Modeling Airplane Boarding Procedures

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Summary

We describe two models that simulate the process of passengers boarding an an aircraft and taking their seats. Using these models, we simulate common boarding procedures on popular aircraft to analyze efficiency. The second model is more ambitious and tries to model the situation more accurately, but even the first one addresses the major problems involved in boarding an airplane.

From running the simulations and analyzing the data, we find that the fastest and most consistent procedures are outside-in and reverse-pyramid. Both allow those closest to the windows to be seated first and proceed inward (though reverse-pyramid is slightly more complex). Reverse-pyramid is slightly faster.

The text of this paper appears on pp. 435–450.