

Specifying the Behavior of Expressions

Exercise 3.1

$\lfloor (\text{value-of } \langle\langle x \rangle\rangle \rho) \rfloor = 10$

$\lfloor (\text{value-of } \langle\langle 3 \rangle\rangle \rho) \rfloor = 3$

$\lfloor (\text{value-of } \langle\langle v \rangle\rangle \rho) \rfloor = 5$

$\lfloor (\text{value-of } \langle\langle i \rangle\rangle \rho) \rfloor = 1$

Exercise 3.2

A $val \in ExpVal$ must be that which is in $Int + Bool$. Then a $val \in ExpVal$ for which $\lfloor [val] \rfloor \neq val$ is where $val \in Bool$, such as $val = true$.

Exercise 3.3

We are able to describe the arithmetic operations in terms of subtraction. We cannot do so if we chose addition.

Exercise 3.4

Let $\rho = [x=[33], y=[22]]$.

$$\frac{(\text{value-of } \langle\langle \text{if zero? } \quad (-(x, 11)) \text{ then } -(y, 2) \text{ else } -(y, 4) \rangle\rangle \rho)}{(\text{value-of})}$$