From Nakamura Number to Stability Index

(Incomplete and preleminary)

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December 12, 2004

Abstract An interactive form is an abstract model of interaction that generalizes Simple Games and Effectivity Functions. The core, as a solution, as well as the correlated notion of stability can be extented to Interactive Forms. Necessary and sufficient conditions for stability can also be established in this setting, expressed by the absence of cycles. A Stability Index that plays a role similar to that of the Nakamura Number can be defined. This Index measures, loosely speaking, the strategic complexity of a an interactive form. If it is small than it is easy to find in the interacting society a preference profile that prevents the emergence of a solution. To any Strategic Game Form one can associate a special interactive form in such a way that given an equilibrium concept (Nash , strong Nash or others) and a preference profile, solutions of the interactive form are precisely the equilibrim outcomes of the game. As a consequence we have necessary and sufficient conditions for the solvability of the Game Forms. The model allows also a localization of the index in case of instability.

Keywords: Interactive Form, Stability Index, Nash Equilibrium, Strong Equilibrium, Solvability, Consistency, Simple Game, Effectivity Function, Acyclicity.

JEL Classification: C70, D71 **AMS Classification:** 91A44

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