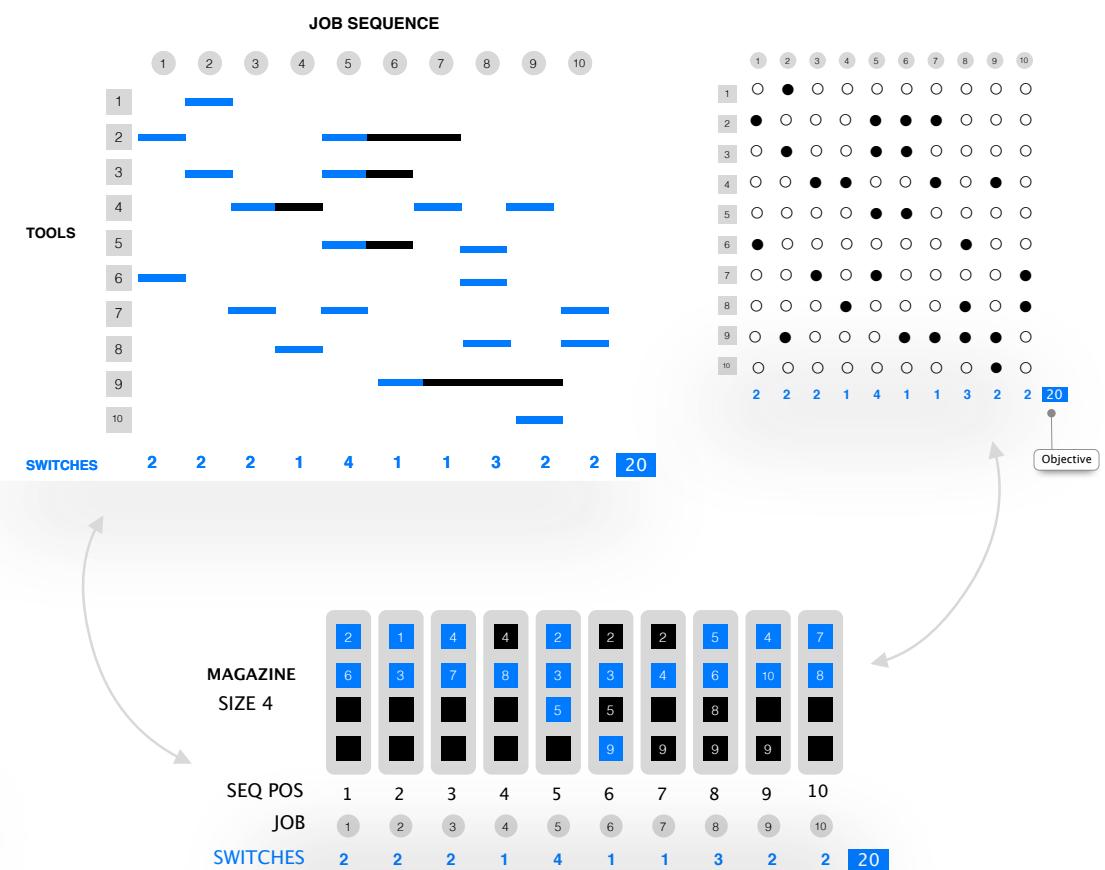


The Job Sequencing and Tool Switching Problem

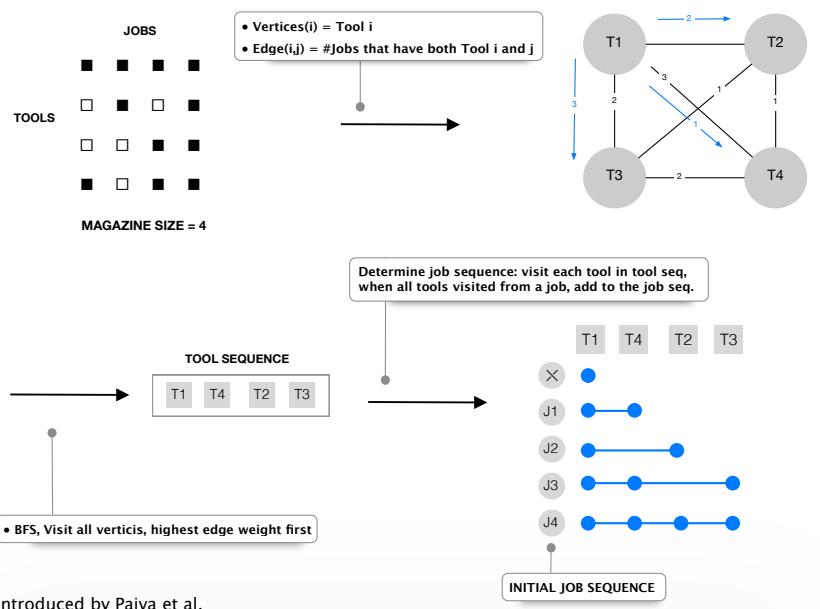
Abstract

Using tools for an extended amount of time without repeated switching is an efficient way to execute tasks or jobs. Frequently machines are capable of handling various jobs that each require their own set of tools. It is not conceivable to store these all at once. Hence switching is required, a time-consuming process. However, it is possible to significantly lower these switching times. By precisely arranging these jobs and accommodating tools that are required later. Utilizing a heuristic approach it is possible to solve these problems that would otherwise be impracticable to solve.



