

Dice, Risk & Adjudication



DISCLAIMER

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Why do we need Adjudication?

- When things happen in a wargame where the outcome is not certain, we need to resolve the situation to understand what we do next.
- We need to see who won and who lost.
- But learning from failure is usually more important.

**IN WARGAMING
THERE SHOULD
BE NO FAILURE.
YOU EITHER
WIN OR YOU
LEARN.**

Some Types of “Engagements”

- Fights, where individual skill and experience is very important.
 - Individual RPG type Games.
- Fires, where individual skill and experience is less important – such as precision strikes and missile/counter missile engagements.
 - Modern Naval Games
- Battles, where relative odds, differences in training levels, and force posture are more important than individual skills.
 - Most higher level (Battlegroup +) games
- Unmeasurable, where human nature or lack of data is more important.
 - Politics, Morale, Influence, Cyber, Humiliation, Deeply held Beliefs.



Adjudication Methods

- Personal Judgement.
- Senior Officer Present.
- Military Judgement Panel.
- Rigid Adjudication.
 - Deterministic.
 - Stochastic.
- Combat Results Tables.
- Consensual.
- Crowdsourcing / Voting.



How do we *quantify* the chance of success or failure?

- **Individual records.**
 - Marksman: over 80% hits on target.
- **Trials and Historical Analysis.**
 - Weapon performance.
 - Armour protection.
 - Missile reliability and CEP.
- **Experienced Forces.**
 - Raw, Trained, Experienced, Veteran, Elite.
- **Based on personal judgement.**
 - Crowd Sourcing.



The Role of Chance

war, of all branches of human activity, is most like a game of cards.

Carl von Clausewitz, *On War*, Book 1,
Chapter 1.

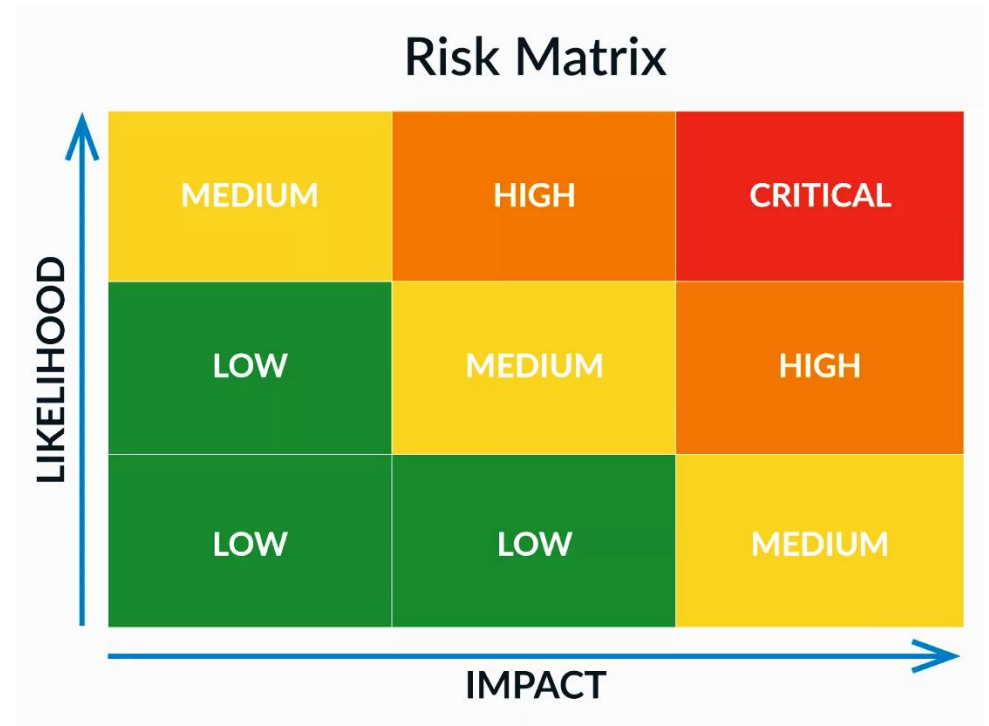


Why do we want to represent chance?

- Very little is certain, merely probable.
- We cannot account of every factor – nor should we try to.
- Generate a range of results.

- Chance represents risk.

- Can actually be more accurate.
 - Monte Carlo Simulations



Friction

"It is friction that differentiates real war from war on paper."

"Everything in war is very simple, but the simplest thing is difficult. The difficulties accumulate and end by producing a kind of friction that is inconceivable unless one has experienced war."

Carl von Clausewitz, On War, Book1 Chapter 7.



How do we realise the risk?

- Our Marksman shoots with an 80% base chance of a hit.
- We can roll a 100-sided (percentage) dice...
- But some people are reluctant to roll dice.
 - Associate dice with childish games.
 - Don't understand probability distributions.
 - Cultural Issues (China).
 - Cannot differentiate *Risk vs Gambling*.
 - "*Just roll the dice!*"



Dice: Risk, Success and Probabilities

- The 70% chance of success.
- What does success look like?
 - "Normal Success".
 - "Culminating Success".
 - "Unfortunate Success"
- What does failure look like?
 - "Common Failure".
 - "Defeat".
 - "Disaster".



