Abstract of the Dissertation

Robust Strategic Behavior and Learning

by

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We discuss issues of robustness and learning in games. Chapter 1 includes preliminary material. In Chapter 2, we consider type sequences from two different versions of communication structure in the email game of Rubinstein (1989). We show that a simple modification to the email game communication structure produces a type space which owns certain robustness properties. We elaborate more on this by introducing a subjective notion of similarity of beliefs among players.

In Chapter 3 we define a neutral state to be a "universal" state at which players are indifferent between any two actions for any given game. We show that given such a state one can approximate any type in its strategic properties by a sequence of finite common prior types. This provides some support for the utilization of finite common prior types in economic analysis.

In Chapter 4 we discuss common learning problem introduced by Cripps et al. (2008). We translate the problem into an infinite spaces framework and
generalize their results. We discuss both independent and correlated distribution cases. We also highlight the possible role of boundedly rational methods in common learning.

Chapter 5 makes a brief note on the failure of common learning when signal processes are uncertain. We suggest a straightforward modification to Cripps et al. (2008) result to cover for such uncertainties.

Chapter 6 introduces a model of subjective learning where a filtration is put on the support of a given type of a player’s belief function. We show here that resulting learning process converges in strategic topology. In particular, if a player learns her opponents’ beliefs level by level through time, then the resulting process converges in strategic topology, making the learning procedure robust around the limiting type.