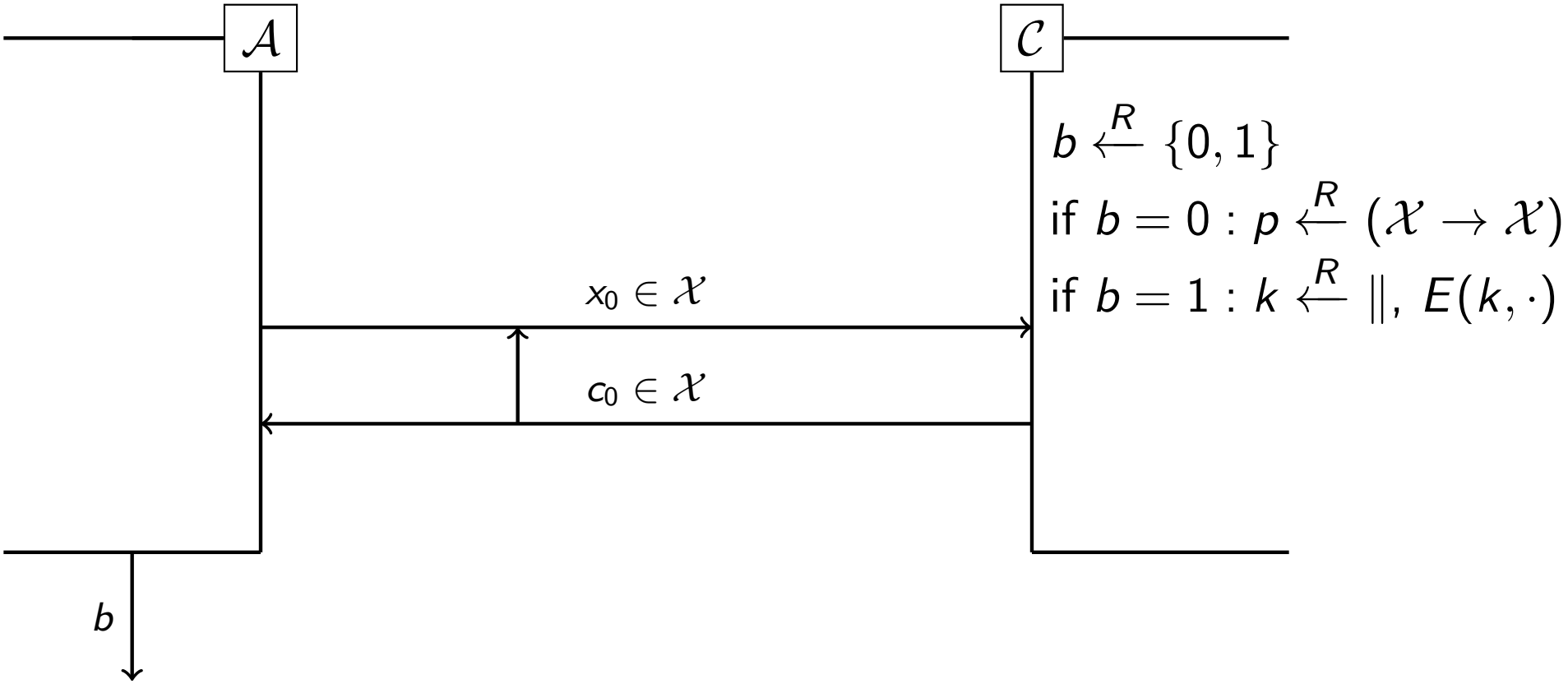

Security Lemma

- a secure PRP is equivalent to a secure PRF

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- Shares the correctness requirement with Shannon Ciphers $D(k, E(k, m)) = m$

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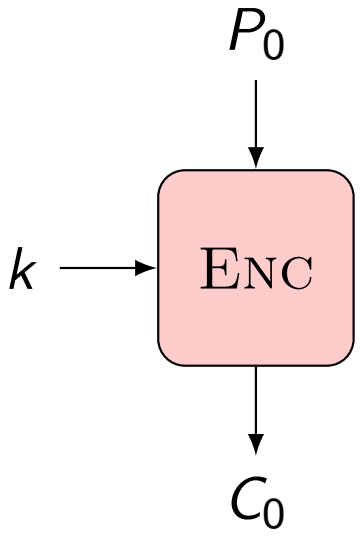

