Summary: It is an open question whether there exists a polynomial-time algorithm for computing the rotation distances between pairs of extended ordered binary trees. The problem of computing the rotation distance between an arbitrary pair of trees, \((S, T)\), can be efficiently reduced to the problem of computing the rotation distance between a difficult pair of trees \((S', T')\), where there is no known first step which is guaranteed to be the beginning of a minimal length path. Of interest, therefore, is how to sample such difficult pairs of trees of a fixed size. We show that it is possible to do so efficiently, and present such an algorithm that runs in time \(O(n^4)\).

MSC:

68P05 Data structures
68W40 Analysis of algorithms

Keywords:

rotation distances; associahedra; rooted binary trees; sampling

Full Text: DOI arXiv