

5.237 nset_of_consecutive_values

	DESCRIPTION	LINKS	GRAPH
Origin	N. Beldiceanu		
Constraint	<code>nset_of_consecutive_values(N, VARIABLES)</code>		
Arguments	N : <code>dvar</code> VARIABLES : <code>collection(var-dvar)</code>		
Restrictions	$N \geq 1$ $N \leq \text{VARIABLES} $ <code>required(VARIABLES, var)</code>		
Purpose	<div style="border: 1px solid pink; padding: 5px;"> N is the number of set of <code>consecutive values</code> used by the variables of the collection VARIABLES. </div>		
Example	<div style="border: 1px solid blue; padding: 10px; display: inline-block;"> $\left(\begin{array}{c} \text{var} - 3, \\ \text{var} - 1, \\ 2, \left\langle \begin{array}{c} \text{var} - 7, \\ \text{var} - 1, \end{array} \right\rangle \\ \text{var} - 2, \\ \text{var} - 8 \end{array} \right)$ </div> <p>In the example, the two parts 3, 1, 1, 1, 2 and 7, 8 take respectively their values in the following sets of <code>consecutive values</code> {1, 2, 3} and {7, 8}. Consequently, the <code>nset_of_consecutive_values</code> constraint holds since its first argument $N = 2$ is set to the number of sets of consecutive values.</p>		
Symmetries	<ul style="list-style-type: none"> • Items of VARIABLES are <code>permutable</code>. • All occurrences of two distinct values of VARIABLES.var can be <code>swapped</code>. • One and the same constant can be <code>added</code> to the <code>var</code> attribute of all items of VARIABLES. 		
Usage	Used for specifying the fact that the values have to be used in a compact way is achieved by setting N to 1.		
See also	common keyword: <code>max_size_set_of_consecutive_var</code> , <code>min_size_set_of_consecutive_var</code> (<code>consecutive values</code>).		
Keywords	characteristic of a constraint: <code>consecutive values</code> . constraint type: <code>value constraint</code> . final graph structure: <code>strongly connected component</code> .		

Arc input(s)	VARIABLES
Arc generator	<code>CLIQUE</code> \mapsto <code>collection</code> (variables1, variables2)
Arc arity	2
Arc constraint(s)	$\text{abs}(\text{variables1.var} - \text{variables2.var}) \leq 1$
Graph property(ies)	<code>NSCC</code> = N

Graph model

Since the arc constraint is symmetric each strongly connected component of the final graph corresponds exactly to one connected component of the final graph.

Parts (A) and (B) of Figure 5.452 respectively show the initial and final graph associated with the **Example** slot. Since we use the `NSCC` graph property, we show the two strongly connected components of the final graph.

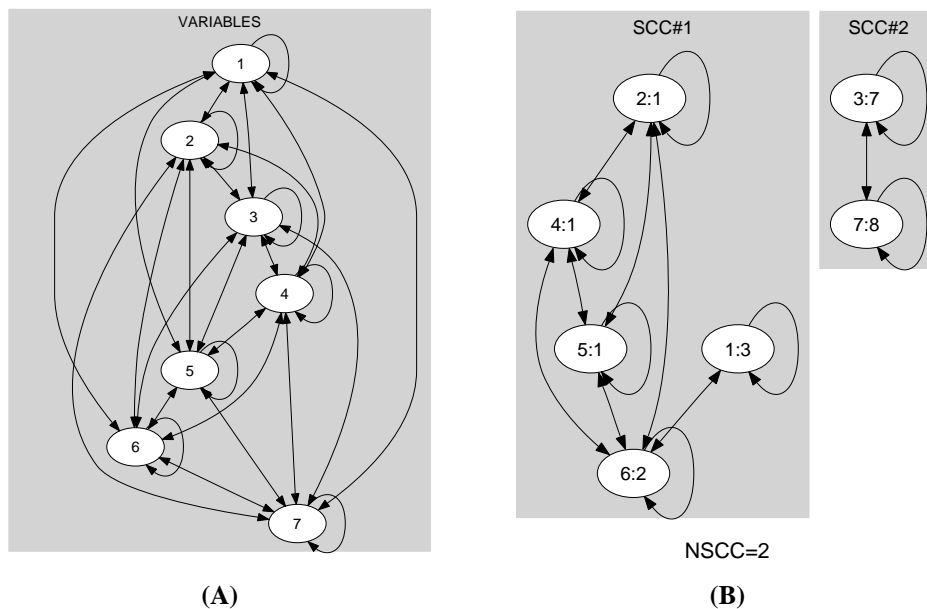


Figure 5.452: Initial and final graph of the `nset_of_consecutive_values` constraint