Could it be possible to replace DERIVE with MAXIMA?

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Lecture Proposal for the TI-Nspire & Derive Strand

ABSTRACT

For about twenty years, a large number of Spanish teachers are using DERIVE in the apprenticeship of mathematical topics in the High Schools and in the Universities. In 1993 the group of "DERIVE users in Spain", was established. This group has been active until 2005.
Many Spanish Universities have included DERIVE system as a support tool in Calculus, Mathematical Analysis and Linear Algebra Courses mainly for Engineering.
Currently, taking into account the commercial situation of DERIVE, we are balancing the possibility to use public domain software like Maxima, and we have done a comparative study of DERIVE and Maxima as support tools in a Calculus course for first year students of Engineering.
The work has been divided in different steps:

1. In the first step a comparative general study (documentation, accessibility, suitability, portability, ease of use, interface, feedback, etc), has been realized.
2. In the second step the practices of Mathematical Analysis of Computer Engineering at the Polytechnic University of Madrid have been carried out during 2009-10 with Maxima. The obtained results (specifically: student's knowledge, satisfaction, marks, etc.) are compared with those of similar practices carried out in previous years with DERIVE.

3. In the third step we take a detailed view over Calculus skills, by solving with Maxima the proposed problems in our text book (*Cálculo I. Teoría y problemas de Análisis Matemático en una variable*) and analyzing the similarities and differences with DERIVE.

The paper will present the results of this study.

Keywords
Derive, Maxima, Calculus for Engineering, Mathematical Software.