$$\frac{\{X=0\} \vdash X \Downarrow 0 \quad \{X=0\} \vdash 0 \Downarrow 0}{\{X=0\} \vdash X > 0 \Downarrow false}$$

E-whileFalse

$$\frac{\{X=1\} \vdash X \Downarrow 1 \quad \{X=1\} \vdash 1 \Downarrow 1}{\{X=1\} \vdash X-1 \Downarrow 0}$$

$$X := X-1 \text{ changes } \{X=1\} \text{ to } \{X=0\} \quad \text{E-Assign}$$

while $X > 0$ do $X := X-1$ changes $\{X=0\}$ to $\{X=0\}$

E-while True

$$\frac{\{X=1\} \vdash X \Downarrow 1 \quad \{X=1\} \vdash 0 \Downarrow 0}{\{X=1\} \vdash X > 0 \Downarrow true}$$

$$\frac{\{X=2\} \vdash X \Downarrow 2 \quad \{X=2\} \vdash 1 \Downarrow 1}{\{X=2\} \vdash X-1 \Downarrow 1}$$

$$X := X-1 \text{ changes } \{X=2\} \text{ to } \{X=1\} \quad \text{E-Assign}$$

while $X > 0$ do $X := X-1$ changes $\{X=1\}$ to $\{X=0\}$

E-whileTrue

$$\frac{\{X=2\} \vdash X \Downarrow 2 \quad \{X=2\} \vdash 0 \Downarrow 0}{\{X=2\} \vdash X > 0 \Downarrow true}$$

while $X > 0$ do $X := X-1$ changes $\{X=2\}$ to $\{X=0\}$