## Mathematics＞Dynamical Systems

## Lanchester Theory and the Fate of Armed Revolts

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Major revolts have recently erupted in parts of the Middle East with substantial international repercussions．Predicting，coping with and winning those revolts have become a grave problem for many regimes and for world powers．We propose a new model of such revolts that describes their evolution by building on the classic Lanchester theory of combat．The model accounts for the split in the population between those loyal to the regime and those favoring the rebels．We show that，contrary to classical Lanchesterian insights regarding traditional force－on－force engagements，the outcome of a revolt is independent of the initial force sizes；it only depends on the fraction of the population supporting each side and their combat effectiveness．We also consider the effects of foreign intervention and of shifting loyalties of the two populations during the conflict．The model＇s predictions are consistent with the situations currently observed in Afghanistan，Libya and Syria（Spring 2011） and it offers tentative guidance on policy．

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