

Name	
email	

6.034 Final Examination

December 16, 2009

Circle your TA and principle recitation instructor so that we can more easily identify with whom you have studied:

Erica Cooper	Matthew Peairs	Mark Seifter
Yuan Shen	Jeremy Smith	Olga Wichrowska

Robert Berwick	Randall Davis	Gregory Martin
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Indicate the approximate percent of the lectures, mega recitations, recitations, and tutorials you have attended so that we can better gauge their correlation with quiz and final performance. Your answers have no effect on your grade.

	Lectures	Recitations	Megas	Tutorials
Percent attended				

Quiz	Score	Grader
Q1		
Q2		
Q3		
Q4		
Q5		

There are 38 pages in this final examination, including this one. In addition, tear-off sheets are provided at the end with duplicate drawings and data. As always, open book, open notes, open just about everything.

Quiz 1, Problem 1, Rules (50 points)

The administration, worried about the social habits of its students, agrees to finance cross-school-mixers. The 034 TA's decide to fly to England and mix with the students at Hogwarts School of Witchcraft and Wizardry. A merry old time ensues, but the morning after, due to an accidental confundo charm (and perhaps also a large consumption of butterbeer), no one can remember the events that transpired. The 034 staff, in an attempt to show off the power of Muggle logic, promise they can piece together the important events with a rule based system.

Using their keen sense of logic, Matt, Erica, and Mark are able to piece together the following rules:

RULES:

R0 : IF (?X) goes to MIT,
 THEN (?X) is a muggle,
 (?X) consumed butterbeer

R1: IF (?X) made math jokes AND
 (?X) consumed butterbeer
 THEN (?X) was transfigured into a porcupine

R2: IF (?Y) fancies (?X) AND
 (?X) fancies (?Y) AND
 (?Y) is a muggle
 THEN (?X) snogged (?Y)

R3: IF (?X) fancies (?Y) AND
 (?X) made math jokes,
 THEN (?Y) fancies (?X)

R4: IF (?X) made math jokes
 THEN (?X) goes to MIT

You start with the following list of assertions which **is all you have to go on**.

ASSERTIONS:

A0: Olga made math jokes
A1: Yuan goes to MIT
A2: Jeremy made math jokes
A3: Hermione consumed butterbeer
A4: Jeremy fancies Hermione

Part A: Forward Chaining (24 points)

Run forward chaining on the rules and assertions provided for the first 5 iterations. For the first two iterations, fill out the first two rows in the table below, noting the rules whose antecedents match the data, the rule that fires, and the new assertions that are added by the rule. For the remainder, supply only the fired rules and new assertions. As usual, break ties using the earliest rule on the list that matches. If the earliest rule matches more than once, break ties by assertion order.

	Matched	Fired	New assertions added to database
1			
2			
3			
4			
5			