5.117 differ_from_exactly_k_pos

DESCRIPTION LINKS GRAPH

Origin Inspired by differ_from_at_least_k_pos.

Constraint differ_from_exactly_k_pos(K, VECTOR1, VECTOR2)

Type

VECTOR	:	collection(var−dvar)

Arguments

K	:	int
VECTOR1	:	VECTOR
VECTOR2	:	VECTOR

Restrictions

$|\texttt{VECTOR}| \geq 1$
required(VECTOR, var)
$\texttt{K} \geq 0$
$\texttt{K} \leq |\texttt{VECTOR1}|$
$|\texttt{VECTOR1}| = |\texttt{VECTOR2}|$

Purpose Enforce two vectors VECTOR1 and VECTOR2 to differ from exactly K positions.

Example $(2, \langle 3, 0, 2, 0\rangle, \langle 3, 6, 2, 1\rangle)$

The differ_from_exactly_k_pos constraint holds since the first and second vectors differ from 2 positions, which is equal to $\texttt{K} = 2$.

Typical

$\texttt{K} > 0$
$\texttt{K} \leq |\texttt{VECTOR1}|$
$|\texttt{VECTOR1}| > 1$

Symmetries

- Arguments are permutable w.r.t. permutation (K) (VECTOR1, VECTOR2).
- Items of VECTOR1 and VECTOR2 are permutable (*same permutation used*).

Arg. properties

Functional dependency: K determined by VECTOR1.

Used in all_differ_from_exactly_k_pos.

See also **implies:** differ_from_at_least_k_pos *(= K replaced by ≥ K)*, differ_from_at_most_k_pos *(= K replaced by ≤ K)*.

system of constraints: all_differ_from_exactly_k_pos.

Keywords **characteristic of a constraint:** vector.

constraint arguments: pure functional dependency.

constraint type: value constraint.

modelling: functional dependency.

Arc input(s)	VECTOR1 VECTOR2
Arc generator	$PRODUCT(=) \mapsto$ collection(vector1, vector2)
Arc arity	2
Arc constraint(s)	vector1.var $\neq$ vector2.var
Graph property(ies)	**NARC**= K

Graph model Parts (A) and (B) of Figure 5.276 respectively show the initial and final graph associated with the **Example** slot. Since we use the **NARC** graph property, the arcs of the final graph are stressed in bold.

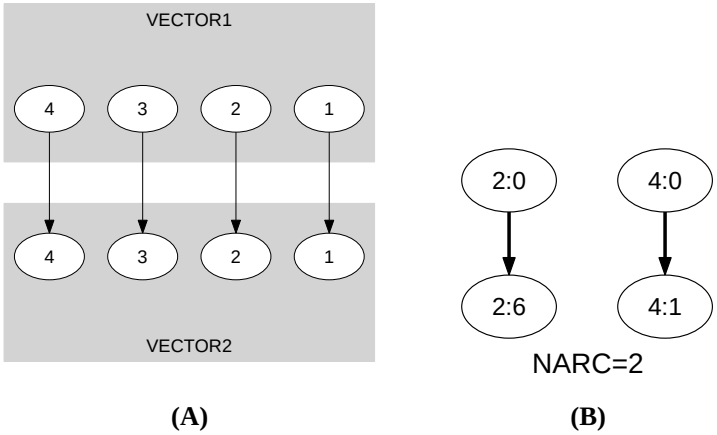

Figure 5.276: Initial and final graph of the differ_from_exactly_k_pos constraint