Knowledge Representation

Assignment 1

Prolog Genesis : Tree searches and lists

Samy Aittahar

DATE: *4th December 2017*

1. PRATICAL INFORMATIONS

- Teaching Assistant : Samy Aittahar ;
- saittahar@uliege.ac.be, office I-?? (Montefiore Institute, 1st floor) ;
- Format : First course will consist on short talk, interactive exercises and homework. Following will be similar, without exercises.

2. DRAWING SOME SEARCH TREES

Given the program in A, draw the search tree for the following queries :

- has_killed(X,Y), father(Y,X).
- templar(X), has_killed(Y,X).

Draw also the search trees for the following predicates :

- assassin(Y), has_killed(Y,X).
- has_killed(Y,X), assassin(Y).

What can you tell?

3. HOMEWORK

- Write the predicate concat(+L1,+L2,-L3) which succeeds if L3 is the concatenation of lists L1 and L2 (example : concatenation of [a,b] and [c,d] is [a,b,c,d])

- Write the predicate flatten(+L,-L2) which succeeds if L2 is the flat version of L. You should use the concat predicate inside.
  - Be careful about the input/output specifications
  - A flat list of a list contains only the atoms of the latter. For example, [a,b,c,d] is the flatten version of [a,[b,c,[d]]]
- From your predicates, draw the search tree of flatten([[[a]], b],L2).

Homework is expected to be send by email before the 28th of February. Correction will be interactively provided during the following course.

A. PROGRAM

1. assassin(desmund). ;
2. assassin(william). ;
3. assassin(connor). ;
4. assassin(achilles). ;
5. assassin(ezio). ;
6. assassin(altair). ;
7. templar(haytham). ;
8. templar(charles). ;
9. templar(vidic). ;
10. templar(cesare). ;
11. has_killed(desmund, vidic). ;
12. has_killed(connor, haytham). ;
13. has_killed(ezio, cesare). ;
14. father(william, desmund). ;
15. father(haytham, connor). .