**PPL 4**

1. 1.First will do renaming.

|  |  |
| --- | --- |
|  |  |
| ((lambda (x1 y1) (if (> x1 y1) #t #f)) 8 3) | T0 |
| (lambda (x1 y1) (if (> x1 y1) #t #f)) | T1 |
|  | T2 |
|  | T3 |
|  |  |
|  |  |
|  |  |

2) a. {f:[T1->T2], x: T1} |- (f x)}: T2 -- Correct

b. {f:[T1->T2],g: [T2->T3]}, x: T2}|- (f g x): T3 – Wrong – number of parameters for f is incorrect

c. {f:[T2->T1],g: [T1->T2], x: T1}|- (f (g x)): T1 – Correct

d. {f:[T2->Number],, x: Number}|- (f x x): Number -- Wrong – number of parameters for f is incorrect

3) cons – [ T1 \* T2 -> Pair(T1, T2) ]

car - [ Pair(T1, T2) -> T1 ]

cdr – [ Pair(T1, T2) -> T2 ]

4) (Define f (lambda (x) (values x x x))) -> [ T1 -> (T1 \* T1 \* T1) ]

5) a. T1 = T2

b. There are no restrictions so basically the MGU is nothing – there are no restrictions.

c. T1 = [