5.338 same_intersection

DESCRIPTION LINKS GRAPH

Origin Derived from same and common.

Constraint same_intersection(VARIABLES1, VARIABLES2)

Arguments

VARIABLES1	:	collection(var−dvar)
VARIABLES2	:	collection(var−dvar)

Restrictions

required(VARIABLES1, var)
required(VARIABLES2, var)

Purpose Each value, which occurs both in the VARIABLES1 and in the VARIABLES2 collections, has the same number of occurrences in VARIABLES1 as well as in VARIABLES2.

Example $(\langle 1,9,1,5,2,1\rangle, \langle 9,1,1,1,3,5,8\rangle)$

First note that the values, which occur both in VARIABLES1 $= \langle 1,9,1,5,2,1\rangle$ as well as in VARIABLES2 $= \langle 9,1,1,1,3,5,8\rangle$ correspond to values 1, 5, and 9. Consequently, the same_intersection constraint holds since these values 1, 5, and 9 have the same number of occurrences in both collections (i.e., they respectively occur 3, 1, and 1 times within VARIABLES1 and VARIABLES2).

Typical

|VARIABLES1| > 1
range(VARIABLES1.var) > 1
|VARIABLES2| > 1
range(VARIABLES2.var) > 1

Symmetries

- Arguments are permutable w.r.t. permutation (VARIABLES1, VARIABLES2).
- Items of VARIABLES1 are permutable.
- Items of VARIABLES2 are permutable.
- All occurrences of two distinct values in VARIABLES1.var or VARIABLES2.var can be swapped; all occurrences of a value in VARIABLES1.var or VARIABLES2.var can be renamed to any unused value.

See also **common keyword:** common, nvalue_on_intersection *(constraint on the intersection)*.

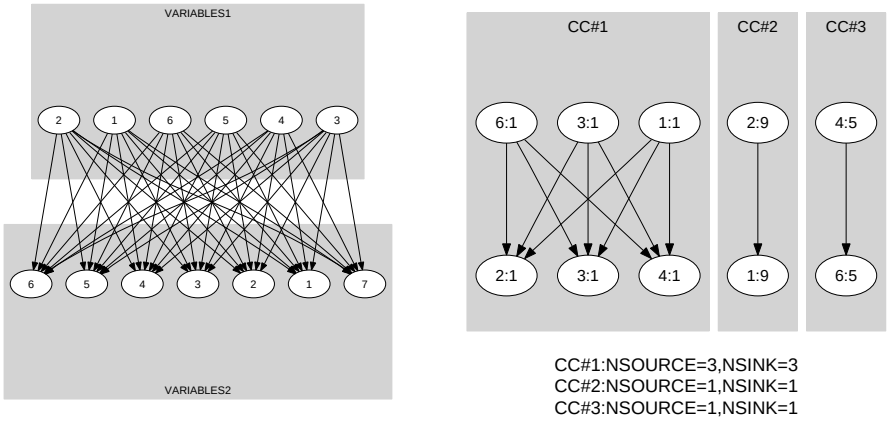
implied by: alldifferent_on_intersection, same.

Keywords **constraint arguments:** constraint between two collections of variables.

constraint type: constraint on the intersection.

Arc input(s)	VARIABLES1 VARIABLES2
Arc generator	$PRODUCT \mapsto$ collection(variables1, variables2)
Arc arity	2
Arc constraint(s)	variables1.var = variables2.var
Graph property(ies)	for all connected components: **NSOURCE=NSINK**

Graph model Parts (A) and (B) of Figure 5.689 respectively show the initial and final graph associated with the **Example** slot. The same_intersection constraint holds since each connected component of the final graph has the same number of sources and sinks. Note that all the vertices corresponding to the variables that take values 2, 3 or 8 were removed from the final graph since there is no arc for which the associated equality constraint holds.



(A) **(B)**

Figure 5.689: Initial and final graph of the same_intersection constraint