

Inference Maximizing Point Configurations for Parsimonious Algorithms

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Abstract. We present an exploration of inferring orientations for point configurations. We can compute the orientation of every triple of points by a combination of direct calculation and inference from prior computations. This “parsimonious” approach was suggested by Knuth in 1992 [6], and aims to minimize calculation by maximizing inference. We wish to investigate the efficacy of this approach by investigating the minimum and maximum number of inferences that are possible for a point set configuration. To find the configurations which yield maximum inferences, there is no direct formula and hence two constructive approaches are suggested. A basic analysis of sequences that achieve those maximum inferences is also presented and some properties have been proved regarding their existence.

Keywords: Combinatorial Geometry · Order Types · Robust Geometric Computation.