



# FORECASTING FAQS

## THE WAR IN IRAQ: SHOULD WE HAVE EXPECTED BETTER FORECASTS?

by Kesten C. Green and J. Scott Armstrong



Kesten Green is a Senior Research Fellow of the Business and Economic Forecasting Unit, Monash University and Managing Director of Decision Research Ltd. He has published in the *International Journal of Forecasting* and presented papers at many international symposia. In recent years, he has been researching the problem of how best to predict the decisions people will make in conflict situations. Prior to his academic career, Kesten spent more than twenty years in business as a founder of four companies.



J. Scott Armstrong is Professor of Marketing at the Wharton School, University of Pennsylvania. He is a founder of the *Journal of Forecasting*, the *International Journal of Forecasting*, and the *International Symposium on Forecasting*. He is the creator of the Forecasting Principles website, ([forecastingprinciples.com](http://forecastingprinciples.com)) and editor of *Principles of Forecasting: A Handbook for Researchers and Practitioners*. He is one of the first six Honorary Fellows of the International Institute of Forecasters, and was named Society for Marketing Advances/JAI Press Distinguished Marketing Scholar for 2000.

Iraq continues to be in the news and confronts us with important questions about the predictability of decisions people make in conflict situations. To some, the plan to invade Iraq was based on poor forecasts about how troops would be received: reasonable people would not have made optimistic forecasts. Others, however, assert that it is hindsight bias that makes the prognosis so clear.

Which is correct?

To address whether decisions in conflicts can be accurately predicted, we conducted experiments. We prepared descriptions of eight actual conflict situations and disguised them. For example, in one situation “Midistan” (in reality, Syria), built a dam on the river that supplied water to another country “Deltaland” (which was Iraq). Deltaland massed its troops on the border and threatened to destroy the dam. Other than the disguised names, the information provided to the subjects accurately described real situations.



While we have been unable to determine which forecasting methods were used for the current war in Iraq, forecasts in such situations are typically made by experts without the help of formal forecasting procedures. So we asked subjects to use their judgment to predict what decision would be made in each of our situations (Green, 2005). For example, in the Midistan-Deltaland conflict, there were decision options to bomb the dam, release additional water, or declare war. Typically, there were three or four feasible

decisions from which to choose. If our subjects merely guessed the actual decision for each of the eight conflicts, they would have predicted accurately 28 percent of the time.

When we used university students, their forecasts were accurate for only 31 percent of their 354 predictions, which was little better than chance. This suggests that decisions made in conflict situations are not obvious to reasonable people.

We then examined the results when we asked experts, rather than students, to



target situation before leaving them to interact. Thus, leaders of Midistan would meet with leaders of Deltaland. We were unable to obtain experts for this part of our research, so we used university students. For example, some of our participants were female students in their teens and early-20s playing the roles of middle-aged male political leaders in the Midistan-Deltaland situation. The interactions typically took less than an hour.

make predictions. We gave experts conflicts that matched their expertise. Only 31 percent of 101 forecasts by game theory experts and 32 percent of 106 forecasts by other experts (Green and Armstrong, 2004) were accurate. In short, *given correct information*, experts were no better than students in forecasting decisions made in conflict situations. Based on these findings, one cannot look at the results of the Iraq invasion and conclude that it would have been easy to forecast the events that have unfolded. Those who claim otherwise are suffering from hindsight bias.

Our research has shown, however, that effective methods are available to forecast decisions in conflict situations. One method, which we call structured analogies, involves instructing experts to describe situations that are analogous to a target situation. The experts also rate the similarity of each analogy to the target situation, and match the outcomes in their analogies to potential target-situation outcomes. For example, if the target is the current situation in Iraq, the analogy of the Vietnam War implies troops will be withdrawn due to domestic pressure, whereas the analogy of Jefferson and the Barbary pirates implies eventual success after initial setbacks. Experts are asked to compare each of their analogies with the target and list similarities and differences before assigning scores for overall similarity.

The outcome of an expert's top-rated analogy is used as the forecast. In our study, structured analogies led to 46 percent correct predictions (based on 97 predictions made for our eight situations). These forecasts represented a substantial improvement compared to the 32 percent for unaided experts.

For structured analogies to be useful, experts must be able to identify analogies. An alternative procedure, which we call simulated interaction, does not have this restriction. It involves giving people roles and a description of the

When we have described our study to experts (without telling them the results), they have had no expectation that simulated interactions by students would improve accuracy. We were amazed by the results: simulated-interaction forecasts were correct for 62 percent of the 105 forecasts made by these groups. Combining improves accuracy (Armstrong, 2001). There were ten or more simulated-interaction forecasts for each conflict, and we found that the modal forecasts were accurate for seven (88 percent) of the eight conflicts.

The findings show that it is not sufficient to obtain the accurate information. It is also important to use formal forecasting methods that are based on empirical comparisons of reasonable methods.

While our research provides the only scientific tests of structured analogies and simulated interaction, variations of the latter method have been used in practice on a few occasions. Perhaps the most notable application was President Reagan's participation in simulated interactions prior to meetings with President Gorbachev in Geneva and Reykjavik (Matlock, 2004). These allowed Reagan to assess how Gorbachev would respond to different approaches and these meetings went well for both parties. In a more recent example, the *New York Times* reported that John Kerry

simulated his first debate with George Bush on September 30, 2004, whereas Bush merely talked through his possible replies (Wilgoren and Stevenson, 2004). Polls indicated that Kerry won the debate in the eyes of the viewers.



Organizations must often deal with conflict

situations. Like generals and diplomats, business managers who face situations such as corporate-takeover battles, hostile competition, and labor negotiations are likely to benefit from improved forecasts of the decisions adversaries will make.

Information on conflict-forecasting methods and copies of the papers we refer to are available at [www.conflictforecasting.com](http://www.conflictforecasting.com)

## References

Armstrong, J.S. (2001). Combining forecasts. In: J.S. Armstrong (Ed.), *Principles of Forecasting: A Handbook for Researchers and Practitioners*. Boston: Kluwer Academic Publishers.

Green, K.C. (2005). Game theory, simulated interaction, and unaided judgement for forecasting decisions in conflicts: Further evidence. *International Journal of Forecasting*, 21, 463-472.

Green, K.C. & Armstrong, J.S. (2004). Structured analogies for forecasting. Monash University Econometrics and Business Statistics Working Paper 17/04.

Matlock, J.F. Jr. (2004). *Reagan and Gorbachev: How the Cold War Ended*. New York: Random House.

Wilgoren, J. & Stevenson, R.W. (2004). The 2004 Campaign: Strategy; day after debate, campaigns assess the performances. *The New York Times*, October 2, Later edition – final, Section A, p. 10 column 1.

website sponsored by the IIF  
**ONLINE**



find  
[conflictforecasting.com](http://conflictforecasting.com)  
at  
[forecastingprinciples.com](http://forecastingprinciples.com)

### Contact Info:

Kesten C. Green  
Business and Economic Forecasting Unit  
Monash University  
[kestenc@kestencgreen.com](mailto:kestenc@kestencgreen.com)

J. Scott Armstrong  
The Wharton School  
University of Pennsylvania  
[armstrong@wharton.upenn.edu](mailto:armstrong@wharton.upenn.edu)