5.135 domain

DESCRIPTION LINKS

Origin Domain definition.

Constraint domain(VARIABLES, LOW, UP)

Synonym dom.

Arguments

VARIABLES	:	collection(var−dvar)
LOW	:	int
UP	:	int

Restrictions

required(VARIABLES, var)
LOW ≤ UP

Purpose Enforce all the variables of the collection VARIABLES to take a value within the interval [LOW, UP].

Example $(\langle 2, 8, 2\rangle, 1, 9)$

The domain constraint holds since all the values 2, 8 and 2 of its first argument are greater than or equal to its second argument LOW $= 1$ and less than or equal to its third argument UP $= 9$.

Typical

|VARIABLES| > 1
LOW < UP

Symmetries

- Items of VARIABLES are permutable.
- An occurrence of a value of VARIABLES.var can be replaced by any other value in [LOW, UP].
- LOW can be decreased.
- UP can be increased.
- One and the same constant can be added to the var attribute of all items of VARIABLES as well as to LOW and UP.

Arg. properties

Contractible wrt. VARIABLES.

Remark The domain constraint is called dom in **Gecode** (http://www.gecode.org/).

Reformulation The domain($\langle$var $- V_1$, var $- V_2, \ldots,$ var $- V_{|\text{VARIABLES}|}\rangle$, LOW, UP) constraint can be expressed in term of the conjunction

$V_1 \geq$ LOW $\wedge$ $V_1 \leq$ UP,
$V_2 \geq$ LOW $\wedge$ $V_2 \leq$ UP,
. . . . . .
$V_{|\text{VARIABLES}|} \geq$ LOW $\wedge$ $V_{|\text{VARIABLES}|} \leq$ UP.

Systems `member` in **Choco**, `dom` in **Gecode**, `domain` in **SICStus**.

See also **common keyword:** `in`, `in_interval` (*domain definition*).
uses in its reformulation: `tree_range`.

Keywords **constraint type:** predefined constraint, value constraint.
modelling: interval, domain definition.