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IMPLEMENTATION VIA APPROVAL MECHANISMS*

MATÍAS NÚÑEZ^a AND DIMITRIOS XEFTERIS^b

ABSTRACT. We focus on the single-peaked domain and study the class of Generalized Approval Mechanisms (*GAMs*): First, players simultaneously select subsets of the outcome space and scores are assigned to each alternative; and, then, a given quantile of the induced score distribution is implemented. Our main finding is that essentially for every Nash-implementable welfare optimum –including the Condorcet winner alternative– there exists a *GAM* that Nash-implements it. Importantly, the *GAM* that Nash-implements the Condorcet winner alternative is the first simple simultaneous game with this feature in the literature.

KEYWORDS. Nash Implementation, Strategy-proofness, Approval Voting, Single-Peakedness, Condorcet winner.

JEL CLASSIFICATION. C9, D71, D78, H41.

1. INTRODUCTION

In the single-peaked domain, the Nash-implementable welfare optima, practically, coincide with the outcomes of Generalized Median Rules (*GMRs*).¹ In simple terms, the outcome of a *GMR* is the median of a set of points that consists of: a) the voters’ ideal policies and b) some exogenous values also known as phantoms. As proved by Moulin [1980] *GMRs* are the unique social choice rules that satisfy efficiency and strategy-proofness, while Berga and Moreno [2009] established that strategy-proof rules which are “not too bizarre” (in the context of Sprumont [1995])² are the only implementable ones.

However, one should note that the direct revelation game of each *GMR* need not lead to the same outcome as the *GMR* itself. In this respect, the direct revelation games of *GMRs*

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¹In the present paper’s context, a welfare optimum is the outcome of social choice rule (Maskin [1999]), the set of alternatives is $A = [0, 1]$ and the set of possible preference relations consists of the single-peaked ones in A .

²That is, restricting attention to anonymous rules that implement each of the alternatives for at least one preference profile.

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