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Gaming the deferred acceptance when message spaces are restricted. (English summary)

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This paper considers a many-to-one matching problem, the 'school choice problem', also known as the 'college admissions problem'. Each student can attend only one school, but each school can accept students up to some quota. Two mechanisms for allocating students after each student submits a list of preferences over schools are considered: the Boston mechanism and the Deferred Acceptance mechanism. A previous paper [G. Haeringer and F. Klijn, J. Econom. Theory 144 (2009), no. 5, 1921–1947; MR2887018 considered the case in which students are restricted to submitting lists of preferences of finite length. That paper considered schools with responsive preferences. The paper under discussion relaxes the assumption of responsiveness and instead assumes the weaker condition that schools' preferences are substitutable. Nash equilibria of the game in which students submit their preference lists before the mechanism allocates them are considered. It is shown that the Nash equilibria under the Boston mechanism correspond to (pairwise) stable matchings. In contrast, there may exist Nash equilibria under the Deferred Acceptance mechanism that are not stable. It is determined that an acyclicity condition found in [T. Kumano, "Efficient resource allocation under acceptant substitutable priorities", preprint, 2009 suffices for equivalence of the set of Nash equilibria under Deferred Acceptance and the set of stable matchings. Finally, a stricter acyclicity condition is introduced that ensures that there exists a unique stable and efficient assignment that is a Nash equilibrium under both mechanisms.

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