ARGLAB
REASONING AND
ARGUMENTATION
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EVIDENCE
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Legal evidence and argumentation

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Universidade Nova de Lisboa, Lisbon
Aditorio 001 – Torre B

Program

Expertise: 11 October 2017

10:00-11:00	*The problem of expertise*	Ronald J Allen
Coffee break		
11:30-12:30	*Medical lex artis: The known, the experts and the judges in Spanish medical malpractice*	Carmen Vázquez
12:30 – 14:00 lunch		
14:00-15:00	*When Expert Opinion Evidence Goes Wrong*	Douglas Walton
15:00-16:00	*Expert Testimony and Burdens of Proof*	Giovanni Tuzet
Refreshments		

Statistical evidence: 12 October 2017

10:00-11:00	*Determining the Base Rate for Guilt*	Christian Dahlman
Coffee break		
11:30-12:30	*Novel facts. The relevance of prediction in criminal law*	Anne Ruth Mackor
12:30 – 14:00 lunch		
14:00-15:00	*Proof With and Without Probabilities. Correct Evidential Reasoning with Presumptive Arguments, Coherent Hypotheses and Degrees of Uncertainty*	Bart Verheij
15:00-16:00	*Argumentation scheme based on statistical extrapolation*	Michał Araszkiewicz
Refreshments		

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Abstracts

Expertise: 11 October 2017

Morning

Ronald J Allen, Northwestern University.	**The problem of expertise**

I explore four aspects of the relationship between expertise of various kinds and the regulation of juridical proof in western legal systems, and conclude with an explanation of the nature of juridical proof and explore some of its implications:

1. The legal systems generally, and litigation processes specifically, are not static, made systems but instead complex, dynamic and adaptive systems serving various functions in addition to the traditional focus on epistemology. Their scope is, in essence, the entirety of the human condition, which again is complex and dynamic rather than static.
2. The epistemologies of law and most expert disciplines are motivated by quite different concerns and objectives.
3. The manner in which expert testimony is incorporated into trials is typically a reproach to rather than facilitative of deep aspirations for legal systems and can devolve into inappropriate externalization of costs.
4. One proposal for bridging the gap between law and expertise, the use of various probabilistic tools including Bayesian concepts, is inadequate to the task.
5. The best explanation of juridical proof is that it involves plausible reasoning in which context probability is one of many cognitive tools that are employed.

Carmen Vázquez, Universidad de Girona	**Medical lex artis: The known, the experts and the judges in Spanish medical malpractice**

Spanish case law (but not only) has developed the notion of lex artis to determine the expert knowledge that would constitute the behavioural standard expected of doctors in medical malpractice cases. Note the singularity of this aspect since, whereas in the vast majority of court proceedings expert knowledge is used to prove established legally relevant facts, in medical liability expert knowledge is also part of the materially relevant conduct, i.e., it determines what the expected medical conduct would be in a type of case like the one being judged. However, it is interesting to observe the evolution of the concept “lex artis” and how differently it is approached in medical and in legal literature, since, whereas the former considers it to be a purely legal concept, the latter assumes it is basically a scientific/medical one. Unfortunately, in my opinion, the legal considerations of the concept are generally based on some misinterpretations of what to be an expert is and of the role that the expert communities play in identifying what is considered to be (scientifically) correct. This is not only reflected in a number of decisions that prioritise a kind of lex over the artis, but also in the latest addition to the criterion: lex artis ad hoc, which introduces a sort of particularism barely compatible with the notion of universality that characterises scientific knowledge.

Afternoon

Douglas Walton University of Windsor (Canada)	**When Expert Opinion Evidence Goes Wrong**

The case studied in this paper concerns a man who was convicted of the murder of his wife when she was found dead at the bottom of a set of stairs in their house. There was an enormous amount of blood on her body, in the stairwell and on the wall, and she had serious wounds to the back of her head. Much of the evidence in the trial was based on expert testimony by forensic experts. However, the experts offered conflicting opinions.

An expert in forensic neuropathology testified the wounds on the victim's head were more characteristic of falling on stairs than of a beating. Another forensic scientist, stated that they would be inconsistent with a typical beating. Yet another expert witness, a professor of biomechanics, said that the injuries were consistent with a fall down the stairway. Still another expert witness, a former professor of biomedical engineering, stated that the injuries were not consistent with a beating by a blunt instrument. A bloodstain analysis presented by another expert even suggested that Mr. Peterson had beaten his wife to death with a poker. Mr. Peterson was convicted of murdering his wife, but later, during an appeal procedure, the original verdict was cast into doubt. New evidence came in, suggesting she might have been attacked by an owl, and the influential testimony of the bloodstain expert was shown to be highly questionable.

Argumentation tools are applied to the case to analyze the arguments from expert opinion in it and show how they fit together. Among these are argumentation schemes, especially the scheme for argument from expert opinion and its matching critical questions, and argument diagramming techniques of the kind first used by Wigmore to analyze evidence in legal cases.

