Robert Axelrod and Robert O. Keohane, "Achieving Cooperation under Anarchy: Strategies and Institutions." *World Politics*, Vol. 38, No. 1 (Oct., 1985), pp. 226-254.

Harmony is a complete identity of interests between players,
Cooperation is the adjustment of behaviour to (perceived) preferences of others, and
Anarchy is the lack of a sovereign government – though not necessarily a loose international society – overlaying national governments.

Most international issues can cogently be considered within a game-theoretic framework. Axelrod and Keohane examine games as two moieties: the structure of the game, and the context of the game. While game theoreticians often ignore the context of the game (and are justified in doing so for isolated and dominant questions), Axelrod and Keohane think it vital for most international questions, whether political-economic or military-security.

Following Oye, the authors isolate three components of game structure as material in enabling cooperation under anarchy. First, the **payoff structure** is key: the greater the (perceived; pace Jervis, beliefs and cognition are emphasized) convergence between players' preferences over outcomes, the greater the probability of successful cooperation. For example, moving from a Prisoners' Dilemma to a Stag Hunt increases the likelihood of cooperation. Conversely, changing a Prisoners' Dilemma to a Deadlock – and thereby increasing the conflict of interest – reduces the likelihood of cooperation. Second, iteration can aid in achieving cooperation, as it introduces "the **shadow of the future**." Cooperation is especially likely when there are long time horizons; regular stakes; and quick, reliable information about others' actions. The possibility of iteration perhaps explains why one more often observes cooperation in economic issues than in security issues – very few trade or monetary decisions have the potential to eliminate the future for a state.[1] Third, monitoring and sanctioning are easier in games involving a smaller **number of players**: identifying defector(s) and designing non-futile punishments targeting only those defector(s) becomes immeasurably more difficult in games involving large numbers of actors.

Contextual issues, whether Ruggiean norms or international institutions, matter too; Axelrod and Keohane examine multilevel games as the most important question of context. The levels in multilevel games can be substantive (as in cases of issue linkage and (in)compatible games) or geographic (as when domestic policies affect foreign policies and vice versa). Issue linkage facilitates cooperation by allowing for logrolling and "back-scratching:" each party may be willing to grant concessions on a lesser issue in exchange for something deemed more important. However, issue linkages also allows for welfare-reducing "blackmail," wherein states issue threats on one issue to secure concessions on another. Incompatible games occur when cooperating in one game implies defecting in another; for example, coming to the aid of an ally (cooperation) may involve declaring war on a third country (defection). A particularly interesting aspect of multilevel games is the prospect of reciprocity; reciprocity can reinforce norms of cooperation (á la Tit-for-Tat), escalate feuds, and lead to overvaluation of concessions.

A common method of attempting to reap the above benefits while sidestepping the associated pitfalls is through the establishment of formal or informal international régimes. Such régimes serve to institutionalize reciprocity, even when they lack powers of enforcement, and can also help establish new norms. Setting up régimes, however, is difficult, especially when there is no hegemon to unilaterally impose hierarchies. Smaller powers may, through trial and error, hit on an effective institutional form, but since all institutions eventually become obsolete, the interaction between top-down institutions and bottom-up strategies needs to be studied further.

[1] There went *that* scheme to rid the world of Belgium.