But - is it necessary?

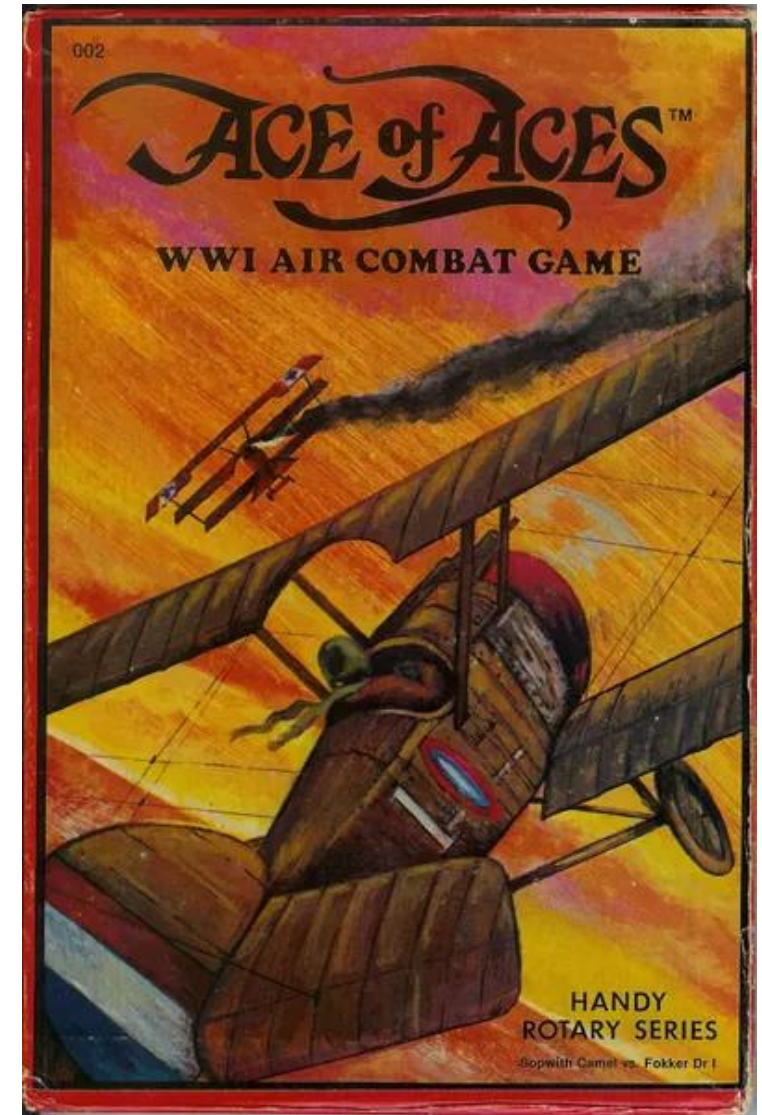
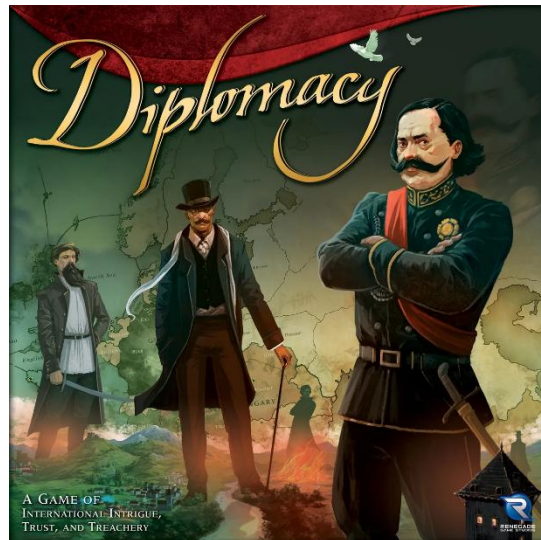
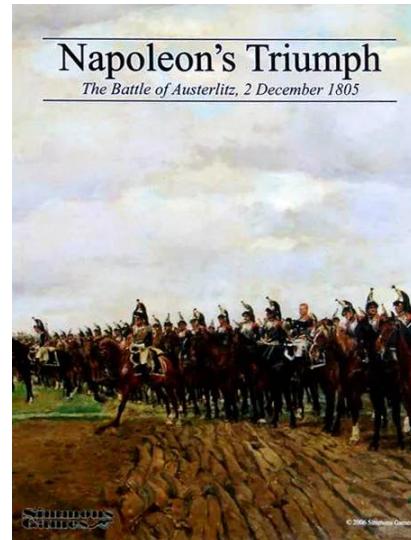
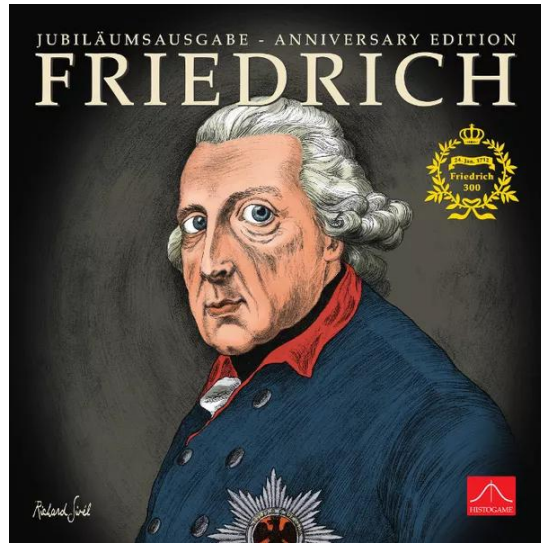
What are we trying to achieve?

