

Asymmetric Threat Initiative



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Threat Development and Detection

Then & Now

Conventional



Asymmetric

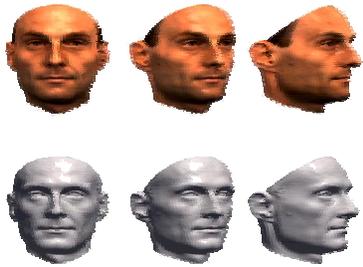


Asymmetric Threat Projects

- **Human Identification at a Distance**
- **Evidence Extraction and Link Discovery**
- **Wargaming the Asymmetric Environment**
- **Project Genoa**
- **Rapid Knowledge Formation**
- **Agent-Based Computing**

Human Identification at a Distance (HumanID)

Core Biometrics



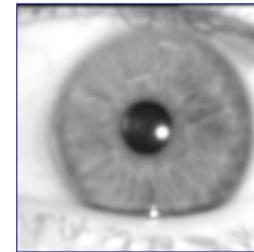
Face



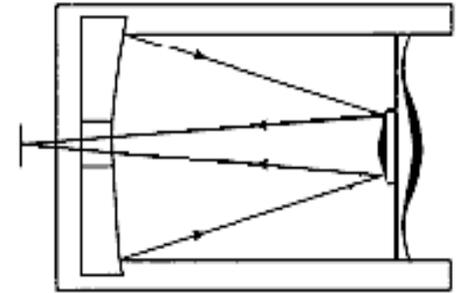
Gait



Facial IR

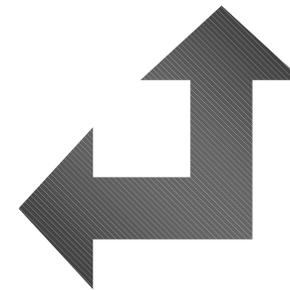
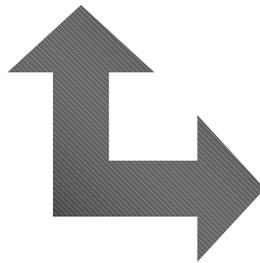


