Algorithm 1 Computation of raw distance measure between two cyclic granularities $A = \{a_j : j = 1, 2, \ldots, J\}$, $B = \{b_k : k = 1, 2, \ldots, K\}$ with A placed across x-axis and B across facets.

1: **procedure** RawMMPD($A = \{a_j : j = 1, 2, \ldots, J\}$, $B = \{b_k : k = 1, 2, \ldots, K\}$, $v = \{v_t : t = 1, 2, \ldots, T\}$).
2: **for** $k = 1 : K$, $j = 1 : J$ **do**
3: Find distances between pairs of all possible combinations of categories $(a_j b_k, a'_j b'_k)$ by computing JSD between quantiles of the measured variable $q(v)$ across these combinations.
4: $d \leftarrow JSD(\widetilde{q(v)}_{a_j b_k}, \widetilde{q(v)}_{a'_j b'_k})$
5: **if** $b_k = b'_k$ **then**
6: $d* \leftarrow \lambda d$ ▷ upweight within-facet distances
7: **else**
8: $d* \leftarrow 1/\lambda d$ ▷ downweight across-facet distances
9:
10: Set the raw distance measure as $max(d*)$ where max is taken over all j, j', k, k'.
11: