

① EVu^x

x

② $EAPP^{xx}$

$EVar$
 α

$EVar$
 x

③ xy^x

$EVar$
 x

$EVar$
 y

④ xyz

$EAPP$
 $EAPP$ $EVar$
 $EVar$ $EVar$ z
 x y

⑤ $(\lambda x.x)$

$EAbs$
 x $EVar$
 x

⑥ $(\lambda x.x)EAPP$

$EApp$
 $EAbs$ $EVar$
 x α x

⑦ $(\lambda x (\lambda y. xy)) (\lambda x.x) z$

$EApp$
 $EApp$ $EApp$
 $EApp$ $EApp$ $EVar$
 x y z
 $EApp$ $EApp$ $EVar$
 $EApp$ $EVar$ x i

x y x



Part 2 part 2

$$EApp(LEA_5, (1)^{x_1}) (EApp(LEA_6, (1)^{y_1}) (EApp(LEA_7, (1)^{z_1}) (EApp(LEA_8, (1)^{w_1}))))) =$$

$$EAPP(L EAbs (Id^{u_x}) (Eval (Id^{u_x})) (Eval (Id^{u_x})) (Eval (Id^{u_x}))) = 1$$