

War Games Modeling

Modeling

Basic mathematical models

Standard or well known

Typical or “easy” extensions

Morphological analysis

Decision maker questions breakdown

Questions

Simulation and modeling approaches

Considerations

Simulation modeling

Modeling approaches

Equations

Procedures

Data

Advanced mathematical models

Comprehensive stocks

Populations

Forces

Supplies

Geo-spatial-temporal

“Big picture” inclusions

Economic modeling

Population modeling

Analogies with Epidemiological Modeling

Granularity

Agent-level

Battle

War level

System Dynamics

War theater level

Simulation paradigms

Agent based modeling

Always applicable

You can get lost

System Dynamics

Scale and granularity have to be evaluated

For decision support systems

Extensions

Will to fight

Number of killed

Propaganda

Mobilizations

Type of forces

Deployment of forces

Spatial modeling

Military bases locations

Advanced

Industry impact

Input-output analysis

Propaganda

Politicians posturing

Calibration

What we know?

Army sizes

A

B

Number of killed soldiers

A

B

Geo-spatial relationships

Forces interactions

etc.

Data

Historical engagements data

Current events data

Incomplete

Biased