Da semántica a for $x := a_1$ to a_2 do S para que sea equivalente a begin var $z := a2$; $x := a1$; while $(x \leq z)$ do $(S; x := x+1)$ end con $z \notin FV(S)$

$$[for^{tt}] \quad \frac{\langle x := a_1, s[z \mapsto \mathcal{A}[\![a_2]\!] s] \rangle \to s', \langle S, s' \rangle \to s'', \langle \text{for } x := x+1 \text{ to } \mathcal{N}^{-1}(\mathcal{A}[\![a_2]\!] s) \text{ do } S, s'' \rangle \to s'''}{\langle \text{for } x := a_1 \text{ to } a_2 \text{ do } S, s \rangle \to s'''[z \mapsto s\, z]}$$

cuando $\mathcal{B}[\![x \leq \mathcal{N}^{-1}(\mathcal{A}[\![a_2]\!] s)]\!] s' = tt$

$$[for^{ff}] \quad \frac{\langle x := a_1, s[z \mapsto \mathcal{A}[\![a_2]\!] s] \rangle \to s'}{\langle \text{for } x := a_1 \text{ to } a_2 \text{ do } S, s \rangle \to s'[z \mapsto s\, z]}$$

cuando $\mathcal{B}[\![x > \mathcal{N}^{-1}(\mathcal{A}[\![a_2]\!] s)]\!] s' = ff$.

---

si $\mathcal{B}[\![x \leq z]\!] s'' = tt$

$$[for^{tt}] \quad \frac{\langle z := a_2, s \rangle \to s', \langle x := a_1, s' \rangle \to s'', \langle S, s'' \rangle \to s''', \langle \text{for } x := x+1 \text{ to } \mathcal{N}^{-1}(\mathcal{A}[\![a_2]\!] s) \text{ do } S, s''' \rangle \to s^{iv}}{\langle \text{for } x := a_1 \text{ to } a_2 \text{ do } S, s \rangle \to s^{iv}[z \to s\, z]}$$

$$[for^{ff}] \quad \frac{\langle z := a_2, s \rangle \to s', \langle x := a_1, s' \rangle \to s''}{\langle \text{for } x := a_1 \text{ to } a_2 \text{ do } S, s \rangle \to s''[z \to s\, z]}$$

si $\mathcal{B}[\![x \leq z]\!] s'' = ff$