Eliminations of Dominated Strategies
and Inessential Players: an Abstraction Process[*]

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Abstract

We study the process of iterated elimination of strictly dominated strategies and inessential players from a finite strategic game, abbreviated as the IEDI process A resulting finite sequence from this process is called a W-IEDI; and if all the dominated strategies and inessential players are eliminated at each step, it is called the IEDI. First, we show that any W-IEDI preserves Nash equilibrium (and many other solution concepts). The second result, an extension of the order-independence theorem, is that the IEDI is the shortest and smallest W-IEDI with the same resulting endgame. We have the third result about necessary and sufficient conditions on possible shapes and lengths for IEDS's to a given endgame. The conditions indicate a great variety of sequences possibly generated by the IEDI process. We interpret those results from the perspective of abstracting from social situations.

Key Words: Finite Strategic Form Games, Dominated Strategies, Inessential Players, Iterated Elimination, Order-Independence

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