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On ordered beta distributions and their applications

Ordered beta distribution can be constructed by taking independent beta random variables $X_1, ..., X_n$ and conditioning on the event $X_1 < X_2 < ... < X_n$. Such distributions were introduced recently in operations research literature in connection with the following two problems: (i) dynamic pricing with demand learning and (ii) finding optimal bidding policies in a name-your-own-price (NYOP) product markets. In this presentation we will first talk about the above two problems and the methods used to solve them; then we will discuss various properties of ordered beta distributions and we will conclude by presenting two efficient numerical algorithms for working with ordered beta distributions.