- Wargames can represent complex problems.
- *Leader decisions may be the greatest importance.*
- Effects of chance can be a distraction.

Many games don't involve chance.



Successful Games not involving Chance



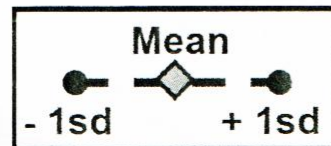
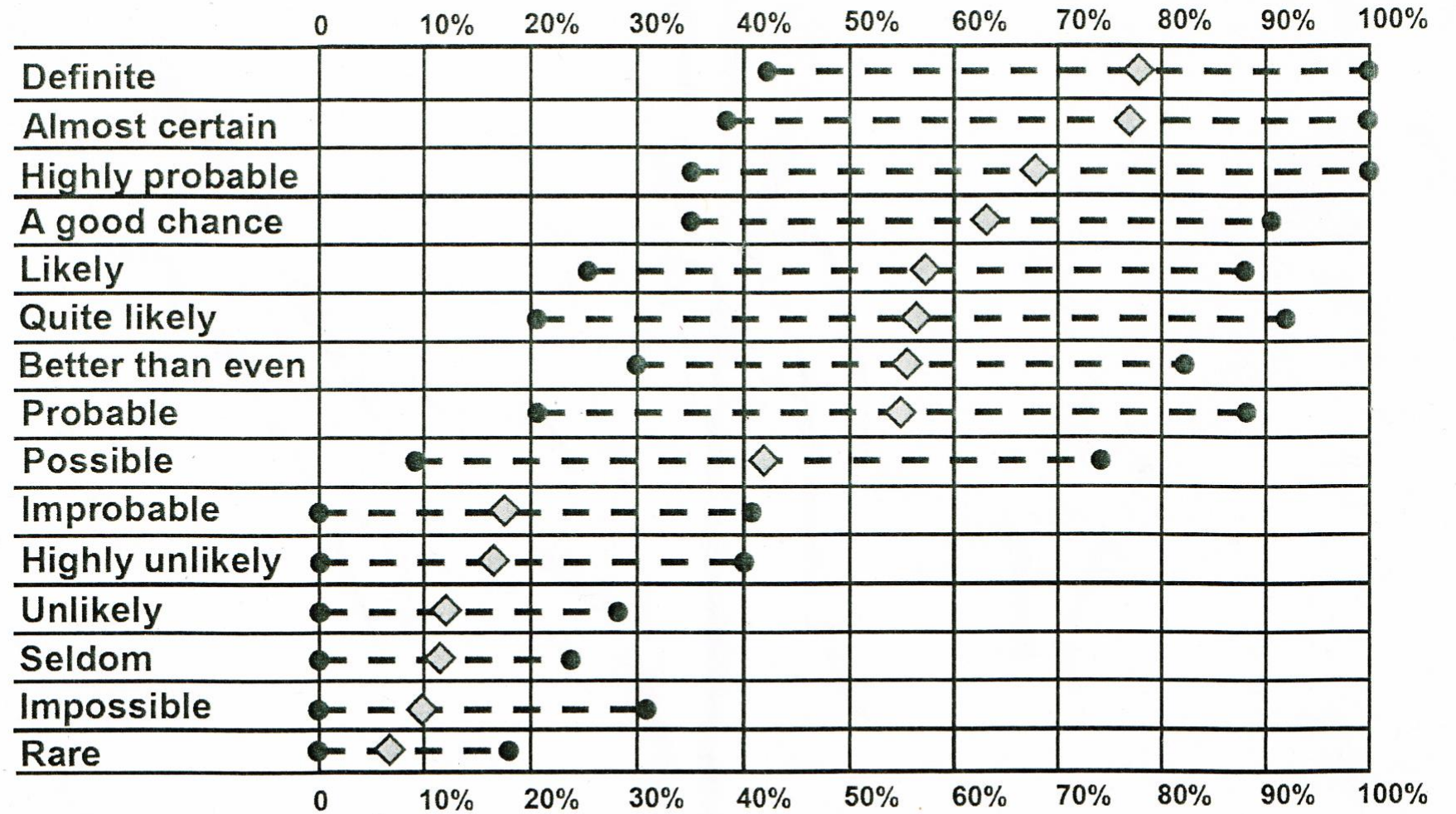
The Language of Risk

- That is "definitely" going to happen.
 - What is the % chance of that happening?

