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	$\|VECTOR\| \geq 1$ required(VECTOR, var) $K \geq 0$ $K \leq \|VECTOR1\|$ $\|VECTOR1\| = \|VECTOR2\|$
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 K = 2.

Typical	$K > 0$ $K \leq \|VECTOR1\|$ $\|VECTOR1\| > 1$
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* $\geq$ K), differ_from_at_most_k_pos (= K *replaced by* $\leq$ 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 5.259 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.
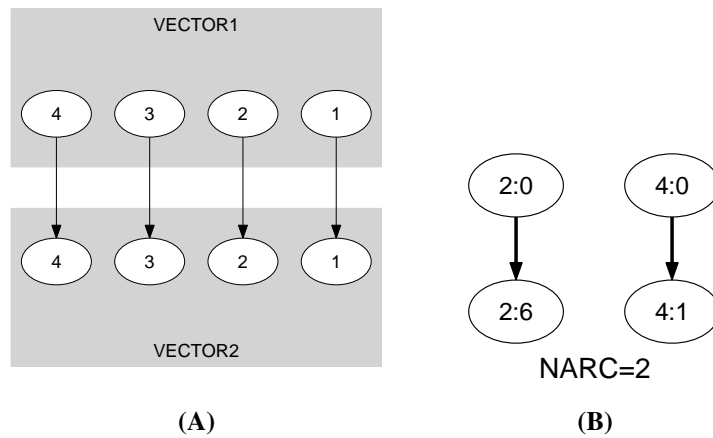

Figure 5.259: Initial and final graph of the differ_from_exactly_k_pos constraint