

## **A diagram of school choice algorithms and educational decision-making: Lines of segmentation, automation, flight**

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School choice is often presented as either systemic decisions of provision, or parental and student decisions of preference. This paper explores an alternative, multi-layered dimension: the situated histories and possibilities of automated decision-making in the context of school choice. We examine how various matching mechanisms have emerged over time across particular sites of educational controversy and reform: such as the ‘Boston matching’ mechanism, the student-proposing ‘deferred acceptance’ mechanism, and the ‘first preference first’ mechanism (Sönmez 2015). In general, a school choice problem is based upon “a finite set of students and schools, each with maximum capacity. Each student has a preference over all schools and remaining unassigned, and a priority score at each school” (Dur et al 2018, p. 3). The difference between these mechanisms are the varying models, or parameters, which frame a particular field of preferences (or rankings), plus the procedures for subsequent allocation rounds which lead to matching outcomes. Controversy arises when students, parents, and other educational stakeholders, highlight the limits of these various mechanisms, such as: being viewed as unfair or easily manipulable to ‘game’ the system, or lack of attention to racial diversity (Mennle & Seuken 2017; Cassano 2019).

The purpose of the multidimensional line of inquiry in this paper is to counter discourses about the newness and efficiencies of introducing algorithms to educational policy and practice. We draw upon the philosophy of Deleuze and Guattari to pilot this analysis of education and automated decision-making across three layers. In the first layer, we trace the history of school choice, issues of race, geography, and socio-economic status, alongside educational decision-making pressures. The second layer outlines a history of school choice algorithms and their integration across the sector over different time periods and locations. A third layer then exposes how these historical, technical, and political forces converge in a continual struggle between bias and becoming with diverse constituents. In surfacing these lines of segmentation, automation, and flight, we reveal automated decision-making in education as an unfolding and refolding process, plus identify implications for future educational policy and practice.

