5.378 strict_lex2

DESCRIPTION LINKS

Origin [168]

Constraint strict_lex2(MATRIX)

Type VECTOR : collection(var−dvar)

Argument MATRIX : collection(vec − VECTOR)

Restrictions
|VECTOR| ≥ 1
required(VECTOR, var)
required(MATRIX, vec)
same_size(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 (⟨vec − ⟨2, 2, 3⟩ , vec − ⟨2, 3, 1⟩⟩)

The strict_lex2 constraint holds since:

- The first row ⟨2, 2, 3⟩ is lexicographically strictly less than the second row ⟨2, 3, 1⟩.
- The first column ⟨2, 2⟩ is lexicographically strictly less than the second column ⟨2, 3⟩.
- The second column ⟨2, 3⟩ is lexicographically strictly less than the third column ⟨3, 1⟩.

Typical
|VECTOR| > 1
|MATRIX| > 1

Symmetry One and the same constant can be added to the var attribute of all items of MATRIX.vec.

Usage A *symmetry-breaking* constraint.

Reformulation The strict_lex2 constraint can be expressed as a conjunction of two lex_chain_less constraints: A first lex_chain_less constraint on the MATRIX argument and a second lex_chain_less constraint on the transpose of the MATRIX argument.

Systems strict_lex2 in **MiniZinc**.

See also **common keyword:** allperm, lex_lesseq *(lexicographic order)*.
implies: lex2, lex_chain_less.
part of system of constraints: lex_chain_less.

Keywords **constraint type:** predefined constraint, system of constraints, order constraint.
modelling: matrix, matrix model.
symmetry: symmetry, matrix symmetry, lexicographic order.