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Location functions on graphs: why is anonymity an issue?

A location function on a graph $G = (V, E)$ is a function on the set V^* , of all finite sequences of vertices of V , to nonempty subsets of V , which minimizes some criterion of remoteness. Axiomatic characterizations of these functions have been established only for very special cases. We focus on the median function: the sum of the distances to the elements of the sequence is minimized. Three simple axioms characterize this function on median graphs: anonymity, betweenness and consistency. These axioms are independent. Surprisingly, the independence of anonymity is absolutely non-trivial. We present related results as well.