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}=> S = {{1,2},{2,1}}.
   S = {{1,2},{2,1}}
```

Language features (general)

-

Constraint solver

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

- Execution of some goals may produce <u>repeated solutions</u>. For example:
  - solving the goal

    ```
    {X} neq {a}.
    ```

    will produce:

    ```
    Constraint: X neq a
    Another solution?  (y/n)y
    Constraint: X neq a
    Another solution?  (y/n)y
    no
    ```

  - solving the goal

    ```
    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 <u>useless solutions</u>. For example, solving the goal

```
{X} neq {a,b}.
```

will produce:

```
Constraint: X neq a, X neq b
Another solution?  (y/n)y
Constraint: X neq a
Another solution?  (y/n)y
Constraint: X neq 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

    ```
    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

    ```
    inters({1/S},{2/R},W).
    ```

    will produce a huge number of repeated solutions.
  - other examples:

    ```
    diff(X,{A,B,C},{C,D,E}).
    inters({1,2,3/S},{2,1,4/S},R).
    ```