HW 7 – Unification
CS 421 – Fall 2014
Revision 1.0

Assigned Tuesday, October 14, 2014
Due Tuesday, October 21, 2014, 23:59 pm
Extension 48 hours (20% penalty)

1 Change Log

1.0 Initial Release.

2 Turn-In Procedure

Answer the problems below, then using your favorite tool(s), save your work as a PDF (either scanned if handwritten or converted from a program), and commit the PDF in your your repository in the directory `assignments/hw7`. Your file should be named `hw7-submission.pdf`. The command to commit this file is:

```
svn commit -m "Turning in hw7." hw7-submission.pdf
```

3 Objectives and Background

The purpose of this HW is to test your understanding of

- How to unify a system of equations

Another purpose of HW7 is to provide you with experience answering non-programming written questions of the kind you may experience on the second midterm and final.

4 Problems

1. (24 points) Give a most general unifier for the following set of equations (unification problem). The uppercase letters A, B, C, D and E denote variables of unification. The lowercase letters f and p are term constructors of arity (*i.e.* take two arguments), and l is a term constructor of arity 1 (*i.e.* takes one argument). Show all your work by listing the operations performed in each step of the unification and the result of that step. Your final result should be a single simultaneous substitution, not a composition of separate substitutions.

$$\mathsf{Unify}\{(p(A,C) = p(B,D)); (l(C) = E); (l(f(n,A)) = E); (l(f(A,B)) = E)\}$$