BROWSER

4/26/2023 Larry Msinter: added BROWSERMAX to limit depth of tree, and made left-button on a node on the browser graph offer all formatting / control.

Browser modifies the SHOW PATHS command of MasterScope so that the output of the command is displayed as an undirected graph.
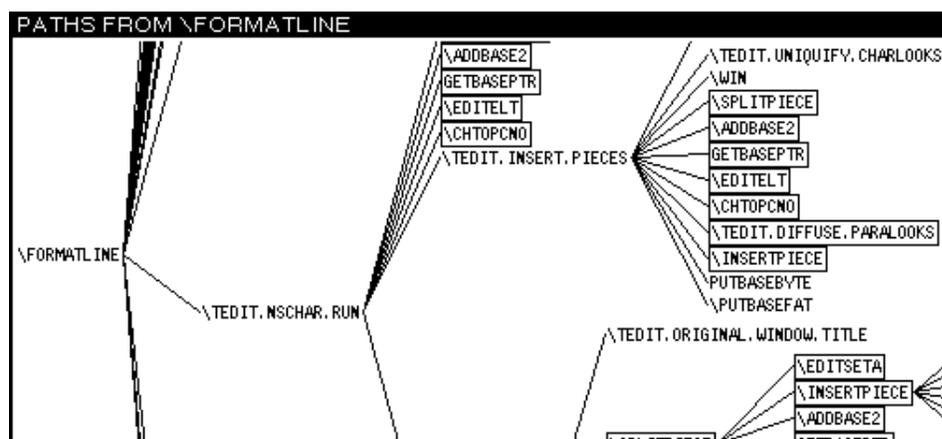
Browser makes it easier to use the MasterScope SHOW PATHS command by making it easier to read the result. This is how SHOW PATHS looks before Browser is loaded:

```
Exec (XCL)
25.
80← FIX
80← %. SHOW PATHS FROM \FORMATLINE

1.\FORMATLINE apply
2.            \SETUPGETCH \TEDIT.TEXTBIN.STRINGSETUP ADDBASE
3.            |                                      UNFOLD
4.            |           \TEDIT.TEXTBIN.FILESETUP UNFOLD
5.            |           |                          \TEDIT.REOPEN.STREAM {a}
6.            |           |                          FOLDLO
7.            |           |                          MOD
8.            |           \SETUPGETCH {2}
9.            |           \CHTOPCNO \EDITELT
10.           |           |         GETBASEPTR
11.           |           |         \ADDBASE2
12.           |           \EDITELT
13.           |           GETBASEPTR
14.           |           \ADDBASE2
15.           |           \TEDIT.APPLY.PARASTYLES apply
16.           |           |                        \TEDIT.CHECK
17.           |           \TEDIT.APPLY.STYLES apply
18.           |                               \TEDIT.CHECK
19.           \EDITSETA
20.           SELCHARQ
21.
81←
```

This shows that FORMATLINE calls SETUPGETCH, which calls EDITELT, etc.

And this is how SHOW PATHS looks after Browser is loaded:

This shows that FORMATLINE calls TEDIT.NSCHAR.RUN, which calls EDITELT, etc. (on another part of the calling tree).

You can reshape or scroll the window to see more of the result.

Requirements

MASTERSCOPE, GRAPHER

Installation

Load `BROWSER.LCOM` and the other required modules from the library.

User Interface

Browser creates a new window for each `SHOW PATHS` command, but will reuse a window if that window has an earlier instance of the same `SHOW PATHS` command displayed in it.

The windows can be reshaped and scrolled with the normal window menu commands (which pop up when the right button is pressed in the window title bar).

The windows are active in the sense that nodes in the graph (i.e., functions) can be selected using the mouse. Clicking with the left button over the name of a function causes a menu to appear with menu items: Display will pretty-printed in the Browser printout window. Describe will describes the function, using the MasterScope `DESCRIBE` command, in the Browser describe window. The Edit menu item will calls the editor on that function. There are two menu items that will show you a new graph rooted at the function selected: CallsFrom and CallsTo.

The Browser graph is not updated automatically when you edit a function; you must give the `SHOW PATHS` command again to see the changes.

Browser Variables

BROWSERFORMAT   [Variable]

Controls the layout of the graph. It is set initially to display the graph horizontally, with the root to the left, and links running left to right.

Example:

BROWSERFORMAT=(VERTICAL REVERSE)

Lays out the graph with the root at the bottom and links running from bottom to top. For more details, see the description of the `LAYOUTGRAPH` function in the GRAPHER Library Module.

BROWSERMAX   [Variable]

Maxumum depth of the graph. Initially 6.

BROWSERBOXING   [Variable]

Controls how duplicate nodes in the graph are displayed. Its initial setting boxes functions that occur more than once in the graph.

Example:

```
BROWSERBOXING = ((MARK BORDER 5) COPIES/ONLY)
```

Boxes copies of the function with a border of 5. For more details, see the description of the `LAYOUTGRAPH` function in the GRAPHER Library Module.

Functions

(BROWSER T) turns the Browser on.

The Browser calls LAYOUTFOREST (in Grapher) to generate a graph showing the calling hierarchy.

SHOWGRAPH displays the graph.

The Browser modification to MasterScope can be undone by calling (BROWSER NIL), restoring the teletype-oriented output of SHOW PATHS.

Limitations

Browser works only with MasterScope.

Examples

Type the following into an Interlisp Exec window:

.ANALYZE ANY ON MY-MODULE

.SHOW PATHS FROM MY-FUNCTION

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