Debugging Using Graphical Representations of Probabilistic Logical Programs

Supervision:

Information: Theofrastos Mantadelis
Promoter: Gerda Janssens
Supervision: Theofrastos Mantadelis
Research Group: Declarative Languages and Artificial Intelligence (DTAI)

Context:

Lately we have seen an increase of interest in probabilistic logical programming formulations and systems such as PRISM, ProbLog, MLNs, etc. These systems lack of comprehensive debugging tools. Conventional debugging is applied but does not give any information about the probabilistic nature of the program.

We aim to investigate how the probabilistic nature of such a program should be represented and shown to the programmer to help him find erroneous programs and wrong formulations.

Goal:

The purpose of this thesis is to first investigate possible ways for modelling the execution of probabilistic logical programs. We will use those to provide debugging information and probabilistic model checking. The final goal of the thesis is to implement a debugger for ProbLog.

Work Outline:

1. Part I
   1. Research existing literature.
   2. Choose and motivate a suitable general representation.
   3. Implementation.
2. Part II
   1. Integration with ProbLog.
   2. Investigation of debugging properties.
   3. Implementation of monitored execution.

Relevant Work:


Profile:

Interested in Prolog, machine learning, and graphical representations. Strong programming skills (Java).