Comp105-HW5

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1 Problem 46

1.1 a

$$\frac{< \rho, \rho\{x- > l\}, \sigma\{l- > unspecified\} >< v, \sigma' >}{< val(x, e), \rho, \sigma >< p\{x- > d\}, \sigma'\{l- > v\}>}\text{Define Global}$$

1.2 b

```
(val x = 10)
(define f-val ()
(val x (lambda (n)
(if (= n 0)
0
(- 1 (x 1))
)
))
)
```

if the code uses the regular one this will not crash, if it is using the modified one it will. This is because calling x within itself in this manner will create a problem where the memory of the system will fill up with new locations for x before it can process anything.

1.3 c

Using val the way it's implemented makes coding easier as values can be assigned to recursive functions. as this is a core part of microscheme it is especially important for it. if we were to use impcore this would be less of an issue as they isolate set in a way that makes the new implimentation viable.