CMSC330 Fall 2015 Quiz #4

Name _____

Discussion Time (circle one): 10am 11am 12pm 1pm 2pm 3pm

Discussion TA (circle one): Adam Amelia Maria Chris Samuel Josh Michael Max Candice

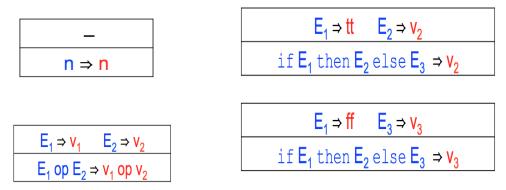
Instructions

- Do not start this test until you are told to do so!
- You have 15 minutes for this quiz.
- This is a closed book exam. No notes or other aids are allowed.
- For partial credit, show all of your work and clearly indicate your answers.
- 1. (5 pts) Use the operational semantics rules given in class, included here for your reference. Show the derivation for

AST

a ::= *n* | a + a | a - a b ::= a = a | if b then a else a

Rules:



2. (5 pts) Given these parse functions, write the corresponding CFG (S and L are nonterminals, and a,b,c, ϵ are terminals)

3. Evaluate the following lambda-expressions as much as possible. Show each betareduction/alpha conversion explicitly.

(1) (3 pts) $(\lambda x.\lambda y.\lambda z.y z x) y a b$

(2) (3 pts) (λz.z z) (λx.x) b c

(3) (4 pts) ($\lambda x.\lambda y.\lambda z.x y z$) ($\lambda q.\lambda r.r$) a b