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Wargaming the Asymmetric Environment (WAE)

Program Overview

Wargaming the Asymmetric Environment (WAE)

- **Vision**
  - Predict future terrorist behavior
  - Identify influence points
- **Approach**
  - Combine behavioral prediction theory with computer-based reasoning techniques
- **Products**
  - Baseline I&W & influence environments
- **Metric**
  - Validate against historical and simulated real-time information

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Current Analytical Process

Manual Inference Process

Capability

People, Money, & Logistics

Link Discovery

Evidence Extraction

Information Discovery

Semantic Level

Attack

Information Space

Attack

Attack

Attack

Time

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WAE Analytical Process

- Select behaviors
  - E.g., Attack behaviors
- Deriving predictive patterns from high level information
- Deriving signatures to influence adversary's behavior
- Computer based reasoning tchniques

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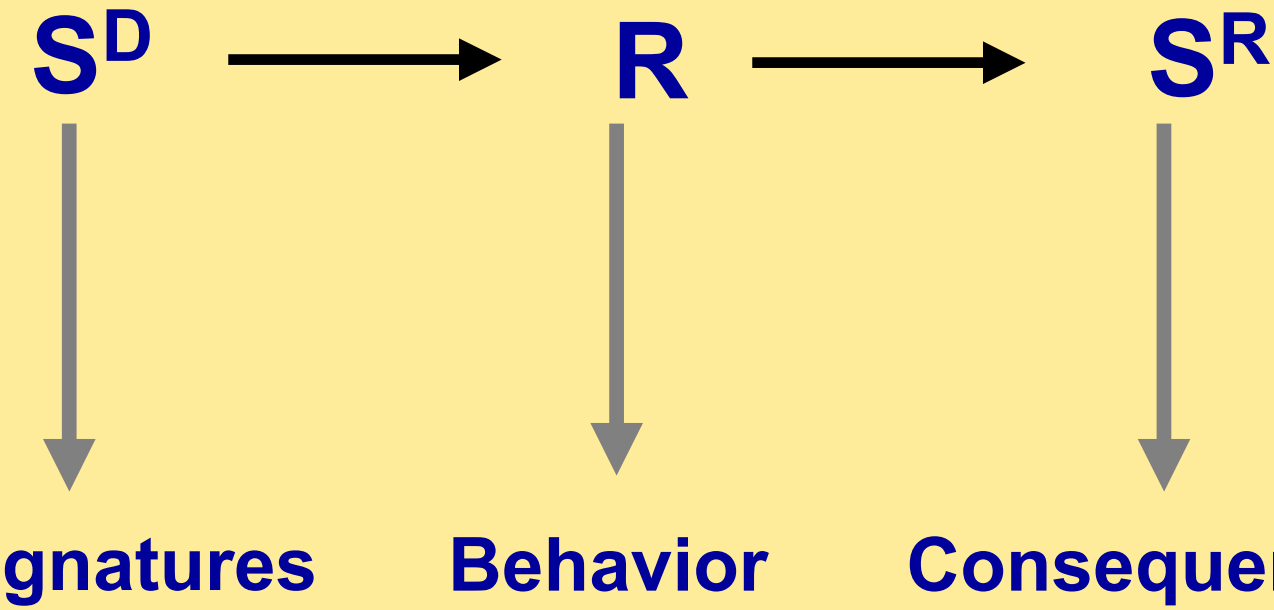
Underlying Theory

Operant Paradigm



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Predictive Results

- European Guerrilla Warfare Model
- Testing
- Results

Next Attack	True +	True -
Attack	99%	93%
No Attack	93%	99%
Next Target		
Civilian	100%	100%
Military	100%	100%
Private	89%	80%
Public	80%	89%
Next Direction of Interest		
U.S.	86%	93%
NATO	67%	95%
Other	93%	100%
Next tactic		
Direct Fire	78%	88%
Indirect Fire	46%	82%
Bombing	68%	73%

