**Algorithm 1:** CCC algorithm

**1 Function get_partitions(v, $k_{\max}$):**

    **Input:**

        **v**: feature values on $n$ objects

        $k_{\max}$: maximum number of clusters

    **Output:**

        $\Pi$: a set of partitions over $n$ objects

**2**    **if $\mathbf{v} \in \mathbb{R}^n$ then**

**3**        **for $k \leftarrow 2$ to $\min\{k_{\max}, |\mathbf{v}| - 1\}$ do**

**4**            $\boldsymbol{\rho} \leftarrow (\rho_\ell \mid \Pr(v_i < \rho_\ell) \leq (\ell - 1)/k), \forall \ell \in [1, k+1]$

**5**            $\pi_\ell \leftarrow \{i \mid \rho_\ell < v_i \leq \rho_{\ell+1}\}, \forall \ell \in [1, k]$

**6**            $\Pi_k \leftarrow \pi$

**7**    **else**

**8**        $\mathcal{C} \leftarrow \{v_i \mid v_i \in \mathbf{v}\}$

**9**        $k \leftarrow |\mathcal{C}|$

**10**       $\pi_c \leftarrow \{i \mid v_i = \mathcal{C}_c\}, \forall c \in [1, k]$

**11**       $\Pi_k \leftarrow \pi$

**12**    $\Pi \leftarrow \{\Pi_k \mid |\Pi_k| > 1\}, \forall k$

**13**    **return $\Pi$**

**14**

**15 Function ccc(x, y, $k_{\max}$):**

    **Input:**

        **x**: feature values on $n$ objects

        **y**: feature values on $n$ objects

        $k_{\max}$: maximum number of clusters

    **Output:**

        $c$: correlation value for **x** and **y** ($c \in [0, 1]$)

**16**    $\Pi^{\mathbf{x}} = \text{get\_partitions}(\mathbf{x}, k_{\max})$

**17**    $\Pi^{\mathbf{y}} = \text{get\_partitions}(\mathbf{y}, k_{\max})$

**18**    $c \leftarrow \max\{\text{ARI}(\pi_j, \pi_l)\}, \forall \pi_j \in \Pi^{\mathbf{x}}, \pi_l \in \Pi^{\mathbf{y}}$

**19**    **return $\max(c, 0)$**