

LambdaTalk

LambdaTalk is a computer program, which is used for introductory courses on algorithmization. It is programmed like a separate parcel of the system VisualWorks/Smalltalk version 7.4, which is free for tuition and research purposes.

In LambdaTalk it is possible to draw visual representation of algorithm. This visual representation allows generating source code usable in standard Smalltalk programming tools. Also, LambdaTalk can run and step this algorithm.

Visual representation is modified colored form of structurogram, where bold lines describes codeblocks (lambda expressions) and thin lines are standard expression separators. LambdaTalk has predefined set of most usable unary, binary and keyword messages. Build-in expression editor is based on derivation tree and automatically highlights receivers and parameters of messages and adds necessary parentheses.

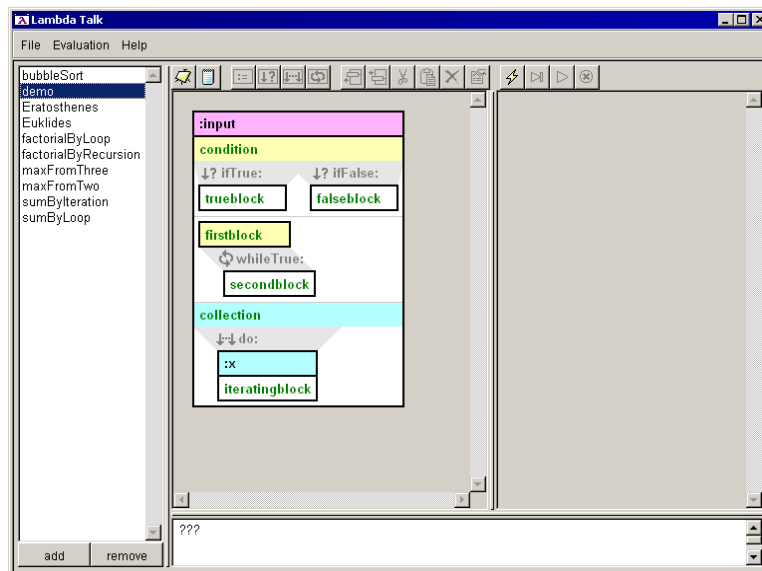


Fig. 1 – basic modeling concepts

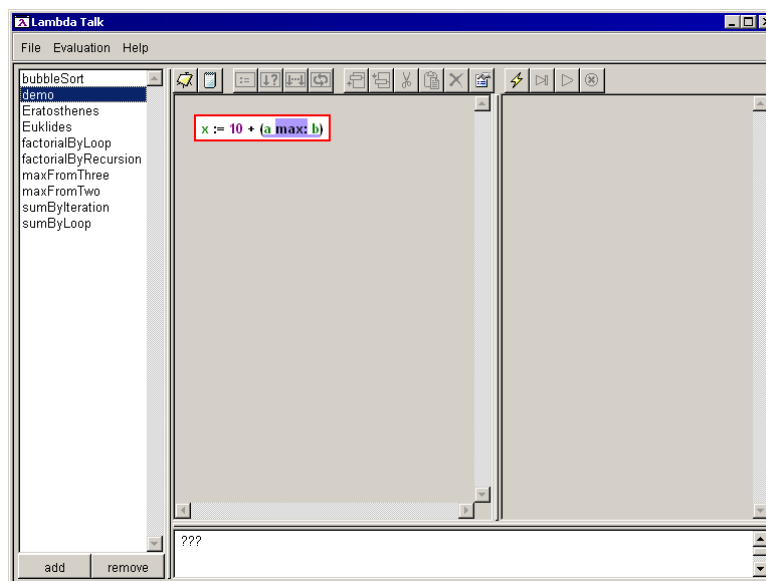


Fig. 2 – Syntax highlighting

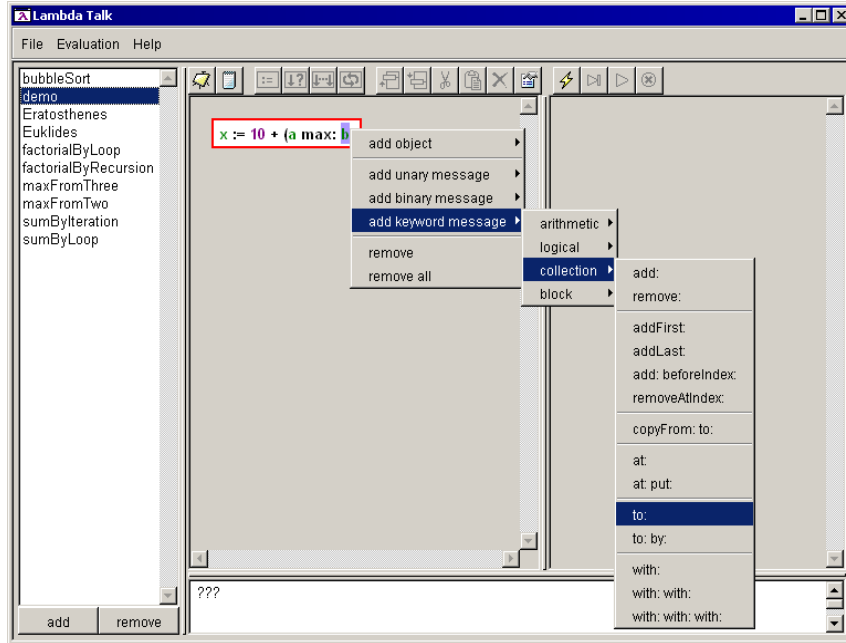


