ERRATA FOR GENERALISED ARC CONSISTENCY FOR THE ALLDIFFERENT CONSTRAINT: AN EMPIRICAL SURVEY

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1. FINDING SCCS AND REMOVING DOMAIN VALUES

In the description of Régin's algorithm, there is a error in the pseudocode (algorithm 2 in the paper). In the case where a variable x_i is assigned to value a (and therefore matching$[i] = a$), x_i and a are not in the same SCC and the algorithm as it was presented would prune a from x_i. Algorithm 1 shows the replacement pseudocode, with the correction on line 22: the extra condition matching$[i] \neq e$ is added.

This was an error only in the pseudocode, not in the implementation that was used for all the experiments and released as open-source (as part of Minion).

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Algorithm 1 FindSCCsRemoveValues

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FindSCCsRemoveValues(matching, varSet): returns nothing
(1)  visited← ∅; TStack← []; maxDFS← 1; hasSCCSplit←False
(2)  for x_i ∈varSet:
(3)      if x_i ∉visited:
(4)          TarjanRemoveValues(x_i) // start search at x_i
```

```
TarjanRemoveValues(curnode): returns nothing
(1)  TStack.push(curnode)
(2)  DFSNum[curnode]←maxDFS
(3)  lowLink[curnode]←maxDFS
(4)  maxDFS ← maxDFS + 1
(5)  visited.insert(curnode)
(6)  for newnode∈neighbourhood(curnode):
(7)      if newnode∈visited:
(8)          if newnode∈TStack:
(9)              lowLink[curnode]←min(lowLink[curnode], DFSNum[newnode])
(10)     else:
(11)         TarjanRemoveValues(newnode)
(12)         lowLink[curnode]←min(lowLink[newnode], lowLink[curnode])
(13) if lowLink[curnode]=DFSNum[curnode]: // if curnode is the root of an SCC
(14)     if lowLink[curnode]>1 or DFS did not traverse all variables:
(15)         hasSCCSplit←True
(16)     if hasSCCSplit:
(17)         SCC← ∅; stacknode←null
(18)         while stacknode≠curnode:
(19)             stacknode←TStack.pop()
(20)             SCC.insert(stacknode)
(21)         for e ∈SCC where e ∈ {1...d}: // e is a domain value
(22)             for x_i ∈varSet where x_i ∉SCC and matching[i] ≠ e:
(23)                 removeFromDomain(x_i, e)
```