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Causal Rule Learning for Combat Information

Combat groups like the Islamic State of Iraq and al-Sham (ISIS) have taken the lives of thousands as they attempt to gain control of more cities. In order to stop ISIS's oppression and tyranny, it is necessary to determine their method of military operation. Therefore, there is a need to create a model that accurately depicts and simulates the military tactics that ISIS uses in order to prevent more casualties and deaths of innocent civilians.

Researchers at ASU have developed software to analyze group behavior, especially that of combat groups (e.g. ISIS). The data-driven software uses annotated probabilistic temporal (APT) logic combined with causal reasoning (i.e. for a given action, what the potential causes are). The software determines probabilities for various cause-and-effect scenarios based on over 2000 incidents of ISIS military activity. Overall, the software uses the data to develop a set of actions ISIS may take based on a specific provocation.

Potential Applications

- Predictive software
- Military decision-making
- Policy creation

Benefits and Advantages

- Predictive – Data collected from 2200 military incidents drives an APT-logic, rule learning, and causal reasoning algorithm to identify cause-and-effect behavior rules concerning ISIS's actions
- Faster – The improved process removes extraneous cause-and-effect combinations from computation, dramatically reducing algorithm run time
- Innovative – The novel software represents a purely data-driven study of ISIS that combines a causality framework with APT logic

For more information about the inventor(s) and their research, please see:

[Dr. Paulo Shakarian's directory webpage](#)

