Here is a procedure applied to an argument.
\[
\langle x: \text{int} \rightarrow a := x. \ b := x \rangle \ (a+1)
\]
Suppose, by mistake, we replace both occurrences of \( x \) in the body with the argument. What do we get? What should we get? (This mistake is known as “call-by-name”.)

§
\[
\langle x: \text{int} \rightarrow a := x. \ b := x \rangle \ (a+1)
\]
as directed, replace both occurrences of \( x \)
\[
\equiv a := a+1. \ b := a+1
\]
\[
\equiv a' = a+1 \land b' = a+2
\]
On page 39, Exercise 110(k) says that it is a mistake to replace the \( x \) after the composition. Here’s what we should get.
\[
\langle x: \text{int} \rightarrow a := x. \ b := x \rangle \ (a+1)
\]
\[
\equiv \langle x: \text{int} \rightarrow a' = x \land b' = b. \ a' = a \land b' = x \rangle \ (a+1)
\]
\[
\equiv \langle x: \text{int} \rightarrow \exists a'', b'. \ a'' = x \land b'' = b \land a' = a'' \land b' = x \rangle \ (a+1)
\]
\[
\equiv \langle x: \text{int} \rightarrow a' = b' = x \rangle \ (a+1)
\]
\[
\equiv a' = b' = a+1
\]