

Title: A Model for Integrated Inventory and Assortment Planning

Authors: Sumit Kunnunkal and Victor Martínez-de-Albéniz

Abstract: Integrating inventory and assortment planning decisions is a challenging task that requires comparing the value of demand expansion through broader choice for consumers, with the value of higher product availability. We develop a model for trading off these values in a setting with limited store capacities and inventory replenishment, two features missing in the literature. The exact analysis of the single product case allows us to develop an accurate approximation for the multi-product case, which incorporates the cost of higher availability in a tractable manner, and hence can be embedded in an optimization framework. We provide algorithms to find optimal or near-optimal solutions.