Maple V Library Reference Manual

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The design and implementation of the Maple system is an on-going project of the Symbolic Com- putation Group at the University of Waterloo in Ontario, Canada. This manual corresponds with version V (roman numeral five) of the Maple system. The on-line help subsystem can be invoked from within a Maple session to view documentation on specific topics. In particular, the command ?updates points the user to documentation updates for each new version of Maple. The Maple project was first conceived in the autumn of 1980, growing out of discussions on the state of symbolic computation at the University of Waterloo. The authors wish to acknowledge many fruitful discussions with colleagues at the University of Waterloo, particularly Morven Gen- tleman, Michael Malcolm, and Frank Tompa. It was recognized in these discussions that none ofthe locaIly-available systems for symbolic computation provided the facilities that should be expected for symbolic computation in modern computing environments. We concluded that since the basic design decisions for the then-current symbolic systems such as ALTRAN, CAMAL, REDUCE, and MACSYMA were based on 1960's computing technology, it would be wise to design a new system "from scratch". Thus we could take advantage of the software engineering technology which had become available

in recent years, as well as drawing from the lessons of experience. Maple's basic features (elementary data structures, Input/output, arithmetic with numbers, and elementary simplification) are coded in a systems programming language for efficiency.