Magistère d'Informatique et Modélisation

Réériture - TD n°8

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Higher Order Unification

Exercise 1

flexible-rigid

Consider the unification problems :

1. $\lambda x_1 x_2.F(gx_1x_2) = \lambda x_1 x_2.gx_1x_2$,
   where F is a meta variable and g is a constant symbol,
   - by *Imitation*;
   - by *Projection*.
2. $\lambda x_1 x_2.F(gx_1x_2) = \lambda x_1 x_2.g(gx_1x_2)(gx_1x_2)$,
   where F is a meta variable and g is a constant symbol.
3. $\lambda x.F(\lambda y.xya) = \lambda z.z(zaa)$,
   where F is a meta variable,
   - by applying the $\beta\eta$-long form.

Exercise 2

flexible-flexible

Show that one of the solutions of the following unification problem

$$\lambda x_1 x_2.F(gx_1x_2) = \lambda x_1 x_2.g(Gx_1)(Gx_2),$$

is $F \mapsto \lambda y.y$ and $G \mapsto \lambda y.y$. Find other solutions for G.