A New Non-Malleable Commitment Scheme

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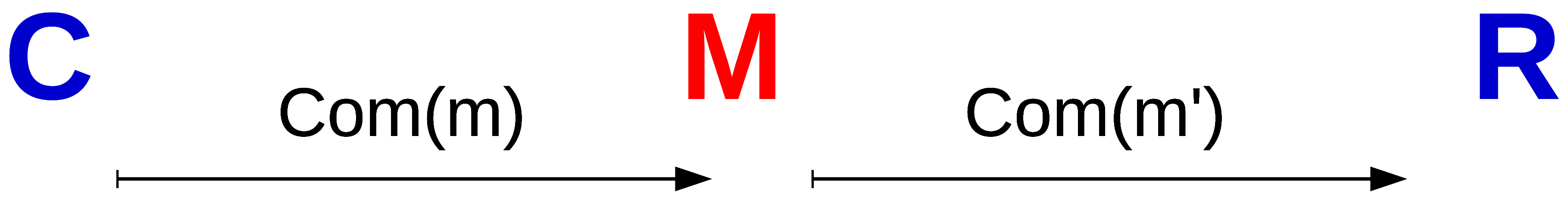
Non-Malleability



C

Com(m)

M

Com(m')

R

M wins if m' and m are related.

Non-Malleable Commitment (NMC)

- Useful primitive with many applications
  - Protocol composition, constant round MPC, NMZK,...

- Long history beginning with [DDN91]:
  - [DDN91], [Bar02], [Pas04], [PR05], [LPV08], [PW10], [Wee10], [LP11], [Goy11], [GLOV12], ...

- Recently Lin, Pass [LP11] & Goyal [Goy11] provide:
  - **constant round NMC from OWF!**

Our Work

- **Theorem 1:** Assume OWF exist. Then there is a 4-round NMC scheme.

- **Theorem 2:** Assume OWF exist. Then there is a 4-round NMZK argument for any L in NP.

- Will appear at FOCS '14.

- Find it on eprint!