Formalizing Practical Argumentation Lecture 1: Introduction

Henry Prakken
Department of Computer Science
Vrije Universiteit Amsterdam, The Netherlands

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1 Who is Henry Prakken?

- History:
  - Master degrees in Law (1985) and Philosophy (1998)
  - 1993: PhD thesis 'Logical Tools for Modelling Legal Argument'
  - 1994-1997: Positions in London, Amsterdam, Bonn.
  - Now: Postdoc in Amsterdam
- Research interests:
  - Artificial Intelligence and law
  - Negotiation and group decision making
  - Nonmonotonic reasoning and defeasible argumentation
  - Deontic logic
  - Argumentation theory

2 Aim of this course

Learning about:

- Formal models of aspects of practical argumentation
- Possible AI applications of such models, to
  - AI & Law
  - group decision making
  - negotiation

3 Background

Four layers in argumentation

- The logical layer (constructing arguments)
- The dialectical layer (comparing conflicting arguments)
- The procedural layers (protocols for dispute)
- The strategic layer (heuristics for dispute)

You may criticise these distinctions!

P_1: I claim that John is guilty of murder.

O_1: Can you defend this claim?

P_2: John's fingerprints were on the knife.
If someone stabs a person to death, his fingerprints must be on the knife, So, John has stabbed Bill to death.
If a person stabbs someone to death, he is guilty of murder, So, John is guilty of murder.

O_2: I rebut your claim:
Witness X says that John had pulled the knife out of the dead body. This explains why his fingerprints were on the knife.

P_3 X's testimony is inadmissible evidence, since s/he is anonymous. Therefore, my claim still stands.

Overview of the course

1. Introduction
2. Logics for defeasible argumentation I. Semantics
   - The idea of status assignments
   - Dung's semantics
   - Partial computation (Pollock, Loui)
   - Reasoning about priorities (Prakken & Sartor)
3. Logics for defeasible argumentation II. Dialectical proof theory
4. AI & Law research on adversarial argumentation
   - HYPO: arguing with cases
   - CABARET: combining rules and cases

5. Formalizing adversarial reasoning with precedents
   - Analogy: inference or heuristic?
   - 'Actual' dialogues.
6. On formalizing the procedural layer.
   - Tom Gordon's Pleading's Game: an AI model of procedural justice
   - Gerard Vreeswijk: reasoning about protocol.
7. Formalizing rules of order for meetings
8. Argumentation and negotiation