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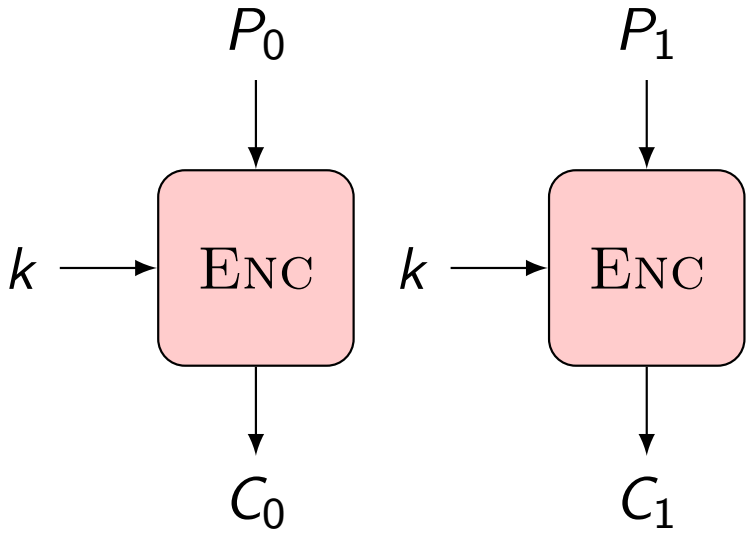

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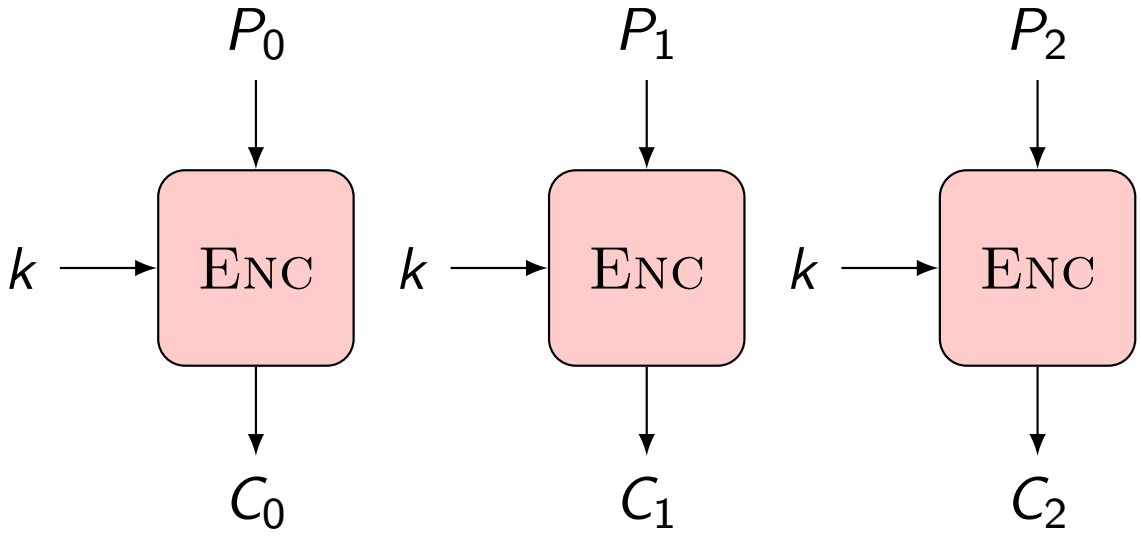

