



M2SCI: Matlab to Scilab conversion tools

Plan

Conversion problem

Method

Current state

Examples

Conversion problem

Matlab/Scilab differences

- Parsing différences
- Nonexistent operators and functions
- Different input/output parameter lists
- Functions leading to different results
- Nonexistent data types

A translator, yes but...

- Syntactic conversion only ?
- Automatic conversion ?
- Which language ?

Solution: « assisted translator »
or « converter »

Method

Nonexistent elements

- Cells: converted using « tlists »
- Structs: converted using « tlists »
- Nonexistent functions: emulation / simple equivalents

Structure

- Conversion kernel
- Functions used to convert operations
- Functions used to convert function calls
- Emulation functions

Kernel

- Main functions: `mfile2sci()` and `translatepaths()`
- Syntactic changes + compilation
- Conversion into tree: `macr2tree()`
- Tree conversion
- Code generation: `tree2code()`

Output files

- Converted file: « myfile.m »
- Scilab equivalent: « myfile.sci »
- Function used to convert calls to the function defined in « myfile.m »:
« sci_myfile.sci »
- Help file: « myfile.cat »
- Log file: « m2sci_myfile.log »

« Possible » user intervention

- Substitution of emulation functions by more efficient code
- Conversion of calls to unknown functions
- Particular comments addition before launching a new conversion:
 %mscideclare
- Tests if possible ?

How to improve M2SCI ?

- Possibility to add user defined conversion functions
- Scilab help chapter: "Matlab to Scilab conversion tips"

Current state

What has been completed

- Conversion kernel dealing with type and dimension inference
- Matlab operations converted to Scilab
- Conversion of most of non-graphics Matlab built-in functions

What has to be done

- Conversion of graphics Matlab built-in functions (under way)
- Tests with conversion of free Matlab toolboxes
- Writing a “Matlab-Scilab equivalents” dictionary (under way):
http://www.scilab.org/product/dic-mat-sci/M2SCI_doc.htm

Example

M2SCI developers

Up to November, 30th, 2004:

Vincent COUVERT (is searching for a new job...)

Since December, 1st, 2004:

Farid BELAHCENE

Email: farid.belahcene@inria.fr