Deployment of contraval (Contract Validator):
(User’s Guide)

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Abstract. This document is a walk through description of the deployment and usage of version 1.0 of contraval. Contraval is a software tool implemented at Newcastle University UK, for validating the logical consistency of contracts conceived as a set of ECA (Event Condition Actions) rules. The ECA rules that represent the contract are written in the EPROMELA language and validating with the SPIN model checker.

1 Introduction

The repository includes several examples located in folders. Each example can be run independently. Let us use the BuyerStoreContract folder which contains the BuyerStoreContract.pml example to explain how to use contraval.

To run the examples you need to have Spin Version 6.1.0 or newer deployed on your local computer. Version of SPIN for Linux, Win and Mac users can be downloaded from the SPIN’s home page [1].

We will assume a Linux machine, but the examples can be run in Win or Mac as well.

1. Copy one of the folders (say BuyerStoreContract) into a folder of your local computer.
2. The folder includes several files:
   – example independent macros: setting.h and BizOperation.h vector.lpr and for.h. These macros implement the business operations added to PROMELA and are used in all examples.
   – BuyerStoreContract.pml and rule.h. These files are example specific. In this example, they contain, respectively, the code for the events involved in the contract and the rules that are triggered by these events.
3. To run the code type:
   
   ```
   $ spin -a BuyerStoreContract.pml
   $ cc -o pan pan.c
   $ pan -a
   ```

4. The BuyerStoreContract.pml model is provided with several LTL formulae. You can edit the file to comment and uncomment them as needed. Keep in mind that SPIN can verify only a single LTL at a time.

   A detailed explanation of the BuyerStoreContract.pml can be found in a technical report ([2]) which is also included in the BuyerStoreContract folder.
2 Implementation

Details about the implementation of contraval and additional case studies can be found in Abubkr Abdelsadiq’s PhD dissertation that originated this work [3].

3 Licence

The contraval tool is released under the Apache License, Version 2.0[4], which is available from Apache’s web pages. Also, you can find a txt copy from our home page [5].

4 Implementation History

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Contributors</th>
<th>Key features</th>
</tr>
</thead>
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<td>1.1</td>
<td>Sep 2012</td>
<td>Abubkr Abdelsadiq</td>
<td>Implementation of macros for the specification of business operations.</td>
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References