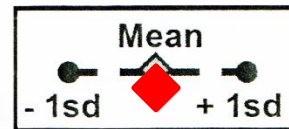
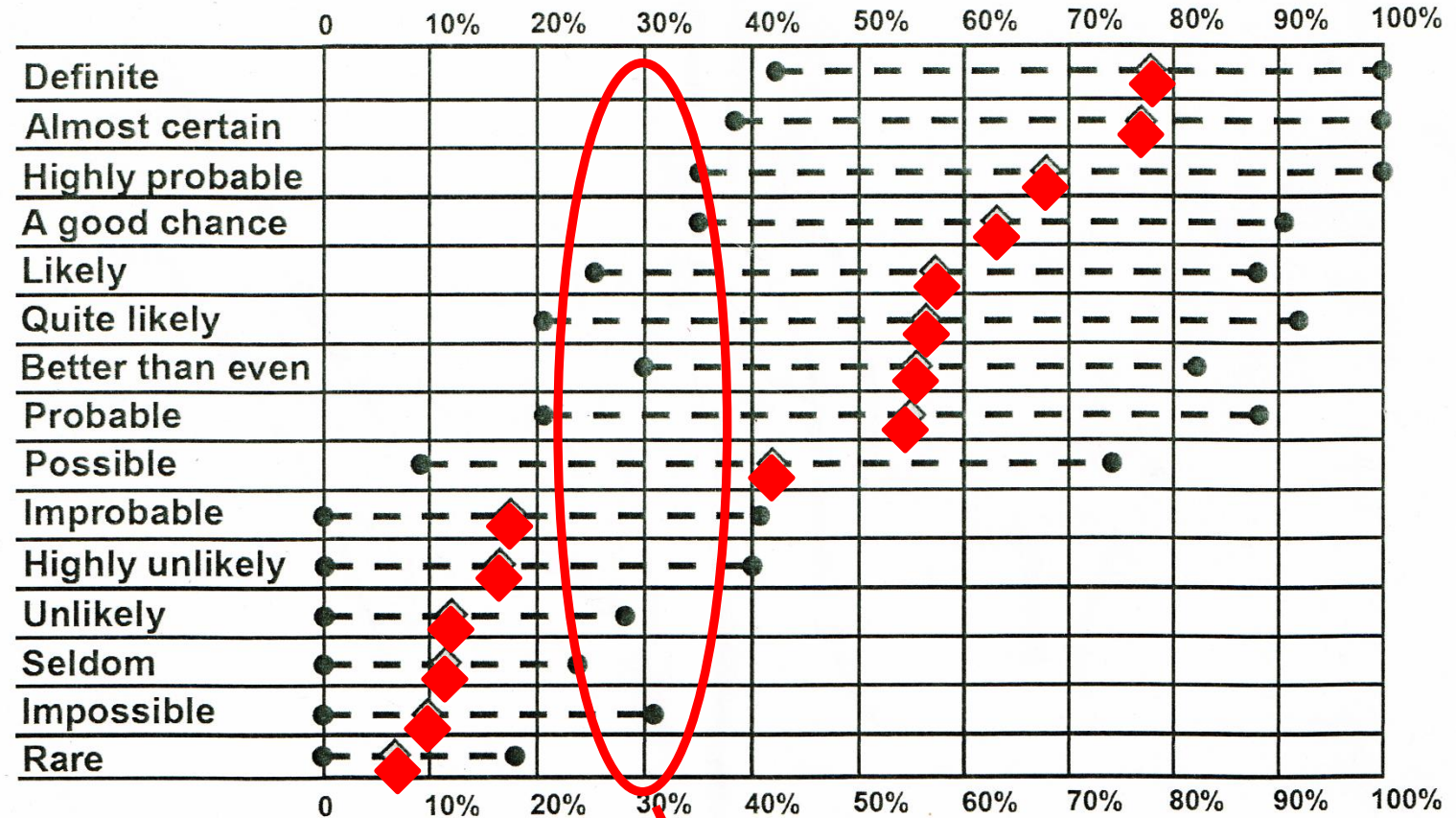
- That is "impossible".
 - What is the % chance of that happening?