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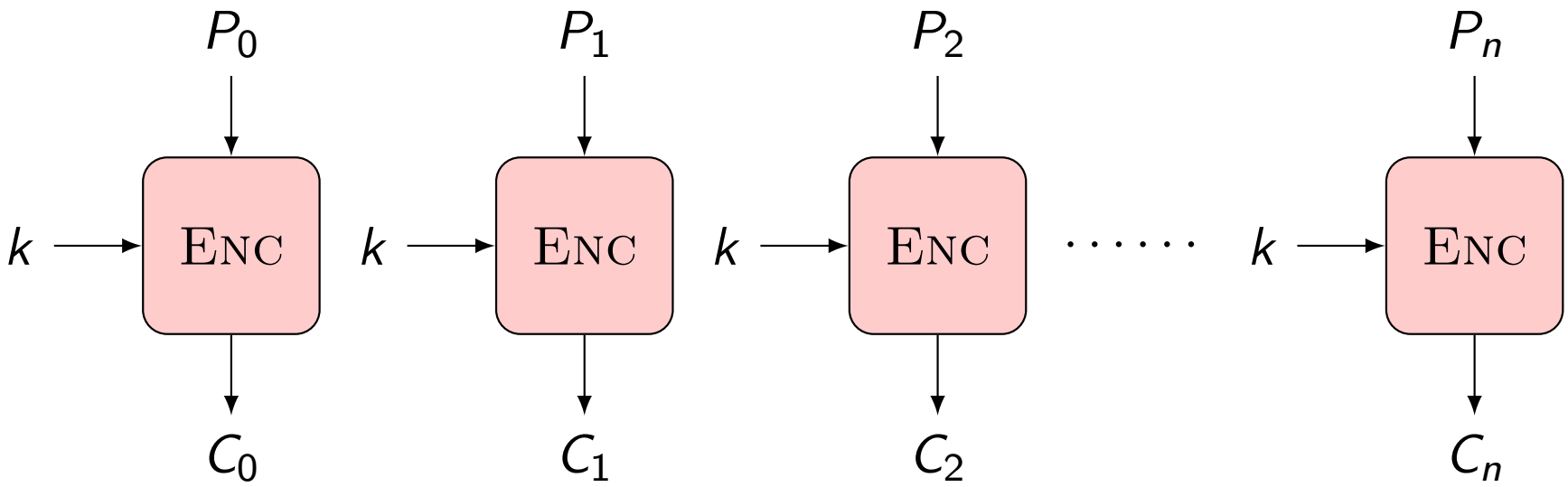

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Future HW: describe an attack to break CPA given ECB

Image Encryption using ECB

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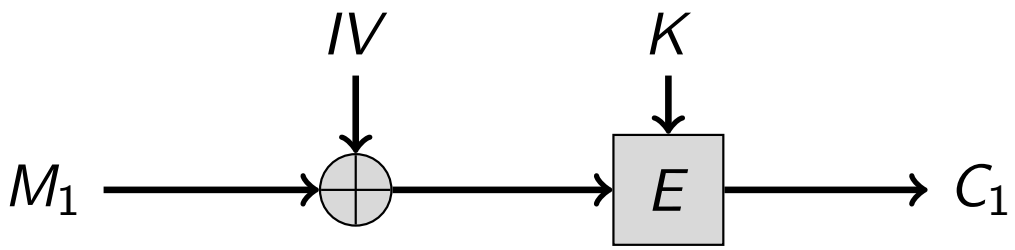

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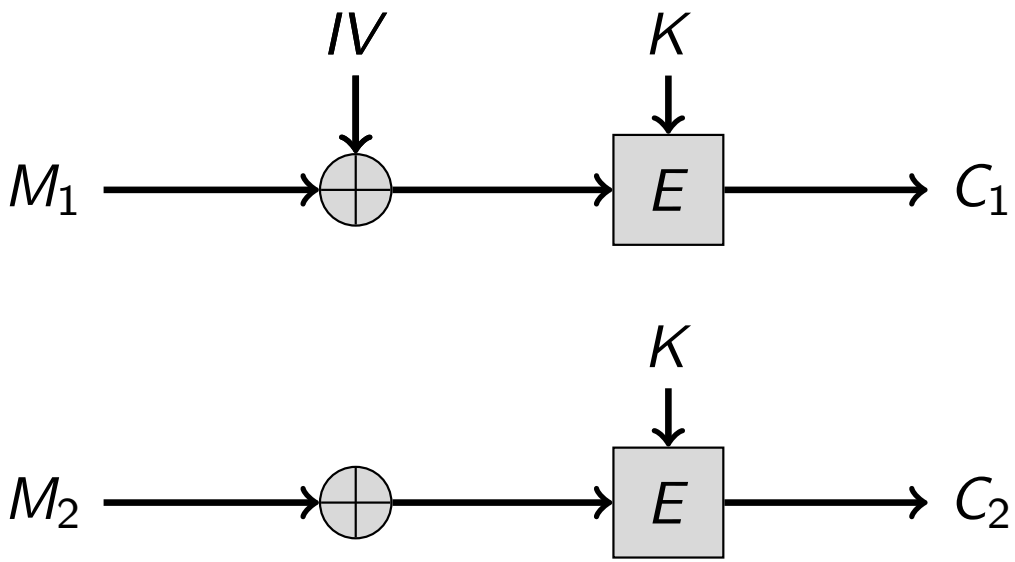

