

Long lecture

CATO - a general user interface for CAS

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Often, scientists, engineers, and students apply computer algebra systems only occasionally. Rare usage of grammar and syntax is a big obstacle to them. Therefore, the author proposes a general user interface for many computer algebra systems (currently Maple, Mathematica, Maxima, MuPAD, MuPAD inside MATLAB, and Yacas) named CATO.

The interaction is independent of the used computer algebra system, and CATO implements various concepts for a guided use of computer algebra. Commands with more than one parameter have a two dimensional input structure, parameters being explained and the right kind of separators and brackets are set by CATO. Selecting and adjusting options for commands is always similar. Additionally, the help contains for each command often used paraphrases. Currently, CATO is based on German, but the proposed concept could be easily extended to other languages.

In CATO, commands are combined to packages simplifying the access and selection. Commands may be contained in more than one package, as they might belong to more than one concept. The "definition of a vector", for instance, is contained in both the "definition" and the "linear algebra" package. Accessing the most recently used commands is possible by lists storing the history of command invocations. Users are also able to define such a list as a new package and can export and import these as their own packages.