

# Travel Report

”Grammar-Based Systems” Project

23th February, 2005

## **Travel Details**

### **Destination**

University of Maribor, Maribor–Slovenia

### **Date**

18 to 23 February 2005

### **Visitors**

Pedro Henriques / UM (Portugal)

Maria João Varanda / IPB (Portugal)

### **Travel Purpose**

The main purpose of this visit was to continue the joint work in the bilateral project “Grammar Based Systems” started at Braga last December, as described below.

### **Financial Support / Grant**

Portuguese GRICES and Slovenian Government under a bilateral agreement for joint research projects support (project No. BI-PT/04-06-008).

# Travel Report

## Aims & Objectives

The visit had just one main objective:

- to work in the joint paper *Grammar-based Systems* we began at Braga, taking into account the four items listed as future work in the previous *travel report*.

As usual, we also were willing to take the chance to:

- update the knowledge about the projects undergoing in both Partners' Laboratories (University of Maribor and University of Minho).

## Achievements

The reported working visit was successful, as the above objectives were completely attained:

- Concerning the evolution of the join paper, we reviewed the work done by both teams in the meanwhile, and we started a deep discussion on problems and approaches to programming to solve problems by computer. The outcomes were reported on the new sections of the undergoing paper (herewith enclosed).
- Concerning ongoing projects, as we met just two months ago, we concentrate in the presentation of Marjan's projects during his stay at the US. So the following topics have been discussed:
  - MARS- a MetaModel Recovery System using Grammar Inference. This talk introduced us to the GME - General MetaModel Environment, and to the concept of *Domain Specific Modelling*; it has shown then how the grammar inference techniques (algorithms and tools) can be used to recover the MM given a set of concret models (seen as MM instances).
  - Debugging Domain Specific Languages in Eclipse. An upgrade to Eclipse was introduced, to allow the debugging of DSL that are implemented according to a *source-to-source translation approach*; based on a mapping from DSL code and DSL variables into GPL (the host language) code and GPL variables, the GPL

Debugger (provided by Eclipse) is enhanced to allow also an inspection over the new DSL language.

- **Grammar Inference.** A quick survey of *Brut Force* and *Evolutionary* approaches to extract grammars from a set of programs.
- **Converting Scenarios into State Machines.** Marjan also discussed a bit the possibilities of using GBS techniques (say *Grammatical approach to problem specification* or even *Grammar inference*) to systematically solve that problem of obtaining a state machine from a set of UML Scenarios and vice-versa.

Included in this item, we also listen a talk by Fidel (Pablo Martinez Lopes) on *Type Specialisation*.

We also updated the Project WebPage, and archive the new files in the CVS system prepared by Tomaz and Damjan, as forecasted in Braga.

## Future Work

We will keep the guidelines proposed in the last report.

- search for different case studies or problems in order to define common characteristics that will be used to construct the decision tree
  - to find papers about GBS in the literature and to write the state-of-the-art section (4.1)
  - to search for problems and try to apply the grammar-based approach
  - to define a set of assessment criteria
  - to assess the adequacy of the solutions and identify patterns

## Next Meeting

- Slovenian team will visit Braga in July to attend the GTTSE Summer School (organized by University of Minho). We will take that chance to schedule our next meeting just before or after the SS.