

Algorithm: VAT

1	In	D, $n \times n$ matrix of dissimilarities: $D = D^T$; $d_{ij} \geq 0 \forall i, j$; $d_{ii} = 0 \forall i$
2	Set	$K = \{1, 2, \dots, n\}$; $I = J = \emptyset$:
3		Select $(i, j) \in \arg \max \{D_{st} : s \in K, t \in K\}$
4		$P(1) = i$; $I = \{i\}$; $j = K - \{i\}$
5		% Initialize MST at either end of edge with largest weight in D
6	For $m = 2, \dots, n$ do:	select $(i, j) \in \arg \min \{D_{st} : s \in I, t \in J\}$
7		Select $(i, j) \in \arg \min \{D_{st} : s \in I, t \in J\}$
8		$P(m) = j$; $I = I \cup \{j\}$; $J = J - \{j\}$; $d_{m-1} = d_{ij}$
9	For $1 \leq i, j \leq n$ do:	
10		$[D^*]_{ij} = [D]_{P(i)P(j)}$
11	Out	VAT reordered dissimilarities D^* : arrays P, d
12		% Create VAT RDI $I(D^*)$ using D^*

Algorithm: iVAT

13	In	$D^* = \text{VAT reordered dissimilarity matrix}$: $D^* = [0]$
14	For $k = 2$ to n do:	
15		$j = \arg \min_{r=1, \dots, k-1} \{D_{kr}^*\}$
16		$D_{kc}^* = D_{kc}^*$; $c = j$
17		$D_{kc}^* = \max \{D_{kj}^*, D_{jc}^*\}$; $c = 1, \dots, k-1$; $c \neq j$
18		
19	For $j = 2, \dots, n$; $i \neq j$:	
20		$D_{ji}^* = D_{ij}^*$
	Out	iVAT Reordered dissimilarities D^* % Create iVAT RDI $I(D^*)$ using D^*