Administrative Issues

- HW3, MP3, Essay
- Essay: ABET requirement
  you must get a passing score, otherwise you will receive Incomplete (I) for
  this course
- Guest lectures (Bonus credit)
  Nov. 29th and Dec. 4th
- Final Review: Dec 6th
- Final exam: open notes and open book
  Thursday, Dec. 13th, 2-4:30pm, NH 110

CSE 3302 Programming Languages

Logic Programming: Prolog (III)

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Fall 2007

Where to cut exactly?

where the ! is first introduced into the goals

backtrack before the ! is reached
Where to cut exactly?

- The cut (!) goal always succeeds.
- All the choices made before ! are frozen.
- Along the path from the node where ! is introduced into the goals till the node where ! is reached (all previous goals satisfied), all the siblings of these nodes are pruned.
Example of !

If A then B else C:

D :: A, !, B.
D :: C.

What if?
D :: A, B.
D :: C.

Exercise 1

• Duplicate the elements in a list, using the numbers of duplicates specified in another list.

  E.g.,

  ?- duplicate([1,5,3],[2,1,4], Result).

  Result = [1,1,5,3,3,3,3].

Exercise 2

• An example with predicates containing predicates

  Binary Tree (MP2)

  E.g.,

  tree(1,tree(2,tree(4,tree(8,void,void),void),tree(5,void,tree(9,void,void))),tree(3,tree(6,void,tree(10,void,void)),tree(7,tree(11,void,void),void))).

Exercise 3

• ordered(T): true if T is ordered

  (For each node n, all nodes in n's left subtree are smaller than n, and all nodes in n's right subtree are larger than n. Assuming no duplicates).

  ordered(T) :- ordered(T, Min, Max).
  ordered(tree(X, void, void), X).
  ordered(tree(X, void, R), X, R, Max) :- ordered(R, Min, Max), X<Max.
  ordered(tree(X, L, R), Min, Max) :- ordered(L, Min, Max1), ordered(R, Min2, Max), X=Max1, X=Max2.

student(Amy).
student(Bob).
take(Amy, CSE3302).
take(Amy, CSE3303).
take(Amy, CSE3304).
take(Bob, CSE3303).
credit(CSE3301, 3).
credit(CSE3302, 3).
credit(CSE3303, 4).
credit(CSE3304, 2).

?- student(X), take(X, Y), credit(Y,Z).
?- !, student(X), take(X, Y), credit(Y,Z).
?- student(X), take(X, Y), credit(Y,Z), !.
?- student(X), take(X, Y), credit(Y,Z), !.