Known inefficiencies
for {log} version 4.6.14

Interactive environment

- Duplicate set elements which are themselves sets (i.e., nested sets) are not removed when printing results. For example:

1. \((\log)\Rightarrow S = \{{1,2},{2,1}\}.
   S = \{{1,2},{2,1}\}

Language features (general)

- Constraint solver

- Detecting unsatisfiability of some goals involving the constraint \texttt{size} may take too long time. For example (where \(k > 5\)):
  - un\((X,Y,Z) \& \text{disj}(X,Z) \& \text{size}(X,N) \& N \in \text{int}(1,k).\)
  - un\((X,Y,Z) \& \text{disj}(X,Y) \& \text{size}(X,NX) \& \text{size}(Y,NY) \& \text{size}(Z,NZ) \& R = NX + NY \& NZ \text{eq } R \& NZ \in \text{int}(0,k).\)
  - un\((X,Y,Z) \& \text{n_disj}(X,Y) \& \text{size}(X,NX) \& \text{size}(Y,NY) \& \text{size}(Z,NZ) \& NZ \text{is } NX + NY \& NZ \in \text{int}(0,k).\)
  - un\((X,Y,Z) \& \text{size}(X,N) \& \text{size}(Z,N) \& X \text{eq } Z \& N \in \text{int}(1,k).\) (immediate answer if automatic labeling is disabled)
  - un\((X,Y,Z) \& \text{size}(X,N) \& \text{size}(Y,N) \& X \text{eq } Y \& N \in \text{int}(1,k).\) (immediate answer if automatic labeling is disabled)
  - size\((S,4) \& \text{subset}(X,S) \& \text{subset}(Y,S) \& \text{size}(X,2) \& \text{diff}(Y,X,Z) \& \text{size}(Z,3).\)

- Execution of some goals may produce repeated solutions. For example:

  - solving the goal
    \(\{X\} \text{eq } \{a\}.\)
    will produce:
    Constraint: \(X \text{eq } a\)
    Another solution? \((y/n)y\)
    Constraint: \(X \text{eq } a\)
    Another solution? \((y/n)y\)
    no

  - solving the goal
    \texttt{inters}\((\{1,2,3,4\},\{2,1,4\},R).\)
    will produce a lot of (27) repeated solutions \(R = \{1,2,4\}.\)

- Execution of some goals may produce useless solutions. For example, solving the goal

  \(\{X\} \text{eq } \{a,b\}.\)
  will produce:
  Constraint: \(X \text{eq } a, X \text{eq } b\)
  Another solution? \((y/n)y\)
  Constraint: \(X \text{eq } a\)
  Another solution? \((y/n)y\)
  Constraint: \(X \text{eq } b\)
  Another solution? \((y/n)y\)
  no
instead of simply answering true

- Execution of set theoretic **operations over intervals** may be very inefficient and/or may produce possibly many repeated solutions and/or may create very large set terms. For example:
  - `diff(int(1,20),{10},R).`
    `R = {1,2,3,4,5,6,7,8,9,11,12,13,14,15,16,17,18,19,20}`
  - `inters(int(1,10),{0},R).`

- Execution of set theoretic **operations involving (highly) partially specified sets** may be very inefficient and/or may produce possibly many repeated solutions. For example,
  - solving the goal
    ```prolog
diff({X,Y},{W},{X/N}).
```
    will produce a huge number of repeated solutions (N.B: using the `{log}` library predicate `diff1/3` instead one gets only distinct solutions).
  - solving the goal
    ```prolog
inters({1/S},{2/R},W).
```
    will produce a huge number of repeated solutions.
  - other examples:
    ```prolog
diff(X,{A,B,C},{C,D,E}).
inters({1,2,3/S},{2,1,4/S},R).
```