Language



Language

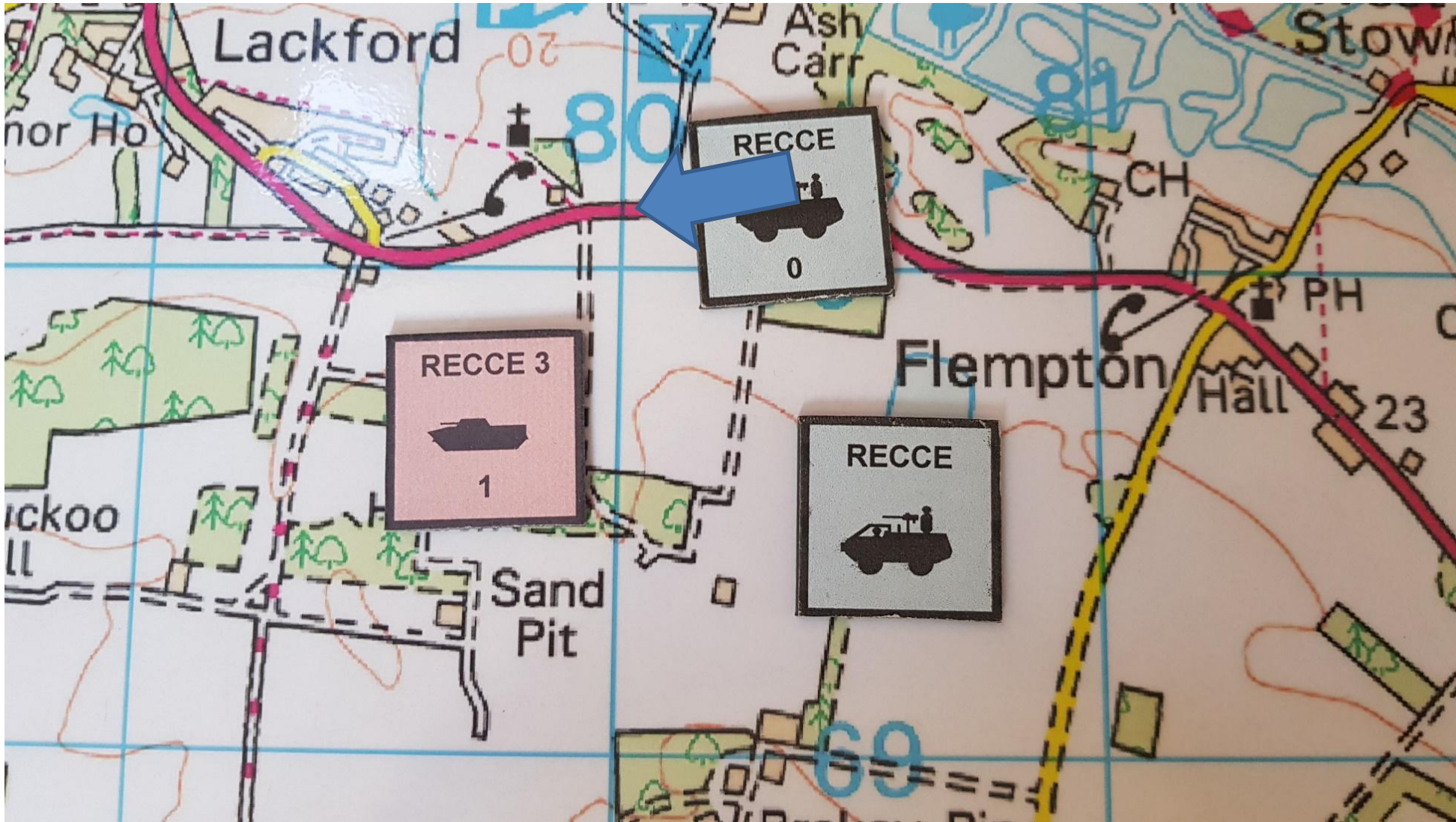


We have no adjective that most people think of as a 30% chance of success...

Mechanisms & Factors

- **Shooting Base Mechanism:** Marksman = 8- (1D10)
- **Add advantages:**
 - First shot at unaware target: +1
 - Short range: +1
 - Sniper scope and bipod: +1
- **Deduct disadvantages:**
 - Target in cover: -1
 - Target moving: -1
 - Shooter tired: -1

Alternative Engagement



Using Odds: The Combat Results Table (SPI)

