Inference at $*$ 1 0
of proof for Lemma absval_ubound:

1. i : $\mathbb{Z}$
2. n : $\mathbb{N}$
$\vdash$ ($|i| \leq n$) $\iff$ ((($-n$) $\leq i$) & ($i \leq n$))
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}

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

$\vdash$ 0 $\leq$z $i \in \mathbb{B}$

2: .....wf..... NILNIL

$\vdash$ $\mathbb{B} \in$ Type

3: .....wf..... NILNIL

3. 0 $\leq$z i = tt
$\vdash$ (0 $\leq$z i = tt) $\in \mathbb{P}_1$

4: .....wf..... NILNIL

3. 0 $\leq$z i = tt
$\vdash$ ($\uparrow$0 $\leq$z i) $\in \mathbb{P}_1$

5: .....wf..... NILNIL

3. $0 \le$z $i =$ tt
$\vdash (0 \le i) \in \mathbb{P}_1$
6: .....wf..... NILNIL

3. $0 \le$z $i =$ tt
$\vdash 0 \le$z $i \in \mathbb{B}$
7: .....wf..... NILNIL

3. $0 \le$z $i =$ tt
$\vdash 0 \in \mathbb{Z}$
8: .....wf..... NILNIL

3. $0 \le$z $i =$ tt
$\vdash i \in \mathbb{Z}$
9: .....truecase..... NILNIL

3. $0 \le i$
$\vdash (i \le n) \iff (((\text{-}n) \le i)\ \&\ (i \le n))$
10: .....wf..... NILNIL

3. $0 \le$z $i =$ ff
$\vdash (0 \le$z $i =$ ff$) \in \mathbb{P}_1$
11: .....wf..... NILNIL

3. $0 \le$z $i =$ ff
$\vdash (\uparrow i <$z $0) \in \mathbb{P}_1$
12: .....wf..... NILNIL

3. $0 \le$z $i =$ ff
$\vdash (i < 0) \in \mathbb{P}_1$
13: .....wf..... NILNIL

3. $0 \le$z $i =$ ff
$\vdash (\uparrow(\neg_b 0 \le$z $i)) \in \mathbb{P}_1$
14: .....wf..... NILNIL

3. $0 \le$z $i =$ ff
$\vdash 0 \le$z $i \in \mathbb{B}$
15: .....wf..... NILNIL

3. $0 \le$z $i =$ ff
$\vdash 0 \in \mathbb{Z}$
16: .....wf..... NILNIL

3. $0 \leq$z $i =$ ff
$\vdash i \in \mathbb{Z}$
17: .....antecedent..... NILNIL

3. $0 \leq$z $i =$ ff
$\vdash$ True
18: .....wf..... NILNIL

3. $0 \leq$z $i =$ ff
4. $(\uparrow(\neg_b 0 \leq$z $i)) = (\uparrow i <$z $0)$
$\vdash \mathbb{P}_1 = \mathbb{P}_1$
19: .....falsecase..... NILNIL

3. $i < 0$
$\vdash ((\text{-}i) \leq n) \iff (((\text{-}n) \leq i)\ \&\ (i \leq n))$
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