

CONFERENCIA

Unilateral support equilibria

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Data: **2 de maio de 2019.**

Hora: **12:30 h.**

Lugar: **Aula de Graos Víctor Gulías – Facultade de Informática.**

Resumo

The concept of Berge equilibria (Berge, 1957) is based on supportive behavior among the players: each player is supported by the group of all other players. Therefore, a Berge equilibrium is also called a mutual support equilibrium (Colman, Kørner, Musy, and Tazdait, 2011). In this paper, we further explore and extend the idea of Berge (1957), by maintaining the idea of supportive behavior among the players, but eliminating the underlying coordination issues. We suggest to consider individual support rather than group support. The main idea is to introduce support relations, modeled by derangements. In a derangement, every player supports exactly one other player and every player is supported by exactly one other player. Subsequently, we define a new equilibrium concept, called a unilateral support equilibrium, which is unilaterally supportive with respect to every possible derangement.

We show that a unilateral support equilibrium can be characterized in terms of pay-off functions so that every player is supported by every other player individually. Furthermore, it is shown that every Berge equilibrium is also a unilateral support equilibrium. Moreover, we provide an example in which there is no Berge equilibrium, while the set of unilateral support equilibria is non-empty. Finally, the relation between the set of unilateral support equilibria and Nash equilibria is explored.