

Integrated Operational Semantics Based Compiler Generator

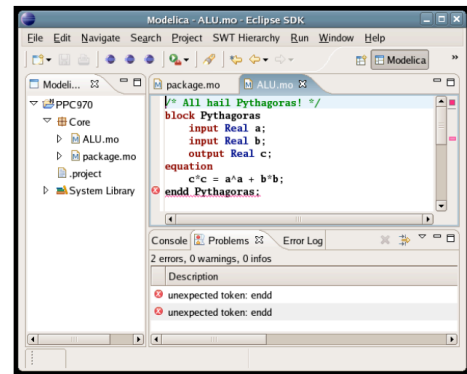
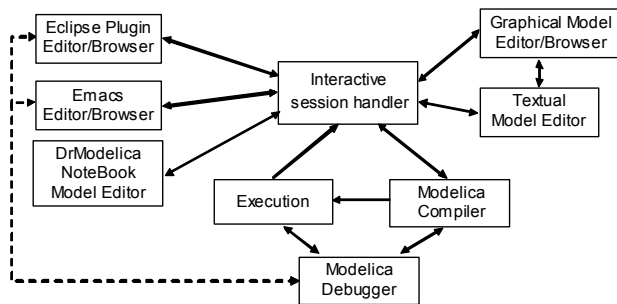
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At PELAB, together with the Open Source Modelica Consortium (an international open source effort supported by 38 organizations, see www.openmodelica.org) the OpenModelica environment including the OpenModelica Compiler (OMC) of the Modelica language including MetaModelica extensions is developed. The development is open source under the OSMC-PL and GNU V3 licenses.

OMCCp [1] is a new generation (not yet released) of the OpenModelica Compiler-Compiler parser generator which contains an LALR(1) parser generator implemented in the MetaModelica language with parsing tables generated by the tools Flex and GNU Bison. It also contains very good error handling and is integrated with the MetaModelica semantics specification language [2].

The goal with this master thesis project is to develop an integrated operational-semantics style parser and frontend to the integrated OMCCp and the MetaModelica compiler generation system. Wizards to help developing typical operational semantics style specifications should be designed and implemented. This will be a new generation operational-semantics style RML system with improvements compared to our previous RML system described in [3] and [4]. Many examples of using operational semantics can be found in [5].



References:

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- [3] Peter Fritzson, Adrian Pop, David Broman, Peter Aronsson. Formal Semantics Based Translator Generation and Tool Development in Practice. In Proceedings of ASWEC 2009 Australian Software Engineering Conference, Gold Coast, Australia, 2009
- [4] RML web page. Relational Meta-Language (RML) and Tools - A System for Developing, Compiling and Debugging and Teaching Structural Operational Semantics (SOS) and Natural Semantics Specifications. <http://www.ida.liu.se/~pelab/rml/>
- [5] Benjamin C. Pierce. Types and Programming Languages. The MIT Press, 2002.