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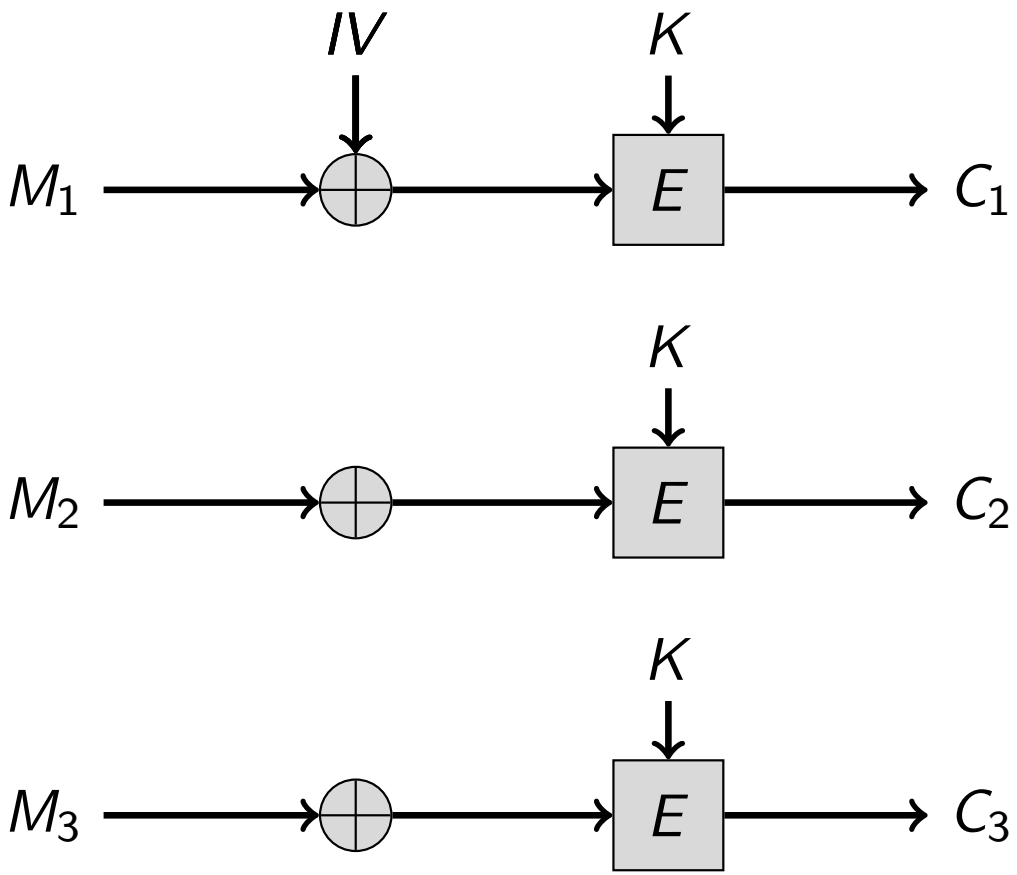

