HCP-ASP

Hybrid Conditional Planner using ASP language.

Requirements

- clingo 4.5
- g++-5
- flex 2.6
- bison 3.0.4
- boost v1.54 [program_options, filesystem, regex, thread, graph, system]

Building Steps

mkdir build && cd build cmake .. make make install

Program Parameters

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Options:
  --h                                   Print this help messages

  --n arg                               Work name
                                                This name will be used in output files.

  --o arg                               Output Directory
                                                Where the ouput files will be located.
                                                If not given it is set to working directory of binary.

  --r arg                               Intermediate Data Directory
                                                Where the intermediate files will be located.
                                                Many number of intermediate files are generated and
                                                   destroyed during process. If available, chose a
                                                   directory reciding in a high speed drive such as SSD.
                                        If --debug flag is present, these files will not be
                                         removed and can be inspected.

  --pl arg                              Domain insight file (*.dif)
                                        Holds necessary information required by HCP-ASP to interpret
                                         and use specific domain.

  --pd arg                              Problem Definition Files (Except Initial State)
                                        Domain files (.lp) are given after this flag.
                                        Can be used multiple times in any order.
                                        Multiple files can be listed after each flag.

  --pi arg                              Problem Initial State File
                                        Special file to indicate initial state fluents.

  --parallel [=arg(=7)]                 Additional parallelism besides Main
                                        Thread and a Worker Thread.
                                        The value is in between [1,Max Cores of System].
                                        Any value outside of this range will be truncated.
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--plan_from_beginning                If set, each branching will be planned from beginning.
                                     This option MUST be set, if your problem has
                                      branch-size (root-to-leaf) constraints and measurements.
                                     Otherwise plans are computed from already computed intermediate
                                      nodes. (intermediate node-to-leaf).
                                     E.g. A rule stating if a single solution size (root-a leaf) exceeds
                                      a certain number N.


--clingo_search_time_window [=arg(=1)]
                                     If optimizations are active, we search
                                     solution in a time window. If it is not
                                     there we are increasing time window to
                                     next level to see if it is there. If
                                     the value is set to 1.Note that in
                                     order to get optimal branches, user has
                                     to provide optimization functions for
                                     plan length.
                                     Mutually Exclusive with --incremental_mode.

--use_invariants                     Use fluent invariants, this will
                                     improve usage of computed solutions.
                                     Used to compute equivalence classes.
                                     MUST be with '--visited_state_level 1'

--incremental_mode                   Should be set if domain uses <incmode>.
                                     MUST when domains are using clingo's incremental mode.

--visited_state_level [=arg(=0)]     0: Visited states are not considered
                                     while planning. (DEFAULT)
                                     A state is re-computed if encountered again..

                                     1: Visited states are considered in
                                     post processing. Smaller tree while
                                     preserving optimum branching.
                                     A state is compared with already computed states
                                      to find if a solution for it is already found.
                                      Then use already computed state.
                                     NECESSARY fo --use_invariants

--pl_time [=arg(=4294967295)]        Planner time limit in seconds.
                                     Overall planner time limit.
                                     If exceeded computed part will be given
                                      in output.

--bl_time [=arg(=4294967295)]        Time limit in seconds for calculation
                                     of any branch.
                                     If exceeded clingo return without a solution.
                                     Passed to clingo's '--time-limit'

--bl_try [=arg(=4294967295)]         Trial limit for calculation of any branch.
                                     Passed to clingo's '--solve-limit'

--debug                              Enable Debug Behavior
                                     Intermediate files will not be cleaned after execution.
                                     Additional files will be generated for better insight
```

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                                        of execution.

--wclingo                               Enable Clingo warnings
                                        All clingo warnings will be printed during execution.
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