

Comparison and Polyhedral Properties of Valid Inequalities for a Polytope of Schedules for Servicing Identical Requests

R. Yu. Simanchev^{1,2,*} and I. V. Urazova^{1,**}

Received May 11, 2023; revised June 13, 2023; accepted June 19, 2023

Abstract—The paper considers the convex hull of a set of schedules for servicing identical requests by parallel devices. Precedence conditions are given on the set of requests. All requests enter the service queue simultaneously and have the same service duration. Interruptions in request servicing are prohibited. Time is discrete. The polyhedral properties of some previously constructed classes of valid inequalities are studied. The “depth” cuts are compared, and the strongest subclasses of cuts are found. The relative position of the schedule polytope and hyperplanes generated by inequalities is also studied.

Keywords: schedules, polytope, valid inequality, comparison of inequalities.

DOI: 10.1134/S0081543823060202

¹Dostoevsky Omsk State University, Omsk, 644077 Russia

²Omsk Research Center, Siberian Branch of the Russian Academy of Sciences, Omsk, 644025 Russia
e-mail: *SimanchevRiu@omsu.ru, **UrazovaIV@omsu.ru