

Can game theory prevent a war?

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The Iranian/Israeli conflict can be explained as a prisoner's dilemma, which is the most famous game theory model. In the classic prisoner's dilemma game, there are two players who do not cooperate. And while each player makes choices that benefit that player, both players end up being worse off than if they had cooperated and agreed on a different outcome.

In the Iranian / Israeli situation peace is a good outcome but it is unlikely to last. Why? Because whatever Israel does, Iran has an incentive to strike Israel. If Israel sends a missile to destroy an Iranian consulate (as it did), then Iran will be better off if it strikes Israel with its own missiles and drones. Or to take the other case, if Israel does not attack Iran, Iran is still better off by launching drones and missiles against Israel. In either case, Iran benefits from knocking out some military assets of its adversary.

Israel faces a similar situation: regardless of whether Iran attacks Israel, Israel is better off by attacking Iran and knocking out some Iranian military assets. Because both nations have an incentive to attack each other, the result is two-way hostilities that leave both nations

worse off than if they had agreed to keep the peace. During the war, both countries will have military assets destroyed and citizens killed.

The problem these countries face is how to cooperate when each country has an incentive to cheat on an agreement to be peaceful. One solution that has been discovered by scholars analyzing prisoner's dilemmas is the tit-for-tat strategy. To see how this strategy would work in the Iranian / Israeli situation, suppose the countries take turns deciding whether to be peaceful or whether to be hostile. If Iran plays a tit-for-tat strategy, it will start off being peaceful and if Israel attacks it, then Iran will retaliate against Israel but only during its next turn and only with as much force as Israel used in its attack. Soon Israel will realize that another attack on Iran will be met with a similar attack against Israel. Israel will want to avoid the retaliatory attacks, so it will stop striking Iran. In a similar fashion, if Israel plays a tit-for-tat strategy, Iran will decide against striking first.

It will be interesting to see if the leaders of Iran and Israel can limit themselves to retaliating with a force equal to the force used against it. As already mentioned, Israel attacked an Iranian consulate in Syria. But did Iran use more force in its retaliatory strike? That is an

open question. It launched 200-300 drones or missiles at Israel, which seems like an escalation. But these projectiles were launched over a five-hour period, which enabled Israel and its allies to shoot down almost all of these weapons. Iran's counterattack did almost no damage, so it may not have been an escalation. If it was not, there is a chance that the tit-for-tat strategy is being implemented and peace may emerge as the outcome.

On the other hand, Israel could think that Iran's counterattack, which aimed at targets inside Israel, was an escalation, which may lead Israel to retaliate. There is a real danger here. Israel could be looking at the number of projectiles that Iran fires and think that it needs to increase the number of drones that it launches at Iran. Israel's attack will do substantial damage to Iran. Iran will see this devastation and decide that a commiserate attack will require even more missiles.

In short, if Israel decides to play tit-for-tat by counting the number of missiles and drones fired at Israeli soil and if Iran plays the strategy by looking at the damage the attacks do, there is a danger that the tit-for-tat strategy will not lead to peace.

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