

Solution to Exercise 1.3

Give the respective sequences of \mathcal{M}_0 instructions for \mathcal{L}_0 query term

$$? - \text{unify}(h(X, f(a)), h(c, f(b)))$$

and \mathcal{L}_0 program term

$$\text{unify}(X, X)$$

and execute the compiled code.

\mathcal{L}_0 query	\mathcal{L}_0 program
(8) $X_1 = \text{unify}(X_2, X_3)$	(1) $X_1 = \text{unify}(X_2, X_2)$
(7) $X_2 = h(X_4, X_5)$	
(6) $X_3 = h(X_6, X_7)$	
(5) $X_5 = f(X_8)$	
(4) $X_6 = c$	
(3) $X_7 = f(X_9)$	
(2) $X_8 = a$	
(1) $X_9 = b$	
(1) put_structure $b/0, X_9$	(1) get_structure $\text{unify}/2, X_1$
(2) put_structure $a/0, X_8$	unify_variable X_2
(3) put_structure $f/1, X_7$	unify_value X_2
set_value X_9	
(4) put_structure $c/0, X_6$	
(5) put_structure $f/1, X_5$	
set_value X_8	
(6) put_structure $h/2, X_3$	
set_value X_6	
set_value X_7	
(7) put_structure $h/2, X_2$	
set_variable X_4	
set_value X_5	
(8) put_structure $\text{unify}/2, X_1$	
set_value X_2	
set_value X_3	

0	STR	1
1	b/0	
2	STR	3
3	a/0	
4	STR	5
5	f/1	
6	STR	1
7	STR	8
8	c/0	
9	STR	10
10	f/1	
11	STR	3
12	STR	13
13	h/2	
14	STR	8
15	STR	5
16	STR	17
17	h/2	
18	REF	18
19	STR	10
20	STR	21
21	u/2	
22	STR	17
23	STR	13

STR 8