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1  % -----
2  % Logische Programmierung, ueb 2, 11.11.2002
3  % (c)Marc Dörflinger, Roger, Philip Iezzi
4  % -----
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6
7
8  % -----
9  % is_list(L) :- L is a list
10 % -----
11
12 my_is_list([]).
13 my_is_list([_|Xs]) :-
14     my_is_list(Xs).
15
16
17
18 % -----
19 % my_member(Element, List) :- Element is an element of List
20 % -----
21
22 my_member(X, [X|_]).      % X is a member of a list if it is its head, or
23 my_member(X, [_|Xs]) :-  % if it is an element of the tail
24     my_member(X, Xs).
25
26
27
28 % -----
29 % my_append(L1,L2,L3) :- L3 is the result of concatenating L1 and L2
30 % -----
31
32 my_append([],L,L).      % appending L to [] gives L
33 my_append([X|L1],L2,[X|L3]) :- % [X|L3] is the concatenation of [X|L1] and L2
34     my_append(L1,L2,L3). % if L3 is the concatenation of L1 and L2
35
36
37
38 % -----
39 % append3(L1,L2,L3,Full) :- Full is the result of concatenating L2, L2, and L3
40 % -----
41
42 % PROBLEM: e.g. append3(X, [4,3], [4], [2,4,3,4]).
43
44 append3(L1,L2,L3,FullList) :-
45     my_append(L1,L2,Temp),
46     my_append(Temp,L3,FullList).
47
48
49 % -----
50 % insert(E,L,Full) :- Full is the result of an ordered list L where E has been
    inserted
51 % -----
52
53
54 insert(E, [], [E]).
55 insert(E, [X|Xs], [X|L]) :-
56     E > X,
57     insert(E, Xs, L).
58 insert(E, [X|Xs], [E,X|Xs]) :-
59     E < X.
60
61
62 % -----
63 % reverse(L, Ul) :- Ul is the reversed list of L
64 % -----
65
66 /*
67  * Variant 1
68  */
69
70 my_reverse(L, Ul) :-
71     my_reverse(L, Ul, []).
72 my_reverse([], X, X).
73 my_reverse([L|Ls], Ul, TL) :-

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74         my_reverse(Ls, U1, [L|TL]).
75
76
77 /*
78  * Variant 2
79 */
80
81 my_reverse2([], []).
82 my_reverse2([X|Xs], U1) :-
83     my_reverse2(Xs, RestReverse),
84     my_append(RestReverse, [X], U1).
85
86
87 /*
88  * Variant 3
89 */
90
91 my_reverse gerard([], []).
92 my_reverse gerard([A], [A]).
93 my_reverse gerard([H|T], [H1|T3]) :-
94     my_reverse gerard(T, [H1|T1]),
95     my_reverse gerard(T1, T2),
96     my_reverse_gerard([H|T2], T3).
97
98
99
```