

Step	Expression	New Constraint	Unification Results
1	$\lambda x y \rightarrow \text{if } y == 0 \text{ then } y \text{ else False}$	*Update Typing Environment	
2	$\lambda x y \rightarrow \text{if } y == 0 \text{ then } y \text{ else False}$	$t_3 = \text{Bool}, t_4 = t_2, t_5 = t_2$	$t_3 = \text{Bool}, t_2 = t_4 = t_5$ ✓
3	$\lambda x y \rightarrow \text{if } y == 0 \text{ then } y \text{ else False}$	$t_6 = t_7 \rightarrow t_8 \rightarrow t_3$	$t_6 = t_7 \rightarrow t_8 \rightarrow t_3, t_3 = \text{Bool}, t_2 = t_4 = t_5$ ✓
4	$\lambda x y \rightarrow \text{if } y == 0 \text{ then } y \text{ else False}$	$t_6 = t \rightarrow t \rightarrow \text{Bool}$	$t_6 = t_7 \rightarrow t_8 \rightarrow t_3, t_3 = \text{Bool}, t_2 = t_4 = t_5, t_7 = t_8$ ✓
5	$\lambda x y \rightarrow \text{if } y == 0 \text{ then } y \text{ else False}$	$t_7 = t_1$	$t_6 = t_7 \rightarrow t_8 \rightarrow t_3, t_3 = \text{Bool}, t_2 = t_4 = t_5, t_7 = t_8 = t_1$ ✓
6	$\lambda x y \rightarrow \text{if } y == 0 \text{ then } y \text{ else False}$	$t_8 = \text{Int}$	$t_6 = t_7 \rightarrow t_8 \rightarrow t_3, t_3 = \text{Bool}, t_2 = t_4 = t_5, t_7 = t_8 = t_1 = \text{Int}$ ✓
7	$\lambda x y \rightarrow \text{if } y == 0 \text{ then } y \text{ else False}$	$t_4 = t_1$	$t_6 = t_7 \rightarrow t_8 \rightarrow t_3, t_3 = \text{Bool}, t_7 = t_8 = t_1 = t_2 = t_4 = t_5 = \text{Int}$ ✓
8	$\lambda x y \rightarrow \text{if } y == 0 \text{ then } y \text{ else False}$	$t_5 = \text{Bool}$	$t_6 = t_7 \rightarrow t_8 \rightarrow t_3, t_3 = \text{Bool}, t_7 = t_8 = t_1 = t_2 = t_4 = t_5 = \text{Int} = \text{Bool}$ ✗

*Typing Environment $\Gamma = \{ x :: t_1 \rightarrow t_2, y :: t_1, (=) :: t \rightarrow t \rightarrow \text{Bool} \}$