

Mechanism without payment – a scheduling application *

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There have been many studies recently about scheduling problems in strategic settings. In this presentation, project agents are considered, having private due dates, jobs with precedence relations, and non-renewable resource requirements. The utility is defined by the project tardiness, which the agent wants to minimize. This problem is very similar to a one-sided, many-to-many matching, where the supplied resources should be allocated among the competing jobs. Firstly, it is shown that there is no truthful mechanism that always maximizes the egalitarian or the utilitarian social welfare (minimizes the maximal or the total tardiness). Then the Serial Dictatorship Mechanism (SDM) is introduced and studied for this problem, which is truthful and Pareto-optimal, furthermore, it can compute a schedule in polynomial time. Since there are Pareto-optimal solutions that cannot be generated by any deterministic SDM, finally a randomized version is presented.

*Based on a joint work with Tamás Kis.