

ComS 342
Recitation 2, 10:00 Tuesday
Homework 9

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1) $Z = [1, 4, 6, 3, 6]$.

2a)

fib(0, 0).
fib(1, 1).

fib(N, Res) :-
 N > 1,
 N1 is N-1,
 N2 is N-2,

 fib(N1, R1),
 fib(N2, R2),

 Res is R1+R2.

2b)

rev(L, Res) :-
 revHelper(L, [], Res).

 revHelper([], Accum, Accum).
 revHelper([H|T], Accum, Res) :-
 number(H),
 revHelper(T, [H|Accum], Res);

 revHelper(H, [], Temp),
 revHelper(T, [Temp|Accum], Res).

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3a)
sentence([ ]).
sentence(S) :- s(S, [ ]).

s(L1, L2) :- f(L1, L2).
s(L1, L4) :- t(L1, L2), n(L2, L3), t(L3, L4).

f(L1, L5) :- if(L1, L2), b(L2, L3),
then(L3, L4), f_to_s(L4, L5).
f(L1, L7) :- if(L1, L2), b(L2, L3), then(L3, L4),
s(L4, L5), else(L5, L6), f_to_s(L6, L7).

f_to_s([X|_], L2) :- s(X, L2).

b(L1, L4) :- t(L1, L2), e(L2, L3), t(L3, L4).

if([if|Tail], Tail).
then([then|Tail], Tail).
else([else|Tail], Tail).

t([x|Tail], Tail).
t([y|Tail], Tail).
t([z|Tail], Tail).
t([1|Tail], Tail).
t([0|Tail], Tail).

e([<|Tail], Tail).
e([>|Tail], Tail).

n([+|Tail], Tail).
n([-|Tail], Tail).
n([=|Tail], Tail).

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3b) Uhhh... sentence(X)? Exceeds memory due to S <-> F recursion. I'm confused.

3c) Yes, sub-goal order matters as they are executed sequentially.

4) Hmmm.....