```
let
  a = proc (int x, ?y)
     if (y x) then +(x, 1)
     else +(x, 3)

  b = proc (?n, ?m, ?o, ?p)
     if (p m) then (n m o)
     else (n *(m, 3) o)

  c = proc (int q)
     zero?(q)

  d = 3
in
  let
    t = proc (?f, ?g, ?z, ?w)
       (f g w z z)
    in
       (t b a c d)
```

$t_a = int \times (int \to bool) \to int$

$t_x = int$

$t_y = int \to bool$

$t_b =$ (int*(int->bool)-int)*int* (int->bool)*(int->bool) -> int

$t_n = int \times (int \to bool)) \to int$

$t_m = int$

$t_o = int \to bool$

$t_p = int \to bool$

$t_c = int \to bool$

$t_q = int$

$t_d = int$

$t_t =$ ((int*(int->bool)-int)*int* (int->bool)*(int->bool) -> int)* (int*(int->bool)->int)*(int->*int) -> int

$t_f =$ (int*(int->bool)-int)*int* (int->bool)*(int->bool) -> int

$t_g = int \times (int \to bool)) \to int$

$t_z = int \to bool$

$t_w = int$

$t_1 = int$

1)

$t_a = t_x \times t_y \to t_2$

$t_b = t_n \times t_m \times t_o \times t_p \to \boxed{t_3}$

$t_c = t_q \to t_y$

$t_t = t_p \times t_g \times t_z \times t_w \to \boxed{t_1}$

2)

$t_t = t_b \times t_a \times t_c \times t_d \to t_1$

$\boxed{t_f = t_b}$ $\boxed{t_a = t_g}$ $t_c = t_z$ $t_d = t_w$

$zero?(q)$

$int \to bool$

$t_q = int$

$t_y = bool$

$(f \ g \ w \ z \ z)$

$t_f = t_g \times t_w \times t_z \times t_z \to t_3$

$t_f = t_n \times t_m \times t_o \times t_p \to t_3$

$t_g = t_n$ $t_w = t_m$

$t_z = t_o$ $t_z = t_p$ $t_z = t_c$

3) $(y \ x)$

$t_y = t_x \to bool$

$+(x, 1)$ $t_x = int$

$+(x, 3)$ $t_a = int$

$(p \ m)$

$t_p = t_m \to bool$

$(n \ m \ o)$

$t_n \to t_m \times t_o \to t_3$

$\times (m, 3)$ $t_m = int$

$t_n = int \times t_o \to t_3$

$t_1 = t_3$

$t_p = t_b$