Formalizing Practical Argumentation
Lecture 4:
AI & Law research on adversarial argumentation

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  the gap between facts and rules

- HYPO: arguing with cases

- CABARET: combining rules and cases

5 Classification in legal reasoning

Methods with necessary and sufficient condition are too limited:

- often no hard conditions

- often factors pro and con, which need to be 'weighed'.

Example: Domicile according to Dutch income tax

- *Statute:* One must pay Dutch income tax if one lives in Holland, or has income in Holland.

- *Rules Inland Revenue (on domicile):*

  1. If away less than 3 months and kept home, then domicile in Holland
  2. If away longer than 1 year and gave up home, then domicile not in Holland

- *Factors 'grey area':* duration, living situation, job prospects, nationality employer, ...

- *My case*: Worked in England for 1 year with Un. London, sublet home in Holland, at departure from Holland no job prospects afterwards

- Classification question: is my domicile in Holland or abroad?

- Problem: with which method can my case be classified?

  - Statistics of neural networks? Kan give insight in chances of success, but does not model reasoning of a judge.

  - Beter: find similar cases with desires outcome.
    $\Rightarrow$ Analogical reasoning

(Domicile NL)	Case 1	Case 2	My case
Duration	8m	16m	12m
Factors pro			
Dutch employer		x	
Kept home		x	x
Job prosp. NL		x	
Factors Con			
Foreign employer	x		x
Gave up home	x		
Let home			x
No job pr. NL	x		x
Classification	abr	NL	?

- In case Inland revenue - Henry Prakken:

  - I would claim similarity with Case 1

  - Inland revenue would claim similarity with Case 2

  ⇒ Conflict + debate because of:

  - room for disagreement (analogy not compulsive)

  - conflict of interests

Conclusions

- Legal reasoning combines rules and cases ('rule-based' vs. 'case-based' reasoning)

- Use of precedent depends on dialectical context

HYPO (Ashley & Rissland)

Problem: classification of behaviour as 'misuse of trade secrets'.

- INPUT:
  - A set of precedents
  - A current fact situation (CFS)
- OUTPUT:

  Three ply argument between plaintiff and defendant.

- Argument moves:
  - Citing a case (directly or by analogy)
  - distinguishing a case (by pointing at differences with CFS)
  - Giving a counterexample (by citing another case with opposite outcome)

Representing cases in HYPO

- Can cases be represented as a rule?

  - 13 months & kept apt. $\Rightarrow$ Dom. abroad

  Problem: tendency of facts not represented.

- **HYPO:**

  $P_1, \ldots, P_n$

  $$D$$

  $D_1, \ldots, D_m$

Processing a new case

(ignoring non-boolean factors and hypotheticals)

1. Compute similarity of cases with CFS

   - Degree of similarity: union case factors
     with CFS
   - similarity ordering: set inclusion on
     degrees of similarity ('more on point')

2. Compute best cases to cite for each side:

   - most on point case; and
   - Favours side; and
   - Shares side-factors with CFS

3. Compute relevant differences of cases (with
   outcome side1) with CFS,

   Union of:

   - side1 factors in CFS, not in case;
   - side1 factors in case, not in CFS.

Processing a new case (continued)

4. Find counterexamples case2 for each case1
   (with outcome side1)

   - *Trumping:* case2 is most on point case for
     side2, more on point than case1.
   - *Partial:* case2 is for side2, intersection of
     overlaps case1 and case2 with CFS is not
     empty (?)

5. Generate a 3-ply argument.

6. A side has the 'better argument' iff none of
   its cases can be trumped, but some of its
   opponent's cases can be trumped.