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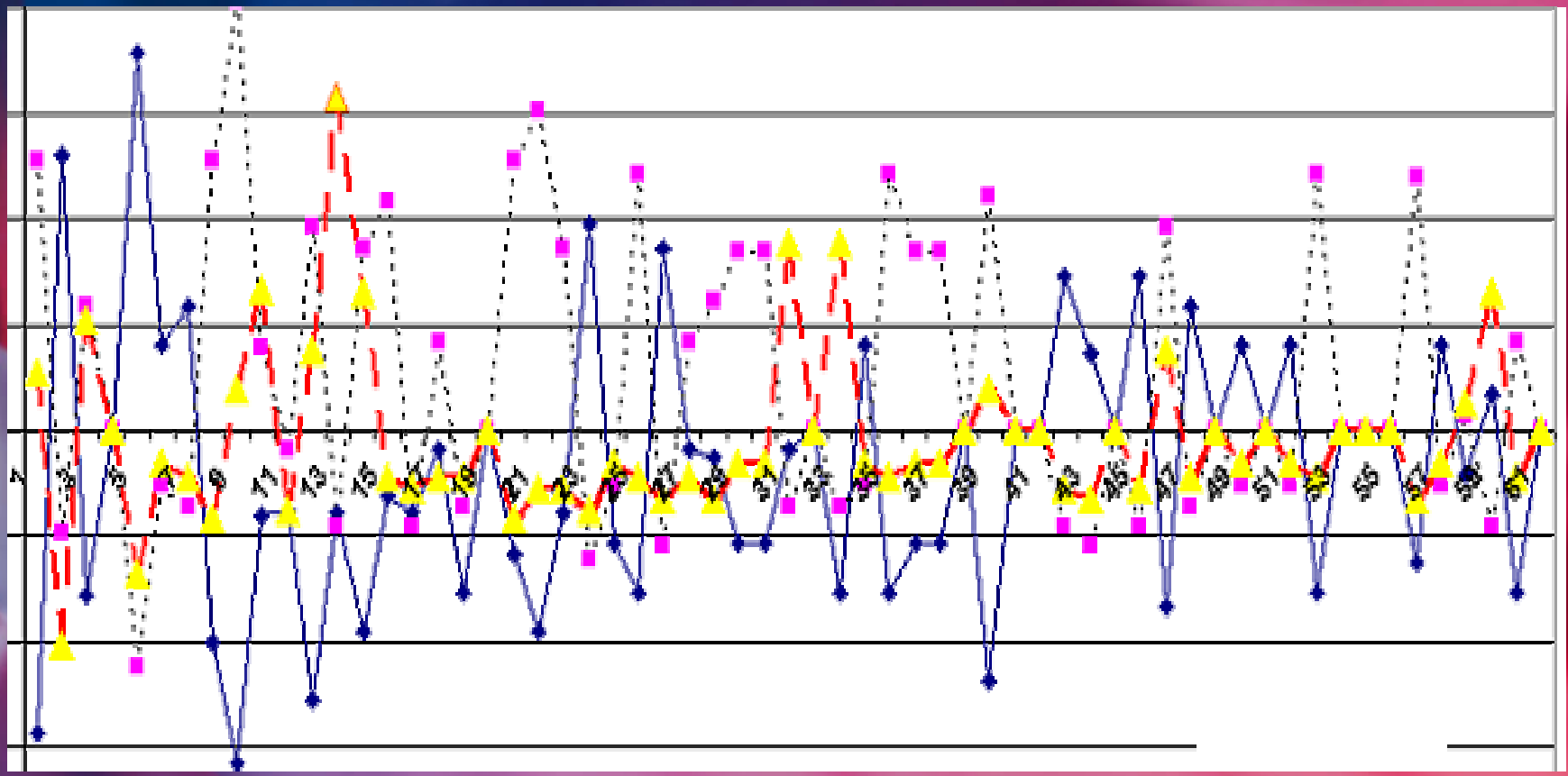
Correlation Graph



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Future Research

- Technology to increase predictive capability
- Enabling behaviors that precede an attack
- Hybrid reasoning technologies to derive predictive signatures

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Operational Benefits

- Automated technologies to augment the analytical process with predictive models
  - Continuous indication and warning assessments
    - Earlier, more specific warnings
    - Both general and group specific warnings
  - Intervention environment
    - Group specific points of influence
    - Group specific action – reaction models
- Automated prediction and influence modeling tools
  - Allow users to develop models for new asymmetric groups

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