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Law, Optimal Control and the Problem of Interpretation in legal conflicts in the healthcare industry; the appraisal of having an algorithmic approach

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Extended Abstract

One of the most important aspects of a thorough and deep analysis of various political, legal, and economic conflicts is to bring together different interpretations of a given conflict and its elements. It is important to note that the scholarship on law and various legal affairs is also related to such a multidimensional approach; for example, it is not hard to see how psychology, neuroscience, and economics contribute to the study of and the practice of Criminology. Therefore, network-based research on these topics gives us valuable insight into different aspects of the problem and paves the road for creating multiple scenarios. Regarding legal affairs, we face different approaches to interpreting a case. For instance, we can see the structure of game theory and its rational base in legal studies. The mathematical analysis could include more complex cases like stochastic analysis and Markov processes in decision-making. The caveat is that attempts at modeling a legal issue should bring the notion of interpretations of the law. One can exemplify different approaches to interpretations of the Constitution in various cases. [1] In this article, by infusing our analysis with mathematical modeling, dynamical systems, and optimal control, we convert the impact of the interpretation of the law to a framework in which we show how designing a general algorithm can benefit from the linkage between a given legal case as a natural system and its formal system [2]. In addition, our analysis can connect the meaning of parameters and different interpretations in multiple scenarios we set out. Our attempt to choose the healthcare industry as a case highlights the complexity agents might face. This approach has the advantage of computational thinking, applying AI, quantitative-qualitative analysis, and practical human-based decisions. Such analysis shows how finding the best path concerning the problem of interpretation can lower the cost of a given legal battle. Due to the sophisticated nature of legal challenges in the healthcare industry, the mathematical formalism of such cases provides us with the viability and possibility of optimal solutions in a formal system to embed interpretation in our analysis. The dynamical systems approaches used to describe our formal system are infused with data analysis to validate and tune the model. Finally, for past cases, comparing dynamic system-based computed solutions with real-world decisions can highlight the advantages of modern approaches like AI and its role in interpretation.

References

[1] C. R. Sunstein, *How to interpret the constitution*. Princeton, NJ: Princeton university press, 2023.
[2] A. H. Louie, *More Than Life Itself: A Synthetic Continuation in Relational Biology*. Berlin/Boston: De Gruyter, 2009