

5.320 `strict_lex2`

	DESCRIPTION	LINKS
Origin	[148]	
Constraint	<code>strict_lex2(MATRIX)</code>	
Type	VECTOR : <code>collection</code> (var–dvar)	
Argument	MATRIX : <code>collection</code> (vec – VECTOR)	
Restrictions	<code>required</code> (VECTOR, var) <code>required</code> (MATRIX, vec) <code>same_size</code> (MATRIX, vec)	
Purpose	Given a matrix of domain variables, enforces that both adjacent rows, and adjacent columns are lexicographically ordered (adjacent rows and adjacent columns cannot be equal).	
Example	$\left(\left\langle \begin{array}{l} \text{vec} - \langle 2, 2, 3 \rangle \\ \text{vec} - \langle 2, 3, 1 \rangle \end{array} \right\rangle \right)$ <p>The <code>strict_lex2</code> constraint holds since:</p> <ul style="list-style-type: none"> • The first row $\langle 2, 2, 3 \rangle$ is lexicographically strictly less than the second row $\langle 2, 3, 1 \rangle$. • The first column $\langle 2, 2 \rangle$ is lexicographically strictly less than the second column $\langle 2, 3 \rangle$. • The second column $\langle 2, 3 \rangle$ is lexicographically strictly less than the third column $\langle 3, 1 \rangle$. 	
Symmetry	One and the same constant can be <code>added</code> to the <code>var</code> attribute of all items of <code>MATRIX.vec</code> .	
Usage	A <i>symmetry-breaking</i> constraint.	
Reformulation	The <code>strict_lex2</code> constraint can be expressed as a conjunction of two <code>lex_chain_less</code> constraints: A first <code>lex_chain_less</code> constraint on the <code>MATRIX</code> argument and a second <code>lex_chain_less</code> constraint on the transpose of the <code>MATRIX</code> argument.	
See also	common keyword: <code>allperm</code> , <code>lex_lesseq</code> (<i>lexicographic order</i>). implies: <code>lex2</code> , <code>lex_chain_less</code> . part of system of constraints: <code>lex_chain_less</code> .	
Keywords	constraint type: predefined constraint, system of constraints, order constraint. modelling: matrix, matrix model. symmetry: symmetry, matrix symmetry, lexicographic order.	

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