Constraint Programming / Programação com Restrições

2nd Assignment

The goal of the project is to implement a simple constraint solver for processing polynomial equality constraints.

From a set of polynomial equality constraints and an initial domains box the constraint solver should identify where the solutions are.

Implementation

A branch-and-prune algorithm must be implemented to maintain a set of boxes consistent with the constraints.

The pruning results from constraint propagation over a set of narrowing functions associated with the constraints.

Each narrowing function narrows the domain of a single variable based on the interval Newton method.

Tests

Tests should be performed on a set of benchmark problems provided by the lecturer (Lecture6.pdf) to understand the capabilities and limitations of the constraint solver to deal with real world problems.

Assessment

The project can be done in a group (max. 3 students) who should present a report with a brief discussion of the options taken in the implementation as well as the experimental results obtained in the set of benchmarks. The report must be sent by email to the lecturer (jcrc@fct.unl.pt) together with the code implemented no later than 18th December 2016.