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"Dynamically stable matching"

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The article offers a foundational analysis of stability in dynamic matching markets, where participants join sequentially, so that some can only match later than others, matching is irreversible, and non-transferable payoffs are time-discounted. The decision to accept early matches depends on beliefs about later matching opportunities; in turn, later allocations depend on early decisions, a two-way intertemporal feedback that illustrates new payoff externalities. Therefore, dynamics, a pervasive feature of real-world matching markets, raise challenges pertaining to the identification of blocking pairs and to agents' beliefs about how matching will unfold in subsequent periods. The article elucidates these challenges and proposes, as a resolution, a recursive notion of dynamic stability: agents who are still available accept the proposed matching, which is then self-enforcing, if and only if they prefer it over at least one conjectured future matching (of the remaining agents in the continuation economy) which is itself self-enforcing in the same sense. Doval proves the existence of a dynamically stable matching. Existence is shown, by example, to fail if one requires that an agent prefer the current matching to all possible future self-enforcing matchings, recursively defined according to the same criterion. So, her analysis and proposed notion of dynamic stability clarify the tension that emerges in dynamic incentives to block allocations. Finally, Doval shows that dynamically stable allocations have desirable non-cooperative properties, which help to tackle the complexities of designing a dynamic matching market. When implementing a matching through an appropriate mechanism, only in a dynamically stable matching agents do not strategically delay, but participate in the market in a timely fashion. Furthermore, dynamic stability is necessary for a matching to arise as subgame perfect outcome of a sequence of spot mechanisms, which condition only on available participants and on their reported preferences, not on future matching opportunities. Overall, this article is a fundamental contribution to market design, an important and ever-expanding area of theoretical investigation and practical implementation.