Weekly Proof #6 – 3.1-3.3 Grading Criteria

For all questions: Give partial credit in a category when you deem appropriate.

1) 10 pts
   5 pts for each trace – 1 pt off per error, cap at 5.

2) 10 pts
   7 pts for realizing that this scheme may end up in an infinite loop before testing a
   string in the language
   3 pts for completing the explanation – a full example isn’t necessary.

3) 10 pts
   2 pts – showing that anything a reg TM can do, a LR-Stay can.
   2 pts – for attempting to model a stay move with a sequence of L and R.
   1 pt – having R come before L
   2 pts – for mentioning one temp state
   1 pt – for mentioning that you need a temp state for each state in the machine
   2 pts – for some formal language showing the replacement of a stay move.

4) 10 pts
   a) 2 pts – for running both machines and accepting if either does
   b) 2 pts – for mentioning the difference for and. (reject if either rejects.)
   c) 2 pts – for mentioning that you reject when the other accepts and vice versa
   d) 2 pts – trying all splits
      1 pt – seeing if BOTH parts are in the respective languages and only accepting then
      1 pt – for rejecting only at the end, after all splits have been tried.

5) 10 pts – 5 pts for union proof (2 pts for recognizing you need to do one step here and one step
   there…)
   4 pts for intersection proof
   1 pt for saying why you have to be more clever for union