

5.135 domain

| | DESCRIPTION | LINKS |
|------------------------|---|-------|
| Origin | Domain definition. | |
| Constraint | <code>domain(VARIABLES, LOW, UP)</code> | |
| Synonym | <code>dom.</code> | |
| Arguments | VARIABLES : <code>collection(var-dvar)</code> LOW : <code>int</code> UP : <code>int</code> | |
| Restrictions | <code>required(VARIABLES, var)</code> $LOW \leq UP$ | |
| Purpose | Enforce all the variables of the collection <code>VARIABLES</code> to take a value within the interval <code>[LOW, UP]</code> . | |
| 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 | <ul style="list-style-type: none"> • Items of <code>VARIABLES</code> are permutable. • An occurrence of a value of <code>VARIABLES.var</code> can be replaced by any other value in <code>[LOW, UP]</code>. • <code>LOW</code> can be decreased. • <code>UP</code> can be increased. • One and the same constant can be added to the <code>var</code> attribute of all items of <code>VARIABLES</code> as well as to <code>LOW</code> and <code>UP</code>. | |
| Arg. properties | Contractible wrt. <code>VARIABLES</code> . | |
| Remark | The domain constraint is called <code>dom</code> in Gecode (http://www.gecode.org/). | |
| Reformulation | The <code>domain(\langle var - V_1, var - V_2, \dots, var - V_{ VARIABLES } \rangle, LOW, UP)</code> constraint can be expressed in term of the conjunction $V_1 \geq LOW \wedge V_1 \leq UP,$ $V_2 \geq LOW \wedge V_2 \leq UP,$ \dots $V_{ VARIABLES } \geq LOW \wedge V_{ VARIABLES } \leq UP.$ | |

Systems [member](#) in **Choco**, [domin](#) 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.