Name Solutions

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6.s081 Spring 2018 Miniquiz #10 5 Minutes

1. We are defining a language that features the `&=` statement, which returns the address of a variable on the right hand side and sets it as the value for the variable on the left hand side. Write the inference rule for

`(σ, h, x &= y)`

$$\frac{\sigma(y) = a \quad \sigma[x:a'] = \sigma' \quad h[a':a] = h' \quad \neg(a' \in \mathrm{dom}(h))}{(\sigma, h, x \;\&= y) \rightarrow (\sigma', h')}$$

2. The language we're defining also features the `%e` operator, which casts the integer expression `e` to a boolean with value `true` if `e` is even and value `false` if `e` is odd. Write the inference rules for

`(σ, h, %e)`

$$\frac{(\sigma, h, e) \rightarrow \mathrm{Integer}(n) \quad \mathrm{mod}(n, 2) \rightarrow 0}{(\sigma, h, \%e) \rightarrow \mathrm{Bool}(\mathrm{True})}$$

$$\frac{(\sigma, h, e) \rightarrow \mathrm{Integer}(n) \quad \mathrm{mod}(n, 2) \rightarrow 1}{(\sigma, h, \%e) \rightarrow \mathrm{Bool}(\mathrm{False})}$$