



Defence Academy  
of the United Kingdom

# Working out the fuzzy stuff

Major Tom Mouat

# Introduction

- About me.
- Just what are we talking about?
- Modelling Effects.
- Prediction and Role-Play.
- Keeping it simple.
- Getting Insights.
- The Changing World.
- Conclusions.

# About me.

- Simulation and Training for over 20 years.
- Exercise Planning Staff for HQ ARRC.
- Brigade and Battle Group Trainer.
- 5 years in Defence Procurement.
- Responsible for acquisition of VBS2.
- Responsible for Seminar Wargames at DSLP.
- DS for Sim & Mod at Defence Academy.
- Games for Cyber Education<sup>1</sup>.

1. <http://www.amazon.co.uk/Training-Warfare-Wargaming-Internet-Attacks/dp/1471634159>

# What are we talking about?

- COIN, OOOOW, EBT, EBA, EBO, Non-Kinetic effects, Hearts & Minds, Soft Effects, Shaping Operations...
- Training, morale, efficiency, cohesion, will-to-combat, leadership, motivation, public support, political will...

# What are we talking about?

- An area *lacking in predictable outcomes*.
  - Hostages.
- An *assumption of rational behaviour*.
  - General Butt Naked<sup>1</sup>.
- An area *lacking in numerical quantification*.
  - The AT-11 Sniper Missile problem.

1. [http://en.wikipedia.org/wiki/General\\_Butt\\_Naked](http://en.wikipedia.org/wiki/General_Butt_Naked)

# What are we talking about?

- "USJFCOM will *no longer use, sponsor or export the terms and concepts related to EBO*<sup>1</sup>".
- "...we must recognize that the term "effects-based" is *fundamentally flawed*, has far too many interpretations and *is at odds with the very nature of war* to the point it expands confusion and inflates a sense of predictability far beyond that which it can be expected to deliver."

1. Mattis, James N. "USJFCOM Commander's Guidance for Effects-based Operations." Parameters, Vol. XXXVIII, Autumn 2008.

# Modelling Effects

- Lists of factors
  - +1 for Flaming Pigs<sup>1</sup>
  - +1 for Dancing Pigs<sup>2</sup>
- PSOM
- Human in the loop
  - Overlays and triggers
- Very often *single sided...*
- Very often *hidden in a Black Box...*

1. [http://en.wikipedia.org/wiki/War\\_pig](http://en.wikipedia.org/wiki/War_pig)  
2. [http://en.wikipedia.org/wiki/Dancing\\_pigs](http://en.wikipedia.org/wiki/Dancing_pigs)

