Hayashi, Takashi; **Lombardi, Michele**
Constrained implementation. (English) | Zbl 1422.91233 |
J. Econ. Theory 183, 546-567 (2019).

Summary: Consider a society with two sectors (issues or objects) that faces a design problem. Suppose that the sector-2 dimension of the design problem is fixed and represented by a mechanism Γ^2, and that the designer operates under this constraint for institutional reasons. A sector-1 mechanism Γ^1 constrained implements a social choice rule φ in Nash equilibrium if for each profile of agents' preferences, the set of (pure) Nash equilibrium outcomes of the mechanism $\Gamma^1 \times \Gamma^2$ played by agents with those preferences always coincides with the recommendations made by φ for that profile. If this mechanism design exercise could be accomplished, φ would be constrained implementable. We show that *constrained monotonicity*, a strengthening of (Maskin) monotonicity, is a necessary condition for constrained implementation. When there are more than two agents, and when the designer can use the private information elicited from agents via Γ^2 to make a socially optimal decision for sector 1, constrained monotonicity, combined with an auxiliary condition, is sufficient. This sufficiency result does *not* rule out any kind of complementarity between the two sectors.

MSC:

91B14	Social choice
91A40	Other game-theoretic models

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constrained implementation; mechanism design; Nash implementation

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