append(c(A,X),Y,c(A,Z)). ← append(X,Y,Z).

append(nil,Z,Z).

ask append(F,c(L,nil),c(l,c(i,c(s,c(t,nil))))).

yes(F,L)←append(F,c(L,nil),c(l,c(i,c(s,c(t,nil)))))

resolve with append(c(A1,X1),Y1,c(A1,Z1))←append(X1,Y1,Z1)

substitution: {F/c(l,X1), Y1/c(L,nil), A1/l ,Z1/c(i,c(s,c(t,nil)))}

yes(c(l,X1),L)←append(X1,c(L,nil),c(i,c(s,c(t,nil))))

resolve with append(c(A2,X2),Y2,c(A2,Z2))←append(X2,Y2,Z2)

substitution: {X1/c(i,X2), Y2/c(L,nil), A2/i ,Z2/c(s,c(t,nil))}

yes(c(l,c(i,X2)),L)←append(X2,c(L,nil),c(s,c(t,nil)))

resolve with append(c(A3,X3),Y3,c(A3,Z3))←append(X3,Y3,Z3)

substitution: {X2/c(s,X3), Y3/c(L,nil), A3/s ,Z3/c(t,nil)}

yes(c(l,c(i,c(s,X3))),L)←append(X3,c(L,nil),c(t,nil))

Both clauses are applicable. Choosing the first clause gives:

resolve with append(c(A4,X4),Y4,c(A4,Z4))←append(X4,Y4,Z4)

substitution: {X3/c(t,X4), Y4/c(L,nil), A4/t ,Z4/nil}

yes(c(l,c(i,c(s,X3))),L)←append(X4,c(L,nil),nil)

There are no clauses whose head unifies with the atom in the generalized answer clause's body. The proof fails.

Choosing the second clause instead of the first gives:

resolve with append(nil,Z5,Z5).

substitution: {Z5/c(t,nil),X3/nil,L/t}

yes(c(l,c(i,c(s,nil))),t)←

At this point, the proof succeeds, with answer F=c(l,c(i,c(s,nil))), L=t.