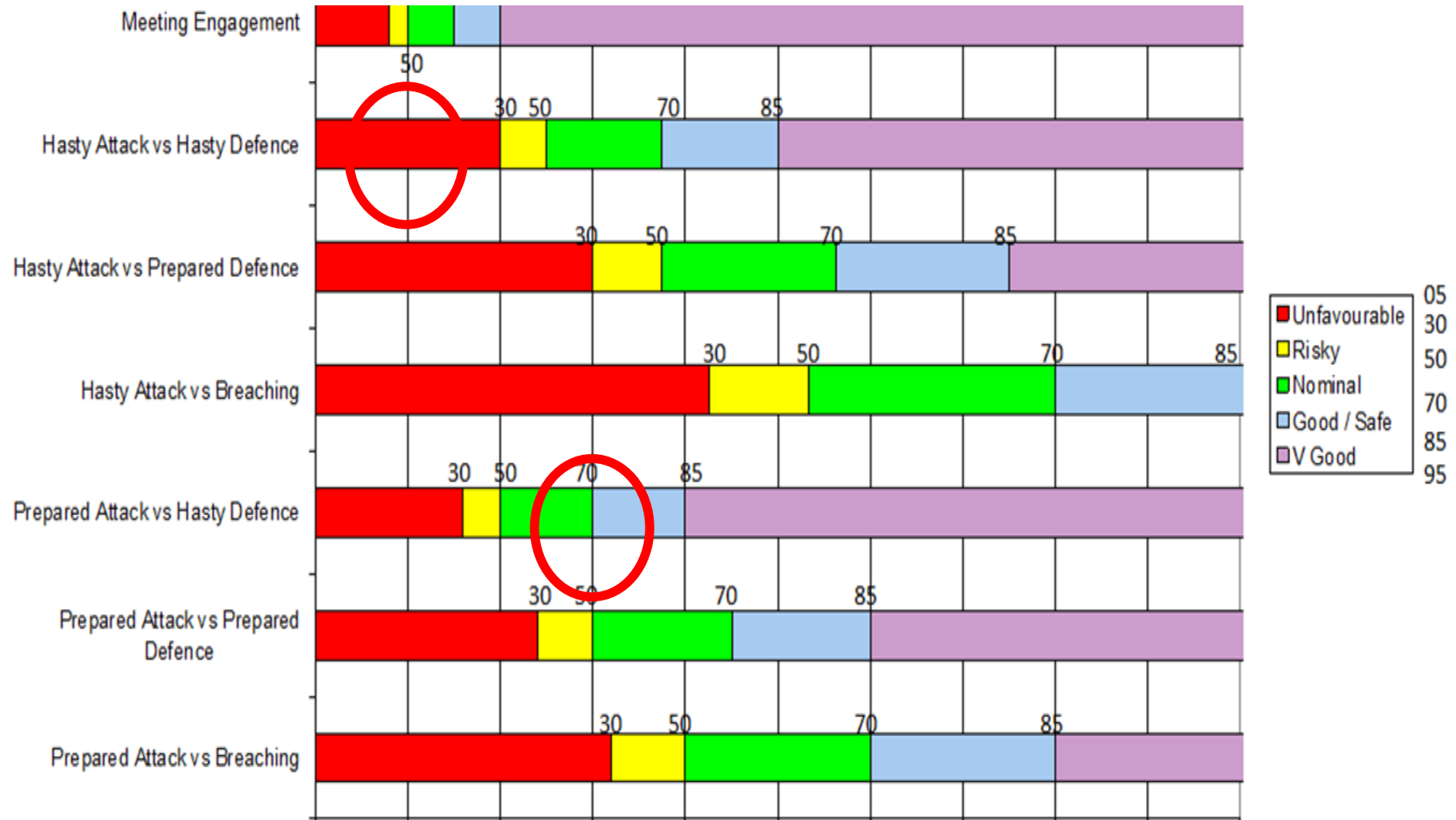
[6.0] **Combat Results Table**

Combat Ratios (Attacker to Defender Strength)

<i>DIE</i>	1-5	1-4	1-3	1-2	1-1	2-1	3-1	4-1	5-1	6-1
1	Ae	Ar	Ar	Dr	Dr	Dr	De	De	De	De
2	Ae	Ae	Ar	Ar	Dr	Dr	Dr	De	De	De
3	Ae	Ae	Ae	Ar	Dr	Dr	Dr	Dr	De	De
4	Ae	Ae	Ae	Ar	Ar	Dr	Dr	Dr	De	De
5	Ae	Ae	Ae	Ar	Ar	Ee	Dr	Ee	Ee	De
6	Ae	Ae	Ae	Ae	Ar	Ar	Ee	Ee	Ee	De

Attacks executed at worse than "1 to 5" are treated as "1 to 5"; attacks executed at greater than "6 to 1" are treated as "6 to 1."

Using Posture and Odds: Combat Results Table (DSTL)



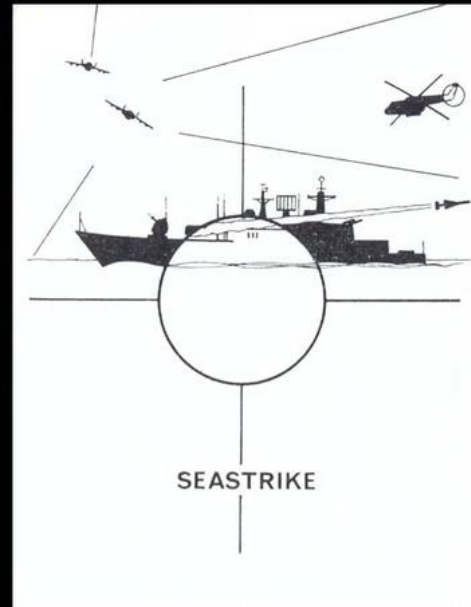
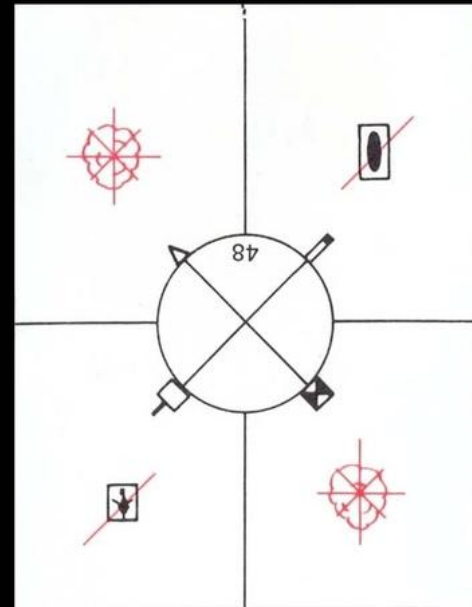
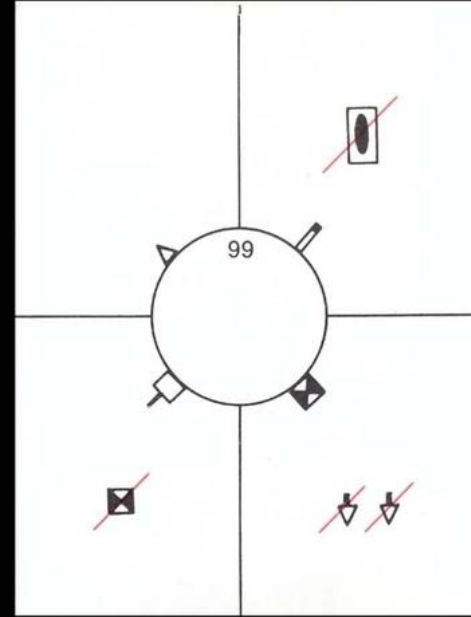
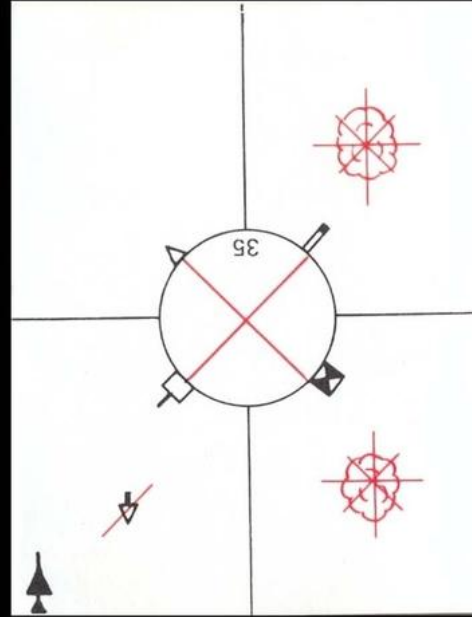
Unfavourable	05
Risky	30
Nominal	50
Good / Safe	70
V Good	85
	95

