CENTRO DE CIENCIAS EXATAS E TECNOLOGICAS - CCE

DEPARTAMENTO DE INFORMATICA

REPORT:

COMPARISON BETWEEN SS AND IDA*

Marvin Abisrror Zarate
MSc Student in Computer Science

Levi Henrique Santana de Lelis
(Advisor)

Santiago Franco
(Co-Advisor)

VIÇOSA - MINAS GERAIS
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1 Introduction

The new approach for selecting a subset of heuristics functions for domain-independent planning has two objectives: First, make a selection of heuristics from a large set of heuristics with the goal of reducing the running time of a search algorithm employing the subset functions. Second, find out if the prediction of Stratified Sampling (SS) might be helpful in selecting a subset of heuristics to guide the A* search.

In order to achieve the first objective we present The Greedy Algorithm, which provides a good approximation to the optimal solution of the NP-hard optimization problem [Krause and Golovin, 2012].

In order to achieve the second objective we use the *relative usigned error* to probe the accuracy of the predictions of SS with respect to IDA*. We know that SS does not make even reasonable predictions for the number of nodes expanded by A*. Nevertheless, even though SS produces poor predictions for the number of nodes expanded by A*, we would like to verify whether these predictions can be helpful in selecting a subset of heuristics to guide the A* search.

References

Andreas Krause and Daniel Golovin. Submodular function maximization. *Tractability: Practical Approaches to Hard Problems*, 3:19, 2012.