Giovanni Tuzet Università Bocconi, Milano	**Expert Testimony and Burdens of Proof**

Expert testimony (ET) is a peculiar kind of testimony, since (i) the non-expert receiver can hardly understand it, and (ii) it is not just transmission of information, but production of information. This generates a justification problem in legal fact-finding: fact-finders (judges or jurors) cannot from a justified belief about the matter, nor justify the acceptance of a certain ET, insofar as they don't understand it. The different roles of fact-finders in different legal systems (with jury trial or not) do not make a substantial difference for the point addressed here, namely the epistemic impasse generated by the inability to understand ETs.

But legal systems have a way out of the impasse: burdens of proof. Burden rules govern the outcome. If a burden is not discharged, the decision must be against the party with the burden. So, when fact-finders face competing (reasonable or acceptable) ETs they face a doubtful situation in which the burden not discharged; then they must decide against the burdened party (both in criminal and civil cases). So, if the ET from the party with the burden is not capable of showing itself as the best explanation of the evidence, the burdened party loses.

Educating fact-finders, or using expert fact-finders, would probably reduce the percentage of doubtful cases, but in such cases the proper outcome would remain the same: decision against the party charged with the burden.

Statistical evidence: 12 October 2017

Morning

Christian Dahlman Lund University (Sweden)	**Determining the Base Rate for Guilt**

Abstract A Bayesian assessment of the probability that the defendant in a criminal trial is guilty depends on the presumed base rate for guilt and the estimated likelihoods of the evidence. My presentation explores how the base rate shall be determined. Bayesian scholars have recommended a base rate of 1/N, where N is the number of 'possible perpetrators', but it is unclear how the reference class of possible perpetrators shall be defined. Several solutions are explored, and it is demonstrated that each solution leads to serious sacrifices in some fundamental principle of criminal justice. Some solutions lead to arbitrary assessments, or assessments that deviate from the facts. Other solutions fail to uphold an acceptable ratio between wrongful acquittals and wrongful convictions.

Anne Ruth Mackor Rijksuniversiteit Groningen	**Novel facts. The relevance of prediction in criminal law**

According to scenario-based approaches to the assessment of evidence courts should compare different scenarios or hypotheses. More in particular they should investigate whether and to what extent different scenarios are capable of explaining the available evidence. The focus is on evidence that discriminates between scenarios, i.e. evidence that can be explained by one scenario but not or less well by the other.

In my presentation, I hypothesize that the criterion of discriminating facts might be too weak in some cases and too strong in others. I investigate whether and how the criterion of novel facts can play a role next to the criterion of discriminating facts.

Like scientific theories scenarios can be more or less 'ad hoc' or 'risky'. An ad hoc scenario is a scenario that is set up to avoid any 'risky' predictions. It only retrodicts evidence that is already available to the person who presents the scenario. In criminal cases it is not always possible to offer a scenario that allows for risky predictions. However, if risky predictions are made and confirmed, the question arises whether some of these novel facts should be given extra weight even if - in the end -they do not discriminate between scenarios. Conversely, the question arises whether a piece of discriminating evidence should get extra weight if the scenario was construed only after the facts were known. I also address the tension between the criterion of novel facts and the right of the defendant to remain silent.

Afternoon

Bart Verheij Rijksuniversiteit Groningen (Netherlands)	**Proof With and Without Probabilities. Correct Evidential Reasoning with Presumptive Arguments, Coherent Hypotheses and Degrees of Uncertainty**
Evidential reasoning is hard, and errors can lead to miscarriages of justice with serious consequences. Analytic methods for the correct handling of evidence come in different styles, typically focusing on one of three tools: arguments, scenarios or probabilities. Recent research used Bayesian Networks for connecting arguments, scenarios, and probabilities. Well-known issues with Bayesian Networks were encountered: More numbers are needed than are available, and there is a risk of misinterpretation of the graph underlying the Bayesian Network, for instance as a causal model. The formalism presented here models presumptive arguments about coherent hypotheses that are compared in terms of their strength. No choice is needed between qualitative or quantitative analytic styles, since the formalism can be interpreted with and without numbers. The formalism is applied to key concepts in argumentative, scenario and probabilistic analyses of evidential reasoning, and is illustrated with a fictional crime investigation example based on Alfred Hitchcock's film `To Catch A Thief'.	

Michał Araszkiewicz Jagiellonian University, Kraków,	**Argumentation scheme based on statistical extrapolation**
During the recent years we observe growing significance of arguments based on statistical extrapolation in evidence law. In general, extrapolation is used when we are not able to verify whether a given feature belongs to all objects in a given population. In modern tort law cases when the damage may be done to very large sets of people or objects, it is often not possible to traditionally prove that each of those people or objects was harmed, or whether each action of the defendant actually had a harming effect. The paper explores the structure of argument scheme based on statistical extrapolation in tort law and examines the set of critical questions thereto.	