On the Stability in Stochastic Programming: The Case of Individual Probability Constraints.

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Abstract: The problem of receiver collisions in multichannel multiaccess communication systems is studied in this paper. We develop a Poisson approximation method for the evaluation of the throughput performance measures under receiver collisions consideration assuming receiver buffer with capacity of one packet. Also we calculate the average rejection probability at destination of a packet in order to estimate the effect of receiver collisions on the throughput performance and the total loss probability as a measure of the multichannel system behaviour. The evaluations are carried out for Multichannel Slotted Aloha-type protocols with Poisson arrivals and finite population. Also numerical results are showing the throughput reduction as it compared with the protocol case without receiver collisions.