Language of Causation in the Law: A Case Study

Ruta Liepina, Giovanni Sartor, Adam Wyner

ruta.liepina@eui.eu, giovanni.sartor@eui.eu, azwyner@abdn.ac.uk

International Language and Law Conference 2017

European University Institute — DEPARTMENT OF LAW

Introduction

Causation plays an important role in legal reasoning [2]. Causal links amongst participants and actions in cases are expressed through various discourses (everyday, scientific, and legal) [3]. It is only recently that legal theorists have begun to analyse the language of the law, which plays an important role in expressing evidentiary support. In case law, there are currently no guidelines as to how evidential support should be expressed so as to prove (given the requisite standard) causal links that are often crucial in legal liability attribution.

Research Questions

1. Is there a field dependent language used for expressing legal causation in the courts?

2. What theoretical concepts are needed to analyse the language of legal causation?

3. How do causal expressions interact with hedging expressions?

4. What does it mean to *prove* a causal link in a legal case?

Methods

The study employs a bottom-up approach and analyses causal expressions in a vaccine case. After identifying various ways the language of causation is used in a legal setting by the various participants, e.g. the judge and the witnesses, these expressions are grouped into two categories - *everyday* or *legal*. In addition, hedging expressions are identified. We use a mix of language analysis and logical tools to model arguments about causation in law.

References

[1] Roxana Girju. Automatic detection of causal relations for question answering. In *Proceedings of the ACL 2003 workshop on Multilingual summarization and question answering- Volume 12*, pages 76–83. Association for Computational Linguistics, 2003.

[2] Herbert Lionel Adolphus Hart and Tony Honoré. *Causation in the Law*. OUP Oxford, 1985.

[3] Steven Pinker. *The stuff of thought: Language as a window into human nature*. Penguin, 2007.

[4] Lawrence M Solan and John M Darley. Causation, contribution, and legal liability: An empirical study. *Law and Contemporary Problems*, 64(4):265–298, 2001.

[5] Leonard Talmy. Force dynamics in language and cognition. *Cognitive science*, 12(1):49–100, 1988.

Theoretical Background

Solan's empirical study in law [4] shows two ways everyday reasoners express causal concepts, none of which typically involve the word 'cause': (1) The concept of causation is often 'embedded in the meaning of a verb'(a-c); (2) In the absence of causal verbs, the use of alternation of verbs is common (d), where 'periphrastic causative' (g) can be achieved by adding a verb with causative nature without changing the meaning of the sentence(e,f). He shows distinguishing different strengths of causal expressions can explain some of the responsibility attribution processes in law.

> a. Bill broke the vase
> b. The vase broke.
> c. Bill CAUSED the vase to break.
>
> d. The gardener bloomed the plant.
> e. The plant bloomed.
> f. The gardener made the plant bloom.
> g. The gardener CAUSED the plant to bloom.

Case Study: *Althen*

Annotations and Legal Causation

1. We manually annotated causal expressions in *Althen* following previous studies of causal language in the domain of natural language processing [1]. We observed that causal concepts were often accompanied by hedging expressions.

2. Our aim was, firstly, to distinguish between the causal expressions that have a specific meaning in law and causal expressions of everyday nature. And, secondly, to have a closer look at the legal causation standard to understand what qualifies as a proof of causation in the vaccine injury domain.

3. Based on the causal concepts identified, this study has enabled us to start building sample causal models for further analysis in the vaccine case domain.

Hedging and Causal Models

1. Hedging expressions are useful in modelling expert witness testimonies, as they can be associated with the strength of belief in causal links by the experts [3].

2. Here, we model two opposing expert witness testimonies (Dr. Smith (a) and Dr. Safran (b)) based on the causal and hedging expressions used. At this stage, we have focused on cause-in-fact (actual cause).

3. The abstraction from the original legal text allowed for further analysis of the legal reasoner's justification in balancing the arguments for the liability attribution in the case.

Case Model (Dr. Smith(a.) and Dr. Safran(b.))
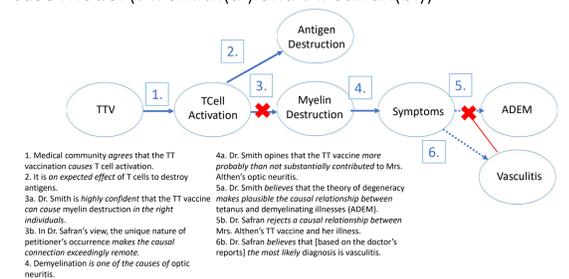
Conclusions and Future Work

We have shown that there is a mixed use of everyday and legal expressions when discussing causation in cases. However, this analyses does not fully capture the processes of legal reasoners when analysing causation. In this case study we have modelled expert witness testimonies based on causal and hedging expressions to show the practical discussions of causality in the courts.

Future work includes:

1. Lexico-syntactic analysis of transitive verbs identified in the case. Further clarifying and defining causal expressions that are specific to legal analysis [5].

2. Modelling causal and hedging expressions in Bayesian networks to explicitly show the strengths of belief relations.

3. Using language analysis of the causal concepts to abstract from the case and build a semi-formal logic based framework for proving both cause-in-fact and causal links based on the normative requirements set by the court.