```prolog
%  Solving a cryptoarithmetic puzzle, using CLP(FD) of SICStus
%  W. Drabent

      :- use_module(library(clpfd)).

/* The puzzle


        _ _ _ _
     *    _ _ _
      ----------
      2 _ _ _ _
    - 2 0 _ _
  3 _ _ _ 0
  --------------
  _ 0 _ _ 0 3 _

Each  0, 2, 3  already marked.
*/

puzzle2( Solution ) :-
       Solution = [A,B,C,D,E,F,G,H,I,J,K,L,M,N,P,Q,R,S,T,U,V],
       allowed_digits2( Solution ),
                                           % SWI:  Solution ins 1 \/ 4..9
       digits_number(      [A,B,C,D], Line1 ),
                        %      E F G
       digits_number(    [2,H,I,J,K], Line3 ),
       digits_number(  [L,2,0,M,N],   Line4 ),
       digits_number([3,P,Q,R,0],     Line5 ),
       digits_number([S,0,T,U,0,3,V], Line6 ),
       Line3 #= G*Line1,
       Line4 #= F*Line1,
       Line5 #= E*Line1,
       Line6 #= Line3 + 10*Line4 + 100*Line5,
       % To show the variable bindings before labeling:
           write( Solution ), nl, nl,
       labeling( [], Solution ),
       write(   [' ',' ',' ',A,B,C,D] ),nl,
       write([' ',' ',' ',' ',' ',E,F,G] ),nl,
       write(    [' ',' ',2,H,I,J,K] ),nl,
       write(      [' ',L,2,0,M,N] ),nl,
       write(        [3,P,Q,R,0] ),nl,
       write(        [S,0,T,U,0,3,V] ),nl,
       true.

allowed_digits2( [] ).
allowed_digits2( [X|L] ) :-
       X in {1} \/ (4..9),              % SWI:     X in 1 \/ 4..9.
       allowed_digits2( L ).            % SICStus:  X in {1} \/ (4..9).


% digits_number( Digit_list, Numerical_value ).
%     The first element of the list may be a number >9
%     Eg.  [1,2,3,4,5], [123,4,5], [12345] have the same Numerical_value

digits_number( [D], D ).
digits_number( [D1,D2|Lc], NR ) :-
       NR1 #= 10*D1 + D2,
       digits_number( [NR1|Lc], NR ).

/* A test run produces the single answer
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```
    ?- puzzle2( Solution ).
    [_G8,_G11,_G14,_G17,_G20,_G23,_G26,_G29,_G32,_G35,_G38,_G41,_G44,_G47,_
G50,_G53,_G56,4,_G62,_G65,_G68]

    [ , , ,6,8,9,4]
    [ , , , ,5,9,4]
    [ , ,2,7,5,7,6]
    [ ,6,2,0,4,6]
    [3,4,4,7,0]
    [4,0,9,5,0,3,6]
    Solution = [6, 8, 9, 4, 5, 9, 4, 7, 5|...] ;
    false.
*/

% To run it without labeling, use clause body below as a query.

a_query_to_be_asked :-
        Solution = [A,B,C,D,E,F,G,H,I,J,K,L,M,N,P,Q,R,S,T,U,V],
        allowed_digits2( Solution ),
        digits_number(      [A,B,C,D], Line1 ),

        digits_number(    [2,H,I,J,K], Line3 ),
        digits_number(  [L,2,0,M,N],   Line4 ),
        digits_number([3,P,Q,R,0],     Line5 ),
        digits_number([S,0,T,U,0,3,V], Line6 ),
        Line3 #= G*Line1,
        Line4 #= F*Line1,
        Line5 #= E*Line1,
        Line6 #= Line3 + 10*Line4 + 100*Line5.

/* Full answer below; shows the variable domains and the constraints.
   The "most constrained" variables are
            S = 4,                L in 4..6,
            E in 5..7,            F in 6..9,
            G in 4..6,            P in 4..6
*/


/* SWI:
|    |    |    |    |    |    |    |    |    |    |     Solution = [A, B, C, D,
E, F, G, H, I|...],
S = 4,
A in 4..7,
-10*A+ -1*B+_G7208#=0,
B in 1\/4..9,
_G7208 in 48..73,
-1*C+ -10*_G7208+_G7256#=0,
C in 1\/4..9,
_G7256 in 487..731,
-1*D+ -10*_G7256+Line1#=0,
D in 1\/4..9,
Line1 in 4873..7314,
E*Line1#=Line5,
F*Line1#=Line4,
G*Line1#=Line3,
E in 5..7,
Line5 in 34110..36570,
-1*Line3+ -10*Line4+ -100*Line5+Line6#=0,
-10*_G7442+Line5#=0,
```

```
Line3 in 21111..29999,
-1*K+ -10*_G7475+Line3#=0,
K in 1\/4..9,
_G7475 in 2111..2999,
-1*J+ -10*_G7523+_G7475#=0,
J in 1\/4..9,
_G7523 in 211..299,
-1*I+ -10*_G7571+_G7523#=0,
I in 1\/4..9,
_G7571 in 21\/24..29,
20+H#=_G7571,
H in 1\/4..9,
G in 4..6,
Line4 in 42011..62099,
-1*N+ -10*_G7673+Line4#=0,
N in 1\/4..9,
_G7673 in 4201..6209,
-1*M+ -10*_G7721+_G7673#=0,
M in 1\/4..9,
_G7721 in 420..620,
-10*_G7763+_G7721#=0,
_G7763 in 42..62,
-10*L+_G7763#=2,
L in 4..6,
F in 6..9,
Line6 in 4011031..4099039,
-1*V+ -10*_G7847+Line6#=0,
V in 1\/4..9,
_G7847 in 401103..409903,
-10*_G7889+_G7847#=3,
_G7889 in 40110..40990,
-10*_G7916+_G7889#=0,
_G7916 in 4011..4099,
-1*U+ -10*_G7949+_G7916#=0,
U in 1\/4..9,
_G7949 in 401\/404..409,
400+T#=_G7949,
T in 1\/4..9,
_G7442 in 3411..3657,
-1*R+ -10*_G8039+_G7442#=0,
R in 1\/4..9,
_G8039 in 341..365,
-1*Q+ -10*_G8087+_G8039#=0,
Q in 1\/4..9,
_G8087 in 34..36,
30+P#=_G8087,
P in 4..6 ;
false.

?-

*/
/* Answer in  SICStus:
S = 4,
Solution = [A,B,C,D,E,F,G,H,I,J|...],
Line6 in 4011031..4099039,
Line5 in 34110..36570,
Line4 in 42011..62099,
Line3 in 21111..29999,
A in 4..7,
```

```
B in{1}\/(4..9),
C in{1}\/(4..9),
D in{1}\/(4..9),
E in 5..7,
F in 6..9,
G in 4..6,
H in{1}\/(4..9),
I in{1}\/(4..9),
J in{1}\/(4..9),
K in{1}\/(4..9),
L in 4..6,
M in{1}\/(4..9),
N in{1}\/(4..9),
P in 4..6,
Q in{1}\/(4..9),
R in{1}\/(4..9),
T in{1}\/(4..9),
U in{1}\/(4..9),
V in{1}\/(4..9),
Line1 in 4873..7314 ? ;
no
*/
```