Method

INITIAL SOLUTION

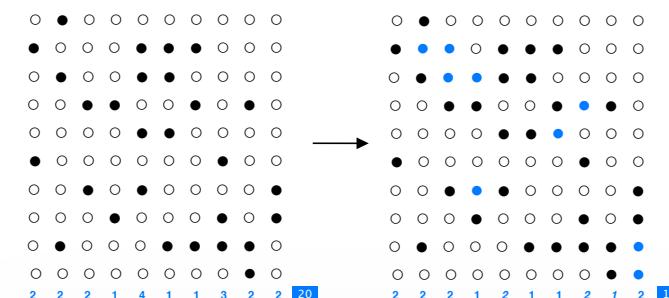


DECODER

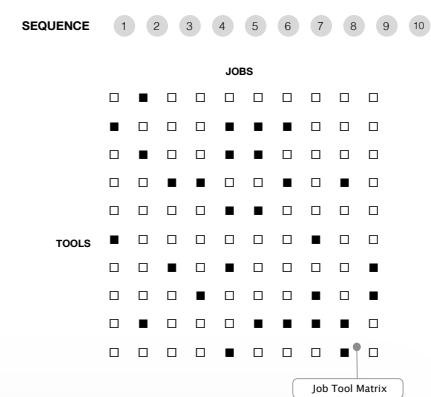
Converts an indirect solution to a full one. This solution consists of the job sequence and the job-tool matrix. The job tool-matrix contains the tools needed for each job. These include tools required by the job and by a subsequent job. They are determined using the Keep Tool Nearest Soonest policy or KTNS.

KTNS

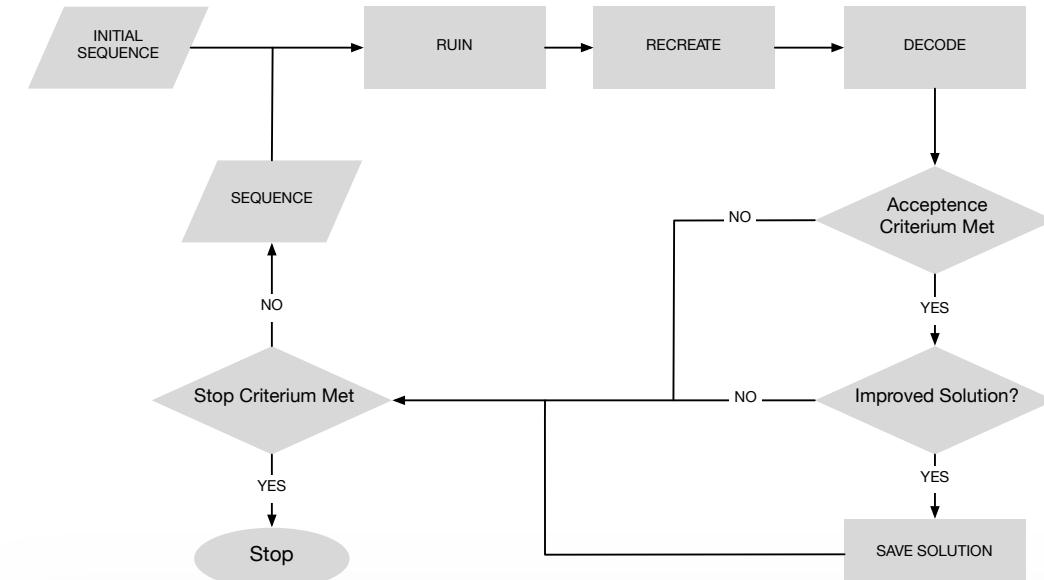
- Tools are only inserted when they are needed.
- When tools need to be removed to accommodate new tools, remove the ones needed the least soon. i.e. "keep the tools needed soonest"



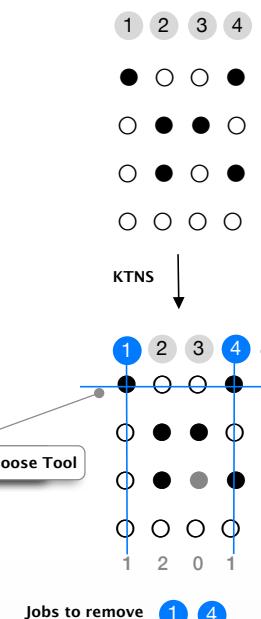
FULL SOLUTION



LOCAL SEARCH



RUIN



RECREATE

