

## Decomposition of the Customer-Server Interaction in Grocery Shops

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**Abstract :** A successful shopping experience without overcrowded shops and long waiting times undoubtedly leads to the release of happiness hormones and is generally considered the goal of any optimization. Factors influencing the shopping experience can be divided into internal and external ones. External factors are related, e. g. to the arrival of the customers to the shop, whereas internal are linked with the service process itself when checking out (waiting in the queue to the cash register and the scanning of the goods as well as the payment process itself) or any other non-expected delay when changing the status from a visitor to a buyer by choosing goods or items. This paper divides the customer-server interaction into five phases starting with the customer's arrival at the shop, the selection of goods, the buyer waiting in the queue to the cash register, the payment process, and ending with the customer or buyer's departure. Our simulation results show how five phases are intertwined and influence the overall shopping experience. Parameters for measuring the shopping experience are estimated based on the burstiness level in each of the five phases of the customer-server interaction.

**Keywords :** customers' burstiness, cash register, customers' wait-ing time, gap distribution function

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