Iris



Sensors

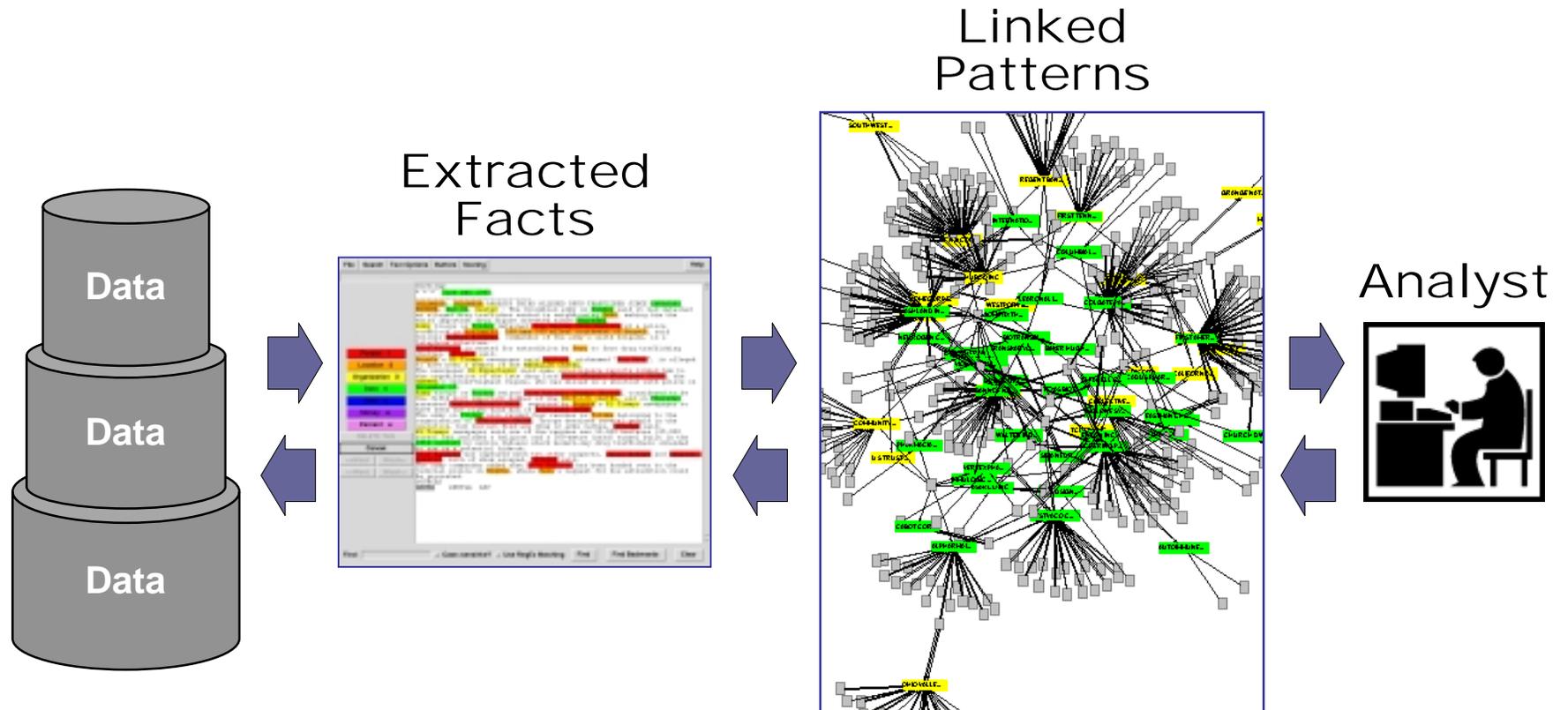
Data



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Evidence Extraction and Link Discovery



Evidence Extraction for Link Discovery

Step 1: Extracting Relational Facts

QnAClient

File Options Help

Who does Osama bin Laden support? Send Clear

Results:

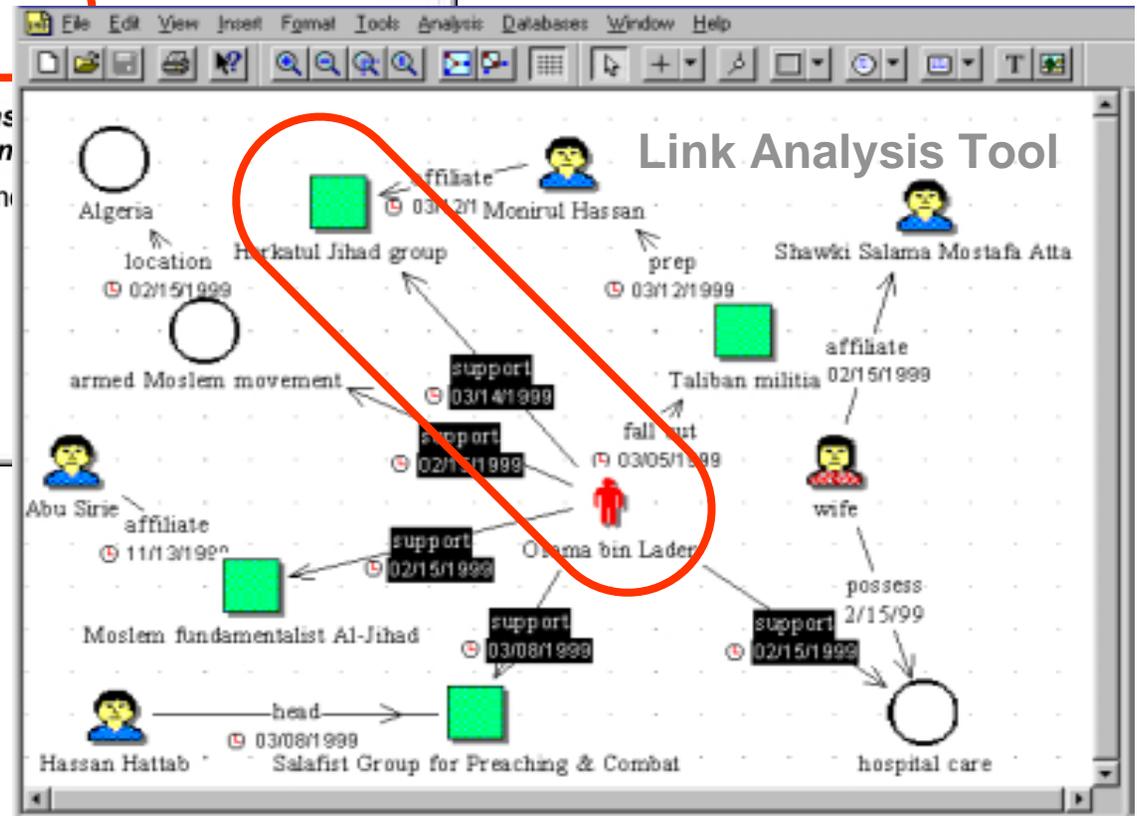
... **Hartakul Jihad group, reportedly backed by Saudi dissident Osama bin Laden ... (3/14/99, AFP)**

support (Osama bin Laden, Hartakul Jihad group)
 is_a (Osama bin Laden, Saudi dissident)
 manner (support, reportedly)

