5.116 differ_from_at_most_k_pos

DESCRIPTION LINKS GRAPH

Origin Inspired by differ_from_at_least_k_pos.

Constraint differ_from_at_most_k_pos(K, VECTOR1, VECTOR2)

Type
```
VECTOR : collection(var−dvar)
```

Arguments

K	:	int
VECTOR1	:	VECTOR
VECTOR2	:	VECTOR

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

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

Example $(3, \langle 2,5,2,0\rangle, \langle 3,6,2,0\rangle)$

The differ_from_at_most_k_pos constraint holds since the first and second vectors differ from 2 positions, which is less than or equal to $\text{K} = 3$.

Typical
$\text{K} > 0$
$\text{K} < |\text{VECTOR1}|$
$|\text{VECTOR1}| > 1$

Symmetries
- Arguments are permutable w.r.t. permutation (K) (VECTOR1, VECTOR2).
- K can be increased to any value $\leq |\text{VECTOR1}|$.
- Items of VECTOR1 and VECTOR2 are permutable (*same permutation used*).

Arg. properties
Contractible wrt. VARIABLES1 and VARIABLES2 (*remove items from same position*).

Used in all_differ_from_at_most_k_pos.

See also **implied by:** differ_from_exactly_k_pos (*$\leq$ K replaced by $=$ K*).
system of constraints: all_differ_from_at_most_k_pos.

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

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 $\leq$ K

Graph model Parts (A) and (B) of Figure 5.275 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.

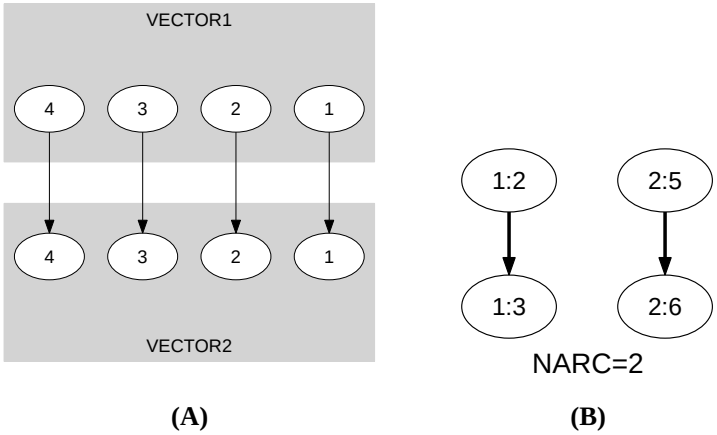

Figure 5.275: Initial and final graph of the differ_from_at_most_k_pos constraint