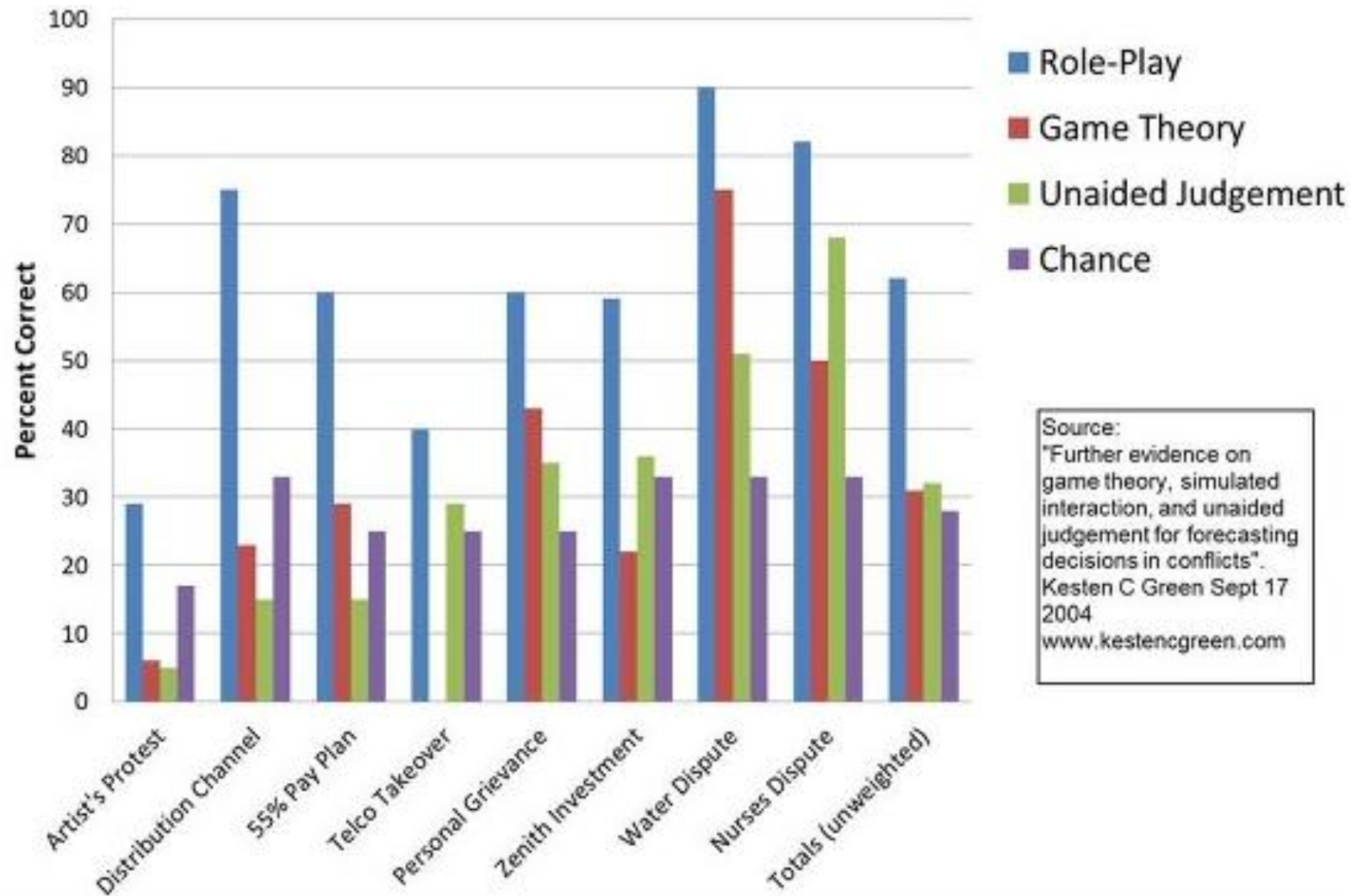
# Prediction and Role-Play

- "forecasts based on the results of role-playing sessions can make ***accurate predictions*** of human responses to conflict or change.<sup>1</sup>"

1. <http://knowledge.wharton.upenn.edu/article.cfm?articleid=72&source=rss>



# Prediction and Role-Play



Source:  
"Further evidence on  
game theory, simulated  
interaction, and unaided  
judgement for forecasting  
decisions in conflicts".  
Kesten C Green Sept 17  
2004  
[www.kestencgreen.com](http://www.kestencgreen.com)

# Keeping it Simple

- Describe it.
- Give reasons why it would work.
- Assess the difficulty and the reasons why.
- Come to a judgement.

# Keeping it Simple

But...

- Structure.
- Transparency.
- Adversaries.
  - Col Kurtz effect<sup>1</sup>.
- Otherwise it is just a BOGSAT...

1. Children and the Dark Side of Human Experience, J. Garbarino, 2008.

# Chris Engle Matrix Game

- Players *role-play* their point of view.
- Players distil objectives into a few bullet points.
- Player take it in turn to construct "*arguments*".
- Player states an *action* with a desired *outcome*.
- Provide reasons why or how (*Pros*).
- Opposition (and other players) provide reasons why *not* and how difficult (*Cons*).
- Adjudicator determines the balance of probabilities and the result is determined.

# Getting Insights

- *Wargaming* vs Simulation.
- *Narrative* vs forecast.
- *Experience* vs results.
- *Insights* vs numbers or tactics.
  
- Extremely effective at exposing assumptions.

# Wider Use

- Pure Matrix Game.
- As part of combat resolution.
  - BAM Scores + "Tactical Factors".
- Delivering "Soft effects" as part of a conventional simulation.
- Option down-selection.
- Reverse engineer likely action from a result.

# Examples:

- ARRC Bosnia Pre-Deployment.
- Unmanned Under-Water Vehicle Project.
- 1(UK)Div CPX.
- Interagency Experimentation in AU DoD<sup>1</sup>.
- Various Educational roles:
  - Military Language Training.
  - TEWT COA Elicitation.

1. The International C2 Journal, Vol 4, No 3, 2010-2011.

# Changing World

- There is a lot going on.
- Some of it happens at quite short notice.
  - Libya.



# THE RED LINE

Syria - 30 August 2013

TURKEY

Al Qamishli

Al Hasakan

Hasaka

Eastern Mediterranean

Latakia

Tartus

LEBANON

Dam

Daraa

As Suwayda

JORDAN

IRAQ



# Conclusions

- The best way of working out what *people* are likely to do is by using *people*.
- We need range of tools, including those that are:
  - *Simple* and *transparent*.
  - Able to be *generated quickly*.
  - *Inexpensive*.
  - *Effective* in generating insights.

# Useful Links:

- Chris Engle's website:
  - <http://hamsterpress.net/>
- The Open Ended Machine:
  - <http://theopenendedmachine.blogspot.co.uk/>
- Tom Mouat's Matrix Game page:
  - <http://www.mapsyms.com/wdmatrix.html>
- Wikipedia:
  - [http://en.wikipedia.org/wiki/Storytelling\\_game](http://en.wikipedia.org/wiki/Storytelling_game)
- MORNet:
  - <http://morsnet.pbworks.com/w/page/21676751/matrix%20games>



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