COMP 455
Models of Languages and Computation
Spring 2013
Solutions to Second Practice Final Exam

Problem 1: 1.1 c, 1.2 b, 1.3 b, 1.4 e, 1.5 f, 1.6 g, 1.7 c, 1.8 a, 1.9 c

Problem 2: 2.1 d, 2.2 b, 2.3 e, 2.4 f, 2.5 b, 2.6 c, 2.7 b, 2.8 d, 2.9 d, 2.10 d

Problem 3: a F, b T, c T, d F

Problem 4: a: no, yes; b: yes, yes; c: yes, yes; d: no, yes

Problem 5: a: T, b: T, c: F, d: T

Problem 6: a) The theorem is correct. We showed in class that this language is not context free.
b) The proof is bad. B plays poorly. It is your job to specify exactly what B does wrong and why he cannot win the way he plays.

Problem 7: Answer omitted; this is a routine problem you should be able to solve.

Problem 8: This grammar is ambiguous. For example, ba has two parse trees.

Problem 9: This problem was essentially done in class with a different notation, asking to show instead that the set of Turing machine descriptions "M" such that M does not halt on "M" is not partially decidable. On this exam I will use the "M" notation instead of the T_i notation if this problem is included.