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

1. $x$ : $\mathbb{Z}$
2. $y$ : $\mathbb{Z}$
$\vdash$ (if 0 $\leq$z $x$ then $x$ else -$x$ fi = if 0 $\leq$z $y$ then $y$ else -$y$ fi ) $\iff$ $x$ = $\pm$ $y$
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 $x$ $\in$ $\mathbb{B}$

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

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

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

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

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

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

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

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

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

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

3. $0 \leq$z $x$ = tt
$\vdash x \in \mathbb{Z}$
9:

3. $0 \leq x$
$\vdash$ (if tt then $x$ else -$x$ fi = if 0 $\leq$z $y$ then $y$ else -$y$ fi ) $\iff x = \pm\, y$
10: .....wf..... NILNIL

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

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

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

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

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

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

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

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

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

3. $x < 0$
$\vdash$ (if ff then $x$ else -$x$ fi = if 0 $\leq$z $y$ then $y$ else -$y$ fi ) $\iff x = \pm\ y$
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