

Library 543 : TreeBrowser

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2. Credits

Thanks to ACO for the HP 49G, Wolfgang Rautenberg for OT49, Eduardo M. Kalinowski for "Programming in System RPL", Mika Heiskanen für BZ and various post from different authors in comp.sys.hp48, without them this program couldn't been written.

3. System Requirements & Installation

3.1. System Requirements

Library 543 : TreeBrowser has been coded and compiled with Debug4x and is written in System RPL. It was tested with ROM 1.22 in RPN-Mode.

TreeBrowser runs on the HP 49G and on the HP 49G+.

Checksum: # 1DA1h

Bytes: 11.253,0

3.2. Installation And Deinstallation

Transfer Library 543 : TreeBrowser to your HP 49G and store it in a port. After a warmstart the library will be attached to {HOME} and is available.

To delete the library either use the FILE MANGER or the command

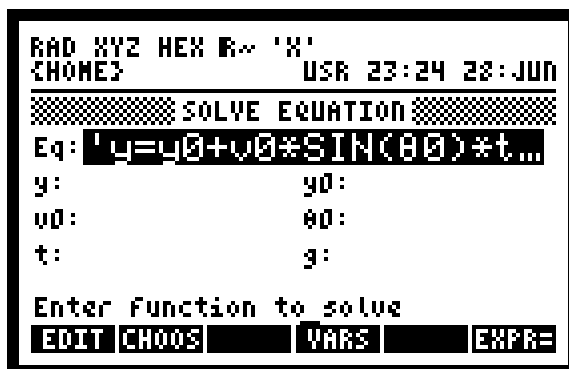
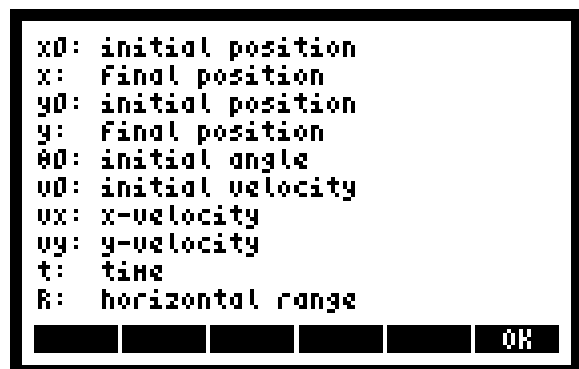
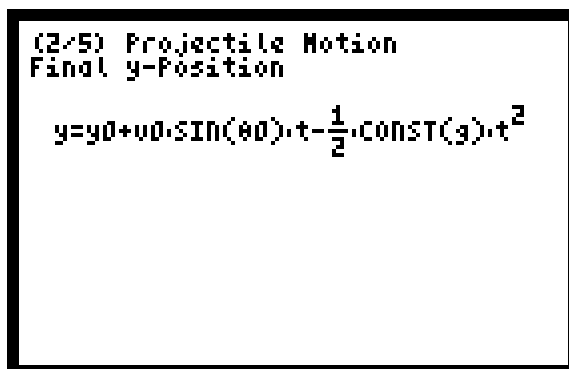
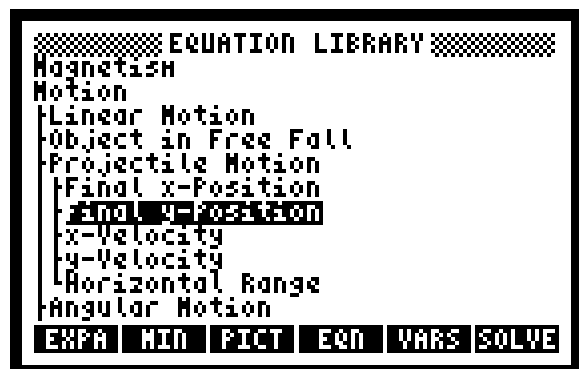
:P#:543 DETACH

:P#:543 PURGE

4. Using The Library

4.1. Overview

TreeBrowser supplies an easy to use graphical environment for collections of formulas and shows them in a tree structure. The equations are passed to the built-in SOLVER of the HP 49G/49G+ for solving.



4.2. Using TreeBrowser

The library itself does not contain any executable command. To use and run TreeBrowser one needs to provide the needed arguments on the stack.

TreeBrowser expects the following arguments on the stack (the arguments are not checked, the user or the program calling TreeBrowser is responsible for providing the correct arguments):

Level 5 { Picture List }	empty list ({ }) if you don't want to provide any pictures
Level 4: { Data List }	The numbers of items
Level 3: { "Variable" "list" "for" "Tree Browser" }	in both lists must be the
Level 2: "Title"	same !
Level 1: Binary Integer (BINZ), a real number or a ZINT which represents the first item to be shown (the first item is numbered as 1)	

One starts the TreeBrowser with ROMPTR 21F 0 or with # 21F000h LIBEVAL.

