New School Case Law Knowledge Management

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Summary

• The importance of knowledge management
• Managing case law
• Jurimetrical analysis of case law
• Conceptual legal information retrieval
• Advanced jurimetrical analysis of case law
• New School of Law and Technology
• Conclusions
The importance of knowledge management

- The world has become more competitive
- and so has the market for legal services
- More is expected from governments
- Knowledge is the most important resource of companies and governments
- Knowledge management has become an essential part of general management
Case law knowledge management

- The amount of case law is increasing fast
- It is more and more available in digital form
- Case law is still an important source of legal knowledge and this will remain so
The rational approach: jurimetrics
Expected value of litigating

Probability of winning the case (%)
**Definition**

Jurimetrics is

- The empirical study of the **form**, the **meaning** and the **pragmatics** (and the relationships between those) of **demands and authorisations** issuing from **state organisations**
- with the aid of mathematical models and
- using methodological individualism as the basic paradigm for the explanation and prediction of human behaviour.
Jurimetric analysis of case law

Jurimetrics is

- The empirical study of legal phenomena
- with the aid of mathematical models
- on the basis of rational man.
Steps in the analysis of case law

- Choose domain
- Retrieve cases
- Read cases
- Define legal item
- Decide on list of cases
- Build list of factors
- Code
- Process data
Processing data

- Enter coded data into spreadsheet
- Compute correlations between factors and decision
- Compute weights of factors
- Compute strengths of cases
- Rank the cases
- Produce graphs
Example list of facts: custody cases

I  The lawsuit
   I.a  Facts in relation to the lawsuit
       I.a.1 Aspects of time
       Year/number of the decree:
       Legal item:
       Date of the last judgement:
       Time between the initial request to change guardianship or
       the first placement under guardianship of which the appeal
       is and the last judgement: .. months.
       I.a.2 Procedural aspects
       The case is on appointing guardianship.
       The father’s lawyer is:
       The mother’s lawyer is:
       .......

II  Factors in relation to parties
   II.a  The father
       II.a.1 Facts in relation to the father
       The father is the guardian at the time of the start of the
       lawsuit
       A legal child of the father is involved.
       .......
       II.a.2 The arguments put forward by the father
       The child’s interest is put forward as an argument by the
       father.
       .......

   II.b  The mother
       II.b.1 Facts in relation to the mother
       II.b.2 Arguments put forward by the mother
       .......

   II.c The children
       II.c.1 Facts in relation to the children.
       The sex of the children:
       The average age of the children:
       One of the children is younger than 2 years.
       One of the children is older than 12 years.
       The children live with the mother.
       II.c.2 Arguments put forward by the children
       .......

   II.d  Interested parties
       II.d.1 Facts in relation to interested parties
       II.d.2 Arguments put forward by interested parties
       .......

III  Other relevant factors.
   Parties have been married.
   .......

Cases, ranked according to decision
Cases, ranked on the basis of the facts
Cases, ranked on the basis of the facts
Analysis of case law
Conceptual Legal Information Retrieval
### Concepts in law versus concepts in science

<table>
<thead>
<tr>
<th>Concepts in law</th>
<th>Concepts in science</th>
</tr>
</thead>
<tbody>
<tr>
<td>- opinion</td>
<td>- fact</td>
</tr>
<tr>
<td>- subjective</td>
<td>- objective</td>
</tr>
<tr>
<td>- authority</td>
<td>- validity</td>
</tr>
<tr>
<td>- volatile</td>
<td>- fixed</td>
</tr>
<tr>
<td>- equivocal</td>
<td>- unequivocal</td>
</tr>
<tr>
<td>- generated by case law and juriprudence</td>
<td>- generated by empirical observation and through strict convention</td>
</tr>
<tr>
<td>- normative, deontic content</td>
<td>- alethic, truth value</td>
</tr>
<tr>
<td>- for practical purposes</td>
<td>- for scientific purposes</td>
</tr>
</tbody>
</table>
Boolean versus conceptual search

- **Boolean**
  - yes or no
  - fixed terms
  - or logical combinations
  - extension (properties)

- **Conceptual**
  - degree of relevancy
  - ideas
  - questions in natural language
  - intension (examples)
The object of the search operation?

• data
• information
• knowledge
• documents (potential information)
• text-documents
Definition of concept

• A set of objects

• A set of documents

• A pair of sets of documents:
  • examples and counter-examples
Procedure within conceptual systems

- The user enters examples and counter-examples
- The concept gradually becomes clearer
- Examples and counter-examples together form a “higher” concept
- In this way a hierarchical structure of concepts is formed
Features of conceptual search systems

- the system **learns** from the user(s)
- the user can provide **examples**
- the system **ranks** the documents found
- the user can also provide **counter-examples**
- clear concepts give a clear distinction between relevant and irrelevant documents
- a **classification** can be build
- there is a **grafical** interface
Relevance on $x$-axis

Probability that document deals with eye-witnesses
Relevance on y-axis

Probability that document deals with evidence
Relevance combined on both axes

Probability that document deals with evidence

Probability that document deals with eye-witnesses
Classification of legal cases

Universe: all cases in database

Criminal cases

Criminal procedure cases

Criminal evidence cases

Criminal evidence cases about eye witnesses

Criminal evidence cases not dealing with eye witnesses

Criminal procedure cases not dealing with evidence

Criminal cases not dealing with procedural matters
The importance of graphical presentation

• The system deals with a lot of information (possibly many documents, examples, counter-examples and other documents)
• The system is an interface between computer and person
• The human brain understands pictures well
• Clear pictures indicate clear concepts
Analysis of case law
Steps in the analysis of case law

- Choose domain
- **Retrieve cases**
- Read cases
- Define legal item
- Decide on list of cases
- Build list of factors
- Code
- Process data
Analyse of case law - with conceptual help
The Future

- Almost all case law will be available in digital form
- Conceptual systems can deal with this
- Conceptual systems can be used for advanced jurimetrical research
- Computer aided case prediction will become possible.
### Attitudes toward technology

<table>
<thead>
<tr>
<th></th>
<th>affective</th>
<th>cognitive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>irrational</strong></td>
<td>fear</td>
<td>opposition</td>
</tr>
<tr>
<td><strong>Old School</strong></td>
<td>forbid it</td>
<td>regulate it</td>
</tr>
<tr>
<td><strong>rational</strong></td>
<td>leadership</td>
<td>management</td>
</tr>
<tr>
<td><strong>New School</strong></td>
<td>integrate it</td>
<td>facilitate it</td>
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### New School of Law and Technology

<table>
<thead>
<tr>
<th>Technology</th>
<th>Management (effectiveness)</th>
<th>Leadership (vision)</th>
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<tbody>
<tr>
<td>Law</td>
<td>lawyers will use it</td>
<td>lawyers will innovate with it</td>
</tr>
<tr>
<td></td>
<td>The law will facilitate technology</td>
<td>The law will integrate technology</td>
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Conclusions
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• Knowledge management has become important, also in the legal world
• Case law information can be dealt with in a jurimetical way
• Conceptual retrieval systems will keep the increasing amount of digitally available case law accessible
• These systems will also help in advanced jurimetical research
• New School of Law and Technology embraces these new techniques
• This is not only rational, as money can be made with it, but also essential, as innovation is a necessity for organisations
• Innovation is related to leadership, lawyers must start to work on this.
That’s all folks!