

Queueing for Themis: an agent-based model of adjudication in the Polish Supreme Court

PROBLEM

At this stage, my research is focused on defining and operationalizing the most important aspects of judicial system. This presentation addressess problem of allocation of resources and efficacy of case processing by using statistical and sociometric data to simulate the process of adjudication in the Civil Chamber (CC) of the Polish Supreme Court (SC).

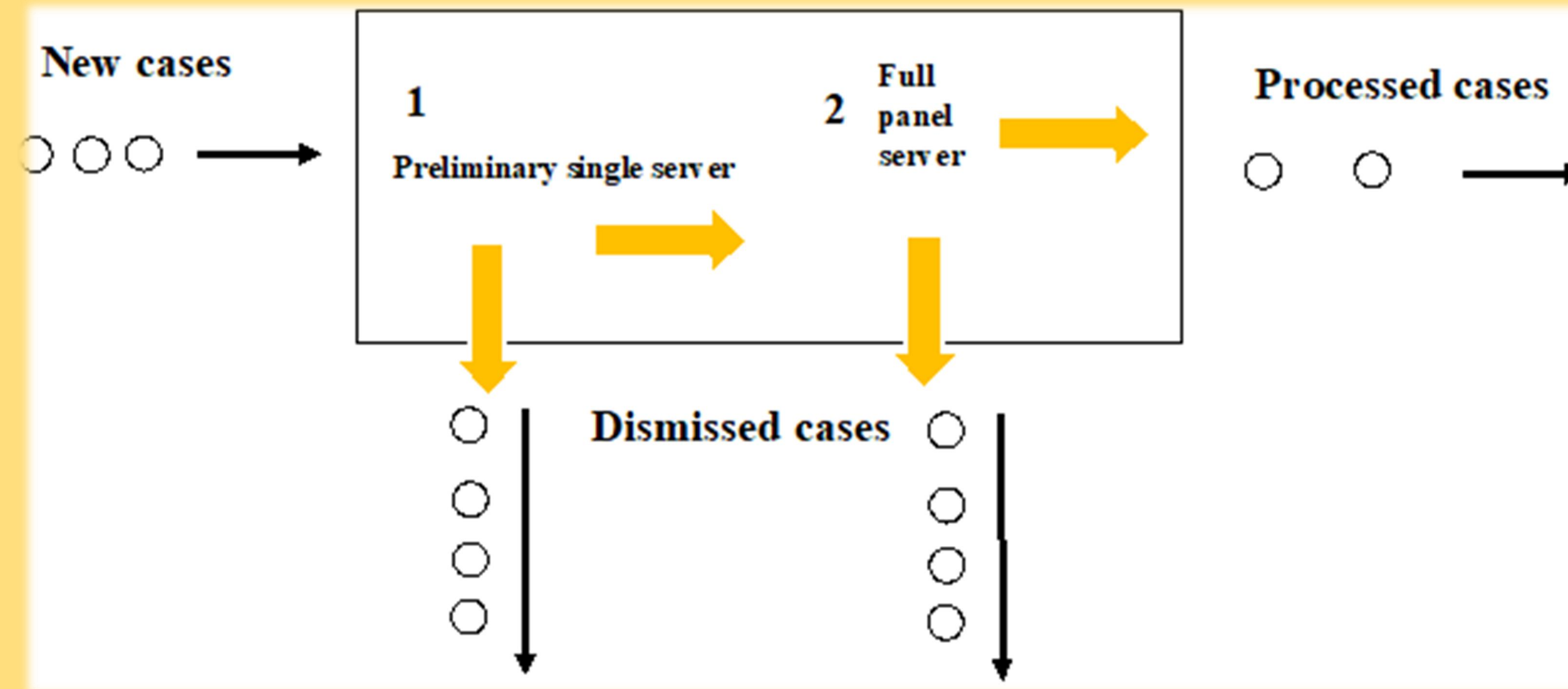


Fig. 1 Queue visualization: two types of servers

DESIGN

Case input is sorted in two stages (Fig. 1): first a single judge decides whether a case is admissible, then a simple panel, or an extended panel of judges, considers it meritorically. Each judge can be a single server, a part of triadic server or a larger serving group. Each case has its own complexity and legal subject. Every judge has their own legal expertise (semantic closeness), career homophily score with other judges (Fig. 2) and overall attention specification (case processing capacity).

