oberon00 user manual

Title	oberon00 (Oberon-0 subset for use as a hardware-software description language)
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Rev. history	
v0.2.0	2014-09-20 Updated for github. Added AUTHORS, LICENSE, README, VERSION. The compiled tables file (oberon00.cgt) has been removed from the distribution.
v0.1.0	2004-10-31 Initial version as submitted to GOLD Parsing System's developer, Devin Cook (Devin@GOLDparser.org). Translated the Oberon-00 EBNF to a regular BNF in the GOLD parser style.

1. Introduction

Oberon-00 is a simple programming language proposed in [Wirth98] as a simple example of a common language that can be used for hardware and software compilation. Such language has been used for experimentation and research (establishing a proof-of-concept) purposes in the field of high-level synthesis (HLS) and as a testbed for hardware-software codesign. Oberon-00 is derived as a hardware-friendly subset of Oberon.

Oberon-00 has been used as a source language for describing simple programs that are mapped by a hardware compiler (namely `hwcomp`) to Xilinx XNF netlist format. `hwcomp` is an implementation of a hardware compiler inspired Wirth's hardware compilation article. The compiler was reportedly written in August 1998. The program is similar to the one described in the article by Niklaus Wirth. It takes a Pascal-esque/Oberon program as input and produces an XNF netlist as an output. The compiler has logic to generate all common operations: `*`, `/`, `-`, `+`, `>=`, `<=`, `<`, `>`, `=`.

The original source of the `hwcomp` project as well as the link to the source code download are now dead:

- http://www.valavan.net/hwcomp.html (DEAD LINK)
- http://www.valavan.net/hwcomp.zip (DEAD LINK)

However, an archived link to the main webpage for this project has been made accessible:

- https://web.archive.org/web/20080130031832/http://valavan.net/hwcomp.html

This package contains both a regular BNF grammar derived from the Oberon-00 EBNF, which can be used within the GOLD parser environment and the original EBNF. It does not contain the `hwcomp` source code itself.

A former version of this file collection can also be downloaded from the GOLD Parsing System's website: http://goldparser.org

2. File listing

The `oberon00` file collection includes the following files:

/oberon00	Top-level directory
AUTHORS	List of authors.
LICENSE	License argeement (Modified BSD license).
README.rst	This file.
README.html	HTML version of README.
README.pdf	PDF version of README.
VERSION	Current version.
first.obr	Example program 1.
log.obr	Example program 2.
minmax.obr	Example program 3.
multiply.obr	Example program 4.
oberon00.grm	The GOLD parser grammar for Oberon-00 [GPS].
oberon00.ebnf	An EBNF for Oberon-00.
second.obr	Example program 5.

3. Usage

Detailed usage details in context of the GOLD Parsing System (previously known as the GOLD Parser Builder) have been left as a TODO.

4. References

[Wirth98] Niklaus Wirth, "Hardware Compilation: Translating Programs into Circuits," IEEE Computer, Vol. 31, No. 6, pp. 25--31, June 1998.

[GPS] Devin Cool, The GOLD Parsing System/Parser Builder, http://www.goldparser.org