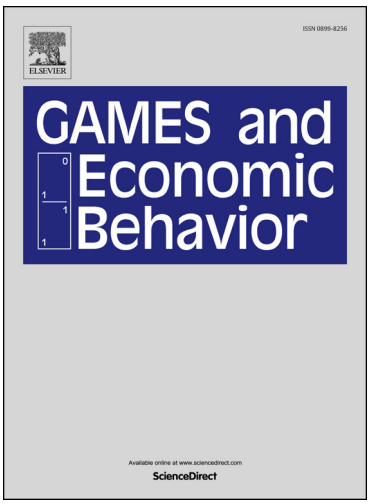
Accepted Manuscript



Lone wolves in infinite, discrete matching markets

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PII: S0899-8256(18)30046-0
DOI: https://doi.org/10.1016/j.geb.2018.03.015
Reference: YGAME 2853

To appear in: *Games and Economic Behavior*

Received date: 31 August 2016

Please cite this article in press as: Jagadeesan, R. Lone wolves in infinite, discrete matching markets. *Games Econ. Behav.* (2018), https://doi.org/10.1016/j.geb.2018.03.015

Lone wolves in infinite, discrete matching markets[☆]

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Abstract

In finite two-sided matching markets, the lone wolf theorem guarantees that the same set of agents remains unmatched in all stable outcomes. I show by example that this assertion is not true in infinite, discrete markets. However, despite the fact that the lone wolf theorem is often used to derive strategy-proofness, the deferred acceptance mechanism remains (group) strategy-proof in many infinite markets.

Keywords: Matching, Large markets, Lone wolf theorem, Strategy-proofness
JEL: C78, D44, D47, D82

1. Introduction

Since Gale and Shapley (1962), economists have studied stable outcomes in two-sided matching markets and the deferred acceptance (Gale–Shapley) algorithm, which finds a stable outcome. Variants of deferred acceptance mechanism have been implemented, for example, to match doctors to hospitals (Roth, 1984a; Roth and Peranson, 1999) and students to public schools (Balinski and Sönmez, 1999; Abdulkadiroğlu and Sönmez, 2003; Abdulkadiroğlu, Pathak and Roth, 2005a; Abdulkadiroğlu, Pathak, Roth and Sönmez, 2005b; Pathak and Sönmez, 2008, 2013).

The *Lone Wolf Theorem* (McVitie and Wilson, 1970; Gale and Sotomayor, 1985) illustrates a desirable property of the set of stable outcomes, namely that the set of unmatched agents does not depend on the choice of stable outcome. Generalizations of the Lone Wolf Theorem imply, for example, that the choice of stable mechanism does not affect the number of doctors assigned to any hospital residency program (Roth, 1984a) or the set of doctors assigned to a residency program with open seats (Roth, 1986) in the medical residency match without couples.

Classical matching theory has assumed that the set of agents is finite. This paper extends the theory of one-to-one matching to infinite, discrete markets, with a focus on the lone wolf

[☆]This research was conducted while the author was an Economic Design Fellow at the Harvard Center of Mathematical Sciences and Applications. I would like to thank Michael Greinecker, Scott Kominers, Ross Rheingans-Yoo, Ran Shorrer, a workshop audience at MATCH-UP 2017, the anonymous referees, and the editor, David Levine, for helpful comments.

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