Tools – Dice and Probability

- **Dice (Percentage vs Six-Sided Dice)**
 - Linear distributions
 - Dice “Ladders” (SCRUD, OWS)
 - Other distributions
- **Result Cards**
- **Playing Cards**
- **Event Cards**
- **Look-up Tables**
- **Computer**
 - Excel RAND function



Cards



Cards

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Operation Iraqi Freedom

Flypaper:
Taliban must remove a Base, a die roll of Guerrillas, and a die roll of Resources.

Quagmire:
Coalition removes 2 of its pieces from Available to Casualties and is Ineligible through next card.

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Teetotalers

Strictly Koran:
Remove 1 Warlord Base from each Taliban Control space, -1 Taliban Resource each.

Lighten up, man:
Each space with Warlord pieces, Warlords may pay -1 Resource per Taliban Guerrilla to remove any of them.

51



Karzai

President taps cousins:
+1 Patronage per space at Support.

President deals to keep office:
Transfer 2 die rolls of Patronage to Warlord Resources.

1




ISR

Overhead intel:
Each Coalition Sweep Op, Coalition may Activate another 3 Guerrillas in any 1 space.

COALITION CAPABILITIES

Competition for targeting assets:
Air Strike may not accompany Sweep.

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Roadside IEDs

JIEDDO counter-IED tactics:
Taliban Attacks can remove no more than 1 Coalition piece per space.

TALIBAN CAPABILITIES

Casualties mount:
Each Taliban Attack removes a 3rd piece and Sabotages an adjacent empty LoC.

60




Tajiks

Tajiks rally against Taliban threat:
Shift 2 non-Pashtun spaces each 1 level toward Support.

Tajiks rally against Pashtun rule:
Transfer a die roll of Patronage to Warlords Resources.

50



Development Aid

Funds to projects:
Coalition and Govt conduct Civic Action as if Support Phase, but spending Aid instead of Resources.

Local diversion opportunity:
+3 Patronage. Warlords add a die roll in Resources.

13






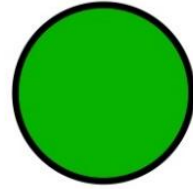
Anti-Corruption Drive

"We mean it this time":
Until Prop, Govern transfers no Patronage.

MOMENTUM

Game the system:
Government selects Troop or Police targets for a free Suborn in 1 space and adds +3 Patronage.

Cards:

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PROJECT SETBACK

"This is a demo using live data"

A contractor gives a demo "using live data" of a key technology capability. It goes extremely well, generating great confidence that they can meet the requirement.

Later, the SME discovers, from an alert Senior Rank who was watching, that the demo is actually a pre-recorded fake using Flash animation. The contractor was hoping that they would gain time to develop a real solution and cause other bidders to drop out.

PROJECT SETBACK

"Woman or Other Rank"

The SME at an important meeting is ignored or sidelined because they are a woman or "not an officer", and are assumed to be the more senior officers' "bag carrier".

The more senior officer doesn't like the SMEs input and instead relies on the claims of the white male ex-officer working for Industry about what can be delivered and when.

When the SME's predictions come true the project is delayed.
* (or both!)

PROJECT SETBACK

"The Boss just got promoted"

The Senior Officer and champion of the project has just been picked up for promotion and is posted at short notice.

His successor is charming, is well connected, and says all the right things, but lacks drive and spends a lot of time visiting the Prime Contractors.

Within a year he has resigned and taken a job with one of the Prime Contractors. Because of the lack of positive leadership the project is delayed.

