

Evaluation Rules: $\boxed{e \Downarrow (v, \ell)}$

$$[\text{B-VALUE}] \quad \frac{}{v \Downarrow (v, \text{L})}$$

$$[\text{B-SECRET}] \quad \frac{e \Downarrow (v, \ell)}{\text{secret } e \Downarrow (v, \text{H})}$$

$$[\text{B-IFTRUE}] \quad \frac{e_1 \Downarrow (\text{true}, \ell_1) \quad e_2 \Downarrow (v, \ell_2)}{\text{if } e_1 \text{ then } e_2 \text{ else } e_3 \Downarrow (v, \ell_1 \sqcup \ell_2)}$$

$$[\text{B-IFFALSE}] \quad \frac{e_1 \Downarrow (\text{false}, \ell_1) \quad e_3 \Downarrow (v, \ell_3)}{\text{if } e_1 \text{ then } e_2 \text{ else } e_3 \Downarrow (v, \ell_1 \sqcup \ell_3)}$$

$$[\text{B-SUCC}] \quad \frac{e \Downarrow (i, \ell)}{\text{succ } e \Downarrow (i + 1, \ell)}$$

$$[\text{B-PRED}] \quad \frac{e \Downarrow (i, \ell)}{\text{pred } e \Downarrow (i - 1, \ell)}$$

Figure 1: Big-step semantics for BoolInt* with information flow