NAT LIST

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1-a. hd(0|1|nil).

↓

x=0 L=(1|nil)

→ hd((0|(1|nil))) by(X|L)

= 0 by(hd2)

eq hd(nil) = error, ... hd1

eq hd(X|L) = X. ... hd2

eq tl(nil) = nil, ... tl1

eq tl(X|L) = L. ... tl2

eq [X..Y] = if X>Y then {nil} else {X|[X+1..Y]} ... ls

eq if true then {L} else {L2} = L. ... if1

eq if false then {L} else {L2} = L2, ... if2

1-b. tl(0|1|nil)

↓

x=0 L=(1|nil)

→ tl((0|(1|nil))) by(X|L)

=(1|nil) by(tl2)

1-c. [2..5]

→ (if(2>5) then {nil} else {2|[2+1..5]}) ... by(ls)

→ (if false then {..} else { .. }) ... by(>)

→ (2|[2+1..5]) ... by(if2) → (2|[3..5]) ... by(+)

→ (2|(if(3>5) then {nil} else {3|[3+1..5]})) ... by(ls)

→ (2|(if false then { .. } else { .. })) ... by(>)

→ (2|(3|[3+1..5])) ... by(if2) → (2|(3|[4..5])) ... by(+)

→ (2|(3|(if(4>5) then {nil} else {4|[4+1..5]}))) ... by(ls)

→ (2|(3|(if false then {..} else { .. }))) ... by(>)

→ (2|(3|(4|[4+1..5]))) ... by(if2) → (2|(3|(4|[5..5]))) ... by(+)

→ (2|(3|(4|(if(5>5) then {nil} else {5|[5+1..5]})))) ... by(ls)

→ (2|(3|(4|(if false then {..} else { .. })))) ... by(>)

→ (2|(3|(4|(5|[5+1..5])))) ... by(if2) → (2|(3|(4|(5|[6..5])))) ... by(+)

→ (2|(3|(4|(5|(if(6>5) then {nil} else {6|[6+1..5]}))))) ... by(ls)

→ (2|(3|(4|(5|(if true then { .. } else { .. }))))) ... by(>)

→ (2|(3|(4|(5|nil)))) ... by(if1)

=(2|3|4|5|nil)