WIRIS – Derive, enabling compatibility

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Lecture Proposal for the TI-Nspire & Derive Strand

ABSTRACT

WIRIS is a suite of mathematical tools. WIRIS CAS and WIRIS Desktop are, respectively, the online and offline versions of a CAS with Dynamic Geometry capabilities, 2D and 3D graphics, advanced formulae typesetting, and other mathematical features.

Since Derive was discontinued, some of its users have shown their interest in converting their work into WIRIS. This is particularly the case in those European countries where teachers and students have free access to WIRIS on a national license. In order for migration to be as simple as possible, WIRIS team has been working to offer the possibility of importing Derive files (both .mth and .dfw) into WIRIS format. Since both CAS do not have exactly the same functionalities, WIRIS is being enlarged until including as many of Derive's options as possible. The goal of this project is, in fact, to ease the use of WIRIS by former Derive users, who want to keep having available their favourite features. In time, they will get to appreciate the new capabilities provided by WIRIS.

The strategy used to read Derive files is similar to that of a compiler; after running a pre-processor, a tokenizer and a context-free grammar are used to interpret the instructions, which can then be rewritten in terms of WIRIS functions. Since both CAS are fairly different systems, complete compatibility is not possible. The output of results is done in WIRIS fashion; in particular, formulae typesetting and plot styles are quite different to those of Derive. The results of some algebraic manipulations, such as the simplify() function, may vary. Other aspects have a slightly different behaviour; for instance, numerical functions do not provide exactly the same results. And, because of its design philosophy, WIRIS libraries are very different to Derive's.

In spite of the differences that will remain, it is expected that almost all small pieces of software written in Derive, such as educative resources, calculation examples, and graphical illustrations, will be able to run under WIRIS. Teachers and students will find that migration to WIRIS is reasonably comfortable, amenable to improvements, and achieves a high success rate of teachers previous work reutilization. Furthermore, since WIRIS CAS is an online tool integrated into several Virtual Learning Environments that will enhance the use of their existing work in new contexts.

Observations

This is a work in progress. Initial conversions of Derive files into WIRIS have been successful.