The arguments for TreeBrowser can be supplied through a directory, a library or a program.

4.3. Example Of A Data Set

{ Data List }

The data structure must at least contain one main level and a level below this one. Below the level which contains the equations are no sub-levels allowed.

The depth of the list(s) and the number of items is only limited by memory and speed of the calculator. The last entry of a sub-level is either an equation or a program which creates an equation. If you provide a program which tests system flag 13 it is possible to have two different appearances of the equation

{ "Variable" "list" "for" "Tree Browser" { "optional" "unitlist" "for" "variables" } }

It is important, that the list of main items and the list of variables contains the same number of entries because the list of variables is used to determine the number of entries TreeBrowser will show!

If one wants to use units the last entry of the variable-list is an extra-list which contains the units as strings as they are keyed in on the command line. If there are units you need a string as a unit for every variable. If one variable has no unit "-" is expected as a placeholder. It is possible to have alternative units, so one can provide SI-Units and English units. In this case one needs exactly twice as much entries as there are variables, the front part of the units-list are SI-Units and the last part are English units.

As a divider between the name of the variable and the description of the variable a double-point (:) or the equal sign (=) is used. If the description of the variable is longer than one line the other lines have to begin with space and as a placeholder in the units-list the nullstring ("") has to be used for this lines.

If you don't want to use a list of variables at all you need at least a list containing as many empty strings { "" "" "" "" "" "" "" "" "" "" ... } as there are entries in the list of main items.

The depth of the list of variables is independent from the depth-levels you provide for your data list but it can't be deeper than the data list, you can provide a different list of variables for each sub-level data list entry, but it is not possible to provide a list of variables below one. If you have a sub-level below, the variable list above will be shown.

{ Picture List }

The structure of the picture list is the same as the structure of the list of variables without the unit-list. If you don't want to provide any pictures at all use an empty list as argument ({ }).

The picture list contains a GROB (Graphics Objects) where a GROB should be shown and the real number 0 (0.) if no picture is shown.

Keep in mind, that you have to provide a list with the same number of entries for the list of variables and/or the picture list as there are entries in the current depth if you want these lists shown together with the current depth.

















This probably sounds quite theoretically so it might be a lot easier to have a look at an example. Examples are shown in the files Variablen.S and Einträge.S which are best viewed if you open the file TestDaten.HPP with Debug4x.





Or, as an alternative, load an existing data-set in your calculator and disassemble it to have a look at it.

4.4. Used Keys








The following key are used by the TreeBrowser.





Keys while the TreeBrowser is active:

-  : opens or closes a tree
-  / : sets or clears flag -13, which can be used for a different appearance of the equation
-  : shows picture (if there is any)
-  : shows the equation if there is something to show and if one is on the lowest level
-  : starts the solver if one is on the lowest level and the equation contains =. System flag 30 controls if the solver of the HP 48SX or the solver of the HP 48GX is used.
-  : starts the Multiple Equation Solver, all equations of the lowest level are grouped together. So the equations should be related by topic to each other if you want usable results (also see user guide of the HP 48GX).
 CONT brings you back to the TreeBrowser.
-  : sets or clears the user flag for using units with SI-Units (user flag 60 and 61)
-  : sets or clears the user flag for using units with English units (user flag 60 and 61)
-  : temporally stops the TreeBrowser and gives access to the normal user stack. One has complete control over the calculator at this point. If an error happens by another program, for example, which is not be covered by TreeBrowser your calculator may crash. The purpose of this functions is to allow simple calculations so that it is not necessary to leave TreeBrowser for this.  CONT brings you back to the TreeBrowser.
-  : starts the solver if the equation contains =
-  : toggles between the way equations are shown, if you provide a program which tests system flag 13 it is possible to have two different appearances of the equation
-  : shows variables (if there are any)
-  : shows picture (if there is any)
-  : ends TreeBrowser

    : arrow keys to navigate or to move the screen.

Keys while an equation is shown:

-  : equation before
-  : copies the current equation to the stack
-  : next equation
-  : toggles between big and small appearance of the equation (changes system flag 80)
-  : leaves the equation view and jumps back to the TreeBrowser
-  : equation before
-  : next equation

    : arrow keys to navigate or to move the screen.

5. Things To Do

For a future release support for Animations is planned. It might be necessary that further arguments are needed to run TreeBrowser.

6. Version History

01.02.04	Version 1.0	First public version
28.06.04	Version 1.1	Added support for showing pictures
22.07.024	Version 1.2	Added support for units and the Multiple Equation Solver.

7. Known Bugs

none (at the moment)