

Inference at *
of proof for Lemma p-fun-exp-add-sq:

$\vdash \forall A:\text{Type}, f:(A \rightarrow (A + \text{Top})), x:A, m, n:\mathbb{N}.$
 $(\uparrow \text{can-apply}(f^{\wedge} m;x)) \Rightarrow ((f^{\wedge} n+m(x)) \sim (f^{\wedge} n(\text{do-apply}(f^{\wedge} m;x))))$
by (InductionOnNat)
CollapseTHEN ((UnivCD)
CollapseTHENA (Auto·)·

1:

1. $A : \text{Type}$
 2. $f : A \rightarrow (A + \text{Top})$
 3. $x : A$
 4. $n : \mathbb{N}$
 5. $\uparrow \text{can-apply}(f^{\wedge} 0;x)$
- $\vdash (f^{\wedge} n+0(x)) \sim (f^{\wedge} n(\text{do-apply}(f^{\wedge} 0;x)))$

2:

1. $A : \text{Type}$
 2. $f : A \rightarrow (A + \text{Top})$
 3. $x : A$
 4. $m : \mathbb{Z}$
 5. $0 < m$
 6. $\forall n:\mathbb{N}. (\uparrow \text{can-apply}(f^{\wedge} m - 1;x)) \Rightarrow ((f^{\wedge} n+(m - 1)(x)) \sim (f^{\wedge} n(\text{do-apply}(f^{\wedge} m - 1;x))))$
 7. $n : \mathbb{N}$
 8. $\uparrow \text{can-apply}(f^{\wedge} m;x)$
- $\vdash (f^{\wedge} n+m(x)) \sim (f^{\wedge} n(\text{do-apply}(f^{\wedge} m;x)))$
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