46. a. $$\frac{l \notin dom\ \sigma \qquad \langle e, \rho\{x \mapsto l\}, \sigma\{l \to unspecified\} \rangle \Downarrow \langle v, \sigma' \rangle}{\langle val\ (x, e), \rho, \sigma \rangle \to \langle \rho\{x \mapsto l\}, \sigma'\{l \to v\} \rangle}$$ (define global)

b.
```
(val x 1)
(define newsemcheck ()
    (if (not (=x 1))
        'Schene semantics
        'New semantics))
(val x 2)
(newsemcheck)
```

c. In new semantics, once x is defined, its definition is final since there is no define old global in the new semantics. Thus, in the New semantics, once x is altered before newsemcheck is called, the change is not recorded and x = 1. In Schene semantics, the value associated with global x will be updated before newsemcheck is called.

I prefer Scheme semantics. It is more intuitive that globals get updated when they do and the new semantics can cause headaches since it is hard to pinpoint what global define decided the value associated with the var. Future val definitions are trivial in new sem, while they ~~are~~ have a purpose in Scheme which is again, more intuitive.