

LINGI2132 Languages and translators

Assignment 3

Selling our DSL

Benoit Baufays - Julien Colmonts

Université Catholique de Louvain - INGI

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Variables

"*Name* – $>$ (*Range*)"

Constraints

"*SumDsl*[\geq | \leq | *equal* | *dif*] *SumDsl*[*Sum* | *RangeVal*]"

Sum of variables

"*S*(*Range*, *Pas* default =1, implicit param *Name*)"

Example

```
1  val magicNumber = 3 // number of lines/columns
2  val items = magicNumber * magicNumber
3  val magicSum = 15
4  val zero = 0
5  val possibilities = zero.to(magicSum).toArray
6  implicit val v = "item_%"
7
8  var s = SolverDSL
9
10  for (i <- 0 until items) {
11    "item_" + i -> (0 to magicSum)
12  }
13
14  s.E(0 to 6, 3, i => {
15    S(i to (2 + i), 1) equal magicSum
16  })
17
18  S(0 to 8, 4) equal magicSum
19  S(2 to 6, 2) equal magicSum
20
21  s.E(0 to 2, 1, i => {
22    S(i to 6 + i, 3) equal magicSum
23  })
24
25  s.allVariables != s.allVariables
26
27  if (s.solve) println(s.solution)
28  else println("infeasible")
```

Problems solved :

- Knapsack
- Coloring
- MagicSquare
- NQueens
- Sudoku