... **Osama bin Laden, sought by United States as is behind an armed Moslem movement active in**

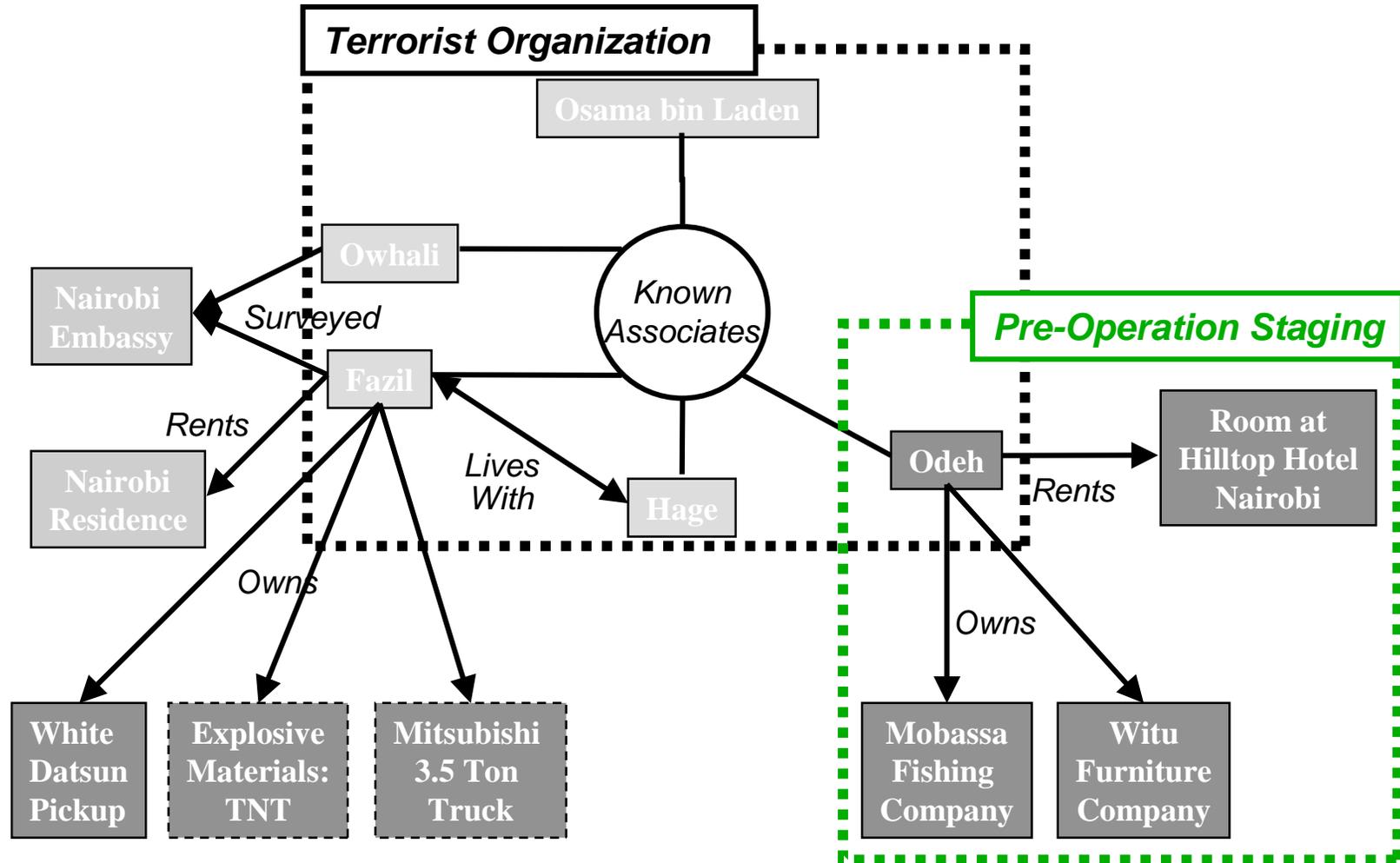
support (Osama bin Laden, armed Moslem movement)
 location (armed Moslem movement, Algeria)

oppose (United States, Osama bin Laden)
 is_a (Osama bin Laden, terrorist)
 charact. (terrorist, dangerous)



