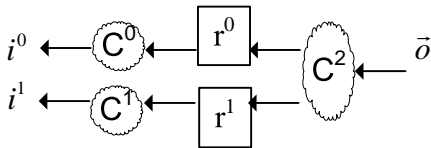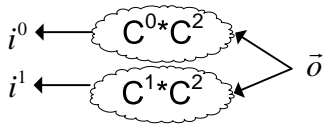a) An encoder with one pipeline stages

b) A proper decoder with pipeline and logic sharing

c) A decoder generated by Craig interpolant without pipeline and logic sharing