A single model run consists of (Fig. 3): case assignment, preprocessing, processing, collegial interaction, further processing and assesment of performance. The behavior of agents is guided by interaction of their own variables with the cases to which they are assigned, but the collegial interaction component, which serves as a proxy for internal communication, affects case processing by either stalling or smoothing the process.

The input data come from official statistics, which tell us that of 6713 cases on average present each year in the CC 72% are addressed at all, but only one third of those are processed meritorically (usually by a triadic panel), which means, that only a handful of cases are exposed to parts of the model other than individual agents (preprocessing). This is finding is included by fixing the amount of complex cases at the intialization of the simulation. Other variables distributions are either drawn from sociometric and socio-semantic analyses performed by the researcher or chosen randomly.

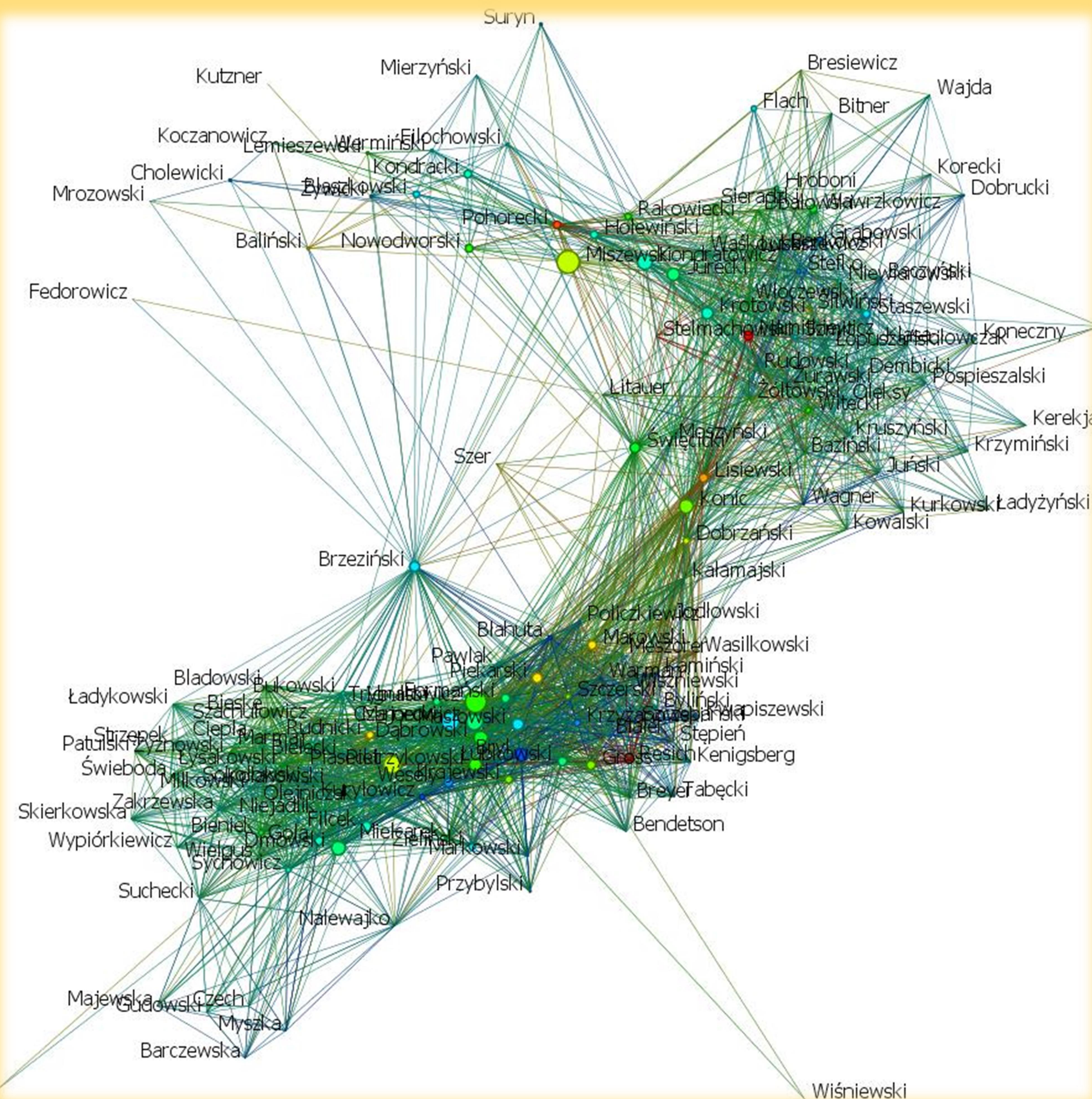


Fig. 2 Aggregated social network of co-worker relations in the CC, colors indicate career similarity

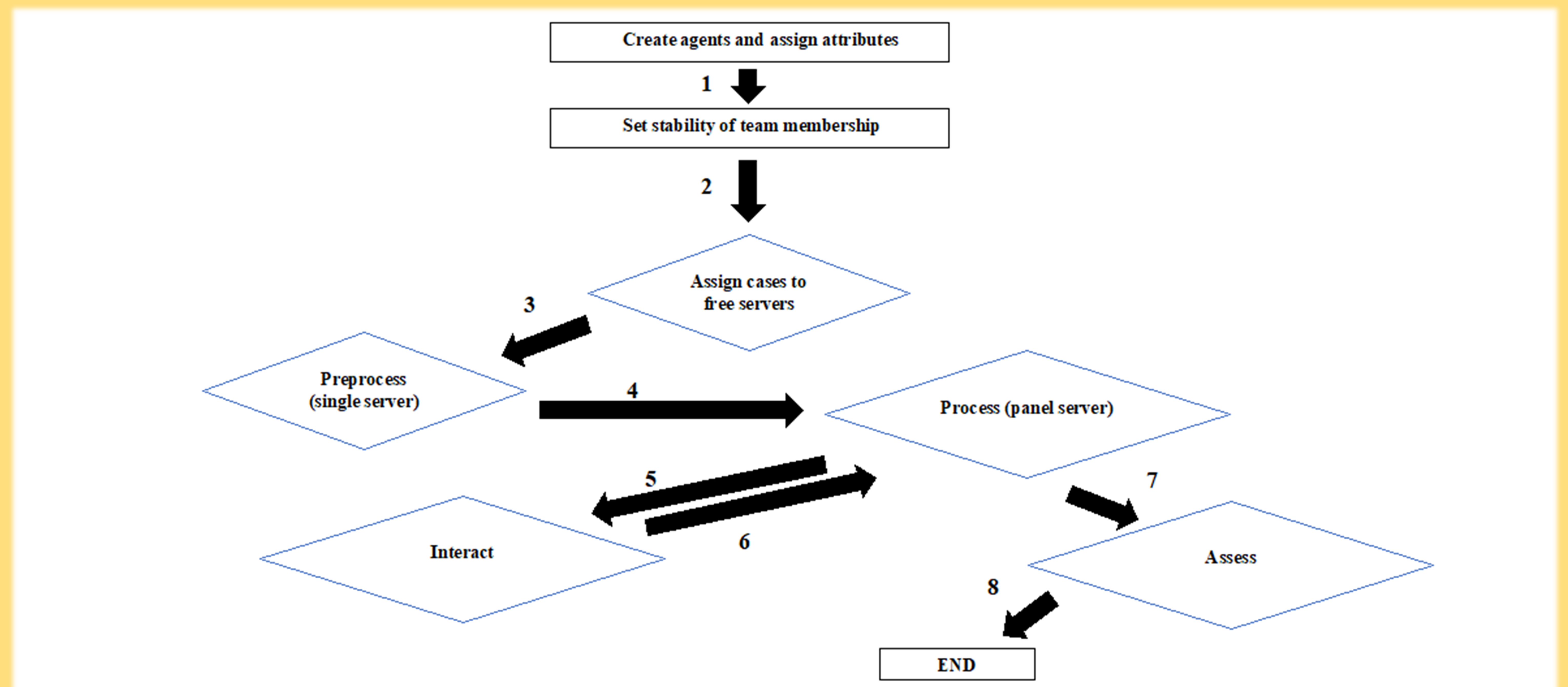


Fig. 3 Overview of process scheduling