

Travel Report

Project DSLpc

12th June, 2009

Travel Details

Destination

University of Minho,
Braga

Date

8th June - 12th June, 2009

Visitors

Marjan Mernik, University of Maribor (Slovenia)
Matej Črepinšek, University of Maribor (Slovenia)

Travel Purpose

The main purpose for this visit was to going on with the project “Program Comprehension for Domain Specific Languages”.

Financial Support / Grant

This visit was supported by: FCT – Departamento das Relações Europeias, Bilaterais e Multilaterais (previously GRICES)

Travel Report synthesis

Aims & Objectives

The specific objectives for this travel were to:

- discuss and evaluate the results of the first part of the project whose objective is to analyze how much easy is for the user to learn, perceive and evolve DSLs;
- discuss and evaluate the second part of the project whose objective is to adapt and develop PC Tools (usually applied to GPL) for DSLs;
- discuss the link between both parts of the project aiming at identifying the main characteristics of DSLs that can lead the construction of effective PC tools for this class of languages;
- present the actual research topics of both groups;
- write a proposal for a new bilateral project for the next two years, in order to go deeply on topics studied on the actual project.

Achievements

All the objectives listed above, were achieved:

- concerning the first task—the definition and application of questionnaires to compare the comprehension of DSL programs against the GPL counterparts—the results obtained, since the last working visit to Maribor, from the experiments conducted with some case-studies were discussed and conclusions were drawn. The discussion and result analysis was focussed on XAML case study; a new paper describing this experiment was finished and submitted to CoRTA'09.
- concerning the second task, Nuno did a presentation about the new version of Alma applied to a DSL case study—*Karel robot language*. This tool produces two views from a Karel robot program: an operational view, showing the internal representation of the program itself; and another visualization of the effects of the program in the robot state. Our program visualizer and animator, Alma, was successfully adapted to construct program and problem domain visualizations; its interface enable the user to analyze both views simultaneous and synchronously in order to create a mental mapping between each other.

- concerning the third task—the interconnection of both parts of the project—we decided to use similar questionnaires to assess the usability of Alma when applied to Karel programs. The approach that we will follow is based on just one questionnaire and the results will be compared between students using Alma and students without help of visualizations.
- concerning the fourth task, informal discussions took place and Slovenia group did two presentations about their research topics: Matej talked about grammar metrics and Marjan about DSL debuggers.
- concerning the last task, we decided to apply for a new grant for years 2010 and 2011. The topic of the new proposal will be the continuation of current project DSLpc. We would like to extend the current work with more case studies, more extensive evaluation of cognitive dimensions, exploring problem domain visualizations using ontologies and other formalisms.

Project Outcomes

Until the present date:

- we published one paper in CoRTA'08, which was also selected as invited paper for a ComSIS special Issue.
- we submitted two papers to WAPL'09 and one to CoRTA'09.
- a master thesis is being written by Nuno Oliveira .