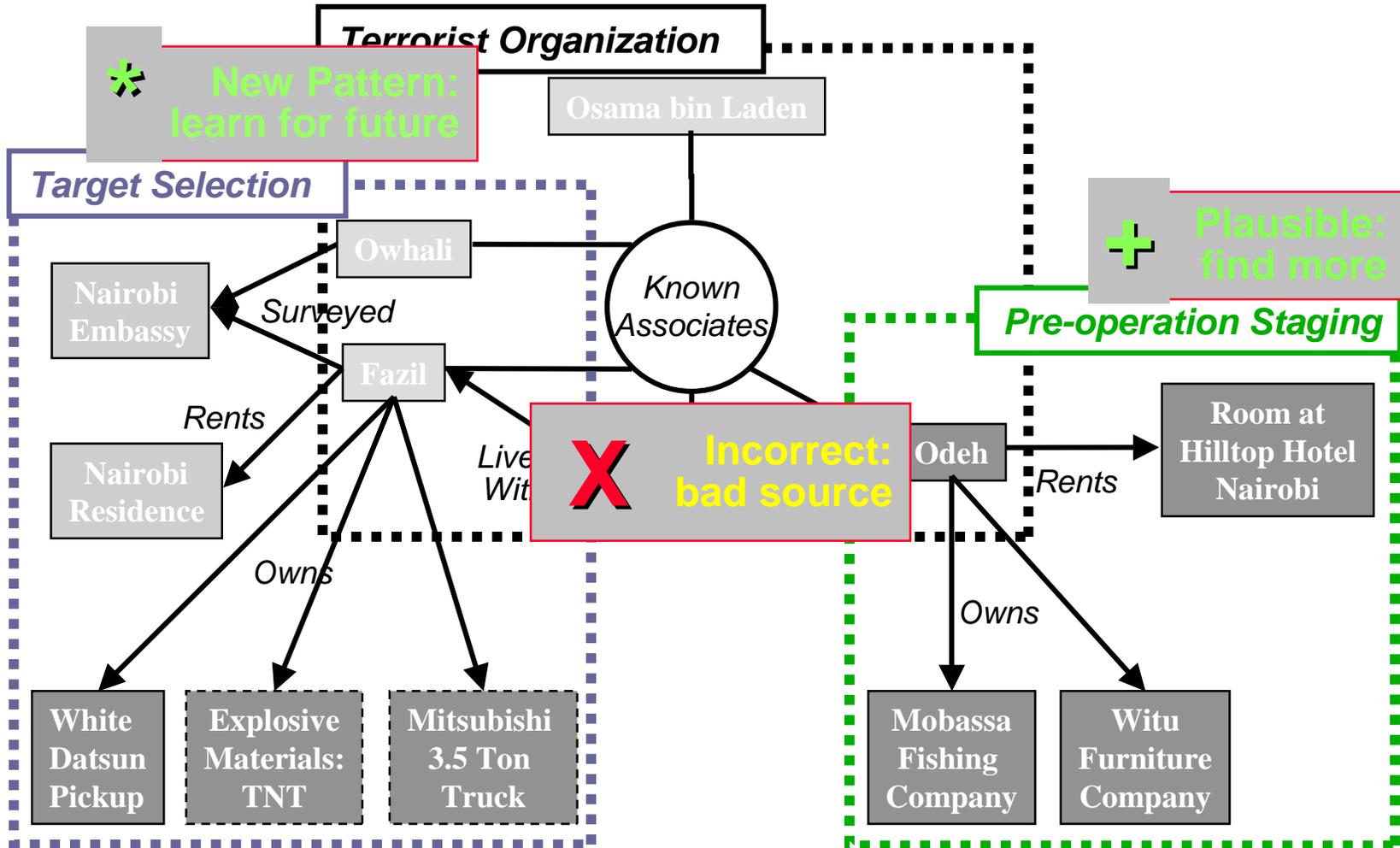
Evidence Extraction and Link Discovery

Step 2: Recognizing Relational Patterns



Evidence Extraction and Link Discovery

Step 3: Analyst's Feedback



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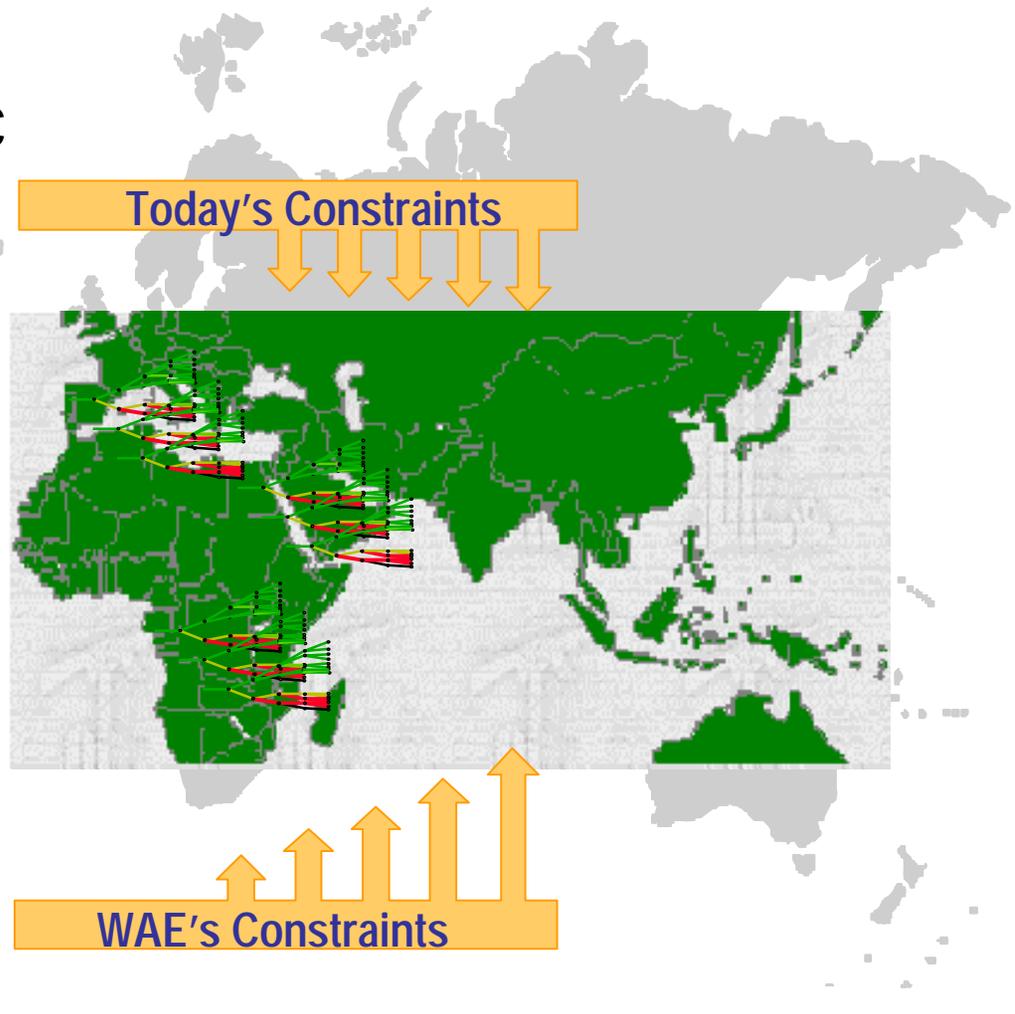
Project WAE Prediction & Emulation

- **Today's Asymmetric Environment**

- ◆ Data
- ◆ Data mining tools
- ◆ Analyst experience

- **WAE's Asymmetric Environment**

- ◆ Predictive Modeling
- ◆ Emulation



Conventional
Warfare

Operations Other
Than War (OOTW)