PROJECT SETBACK

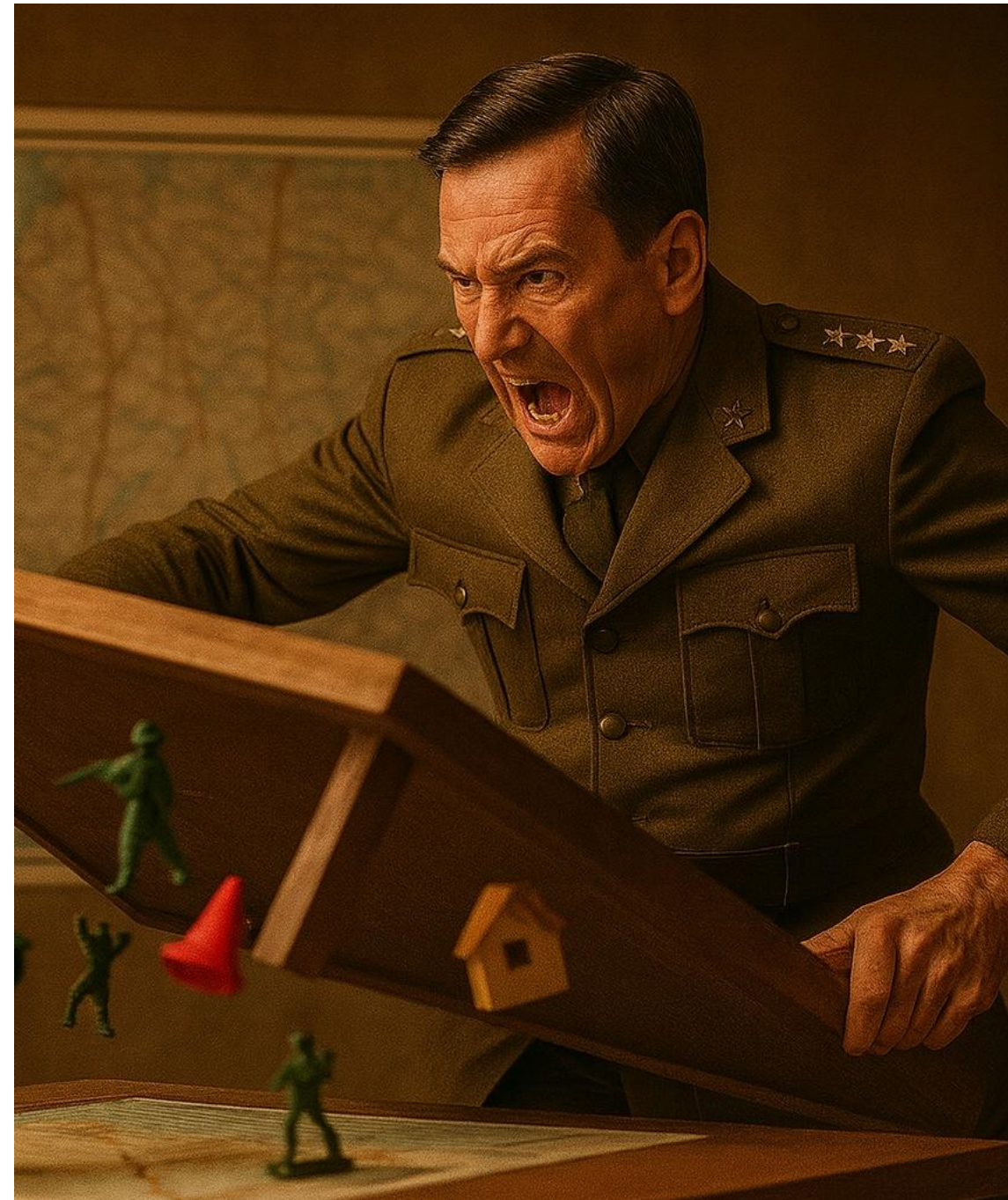
"It was left out of the contract"

The Requirement Document was quite clear and it was obvious that the contractor understood the need for the specific capability, but when the equipment was delivered the functionality was missing.

It turns out that the Commercial Staff merely "cut and pasted" from a similar contract, leaving out key details, so that the failure to deliver is unenforceable.

Adjudication

- **What are we trying to achieve?**
 - People.
 - Decisions.
- **Watch out for:**
 - I won; therefore, the game is good!
 - I lost; therefore, the game is bad!
- **There is a lot more to Adjudication:**
 - Wizard Wheezes, Mistakes, Speed.
 - Overlap with Facilitation.
- **Players should do, rather than be told.**



Remember...

"Simple models that provide **useful insights** are often to be preferred to models that get so close to the real world that the mysteries they intend to unravel are repeated in the model and remain mysteries."

F. W. Lanchester

The Lanchester Legacy - A Celebration of Genius, edited by J. Fletcher





Defence Academy
of the United Kingdom

Major Tom Mouat MBE

MSc PGCE psc ato sim

Officer Commanding Defence Wargaming, Modelling and Simulation School

Defence College for Military Capability Integration

Defence Academy of the United Kingdom

Shrivenham, Swindon, Wiltshire, SN6 8LA

Email: tom.mouat604@mod.gov.uk