The CoCoATEX package

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Papers in computational mathematics often contain a substantial part comprising program code detailing the algorithms presented. How to best evaluate academically such code is not clear. In any case it seems necessary for the code to have the same visibility and accessibility as its companion text. An easy way to achieve this goal is to integrate code and text in the same file.

It is reasonable to suppose that the text is in TEX or LATEX format. The code may be a stand alone program written in a general purpose language (C, C++, java, ...) or more commonly a list of commands/procedure definitions for a specialised system (Maple, Mathematica, ...). The CoCoATEX package deals with the integration between text in LATEX format and code in CoCoAL, the programming language of the CoCoA system. The CoCoAL code is a good test case since the system, notwithstanding its specialization to Commutative Algebra, is flexible enough to be of more general interest. Moreover it has been used frequently to describe algorithms in Computer Algebra papers.

The CoCoATEX package provides a set of LATEX macros and a CoCoAL package that allow the integration of LATEX text and CoCoAL code in a single LATEX file. We can

- extract the code from this file.
- Directly execute the code present in the LATEX file in the CoCoA system processing the LATEX file.
- Process the LATEX file via LATEX in the usual way, the code being shown in the output as if in a verbatim environment.

Bibliography

LATEX See for example the site `http://www.latex-project.org`.

CoCoA CoCoATeam, CoCoA: a system for doing Computations in Commutative Algebra, Available at `http://cocoa.dima.unige.it`.