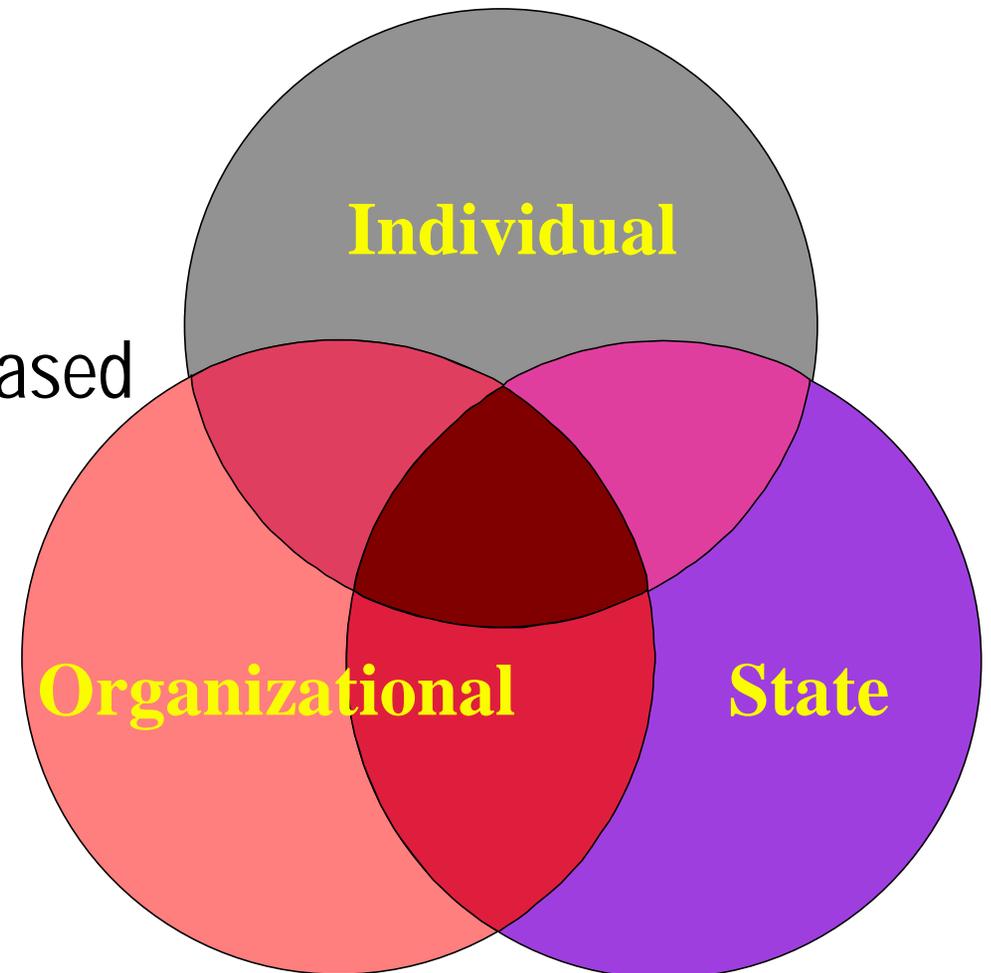
Terrorism/
Counter-Terrorism

- **Existing State of the Art**

- ◆ Generic models
- ◆ Optimization or doctrine-based

- **WAE's Approach**

- ◆ Behavior
- ◆ Intrinsic (i.e. cognition)
- ◆ Extrinsic (i.e. culture)



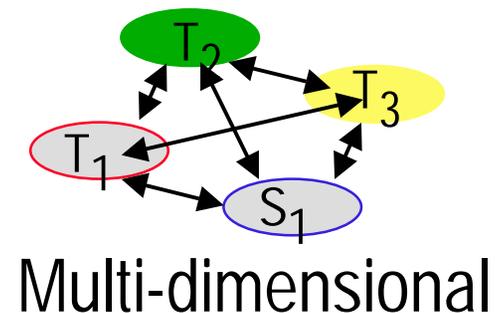
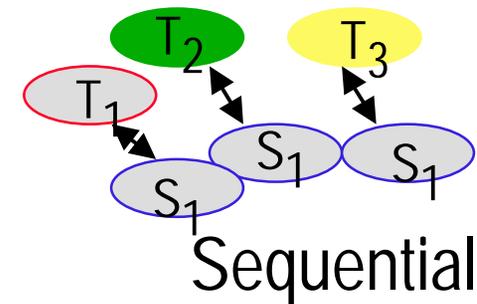
- **Existing State of the Art**

- ◆ Sequential opponents
- ◆ Cumulative Error

- **Technology Areas Of Interest**

- ◆ Multi-dimensional games
- ◆ Non-zero sum game
- ◆ Valuated state space for qualitative data

Two very different results



Upcoming BAA's

- **Evidence Extraction and Link Discovery**
 - ◆ Expected in the Fall of 2000
- **Wargaming the Asymmetric Environment**
 - ◆ Expected in the Fall of 2000