EECS 345 Homework #3 - due 10/4/05

1. Using the `female`, `male`, and `parent` predicates, define a series of facts that represent your own family. Then define a set of rules for `mother`, `father`, `sibling`, `sister`, `brother`, `aunt` and `uncle`. As always, you should include sample runs to show that your definitions work correctly.

2. Define a Prolog predicate `interleave(L1, L2, L3)` that succeeds if `L3` is the list resulting from combining the elements of lists `L1` and `L2` in an alternating manner, starting with the first element of `L1` (if any). For example, `interleave([1, 2, 3, 4, 5], [a, b, c], L)` should succeed with `L = [1, a, 2, b, 3, c, 4, 5]`. Your definition should work for all possible combinations of instantiated and uninstantiated arguments. Demonstrate through sample runs that this is indeed the case.

3. Using your definition of `interleave` above, draw the search tree for the query `interleave([1, 2], L2, [1, a, 2, b])` and **explain** each step.