

Depth functions play a crucial role in nonparametric statistics by generalizing orderings, ranks, and quantiles to multivariate data. In our thesis, we provide a comprehensive study of the classical and revised definitions of simplicial depth function, accompanied by detailed and illustrated proofs of some of their properties. Our research also addresses some issues in previous publications and explores potential expansions of those concepts. In the final part of the thesis, we reveal an intriguing connection between simplicial depth and Sylvester's four-point problem, which may have implications for future advancements in this field.