Formal Methods Technical Report

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***Abstract*—The Calculus of Communicating Systems (CCS) is a young brunch in process calculus introduced by Robin Milner. CCS's theory has promising results in the field of modeling and analysing of reactive systems. Despite CCS's success, there are only few computer tools that are available for modeling and analysis of CCS's theory. This paper is a technical report of an effort to build such a tool. The tool is be able to parse CCS's expressions, it can build LTSs (labelled transition systems) from expressions and it can calculate if two LTS are bisimular by using naive method or by using Fernandez's method. This tool if enough to perform modeling, specification and verification of certain system.**

I. Introduction

This paper is organized in four chapters. The first chapter is devoted to the problem of parsing CCS's expressions and generation of LTS and also discussed some of the choices made during the implementaion. The second chapter discusses the problem of saturation of LTS and implementation details. The third chapter discusses the problem of implementing the two methods for determining bisimilarity between two LTS graphs, the first method is the so called naive method and the second is the method of Fernandez. The forth chapter shows typical examples of modeling, specification and verification of example systems. The first example system is Alternating bit problem and the second one is mutex algorithm defined by Petersen and Hamilton.

The tool is a Java executable jar library with very simple user interface.

II. Parsing and LTS generation

III. Chapter 3

IV. Conclusion

The conclusion goes here.

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