Inference at $*$ 1 2 3
of proof for Lemma append_overlapping_sublists:

. . . . .wf. . . . . NILNIL

1. T : Type
2. L_1 : T List
3. L_2 : T List
4. L : T List
5. x : T
6. $\forall i, j{:}\mathbb{N}.\ (i < \|L\|) \Rightarrow (j < \|L\|) \Rightarrow (\neg(i = j)) \Rightarrow (\neg(L[i] = L[j]))$
7. f_1 : $\{0..\|L_1 \ @\ [x]\|^-\}\rightarrow\{0..\|L\|^-\}$
8. increasing(f_1;$\|L_1 \ @\ [x]\|$)
9. $\forall j{:}\{0..\|L_1 \ @\ [x]\|^-\}.\ (L_1 \ @\ [x])[j] = L[(f_1(j))]$
10. f : $\{0..(\|L_2\|+1)^-\}\rightarrow\{0..\|L\|^-\}$
11. increasing(f;$\|L_2\|+1$)
12. $\forall j{:}\{0..(\|L_2\|+1)^-\}.\ [x\ /\ L_2][j] = L[(f(j))]$
13. $\|L_1 \ @\ [x\ /\ L_2]\| = \|L_1\|+\|L_2\|+1$
14. $\|[]\| \geq 0$
15. f_2 : $\{0..\|L_1 \ @\ [x\ /\ L_2]\|^-\}\rightarrow\{0..\|L\|^-\}$

$\vdash$ (increasing(f_2;$\|L_1 \ @\ [x\ /\ L_2]\|$)
& ($\forall j{:}\{0..\|L_1 \ @\ [x\ /\ L_2]\|^-\}.\ (L_1 \ @\ [x\ /\ L_2])[j] = L[(f_2(j))]$))
$\in \mathbb{P}$
by (Auto_aux (first_nat 1:n) ((first_nat 2:n),(first_nat 3:n)) (first_tok SupInf:t
) inil_term)

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http://www.nuprl.org/FDLcontent/p0_963683_/p122_84469_{append_overlapping_sublists}1_2_3.html