



Supporting Distributed Coalition Planning with Semantic Wiki Technology

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Overview

- Identify the challenges posed by the military coalition planning environment; discuss the impact these challenges have on the requisite capabilities of military planning systems.
- Assess to what extent the functionality of semantic wikis enables them to be used in support coalition planning.
- Demonstrate how a specific semantic wiki system, namely Semantic MediaWiki, can be used to support coalition planning.

Capability Targets

Coalition planning systems should support the following:

1. the ability to rapidly create, edit and evaluate plan-relevant content;
2. the ability to deliver planning products that can be easily understood, easily acted upon, and which promote and maintain trust between both planning agents (human and synthetic) and executive agencies;
3. the ability to optimally coordinate patterns of information flow and influence between planning agents (both human and synthetic) in ways that respect the resource constraints of a distributed planning environment (e.g. bandwidth constraints); and
4. the ability to easily interface and inter-operate with a variety of distinct planning applications, e.g. reasoners, validators, simulators, visualizers, and so on.

Semantic Wikis and Military Planning

Plan Representation

- Semantic wikis provide only limited forms of semantic expressivity.
- Expressivity can be enhanced by a meta-modelling solution developed in the context of the ITA.
- The solution supports the representation of OWL ontologies in Semantic Mediawiki.

Rule Representation

- Semantic wikis provide limited support for rule representation and reasoning.
- A potential solution to this problem has been developed in the ITA using semantic templates.
- A key problem is that the solution relies on the use of wiki syntax, which is difficult to learn and use.

Content Creation

Define the type of the individual

Individual **SurveillanceByGH0034At11Hours** is of type

Property and its value of the individual

SurveillanceByGH0034At11Hours has a property **HasStartTime** whose value is

SurveillanceByGH0034At11Hours has a property **Uses** whose value is

SurveillanceByGH0034At11Hours has a property **HasObjective** whose value is

Semantic forms can be used to support the creation of plan content.

Agent Coordination

Wikis provide a number of opportunities for inter-agent coordination. These include:

- Discussion (or Talk) pages.
- Tags and labels (e.g. 'stub' articles in Wikipedia).
- Knowledge monitors – these alert end-users to specific contingencies that arise during plan development.

Plan Presentation

- Semantic wikis can support the generation of custom output formats via a number of mechanisms.
- In the context of the ITA, a solution has been developed to support the generation of natural language serializations of semantic wiki content using the Rabbit controlled natural language.

Plan Rationale

- The structure of wikis makes it difficult to assert rationale information for specific knowledge statements.
- In the context of the ITA, a solution has been developed which relies on community-wide agreements about the structuring of plan-related wiki URLs.

