Inference at $*$ 1 1 1 1
of proof for Lemma inv_image_ind_a:

1. T : Type
2. r : $T \to T \to \mathbb{P}$
3. S : Type
4. f : $S \to T$
5. WellFnd{i}(T;x,y.$r(x,y)$)
6. P : $S \to \mathbb{P}$
7. $\forall j{:}S.\ (\forall k{:}S.\ r(f(k),f(j)) \Rightarrow P(k)) \Rightarrow P(j)$
8. S
9. j : T
10. $\forall k{:}T.\ r(k,j) \Rightarrow (\forall y{:}S.\ (f(y) = k) \Rightarrow P(y))$
11. y : S
12. $f(y) = j$

$\vdash P(y)$

by ((% Establish inductive hypothesis %
Assert $\forall y'{:}S.\ r(f(y'),f(y)) \Rightarrow P(y')$

CollapseTHEN (IfLabL
[‘main‘,OnHyps [12;10;9;8] Thin % cleanup %
;‘assertion‘,
((RepD)
CollapseTHENA ((Auto_aux (first_nat 1:n) ((first_nat 1:n),(first_nat 3:n
)) (first_tok :t) inil_term)))·]))·

1:

13. y' : S
14. $r(f(y'),f(y))$

$\vdash P(y')$

2:

8. y : S
9. $\forall y'{:}S.\ r(f(y'),f(y)) \Rightarrow P(y')$

$\vdash P(y)$

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http://www.nuprl.org/FDLcontent/p0_942988_/p121_96986_{inv_image_ind_a}1_1_1_1.html