

Integrated Logic Systems (Part I)

Prof. Michael Thielscher, Sebastian Voigt

International Master Program in Computational Logic — summer term 2009

17.04.2009

Exercise 1.1

Transform the following L_0 query term into its ordered flattened form (show each step of the transformation):

$$? - a(b(X, c), d(X, e(Y, Y, f(g))))$$

Exercise 1.2

Transform the following L_0 query term into its ordered flattened form and give the sequence of WAM_0 instructions for it:

$$? - p(q(r(A, a), r(b, A)), s(s(A)), t).$$

Execute the compiled code to get a heap representation for this term.

Exercise 1.3

Consider a more efficient heap representation of L_0 query terms q where subterms of q occurring multiple times are represented only once. For example the query $? - p(a, a)$ shall be represented as

0	STR	1
1	a/0	
2	STR	3
3	p/2	
4	STR	1
5	STR	1

- Give a translation method for L_0 query terms to WAM_0 instructions which produce this heap representation.
- Test your translation with the L_0 query terms

$$? - p(f(a), g(f(a))) \text{ and}$$

$$? - p(f(X, g(a)), f(a, g(X)), f(X, g(a))).$$