$$\dfrac{\text{——— A ———} \qquad \dfrac{\dfrac{\rho_2(f) = \forall\alpha,\ \text{int} \to \text{int}}{\rho_2 \vdash \text{f} : \text{int} \to \text{int}}\,(p3) \qquad \dfrac{}{\rho_2 \vdash 20 : \text{int}}\,(p1)}{\rho_2[f \mapsto \forall\alpha,\ \text{int}{\to}\text{int}] \vdash \text{f 20} : \text{int}}\,(p9)}{[] \vdash \text{let f x} = \text{if x} < 10 \text{ then 42 else f(x+1) in f 20 end} : \text{int}}\,(p8)$$

A:

$$\dfrac{\dfrac{\dfrac{\rho_1(x) = \forall.\ \text{int}}{\rho_1 \vdash \text{x} : \text{int}}\,(p3) \qquad \dfrac{}{\rho_1 \vdash 10 : \text{int}}\,(p1)}{\rho_1 \vdash \text{x} < 10 : \text{bool}}\,(p5) \qquad \dfrac{}{\rho_1 \vdash 42 : \text{int}}\,(p1) \qquad \text{——— B———}}{\rho_1[x \mapsto \text{int}, f \mapsto \text{int} \to \text{int}] \vdash \text{if x} < 10 \text{ then 42 else f(x+1)} : \text{int}}\,(p7)$$

B:

$$\dfrac{\dfrac{\rho_1(f) = \forall\alpha,\ \text{int} \to \text{int}}{\rho_1 \vdash \text{f} : \text{int} \to \text{int}}\,(p3) \qquad \dfrac{\dfrac{\rho_1(x) = \forall.int}{\rho_1 \vdash \text{x} : \text{int}}\,(p3) \qquad \dfrac{}{\rho_1 \vdash 1 : \text{int}}\,(p1)}{\rho_1 \vdash \text{x+1} : \text{int}}\,(p4)}{\rho_1 \vdash \text{f(x+1)} : \text{int}}\,(p9)$$