

$$\begin{pmatrix} \text{Tree 1 (Gray)} \\ \text{Tree 2 (Blue)} \end{pmatrix}, \begin{pmatrix} \text{Tree 3 (Gray)} \\ \text{Tree 4 (Red)} \end{pmatrix} = \text{SIM} \left(\begin{pmatrix} \text{Tree 1 (Gray)} \\ \text{Tree 5 (Gray)} \end{pmatrix}, \begin{pmatrix} \text{Tree 6 (Gray)} \\ \text{Tree 7 (Gray)} \end{pmatrix} \right) + \text{SIM} \left(\begin{pmatrix} \text{Tree 2 (Blue)} \\ \text{Tree 8 (Red)} \end{pmatrix}, \begin{pmatrix} \text{Tree 9 (Blue)} \\ \text{Tree 10 (Red)} \end{pmatrix} \right)$$

The diagram illustrates a decomposition of a similarity measure between two pairs of trees. On the left, a pair of trees (one gray, one blue) is compared with another pair (one gray, one red). This is shown to be equivalent to the sum of two similarity measures: the first measures the similarity between two gray trees, and the second measures the similarity between a blue tree and a red tree.