Inference at $*$ 2 0
 of proof for Lemma select_nth_tl:

1. T : Type
2. T List
3. u : T
4. v : T List
5. $\forall n$:{0... $\|v\|$}, i:{0..($\|v\|$ - n)$^-$}. nth_tl(n;v)[i] = v[(i+n)]
$\vdash$ $\forall n$:{0... $\|v\|$+1}, i:{0..(($\|v\|$+1) - n)$^-$}. nth_tl(n;[u / v])[i] = [u / v][(i+n)]
 by PERMUTE{1:n,
 2:n,
 3:n,
 4:n,
 5:n,
 6:n,
 7:n,
 8:n,
 9:n,
 10:n,
 11:n,
 12:n,
 10:n,
 13:n,
 11:n,
 14:n,
 15:n,
 16:n,
 17:n,
 18:n,
 16:n,
 15:n,
 19:n,
 20:n,
 21:n}

 1: .....wf..... NILNIL

 6. n : {0... $\|v\|$+1}
 7. {0..(($\|v\|$+1) - n)$^-$}
 $\vdash$ n $\leq$z 0 $\in$ $\mathbb{B}$
 2: .....wf..... NILNIL

 6. n : {0... $\|v\|$+1}
 7. {0..(($\|v\|$+1) - n)$^-$}

$\vdash \mathbb{B} \in \text{Type}$
3: . . . . .wf. . . . . NILNIL

6. $n : \{0 \ldots \|v\|+1\}$
7. $\{0..((\|v\|+1) - n)^-\}$
8. $n \leq_z 0 = \text{tt}$
$\vdash (n \leq_z 0 = \text{tt}) \in \mathbb{P}_1$
4: . . . . .wf. . . . . NILNIL

6. $n : \{0 \ldots \|v\|+1\}$
7. $\{0..((\|v\|+1) - n)^-\}$
8. $n \leq_z 0 = \text{tt}$
$\vdash (\uparrow n \leq_z 0) \in \mathbb{P}_1$
5: . . . . .wf. . . . . NILNIL

6. $n : \{0 \ldots \|v\|+1\}$
7. $\{0..((\|v\|+1) - n)^-\}$
8. $n \leq_z 0 = \text{tt}$
$\vdash (n \leq 0) \in \mathbb{P}_1$
6: . . . . .wf. . . . . NILNIL

6. $n : \{0 \ldots \|v\|+1\}$
7. $\{0..((\|v\|+1) - n)^-\}$
8. $n \leq_z 0 = \text{tt}$
$\vdash n \leq_z 0 \in \mathbb{B}$
7: . . . . .wf. . . . . NILNIL

6. $n : \{0 \ldots \|v\|+1\}$
7. $\{0..((\|v\|+1) - n)^-\}$
8. $n \leq_z 0 = \text{tt}$
$\vdash n \in \mathbb{Z}$
8: . . . . .wf. . . . . NILNIL

6. $n : \{0 \ldots \|v\|+1\}$
7. $\{0..((\|v\|+1) - n)^-\}$
8. $n \leq_z 0 = \text{tt}$
$\vdash 0 \in \mathbb{Z}$
9: . . . . .truecase. . . . . NILNIL

6. $n : \{0 \ldots \|v\|+1\}$
7. $i : \{0..((\|v\|+1) - n)^-\}$
8. $n \leq 0$
$\vdash [u \,/\, v][i] = [u \,/\, v][(i+n)]$
10: . . . . .wf. . . . . NILNIL

6. $n : \{0 \ldots \|v\|+1\}$

7. $\{0..((\|v\|+1) - n)^-\}$
8. $n \leq z\ 0 = \mathrm{ff}$
$\vdash (n \leq z\ 0 = \mathrm{ff}) \in \mathbb{P}_1$
11: .....wf..... NILNIL

6. $n : \{0... \|v\|+1\}$
7. $\{0..((\|v\|+1) - n)^-\}$
8. $n \leq z\ 0 = \mathrm{ff}$
$\vdash (\uparrow 0 <z\ n) \in \mathbb{P}_1$
12: .....wf..... NILNIL

6. $n : \{0... \|v\|+1\}$
7. $\{0..((\|v\|+1) - n)^-\}$
8. $n \leq z\ 0 = \mathrm{ff}$
$\vdash (0 < n) \in \mathbb{P}_1$
13: .....wf..... NILNIL

6. $n : \{0... \|v\|+1\}$
7. $\{0..((\|v\|+1) - n)^-\}$
8. $n \leq z\ 0 = \mathrm{ff}$
$\vdash (\uparrow(\neg_b n \leq z\ 0)) \in \mathbb{P}_1$
14: .....wf..... NILNIL

6. $n : \{0... \|v\|+1\}$
7. $\{0..((\|v\|+1) - n)^-\}$
8. $n \leq z\ 0 = \mathrm{ff}$
$\vdash n \leq z\ 0 \in \mathbb{B}$
15: .....wf..... NILNIL

6. $n : \{0... \|v\|+1\}$
7. $\{0..((\|v\|+1) - n)^-\}$
8. $n \leq z\ 0 = \mathrm{ff}$
$\vdash n \in \mathbb{Z}$
16: .....wf..... NILNIL

6. $n : \{0... \|v\|+1\}$
7. $\{0..((\|v\|+1) - n)^-\}$
8. $n \leq z\ 0 = \mathrm{ff}$
$\vdash 0 \in \mathbb{Z}$
17: .....antecedent..... NILNIL

6. $n : \{0... \|v\|+1\}$
7. $\{0..((\|v\|+1) - n)^-\}$
8. $n \leq z\ 0 = \mathrm{ff}$
$\vdash$ True
18: .....wf..... NILNIL

6. $n : \{0\ldots \|v\|+1\}$
7. $\{0..((\|v\|+1) - n)^-\}$
8. $n \leq \mathrm{z}\ 0 = \mathrm{ff}$
9. $(\uparrow(\neg_b n \leq \mathrm{z}\ 0)) = (\uparrow 0 <\mathrm{z}\ n)$

$\vdash \mathbb{P}_1 = \mathbb{P}_1$

19:

6. $n : \{0\ldots \|v\|+1\}$
7. $i : \{0..((\|v\|+1) - n)^-\}$
8. $0 < n$

$\vdash \mathrm{nth_tl}(n - 1;v)[i] = [u\ /\ v][(i+n)]$

20: . . . . .wf. . . . . NILNIL

6. $n : \{0\ldots \|v\|+1\}$

$\vdash \{0..((\|v\|+1) - n)^-\} \in \mathrm{Type}$

21: . . . . .wf. . . . . NILNIL

$\vdash \{0\ldots \|v\|+1\} \in \mathrm{Type}$

.

http://www.nuprl.org/FDLcontent/p0_963683_/p121_58888_{select_nth_tl}2_0.html