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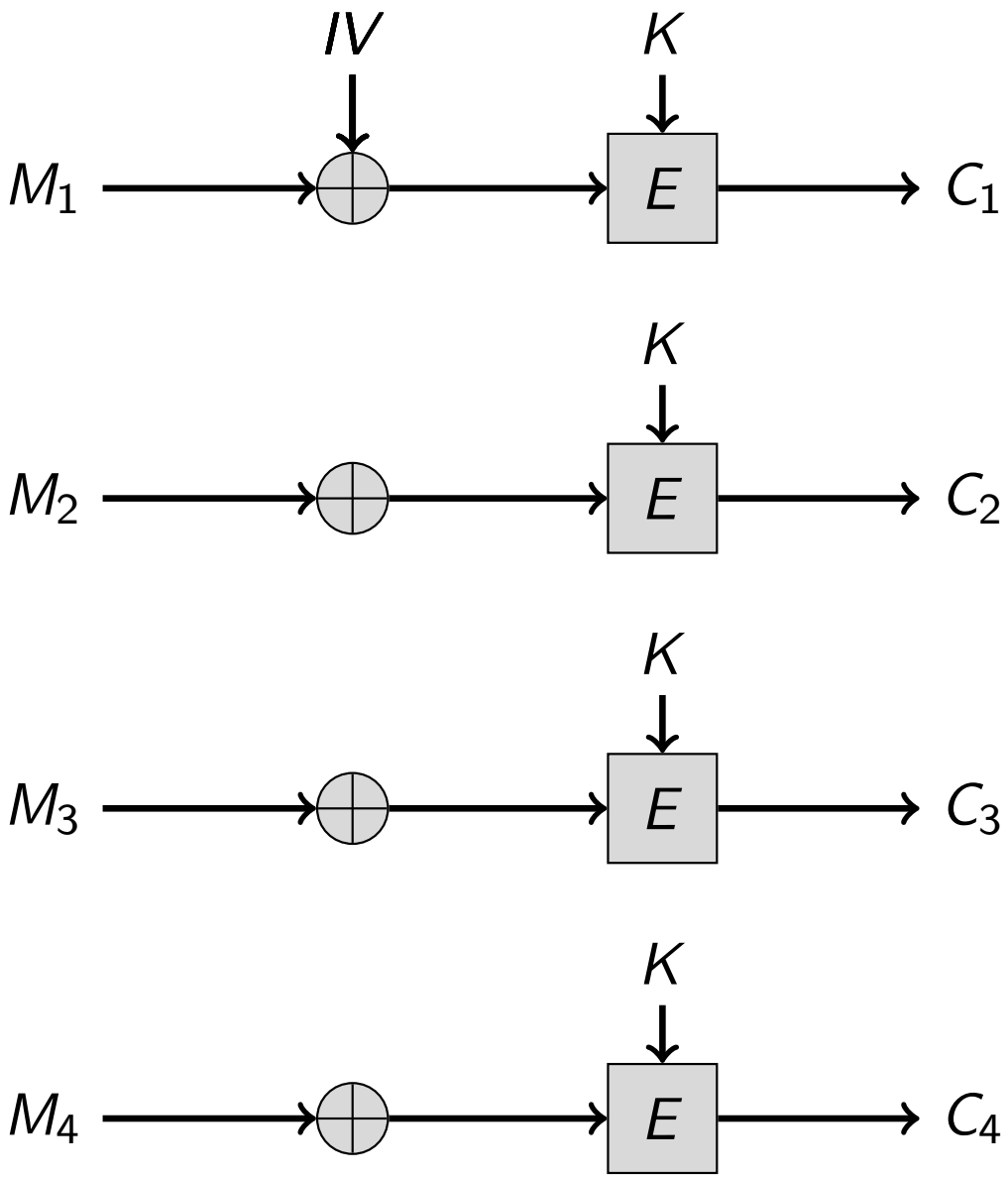

