Massachusetts Institute of Technology
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6.02 **Solutions to Chapter 8** Written: October 7, 2011

Please send information about errors or omissions to hari; questions best asked on piazza.

1. Please check out the online solutions at
   `http://web.mit.edu/6.02/www/f2011/handouts/tutprobs/ecc.html`

2. (a) There are three parity streams, so the rate is $1/3$. The constraint length is 4, so there are $2^3 = 8$ states in the state machine representation of the code.

   (b) i. There are two predecessor states.

   ii. The bit-sequence representations of the predecessor states are 100 and 101.

   iii. $100 \rightarrow 110$ has expected parity bits 001.
   $101 \rightarrow 110$ has expected parity bits 100.

   (c) The rate of the code without puncturing is $1/3$. With the given puncturing schedule, the sender transmits $3+4+5 = 12$ parity bits for every 5 message bits, giving a rate of $5/12$.

3. This problem is part of PSet #3. Please see those solutions when they're available after the due date.

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