On analytical similarities of Archimedean and exchangeable Marshall-Olkin copulas

Abstract: While Archimedean copulas are parameterized by real-valued functions, exchangeable Marshall-Olkin copulas are defined via sequences of real numbers. From a probabilistic perspective, the models behind both families have a different motivation. Consequently, their statistical properties are also different. In this regard, their striking analytical similarities are even more surprising. Considering sequences as discretized functions, most statements about Archimedean copulas and their corresponding generator functions translate into equivalent statements about exchangeable Marshall-Olkin copulas and their parameterizing sequences. This article reviews classical and recent results on both families of copulas with a focus on completely monotone functions and sequences.