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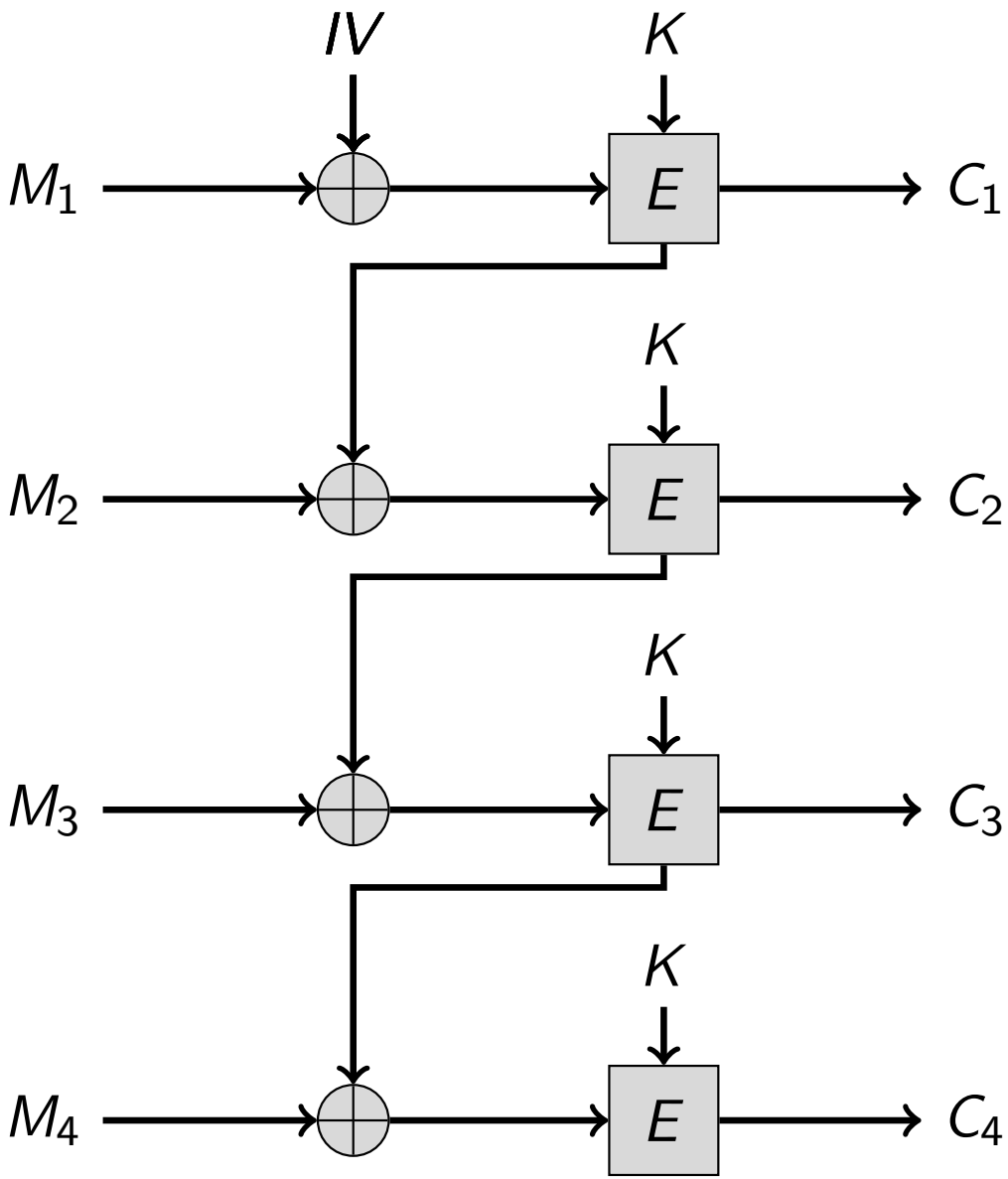

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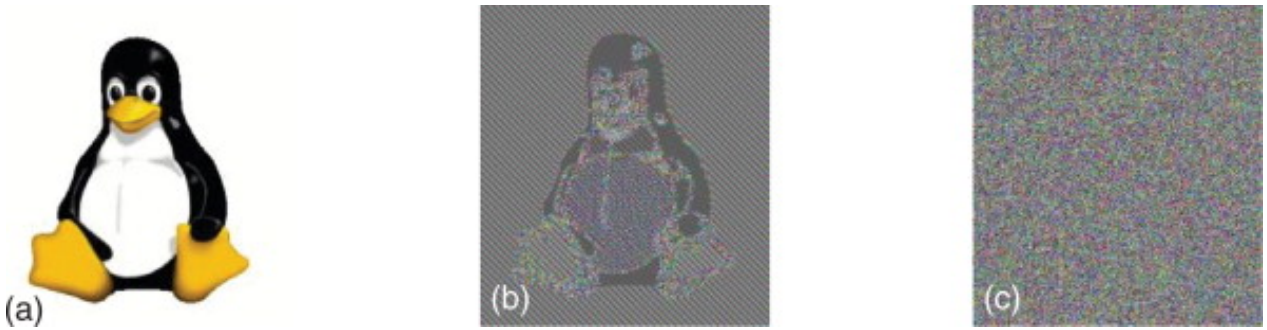
- It is best to use a random IV every message and send it with the cipher text

Image Encryption using CBC vs EBC



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Advanced Encryption System (AES)

- Developed by two belgian cryptographers, Joan Daemen and Vincent Rijmen
- Adopted by US government, supersedes DES (the one that contained EBC), in 2002
- First and only publicly accessible cypher approved by NSA

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