Fig. 3 – predefined set of messages example

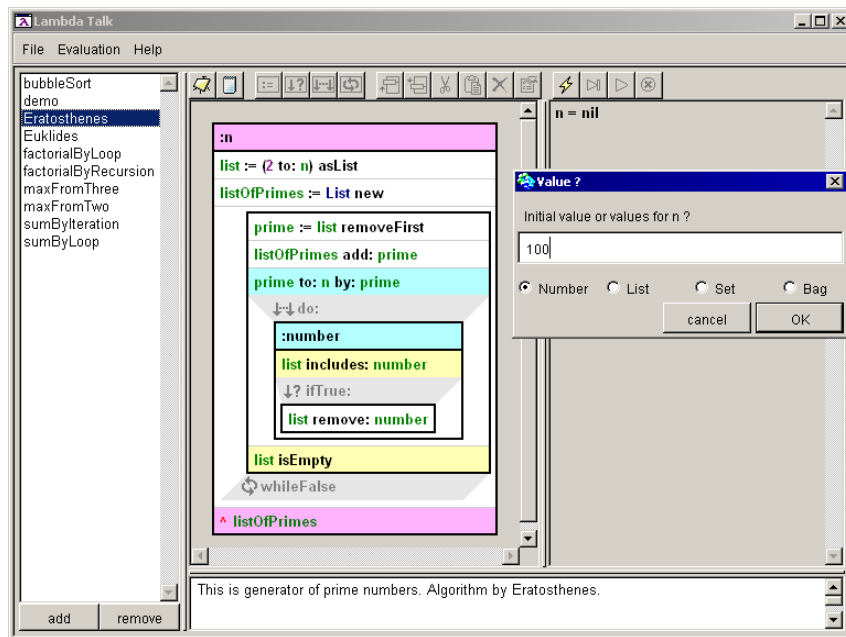


Fig. 4 – simulation start

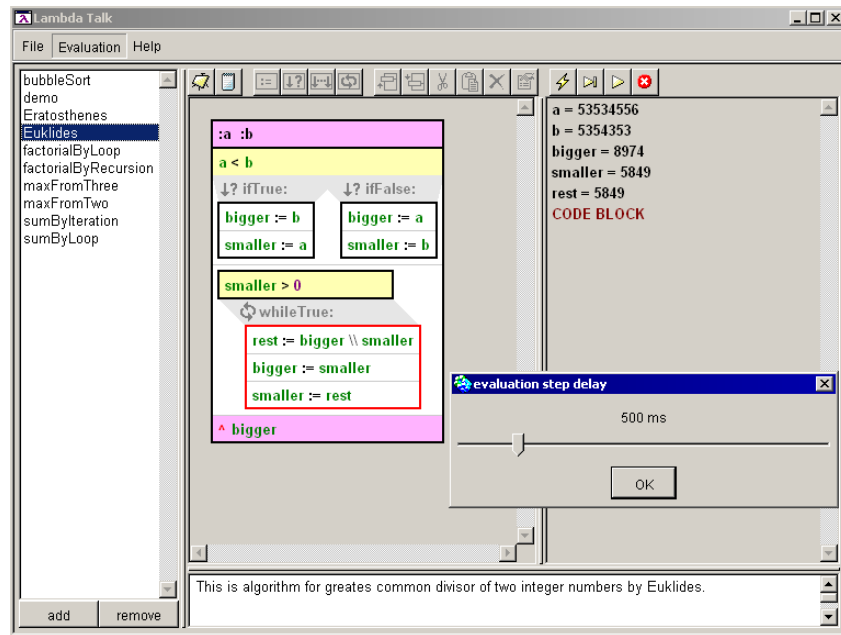


Fig. 5 – simulation run

This software has been used with good student feedback in academic year 2006/2007 IT courses at Czech Technical University in Prague (CTU), Faculty of Electrical Engineering, Dept. of Computer Science and Czech University of Agriculture in Prague (CUA), Faculty of Management, Dept. of Information Engineering.

Daskalos is used as the introductory tool in courses of theoretical fundamentals of programming (Lambda calculus, algorithmization) and OOP (Smalltalk), which have long tradition in the CZ. The author also uses this software for his invited lectures at Lehigh University, Bethlehem PA in the U.S. and University of Thessaly, Greece.

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Version: opensource, freeware, realized as the Parcel of VW7.4NC

Keywords: Smalltalk, OOP education, introductory courses, algorithmization, lambda calculus, visual programming