Inference at $*$ 1
of proof for Lemma integer sqrt:

1. $n : \mathbb{N}$
$\vdash \exists r{:}\mathbb{N}.\ (((r * r) \leq n)\ \&\ (n < ((r{+}1) * (r{+}1))))$
by InteriorProof NatInd 1

1: .....basecase..... NILNIL

(no hyps)
$\vdash \exists r{:}\mathbb{N}.\ (((r * r) \leq 0)\ \&\ (0 < ((r{+}1) * (r{+}1))))$
2: .....upcase..... NILNIL

1. $n : \mathbb{Z}$
2. $0 < n$
3. $\exists r{:}\mathbb{N}.\ (((r * r) \leq (n\ \text{-}\ 1))\ \&\ ((n\ \text{-}\ 1) < ((r{+}1) * (r{+}1))))$
$\vdash \exists r{:}\mathbb{N}.\ (((r * r) \leq n)\ \&\ (n < ((r{+}1) * (r{+}1))))$
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