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

1. x : $\mathbb{Z}$
$\vdash$ if 0 $\leq$z x then x else -x fi $\in \mathbb{N}$
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 $x \in \mathbb{B}$
2: .....wf..... NILNIL

$\vdash \mathbb{B} \in$ Type
3: .....wf..... NILNIL

2. 0 $\leq$z x = tt
$\vdash$ (0 $\leq$z x = tt) $\in \mathbb{P}_1$
4: .....wf..... NILNIL

2. 0 $\leq$z x = tt
$\vdash$ ($\uparrow$0 $\leq$z x) $\in \mathbb{P}_1$
5: .....wf..... NILNIL

2. $0 \leq$z $x =$ tt
$\vdash (0 \leq x) \in \mathbb{P}_1$
6: .....wf..... NILNIL

2. $0 \leq$z $x =$ tt
$\vdash 0 \leq$z $x \in \mathbb{B}$
7: .....wf..... NILNIL

2. $0 \leq$z $x =$ tt
$\vdash 0 \in \mathbb{Z}$
8: .....wf..... NILNIL

2. $0 \leq$z $x =$ tt
$\vdash x \in \mathbb{Z}$
9:

2. $0 \leq x$
$\vdash$ if tt then x else -x fi $\in \mathbb{N}$
10: .....wf..... NILNIL

2. $0 \leq$z $x =$ ff
$\vdash (0 \leq$z $x =$ ff$) \in \mathbb{P}_1$
11: .....wf..... NILNIL

2. $0 \leq$z $x =$ ff
$\vdash (\uparrow x <$z $0) \in \mathbb{P}_1$
12: .....wf..... NILNIL

2. $0 \leq$z $x =$ ff
$\vdash (x < 0) \in \mathbb{P}_1$
13: .....wf..... NILNIL

2. $0 \leq$z $x =$ ff
$\vdash (\uparrow(\neg_b 0 \leq$z $x)) \in \mathbb{P}_1$
14: .....wf..... NILNIL

2. $0 \leq$z $x =$ ff
$\vdash 0 \leq$z $x \in \mathbb{B}$
15: .....wf..... NILNIL

2. $0 \leq$z $x =$ ff
$\vdash 0 \in \mathbb{Z}$
16: .....wf..... NILNIL

2. $0 \leq$z $x =$ ff

$\vdash x \in \mathbb{Z}$
17: .....antecedent..... NILNIL

2. $0 \leq$z $x =$ ff
$\vdash$ True
18: .....wf..... NILNIL

2. $0 \leq$z $x =$ ff
3. $(\uparrow(\neg_b 0 \leq$z $x)) = (\uparrow x <$z $0)$
$\vdash \mathbb{P}_1 = \mathbb{P}_1$
19:

2. $x < 0$
$\vdash$ if ff then x else -x fi $\in \mathbb{N}$
.