

# Bureaucratic Advances in War Games for Analysis

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(with apologies to Monty Python)

# *War Games are not for “Fun”*

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- An analytical war game is supposed to test a concept/doctrine, a CONOPS, or a force structure, it is *\*Not\** a learning experience.
- For Scientific Rigor of Analysis, war games must be repeatable
  - In Science we hold all else the same except for the phenomena we test
  - “Learning” and “Fun” are not repeatable
- It does not matter if the adjudicator is incorrect and the moves of the game do not capture the essence, gist or meaning of the problem
  - Because we can not measure “Meaning”, it will not pass the VV&A

# *Clever strategies and Insightful RED actions are \*Bad\* because...*

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- We are looking for the average reaction, not clever reactions
  - Because cleverness is unique and not repeatable
- We must categorize and account for all actions beforehand
  - So that we may take statistics on them
  - So that we may adjudicate them automatically
    - So that we may have enough runs
      - So that we may have significant statistics.

# *Let's Get Out of the Dark Ages*

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- Technologically primitive war games have lead to unexpected results in the past
  - And have wasted great sums of money
- Technologically primitive war games have told our leaders things they did not want to hear.
- When this happens, instead of “Learning,” our leaders should
  - *Give all of the players a script*
- If they do that
  - We will all save a lot of money
  - We will not have to cope with surprises that the system can not handle

# *Technologically Advanced Scripted Games*

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- Are entirely repeatable... just keep using the same script
  - No branching permitted
- Are perfect for scientific analysis: low variance keeps statistics significant
  - Great confidence intervals
- Are not “fun”
  - John Wayne behavior is **NOT** permitted (see Omsk Rehabilitation and Frontal Lobotomy Camp for Wayward Soviet Players)
- Every play of the game is more efficient
  - *After several hundred games, all play is memorized!*

# *Technologically Advanced Adjudication Engines*

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- Adjudicators should always tell you what you tell them to tell you. They should never actually compute anything.
- Never include the meaning or the context of the game in the adjudication.
  - Phenomena in context is not scientifically comparable phenomena
  - Simulations should therefore always include the average response, not the in context response
    - For example, to get the reaction to a kidnapping, you should always look at the average reaction to the kidnapping, not in its cultural and situational context, because there aren't enough statistics on that context
- Make sure to use a simulation to adjudicate that will not deal with or introduce uncertainty in the results
  - if the outcome is always the same, that increases our leaders confidence.

# *Adjudication “Rules of Thumb”*

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- Do **\*Not\*** use Intelligent Agent based simulation,
  - They walk through our assumptions, which might surprise us
  - They might emerge new structures, which are not in expected categories
  - If a model is labeled agent-based, but does not emerge anything, they are OK.
- Do **\*Not\*** use Artificial Intelligence
  - Artificial Intelligence is unpredictable.
    - 2001 a Space Odyssey
    - Terminator 3
- Do not use **\*Anything\*** Intelligent
  - Above all, never adjudicate with a human being.
    - This is just asking for diversity.

# *Adjudication “Rules of Thumb”*

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- Spreadsheets which tell us obvious things are ok
  - Obvious results are repeatable
  - Even if they are not traceable, no one ever asks you to trace them
- We see them repeated in many different adjudicator engines
  - For example, if they predict public support when you give the public goods and predict public anger when you deprive them
- Systems Dynamics is ok
  - The name says “dynamic” but the structure is static
  - After you get used to the loops, you can always predict the results by looking at them

# *Mitigating Risk in the Wargame VV&A Process*

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- Results Validation
  - Do not separate the test set from the training set. Make sure the script follows a historical example, and use this same example to test results against.
  - If you are adjudicating with a Systems Dynamics Model, have a coder on hand to add another node about something squishy in case the data is not sufficiently overfit.
- Sensitivity Testing
  - Have the participants play the game by the historical script 1000 times. Switch in and out players for “parameter variance.” If a player deviates from the script, start over.
- Face Validation
  - Astrology Technique. Pick a random horoscope, and tell the SME that it is his horoscope. If the SME says, “Yes, that sounds exactly right” then you know that he has natural human bias. So when you ask him, if the results of the war game look right, he will be able to think up some situation somewhere where that result was plausible.
- (See the Controller Panelist for the correct method to achieve “Fingerspitzengefühl” for War games)