NAME

predictor – predict the feasability of reachability analysis

SYNOPSIS

bcg_open [*bcg_opt*] *spec*[**.bcg**] [*cc_opt*] **predictor**

or:

exp.open [*exp_opt*] *spec*[**.exp**] [*cc_opt*] **predictor**

or:

fsp.open [*fsp_opt*] *spec*[**.lts**] [*cc_opt*] **predictor**

or:

lnt.open [*lnt_opt*] *spec*[**.lnt**] [*cc_opt*] **predictor**

or:

lotos.open [*lotos_opt*] *spec*[**.lotos**] [*cc_opt*] **predictor**

or:

seq.open [*seq_opt*] *spec*[**.seq**] [*cc_opt*] **predictor**

DESCRIPTION

This program gives some predictive estimations concerning the feasability of reachability analysis for the BCG graph *spec***.bcg**, the composition expression *spec***.exp**, the FSP program *spec***.lts**, the LNT program *spec***.lnt**, the LOTOS program *spec***.lotos**, or the sequence file *spec***.seq**. It displays:

- The state size (in bytes). Notice that this size only refers to the "static" part of the state vector; the "dynamic" part (dynamic data structures such as lists, trees, etc.) cannot be taken into account.

- One or several estimations of the amount of memory available on the current machine. If the environment variable **$CADP_MEMORY** (see below) is set, then its value is used. Otherwise, **predictor** invokes an auxiliary program named **cadp_memory** to determine a relevant value or, whenever possible, three values of interest: (1) the amount of free memory currently available, (2) the total amount of memory physically installed on the current machine, and (3) the sum of free memory and free swap currently available.

  Notice that relying on the swap may significantly decrease the performance of model checking algorithms.

  Also, on 32-bit machines or 64-bit machines running processes in 32-bit mode, these estimations take into account the fact that, even if 4 gigabytes of memory are physically available, only a part of it (e.g., 3 gigabytes) can be used by application programs.

- For each estimation of the amount of memory available, an upper bound on the number of states that can be generated exhaustively (e.g., using "standard" CAESAR, OPEN/CAESAR's Generator, etc.). Notice that this number is not merely the quotient of the amount of memory available divided by the state size, because auxiliary data structures must also be considered.

  Notice, however, that this number is only an upper bound, since the amount of memory required for dynamic data types, hash tables, and other data structures, etc., is not taken into account.

Note: the predictor program is not very useful when applied to BCG graphs, since the graph has already been generated.

OPTIONS

The options *bcg_opt*, if any, are passed to **bcg_lib**(LOCAL).

The options *exp_opt*, if any, are passed to **exp.open**(LOCAL).

The options *fsp_opt*, if any, are passed to **fsp.open**(LOCAL).

The options *lnt_opt*, if any, are passed to **lnt.open**(LOCAL).

The options *lotos_opt*, if any, are passed to **caesar**(LOCAL) and to **caesar.adt**(LOCAL).

The options *seq_opt*, if any, are passed to **seq.open**(LOCAL).

The options *cc_opt*, if any, are passed to the C compiler.

ENVIRONMENT VARIABLES

$CADP_MEMORY

If this variable is set, its value gives an estimation of the amount of memory (in kilobytes) that can be allocated by a process on the current machine; if this variable is not set, a default value will be determined automatically. See the **$CADP/INSTALLATION_2** file for details.

EXIT STATUS

Exit status is 0 if everything is alright, 1 otherwise.

DIAGNOSTICS

When the source is erroneous, error messages are issued.

AUTHOR

Hubert Garavel (INRIA Rhone-Alpes)

OPERANDS

spec.**bcg**	BCG graph (input)
spec.**exp**	network of communicating LTSs (input)
spec.**lts**	FSP specification (input)
spec.**lnt**	LNT specification (input)
spec.**lotos**	LOTOS specification (input)
spec.**seq**	sequence file (input)

FILES

The source code of this tool is available in file **$CADP/src/open_caesar/predictor.c**

SEE ALSO

OPEN/CAESAR Reference Manual, **bcg**(LOCAL), **bcg_open**(LOCAL), **caesar**(LOCAL), **caesar.adt**(LOCAL), **exp**(LOCAL), **exp.open**(LOCAL), **fsp.open**(LOCAL), **lnt.open**(LOCAL), **lotos**(LOCAL), **lotos.open**(LOCAL), **seq**(LOCAL), **seq.open**(LOCAL)

Additional information is available from the CADP Web page located at http://cadp.inria.fr

Directives for installation are given in files **$CADP/INSTALLATION_*.**

Recent changes and improvements to this software are reported and commented in file **$CADP/HISTORY.**

BUGS

Please report new bugs to Hubert.Garavel@inria.fr